
DESK STUDY & GROUND INVESTIGATION REPORT

Newmarket Road
Royston
Hertfordshire

Client: Countryside Properties

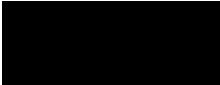
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Project title	Newmarket Road, Royston, Herts, SG8 7NJ		Project ref	J16202
Report prepared by				
	Lee Boswell BSc MSc FGS			
Report checked by				
	Jack Deaney BSc FGS			
Approved for issue by				
	Steve Branch BSc MSc CGeol FGS FRGS MEnvSc			
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This report has been issued by the GEA office indicated below. Any enquiries regarding the report should be directed to the office indicated or to Steve Branch in our Herts office.



Hertfordshire

tel 01727 824666

mail@gea-ltd.co.uk



Nottinghamshire

tel 01509 674888

midlands@gea-ltd.co.uk

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This report is intended as a Ground Investigation Report (GIR) as defined in BS EN1997-2, unless specifically noted otherwise. The report is not a Geotechnical Design Report (GDR) as defined in EN1997-2 and recommendations made within this report are for guidance only.

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CONTENTS

EXECUTIVE SUMMARY

Part 1: INVESTIGATION REPORT

1.0	INTRODUCTION	1
1.1	Proposed Development	1
1.2	Purpose of Work	1
1.3	Scope of Work	1
1.4	Limitations	2
2.0	THE SITE	3
2.1	Site Description	3
2.2	Site History	3
2.3	Other Information	4
2.4	Geology	4
2.5	Hydrology and Hydrogeology	5
2.6	Preliminary Risk Assessment	5
3.0	EXPLORATORY WORK	6
3.1	Sampling Strategy	6
4.0	GROUND CONDITIONS	7
4.1	Made Ground	7
4.2	New Pit Chalk Formation	7
4.3	Groundwater	7
4.4	Soil Contamination	8
4.5	Generic Quantitative Risk Assessment	8

Part 2: DESIGN BASIS REPORT

5.0	INTRODUCTION	10
6.0	GROUND MODEL	10
7.0	ADVICE AND RECOMMENDATIONS	10
7.1	Earthworks	10
7.2	Spread Foundations	11
7.3	Shallow Excavations	12
7.4	Piled Foundations	12
7.5	Ground Floor Slab	13
7.6	Retaining Walls	14
7.7	Disposal of Surface Water	14
7.8	Pavement Design	15
7.9	Topsoil Testing	16
7.10	Effect of Sulphates	16
7.11	Contamination Risk Assessment	16
7.12	Waste Disposal	16
8.0	OUTSTANDING RISKS AND ISSUES	18

APPENDIX

EXECUTIVE SUMMARY

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

BRIEF

This report describes the findings of a site investigation carried out by Geotechnical and Environmental Associates Limited (GEA) on the instructions of Countryside Properties PLC with respect to the redevelopment of the site through the construction of two-storey to three-storey residential units. The purpose of the investigation has been to research the history of the site with respect to possible contaminative uses, to determine the ground conditions and hydrogeology, to assess the extent of any contamination and to provide information to assist with the design of foundations.

SITE HISTORY

The earliest map studied, dated 1878, shows the site to have been undeveloped and surrounded by trees on all sides except to the north where it fronted onto an unnamed road. Between 1903 and 1921 several larger properties were built in the area, including Burloes's Hall approximately 80 m to the southeast, and Icknield Bury, approximately 50 m to the west. A building is shown to the north of the site and was later named Burloes Cottages on the 1971 map. By 1971, an electrical sub-station had been built approximately 20 m to the southeast of the site, whilst the existing residential developments had been constructed to the north and west. Between 1977 and 1984 the junction between the new A505 and Newmarket Road had been constructed, and later, between 1984 and 1989 the residential development to the west was extended to represent its existing condition. The site and surrounding area have since remained unchanged.

GROUND CONDITIONS

Beneath a moderate thickness of made ground, the New Pit Chalk Formation was encountered to the maximum depth of the investigation, of 20.00 m. The made ground ranged in thickness from 0.20 m to 0.70 m, with the thickness apparently increasing towards the north and northeast of the site. It comprised brown silty sand with variable amounts of chalk and flint gravel and fragments of shell, brick, concrete, metal, ash, coal and tile. Within the trial pits the New Pit Chalk Formation consisted of an initially structureless chalk (Grade Dm, becoming Dc) over very weak, low density structured white chalk (Grade C5) with patches of structureless chalk (Grades Dm / Dc); fissures were initially very closely spaced and infilled with brown clay and comminuted chalk, becoming closely spaced and clean (Grade B3) with depth to 3.30 m. Scattered flint gravel and cobbles were noted throughout the chalk.

Groundwater was not encountered. Contamination testing of a number of samples of made ground has not measured any elevated concentrations of contaminants.

Soakage testing has indicated soakage rates of 3.34×10^{-6} m/s to 5.15×10^{-4} m/s.

RECOMMENDATIONS

Spread foundations bearing on the initial low density Grade Dm chalk at a minimum depth of 0.75 m may be designed to apply a net allowable bearing pressure of 200 kN/m². A slightly higher bearing pressure of 225 kN/m² may be applied on the low density Grade Dc chalk.

Groundwater is unlikely to be encountered in the foundation excavations.

Contamination testing has revealed no elevated levels of contamination within the samples of made ground tested and as such no remedial action is considered necessary.

As the laboratory testing has indicated that the chalk is of low density to the full depth investigated in the trial pits, shallow soakaways would need to be located at a minimum distance of 10 m from any foundations. It is considered that soakaways with a 5 m lateral offset and an impermeable plain well screen over the upper 5 m below nearest foundation levels, will provide sufficient assurance.

A cut and fill earthworks scheme is proposed across site and it is considered that generally the chalk encountered, based on the guidance from CIRIA C574 is suitable as fill material, although it may not be economical to use Class CDs material as embankment fill.

Part 1: INVESTIGATION REPORT

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 INTRODUCTION

Geotechnical and Environmental Associates Limited (GEA) has been commissioned by Countryside Properties PLC to carry out a desk study and ground investigation at Newmarket Road, Royston, SG8 7NJ.

1.1 Proposed Development

It is understood that it is proposed to construct a number of new two-storey to three-storey residential units. A limited programme of earthworks will be required as part of the development.

This report is specific to the proposed development and the advice herein should be reviewed once the development proposals are finalised.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- ❑ to check the history of the site with respect to previous contaminative uses;
- ❑ to determine the ground conditions and their engineering properties;
- ❑ to provide advice with respect to the design of shallow foundations;
- ❑ to provide advice with respect to the design of soakaways;
- ❑ to provide information to assist in the design of road pavements and hardstandings;
- ❑ to provide an indication of the degree of soil contamination present; and
- ❑ to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In order to meet the above objectives, a desk study was carried out, followed by a ground investigation. The desk study comprised:

- ❑ a review of historical Ordnance Survey (OS) maps and environmental searches sourced from the Envirocheck database;
- ❑ a review of readily available geology maps; and
- ❑ a walkover survey of the site carried out in conjunction with the fieldwork.

In the light of this desk study an intrusive ground investigation was carried out which comprised, in summary, the following activities:

- ❑ three cable percussion boreholes advanced to depths of 15.0 m and 20.0 m;
- ❑ falling head tests carried out in each borehole at depths of 5 m, 6.5 m, 10 m, 15 m and 20 m;
- ❑ five opendrive sampler boreholes advanced to a depth of 5.0 m by means of a Terrier rig;
- ❑ standard penetration tests (SPTs) carried out at regular intervals within the borehole to provide quantitative data on the strength of the soils;
- ❑ twelve trial pits advanced to depths of between 0.9 and 3.3 m to investigate the soakage potential of the chalk across the site;
- ❑ ten shallow trial pits advanced to depths of between 0.1 m and 0.4 m to allow recovery of samples of made ground for the purpose of topsoil testing;
- ❑ testing of selected soil and rock samples for contamination and geotechnical purposes; and
- ❑ provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

The report includes a contaminated land assessment which has been undertaken in accordance with the methodology presented in Contaminated Land Report (CLR) 11¹ and involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. The risk assessment is thus divided into three stages comprising Preliminary Risk Assessment, Generic Quantitative Risk Assessment, and Site-Specific Risk Assessment.

The exploratory methods adopted in this investigation have been selected on the basis of the constraints of the site, including but not limited to access and space limitations, together with any budgetary or timing constraints. Where it has not been possible to reasonably use an EC7 compliant investigation technique a practical alternative has been adopted to obtain indicative soil parameters and any interpretation is based upon GEA's engineering experience, local precedent where applicable and relevant published information.

1.4 Limitations

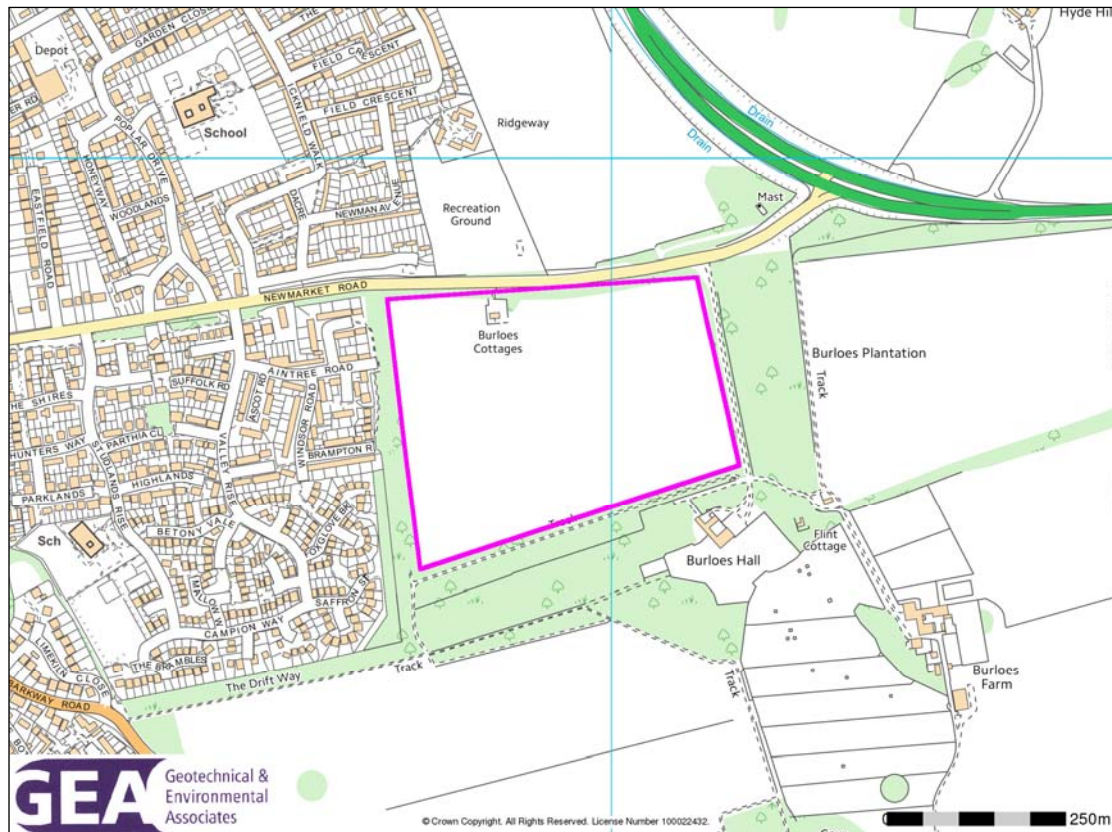
The conclusions and recommendations made in this report are limited to those that can be made on the basis of the investigation. The results of the work should be viewed in the context of the range of data sources consulted and the number of locations where the ground was sampled. No liability can be accepted for information in other data sources or conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from the client or other third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by GEA.

1 *Model Procedures for the Management of Land Contamination* issued jointly by the Environment Agency and the Department for Environment, Food and Rural Affairs (DEFRA) Sept 2004

2.0 THE SITE

2.1 Site Description

The site is located to the east of Royston, Hertfordshire, approximately 1.40 km southeast of Royston railway station. It is bounded to the north by Newmarket Road, to the east and south by tree plantations and to the west by residential housing, behind a row of trees. The site may additionally be located by National Grid Reference 536927, 240663, and is shown on the map extract below.



The site slopes downwards towards the north at an angle of approximately 5° , falling from approximately 105 m OD on the southern boundary to 75 m OD on the northern boundary. It is roughly rectangular in shape, measuring approximately 450 m east west by 320 m north south. The site is surrounded by mature and semi-mature deciduous trees with a small group of sycamore trees present towards the southeastern corner of the site. There is a pair of semi-detached houses, with associated gardens, encroaching into the northern site boundary.

Access to the site is via the access track to the southeastern corner of the field.

2.2 Site History

The site history has been researched by reference to internet sources and historical Ordnance Survey (OS) maps obtained from the Envirocheck database.

The earliest map studied, dated 1878, shows the site to have comprised part of an open field, with an unnamed road and embankment bordering the site to the north and Burloes's Plantation immediately to the east. Burloes's Farm was present approximately 500 m to the southeast of the site.

The site and immediate surrounding area remained essentially unchanged until some time between 1903 and 1921, when a pair of semi-detached houses is shown to the north, in the centre of the site, which was later named Burloes Cottages, and are assumed to be the existing buildings. An unnamed road was also built to the east of the site, leading to the newly constructed Burloes's Hall, approximately 80 m to the southeast of the site. Icknield Bury had also been constructed around 50 m to the west of the site. By 1938, the unnamed road to the north of the site had been renamed the A505.

By 1971, Icknield Bury had been demolished with the northwest of the site showing increased level of development, which continued until 1973, when residential development is shown to have extended up to the northern half of the western site boundary. An electrical sub-station had been built approximately 20 m to the southeast of the site.

On the map dated 1983 the A505 is shown to have been renamed as Newmarket Road. The current arrangement of the A505 and junction to Newmarket Road is shown approximately 250 m to the northeast of the site.

By 1987, the development to the west of the site extended along the entire western boundary continuing until 1989, when the site and surrounding area are shown to have remained essentially unchanged.

2.3 Other Information

A search of public registers and databases has been made via the Envirocheck database and relevant extracts from the search are appended. Full results of the search can be provided if required.

The Envirocheck report has indicated that no landfill sites, waste management, transfer, treatment or disposal sites are located within 1 km of the site. There are no records of environmental controls or incidents that are likely to have an adverse impact on the site.

No pollution incidents to controlled waters have been recorded within 1 km of the site.

Reference to records compiled by the Health Protection Agency (formerly the National Radiological Protection Board) indicates that the site falls within an area where less than 1% of homes are affected by radon emissions and therefore radon protective measures will not be necessary.

The site is listed as being within a nitrate vulnerable zone, but does not have any other sensitive land uses.

2.4 Geology

The British Geological Survey (BGS) map (Sheet 204) of the area indicates that the site is underlain by the New Pit Chalk Formation from the surface. Head Deposits overlie the chalk in the centre of the north of the site.

The Envirocheck report states that there is a very low potential for ground dissolution stability hazards, and the potential for collapsible ground stability hazards is very low. The potential for landslide stability hazards is low. The nearest recorded man-made cavity is approximately 547 m to the southwest of the site, which is expected to be a historical lime kiln, potentially a chalk mine. There are no recorded natural cavities within 1 km of the site.

2.5 Hydrology and Hydrogeology

The Head Deposits are classified as a Secondary Undifferentiated Aquifer, which refers to the variable characteristics of the drift deposits. The New Pit Chalk Formation is classified as a Principal Aquifer, rather than its former classification as a major aquifer, referring to rock layers or drift deposits with high intergranular and/or fracture permeability that has a high level of water storage and may support water supply and/or river base flow.

There are no listed water abstractions within 140 m of the site.

The site is located within the total catchment (Zone III) of Groundwater Source Protection Zone, as defined by the Environment Agency. The site has a limited potential for groundwater flooding to occur, and is not indicated as being at risk of flooding from rivers and the sea.

The nearest surface water feature is located approximately 186 m to the northeast of the site.

Groundwater is likely to be present at depth within the New Pit Chalk Formation and a BGS borehole located approximately 150 m southeast of the site found groundwater at a depth of approximately 53.00 m (38 m OD).

The site has limited potential for groundwater flooding.

2.6 Preliminary Risk Assessment

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a “suitable for use” approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

2.6.1 Source

The desk study findings indicate the site not to have had a potentially contaminative history as it has remained largely undeveloped since prior to 1878, except for Burloes Cottages to the north of the site.

There are no recorded landfill sites within 1 km of the site and there is therefore not a risk of hazardous ground gas.

2.6.2 Receptor

The proposed development of the site for residential purposes will result in the end users representing relatively high sensitivity receptors. The Principal Aquifer below the site is also a sensitive receptor. Buried services are likely to come into contact with any contaminants present within the soils through which they pass and site workers are likely to come into contact with any contaminants present in the soils during construction works.

2.6.3 Pathway

The presence of the permeable New Pit Chalk Formation would allow the migration of contaminated groundwater through the shallow soils to the deep principal aquifer. Within the site, end users may come into contact with any contaminants present within the made ground in areas of soft landscaping and gardens. Buried services may be exposed to any contaminants present within the soil through direct contact and site workers will come into contact with the

soils during construction works. There is thus considered to be a medium to high potential for a contaminant pathway to be present between any potential contaminant source and a target for the particular contaminant.

2.6.4 Preliminary Risk Appraisal

On the basis of the above it is considered that there is a LOW risk of there being a significant contaminant linkage at this site which would result in a requirement for major remediation work.

3.0 EXPLORATORY WORK

In order to meet the objectives described in Section 1.2, three cable percussion boreholes were advanced to depths of 15.00 m and 20.00 m and five opendrive sampler boreholes were advanced to a depth of 5.00 m using a Terrier rig. Additionally, twelve trial pits were excavated to depths of between 0.90 m and 3.30 m in order to provide additional coverage of the site. Soakage tests were conducted within the cable percussion boreholes and within a number of trial pits.

During boring, disturbed samples were obtained from the boreholes for subsequent laboratory examination and testing. Standard Penetration Tests (SPTs) were carried out at regular intervals to provide additional quantitative data on the strength of soils encountered.

A selection of the samples recovered from the boreholes was submitted to a soil mechanics laboratory for a programme of geotechnical testing and an analytical laboratory for contamination testing.

All of the above work was carried out under the supervision of a geotechnical engineer from GEA.

The borehole and trial pit records are appended, together with a site plan indicating the exploratory positions. The National Grid Reference and Ordnance Datum (OD) levels on the borehole and trial pit records were measured using a hand held GPS.

3.1 Sampling Strategy

The trial pit and borehole locations were agreed with the client.

Five samples of the made ground have been tested for the presence of contamination. The analytical suite of testing was selected to identify hydrocarbon contamination resulting from the former use of the site and a range of typical industrial contaminants for the purposes of general coverage. For this investigation the analytical suite for the soil included a range of metals, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. The contamination analyses were carried out at an MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards. A summary of the MCERTs accreditation and test methods are included with the attached results and further details are available upon request.

The geotechnical testing included moisture content, intact dry density and saturated moisture content on selected samples of chalk.

4.0 GROUND CONDITIONS

The investigation has generally confirmed the expected ground conditions in that, beneath a limited thickness of made ground, the New Pit Chalk Formation was encountered to the full depth of investigation. However, the investigation has not encountered the Head Deposits that are indicated on the geology map in the north of the site.

4.1 Made Ground

The made ground comprised brown silty sand with variable amounts of chalk and flint gravel and fragments of shell, brick, concrete, metal, ash, coal and tile, extending to depths of between 0.2 m and 0.70 m.

Apart from the presence of fragments of extraneous material noted above, no visual or olfactory evidence of contamination was observed during the fieldwork. Five samples of the made ground have been analysed for a range of contaminants as a precautionary measure and the results are detailed within Section 4.4.

4.2 New Pit Chalk Formation

On the basis of the inspection of the trial pits, the chalk has been classified in accordance with CIRIA Report C574 (2002), *Engineering in Chalk*.

Within the trial pits the New Pit Chalk initially comprised a structureless chalk, assessed as Grade Dm, becoming Grade Dc, over very weak, low density, white chalk with orange-brown staining and occasional black specks, which extended to the full depth of the investigation, of 20.00 m. Initially the fissures were very closely spaced and infilled with brown clay and comminuted chalk, becoming closely spaced and clean. Scattered flint gravel and cobbles were encountered, as well as partings of brown silty clay. The grade of the chalk was recorded as corresponding to Grades C5 changing to B3 with depth.

The boreholes proved the chalk to a depth of 20.00 m (68.00 m OD) and recovered it as Grade Dm / Dc with layers of Grade C5, although the sampling will have resulted in disturbance of the material and the recovered samples will not be indicative of the insitu condition.

The results of intact dry density tests indicate the chalk to be of low to medium density with results ranging between 1.39 Mg/m³ and 1.55 Mg/m³. Natural moisture content results range between 27 % and 31 % whilst saturated moisture content ranges between 24 % and 34 %.

No evidence of any solution features or other anomalous ground conditions associated with chalk dissolution have been encountered during the investigation and the presence of such features is not expected.

4.3 Groundwater

Groundwater was not encountered in any of the excavations and is likely to be at depth within the chalk.

4.4 Soil Contamination

The table below sets out the values measured within the five samples analysed; all concentrations are in mg/kg unless otherwise stated.

Determinant	BH1 0.30 m	BH2 0.30 m	BH3 0.30 m	BH4 0.40 m	BH5 0.20 m
pH	8.3	8.1	8.5	8.5	8.4
Arsenic	2.0	3.1	4.2	1.6	4.6
Cadmium	0.5	0.5	0.5	0.5	0.7
Chromium	10	10	7.4	5.0	7.4
Lead	21	16	17	13	13
Mercury	44	31	30	26	29
Selenium	0.9	< 0.3	< 0.3	0.6	0.7
Copper	6.2	7.9	6.5	5.7	7.8
Nickel	< 1.0	< 1.0	1.6	< 1.0	2.1
Zinc	31	35	29	27	36
Total Cyanide	< 1	< 1	< 1	< 1	< 1
Total Phenols	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total PAH	< 1.60	< 1.60	< 1.60	< 1.60	< 1.60
Sulphide	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Benzo(a)pyrene	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Naphthalene	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
TPH	12.5	17.1	15.7	8.1	10.7
Total Organic Carbon %	2.1	2.4	2.5	1.8	2.4

Note: Figure in bold indicates concentration in excess of risk-based soil guideline values, as discussed in Part 2 of this report

The results of the chemical analyses have not indicated any of the samples tested to contain elevated concentrations of contaminants.

4.5 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. To this end contaminants of concern are those that have values in excess of a generic human health risk based guideline values which are either that of the CLEA² Soil Guideline Value where available, or is a Generic Screening Value calculated using the CLEA UK Version 1.06³ software assuming a residential end use with plant uptake, or is based on the DEFRA Category 4 Screening values⁴. The key generic assumptions for this end use are as follows;

² Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009 and Soil Guideline Value reports for specific contaminants; all DEFRA and Environment Agency.

³ Contaminated Land Exposure Assessment (CLEA) Software Version 1.06 Environment Agency 2009

⁴ CL:AIRE (2013) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Final Project Report SP1010 and DEFRA (2014) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Policy Companion Document SP1010

- ❑ that groundwater will not be a critical risk receptor;
- ❑ that the critical receptor for human health will be young female children aged zero to six years old;
- ❑ that the exposure duration will be six years;
- ❑ that the critical exposure pathways will be direct soil and indoor dust ingestion, consumption of homegrown produce, consumption of soil adhering to homegrown produce, skin contact with soils and dust, and inhalation of dust and vapours; and
- ❑ that the building type equates to a two to three-storey small terraced house.

It is considered that these assumptions are acceptable for this generic assessment of this site. The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix.

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include;

- ❑ additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- ❑ site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- ❑ soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

The results of the chemical analyses have indicated the samples tested contain low concentrations of all the tested contaminants.

The significance of these results is considered further in Part 2 of the report.

Part 2: DESIGN BASIS REPORT

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to the proposed development.

5.0 INTRODUCTION

It is understood that it is proposed to construct new two to three-storey residential units. Loads are anticipated to be light.

A limited programme of earthworks will be required as part of the development.

6.0 GROUND MODEL

The desk study has revealed that the site has not had a potentially contaminative historical use as it has not been developed since prior to 1878, and on the basis of the fieldwork, the ground conditions at this site can be characterised as follows:

- ❑ below a relatively consistent thickness of made ground, the New Pit Chalk Formation is present which extends to the maximum depth of the investigation, of 20.00 m (68.00 m OD);
- ❑ the made ground comprises brown silty sand with variable amounts of chalk and flint gravel and fragments of shell, brick, concrete, metal, ash, coal and tile to a maximum depth of 0.70 m;
- ❑ the New Pit Chalk initially consists of a structureless chalk, assessed as Grade Dm, becoming Dc, over very weak, low density structured white chalk (Grade C5) with partings of structureless chalk (Grades Dm / Dc), fissures are initially very closely spaced and infilled with a brown clay and comminuted chalk, becoming closely spaced and clean (Grade B3) at a depth of about 3 m. Scattered flint gravel and cobbles are present throughout the chalk; and
- ❑ groundwater was not encountered and is expected to be at depth within the chalk.

7.0 ADVICE AND RECOMMENDATIONS

The chalk encountered at shallow depth should provide a suitable bearing stratum for spread foundations supporting the anticipated light loads.

A cut and fill exercise is proposed, to create level building areas across this sloping site. It is understood that new levels have not been finalised, but levels may alter by around 1.5 m to 2.0 m.

7.1 Earthworks

The excavation and handling of chalk can be problematic and the selected contractor should be experienced in working with the material, as the structure of the chalk can rapidly

deteriorate upon exposure to the elements. The earthworks should be carried out during dry conditions, in order to minimise the disruption to the chalk fabric as light rainfall may cause instability within the chalk.

Excavation of the New Pit Chalk at this site can be undertaken using a face shovel, although excavation is anticipated to be feasible with smaller plant at shallow depths.

Following the site strip of the made ground and superficial deposits, much of the material that will be removed by the proposed earthworks will comprise New Pit Chalk. It should be possible to excavate temporary cut faces at angles of approximately 75° . This cut angle may not protect against minor spalling of the chalk and the cut slopes should be left open for as short a period as possible. It would be prudent to conduct daily inspection of all cut faces by a qualified engineer. Vehicle movements at the top of unsupported cut faces should be minimised. Alternatively, the structured chalk could be cut back at a flatter angle of about 33° to ensure stability and avoid spalling and the unstructured chalk cut back at 26° .

Temporary weather protection layers above the sub-formation on the top of the chalk fill and above chalk or sub-formations in cut should either be constructed or left with a minimum thickness of 600 mm if they are to be in place throughout the winter.

Detailed specification of the requirements for excavating, transporting and compacting the chalk is outside the scope of this report and will need be considered in more detail once the proposals have been finalised. On the basis of the intact dry density (IDD) and natural moisture content (NMC) results, and with reference to CIRIA C574, and specifically Table 5.5, the chalk can be classified as Classes CD to CCs. This material can be compacted using Compaction Method 4 in accordance with Table 6/4 of the Manual of Contract Documents for Highway Works Vol 1 Specification for Highway Works (MCHW1), although the use of material classified as Class CD may not be economical in general embankment fill.

CIRIA C574 recommends that a face shovel be used in order to excavate the chalk and that temporary instability should be expected, or at best is probable; it further concludes that working the chalk in rainy conditions should be avoided. However, there are various other criteria that need to be taken into account in the selection of method of excavation, transporting and compacting of chalk. Further consideration should be given to these aspects once the proposals have been finalised.

On completion of a portion of the compaction, it would be prudent to excavate a number of trial pits through the excavated material to check the quality of the compaction.

7.2 Spread Foundations

Spread foundations bearing on the initial low density Grade Dm chalk at a minimum depth of 0.75 m may be designed to apply a net allowable bearing pressure of 200 kN/m^2 . A slightly higher bearing pressure of 225 kN/m^2 may be applied on the low density Grade Dc chalk. These values incorporate an adequate factor of safety against bearing capacity failure and should ensure that settlement remains within normal tolerable limits.

If Head Deposits are encountered in the north of the site, as indicated by the geology map of the area, additional investigation should be carried out to determine the bearing characteristics of the material.

7.3 Shallow Excavations

On the basis of the trial pit findings it is considered likely that it will be feasible to form relatively shallow excavations through the made ground terminating within the New Pit Chalk Formation without the requirement for lateral support in the short term.

However, if deeper excavations are considered or if excavations are to remain open for prolonged periods it is recommended that provision be made for battered side slopes or lateral support. Where personnel are required to enter excavations, a risk assessment should be carried out and temporary lateral support or battering of the excavation sides should be considered, in order to comply with normal safety requirements.

The investigation has indicated that groundwater will not be encountered within shallow excavations.

7.4 Piled Foundations

For the ground conditions at this site, driven or bored piles could be adopted. Driven piles would have the advantage of minimising the spoil that is generated, but consideration would need to be given to the effects of noise and vibrations on neighbouring sites. Some form of bored pile may therefore be more appropriate. Conventional rotary augered piles may be suitable, although temporary casing would need to be installed through the chalk fill. Alternatively, bored piles installed using continuous flight auger (cfa) techniques would be an appropriate type.

The following parameters, based upon the guidance provided by CIRIA^{5,6} for piles in chalk, are considered suitable for the preliminary design of straight-shafted bored piles installed using cfa techniques. The design has principally been based on the ground conditions encountered within Borehole Nos 6, 7 and 8.

The following table of ultimate coefficients may be used for the preliminary design of bored piles, which have been based on the SPT / depth and level graph in the appendix.

Stratum	Depths m	kN / m ²
Ultimate Skin Friction		
Made Ground	Ground level to 0.7	Ignore
Chalk	0.7 to 15.0	Increasing linearly from 5 to 135
Ultimate End Bearing		
Chalk	10.0 to 15.0	Increasing linearly from 4400 to 6200

In the absence of pile tests, a factor of safety of 3.0 should be applied to the above coefficients or 1.5 to Ultimate Shaft Friction and 3.5 to Ultimate End Bearing, whichever gives the lower bound safe theoretical working loads.

5 *Engineering in Chalk* CIRIAC574 (2002)

6 *Shaft Friction of cfa piles in chalk*. CIRIA Project Report 86 (2003)

Pile diameter mm	Depth Below Ground Level m	Safe Working Load* kN
300	10	250
	15	500
450	10	470
	15	900

* care should be taken not to exceed the values given for base resistance of low density and medium / high density chalk in accordance with CIRIA C574

The above examples are not intended to constitute any form of recommendation with regard to pile size or type, but merely serve to illustrate the use of the above coefficients. Specialist piling contractors should be consulted with regard to the design of an appropriate piling scheme and the need for additional deeper investigation. Their attention should be drawn to the presence of potential flint layers within the Chalk. These pile designs are based on in-situ ground conditions and as a result do not account for the placement of fill. Once the depths of fill on site have been confirmed a more comprehensive design should be completed.

Care should be taken in the construction of cfa piles in these types of soils. Careful control of concrete pressures and drilling rate will be required to maintain the pile shaft integrity in the made ground. In addition, as with any situation where bored piles are constructed in chalk, consideration will need to be given to the possibility of variations in the level and quality of the chalk and the possibility of undetected significant variations between borehole positions.

Prospective contractors should be consulted to determine how they intend to control and monitor the pile installation and with regard to their experience in similar ground conditions. The contractors should be provided with all of the exploratory data. Consideration may need to be given on the depths of fill and their influence on negative skin friction.

7.5 Ground Floor Slabs

Following the site strip, it should generally be possible to adopt ground bearing floor slabs, bearing on the chalk. Where chalk is exposed at formation level, ground floor slabs of unheated or poorly insulated buildings should be constructed over a layer of well compacted, free draining material of at least 300 mm thickness. In heated, well insulated buildings, ground floor slabs can be constructed directly on chalk although should not be exposed during construction for more than five consecutive days if the mean daily air temperature is below freezing.

Chalk is frost susceptible, and to avoid damage from frost action, the depth of the underside of the foundation should be at least 600 mm below finished ground level. This depth should also be used when construction is undertaken during cold weather. Alternatively, precautions should be taken to avoid freezing of the ground.

If ground bearing floor slabs are to be placed on areas of compacted material it should be ensured that a suitable degree of compaction is specified.

7.6 Retaining Walls

The following parameters are suggested for the design of permanent retaining walls.

Stratum	Bulk Density (kg/m ³)	Effective Cohesion (c' – kN/m ²)	Effective Friction Angle (φ' – degrees)
Made ground	1800	Zero	22
Unstructured Chalk	1800	Zero	30
Structured Chalk	1800	Zero	35

Groundwater is unlikely to be encountered within the excavations.

7.7 Disposal of Surface Water

In order to provide an indication of the suitability of shallow soakaways for the disposal of surface water, soakage tests were carried out in the cable percussion boreholes and in a number of the trial pits. The results of the soakage tests are summarised below.

Borehole or Trial Pit No	Excavation Depth (m)	Infiltration rate (m/s)
BH6	5	9.81×10^{-6}
	10	3.51×10^{-5}
	15	3.34×10^{-6}
	20	5.15×10^{-4}
BH7	6.5	1.81×10^{-5}
	10	1.13×10^{-4}
	15	5.21×10^{-5}
BH8	5	3.07×10^{-5}
	10	3.20×10^{-5}
	15	9.39×10^{-5}
	20	3.87×10^{-5}
TP1	1	5.1×10^{-6}
TP2	0.9	3.5×10^{-5}
TP3	1.2	2.0×10^{-5}
TP5	2.4	4.4×10^{-5}
TP6	2.5	3.0×10^{-5}
TP7	2.9	2.9×10^{-4}

The tests yielded soakage rates of 3.34×10^{-6} m/s to 5.15×10^{-4} m/s; these assessments are based on the linear portion of the graph, unless otherwise stated.

7.7.1 Shallow Soakaways

The use of shallow soakaways is a viable option, but as the chalk has been identified as having a low density, soakaways would need to be located at a minimum distance of 10 m away from new and existing foundations. This is not a practical requirement on a development of this type and consideration has therefore been given to the use of deep bored soakaways.

7.7.2 Deep Bored Soakaways

In order to allow soakaways to be located closer to foundations, consideration is being given to the use of deep bored soakaways. It is understood that currently two options of deep bored soakaway design are being considered; each design adopts an impermeable chamber within the upper 5 m of chalk nearest to proposed foundations. The two proposed options are:

- a 2.4 m diameter chamber at 2.5 m effective depth, with a 15 m deep borehole; and
- a 3.0 m diameter chamber at 3.0 m effective depth, with a 20 m deep borehole.

The laboratory results have identified the chalk as having a low density to the full depth of the investigation, of 20.00 m. CIRIA guidance suggests that in low density chalk, soakaways should be located at least 10 m away from foundations but it is understood that meeting this criterion will be very difficult on a housing development of this type. On the basis that the density of the chalk is in part medium density and elsewhere generally at the upper end of the low density classification, it is considered that soakaways located with a 5 m lateral offset and an impermeable plain well screen over the upper 5 m measured from below nearest foundation levels, will provide sufficient assurance.

Following discussions with the drainage engineer it is understood that a design value of 3.2×10^{-5} m/s has been adopted as the design soakage rate for the site, with a factor of safety of 3. Based on the evidence provided by the drainage engineer it is understood that both soakaway designs are sufficient to accommodate a 1 in 100 year storm event with a 40 % climate change allowance.

Although it is considered that the design of the soakaways is adequate, it is likely that the effectiveness of some soakaways will be better than others, due to lateral and vertical variations of the fissures in the New Pit Chalk. Consideration could therefore be given to the linking of any proposed soakaways such that, should a low rate of soakage be occurring in one bore, the overflow from that chamber could pass to another chamber with a better soakage rate, so that advantage can be taken of those with the greatest outflow performance. It would be prudent to perform soakage testing within each soakaway to confirm its drainage potential.

The chalk stratum is considered to be an important aquifer and as such consultation should be carried out with the Environment Agency when planning soakaway installations. It is a usual requirement that at least a 1.0 m thick attenuation zone be maintained between the base of any soakaway and the groundwater surface.

7.7.3 Permeable Paving

The use of unlined permeable paving should not pose an issue to shallow foundations, assuming that it replicates current surface drainage conditions, although it would be prudent to maximise the distance, where possible, from foundations and ensure that the system avoids a concentrated ingress of water into the chalk. A sub-base thickness of 450 mm should be adopted in order to protect against frost action.

7.8 Pavement Design

Formation level for the proposed roads and hardstanding is currently unknown, however the results of the geotechnical testing indicate however that the shallow chalk should be regarded as frost susceptible, such that a minimum construction thickness of 450 mm may be required in accordance with CIRIA C574. A CBR value of 2% is appropriate for highly weathered in-

situ chalk and 8% on recompacted chalk, although if compacted well, achieving a maximum air voids ratio of 10%, a higher CBR value of 15% may be achieved. It would however be prudent to consult the Local Authority in this regard to determine local practice.

Prior to construction it would be prudent to proof roll formation level and infill any soft spots with suitably compacted granular material.

7.9 Topsoil Testing

Topsoil testing, to determine the suitability to re-use the in-situ topsoil within areas of soft landscaping, is currently in hand and will be reported separately.

7.10 Effect of Sulphates

Chemical analyses have revealed relatively low concentrations of soluble sulphate and mildly alkaline pH in accordance with Class DS-1 conditions of Table C1 of BRE Special Digest 1:SD Third Edition (2005). The measured pH values of the samples show that an ACEC class of AC-1 would be appropriate for the site. This assumes a mobile water condition at the site. The guidelines contained in the digest should be followed in the design of foundation concrete.

7.11 Contamination Risk Assessment

The desk study findings indicate that the site has not had a potentially contaminative history as it has apparently not been developed. The chemical analyses have revealed no elevated concentrations of contaminants within the samples tested.

The made ground across the site was noted to contain fragments of extraneous material, including ash and coal, which can potentially contain high concentrations of metals. This could potentially be the source of the lead contamination. However it is not likely to be in a soluble form and as such should not pose a risk to groundwater or adjacent sites.

It is recommended that any topsoil being imported onto site and used in soft landscaping that will be utilised for plant growth be tested and validated in accordance with NHBC guidelines prior to being installed.

Site workers should follow standard good practice when handling any soil. The method of site working should be in accordance with guidelines set out by HSE and CIRIA⁷ and the requirements of the Local Authority Environmental Health Officer.

7.12 Waste Disposal

Under the European Waste Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste classification is a staged process and this investigation represents the preliminary sampling exercise of that process. Once the extent and location of the waste that is to be removed has been defined, further sampling and testing may be necessary. The results from this ground investigation should be used to help define the sampling plan for such further testing, which could include WAC leaching tests where the totals analysis

7 CIRIA (1996) *A guide for safe working on contaminated sites* - Report 132, Construction Industry Research and Information Association

indicates the soil to be a hazardous waste or inert waste from a contaminated site. It should however be noted that the Environment Agency guidance WM3⁸ states that landfill WAC analysis, specifically leaching test results, must not be used for waste classification purposes.

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE⁹ guidance, will need to be disposed of to a licensed tip. Waste going to landfill is subject to landfill tax at either the standard rate of £84.40 per tonne (about £150 per m³) or at the lower rate of £2.65 per tonne (roughly £5 per m³). However, the classifications for tax purposes and disposal purposes differ and currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring soil and stones, which are accurately described as such in terms of the 2011 Order, would qualify for the 'lower rate' of landfill tax.

Based upon on the technical guidance provided by the Environment Agency it is considered likely that the soils encountered during this ground investigation, as represented by the five chemical analyses carried out, would be generally classified as follows;

Soil Type	Waste Classification (Waste Code)	WAC Testing Required Prior to Landfill Disposal?	Comments
Made Ground	Non-hazardous (17 05 04)	No	
New Pit Chalk Formation	Inert	Should not be required but confirm with receiving landfill	

Under the requirements of the European Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper¹⁰ which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be segregated onsite prior to excavation by sufficiently characterising the soils insitu prior to excavation.

The above opinion with regard to the classification of the excavated soils is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified.

The local waste regulation department of the Environment Agency (EA) should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing.

8 Environment Agency 2015. *Guidance on the classification and assessment of waste*. Technical Guidance WM3 First Edition
 9 CL:AIRE March 2011. *The Definition of Waste: Development Industry Code of Practice* Version 2
 10 Environment Agency 23 Oct 2007 *Regulatory Position Statement Treating non-hazardous waste for landfill - Enforcing the new requirement*

8.0 OUTSTANDING RISKS AND ISSUES

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive, but covers the main areas where additional work may be required.

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the ground conditions based on the discrete points at which the ground was sampled, but the ground conditions should be subject to review as the work proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

If during ground works any visual or olfactory evidence of contamination is identified it is recommended that further investigation be carried out and that the risk assessment is reviewed.

The geology map of the area indicates the presence of Head Deposits in the northern part of the site, although these have not been encountered by this investigation. If encountered, these soils are likely to predominantly comprise clay and may require foundations to be deepened. Further inspection by a geotechnical engineer is recommended if these soils are found to be present.

These areas of doubt should be drawn to the attention of prospective contractors and further investigation will be required or sufficient contingency should be provided to cover the outstanding risk.

APPENDIX

Borehole Records

Trial Pit Records

Soakage Test Results

Geotechnical Test Results

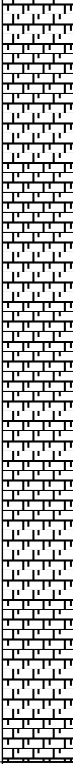
SPT / Depth Graph

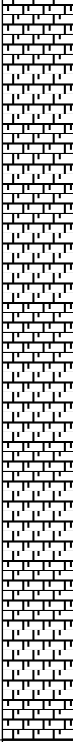
Chemical Analyses (Soil)

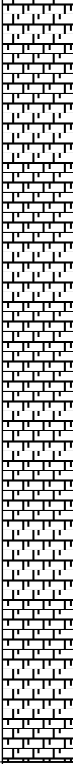
Envirocheck Extracts

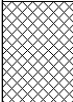
Historical Maps

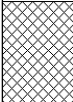
Site Plan

				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Number BH1
Excavation Method Opendrive Sampler		Dimensions		Ground Level (mOD) 82.00		Client Countryside Properties PLC		Job Number J16202
		Location 536705 E 240745 N		Dates 07/09/2016		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	E			81.60	(0.40) 0.40	MADE GROUND (brown silty sand with occasional rootlets, fragments of brick, chalk, flint, coal and shells and ash)		
1.00-1.45 1.00	SPT N=28 D		4,7/5,6,7,10			CHALK: recovered as structureless white with specks of orange staining with scattered flint and occasional partings of brown silty clay. Black specks between 1.00 - 1.20 m Damp from 1.10 - 3.00 m Flint cobble		
2.00-2.45 2.00	SPT N=32 D		7,10/10,9,6,7					
3.00-3.35 3.00	SPT 50/200 D		5,10/10,11,15,14		(5.05)			
4.00-4.45 4.00	SPT N=30 D		7,9/9,8,7,6					
5.00-5.45 5.00	SPT N=33 D		8,9/7,7,9,10	76.55	5.45			
						Complete at 5.45m		
Remarks Groundwater was not encountered							Scale (approx) 1:50	Logged By LB
							Figure No. J16202.BH1	

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Number BH2
Excavation Method Opendrive Window Sampler		Dimensions		Ground Level (mOD) 112.00		Client Countryside Properties PLC		Job Number J16202
		Location 536748 E 240466 N		Dates 07/09/2016		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	E			111.45	(0.55) 0.55	MADE GROUND (brown silty gravelly sand with rootlets, rare shell fragments, and coal fragments, gravel of chalk and flint is fine to medium, angular to rounded)		
1.00-1.45 1.00	SPT N=12 D		3,3/3,3,3,3			CHALK: recovered as structureless white with specks of orange staining with scattered flint and occasional partings of brown silty clay.		
2.00-2.45 2.00	SPT N=19 D		3,5/4,5,5,5					
3.00-3.45 3.00	SPT N=17 D		1,2/4,4,4,5		(4.90)	Flint cobble		
4.00-4.45 4.00	SPT N=27 D		3,4/6,7,7,7					
5.00-5.45 5.00	SPT N=23 D		2,3/5,5,5,8	106.55	5.45	Complete at 5.45m		
Remarks Groundwater was not encountered							Scale (approx) 1:50	Logged By LB
							Figure No. J16202.BH2	

				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Number BH3
Excavation Method Opendrive Window Sampler		Dimensions		Ground Level (mOD) 89.00		Client Countryside Properties PLC		Job Number J16202
		Location 536988 E 240638 N		Dates 07/09/2016		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	E			88.60	(0.40) 0.40	MADE GROUND (brown silty clayey sand with fragments of flint, chalk, ash and coal)		
1.00-1.45 1.00	SPT N=15 D		2,2/3,4,4,4			CHALK: recovered as structureless white with specks of orange staining with scattered flint and occasional partings of brown silty clay. Becoming damp, low density from 1.10 m		
2.00-2.45 2.00	SPT N=15 D		2,3/4,3,3,5					
3.00-3.45 3.00	SPT N=11 D		2,3/1,3,3,4		(5.05)			
4.00-4.45 4.00	SPT N=18 D		2,2/3,3,5,7					
5.00-5.45 5.00	SPT N=40 D		5,6/7,9,12,12	83.55	5.45	Complete at 5.45m		
Remarks							Scale (approx) 1:50	Logged By JD
							Figure No. J16202.BH3	

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Number BH4
Excavation Method Opendrive Window Sampler		Dimensions		Ground Level (mOD) 88.00		Client Countryside Properties PLC		Job Number J16202
		Location 537076 E 240823 N		Dates 07/09/2016		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.40	E			87.30	(0.70)	MADE GROUND (brown sandy silt with gravel of chalk and flint, fine to medium, rootlets and wood fragments)		
1.00-1.45 1.00	SPT N=18 D		5,5/5,4,5,4		0.70	CHALK: recovered as structureless white with specks of orange staining with scattered flint and occasional partings of brown silty clay.		
2.00-2.45 2.00	SPT N=12 D		2,2/2,3,3,4					
3.00-3.45 3.00	SPT N=10 D		2,2/3,3,2,2		(4.75)			
4.00-4.45 4.00	SPT N=16 D		3,3/3,5,4,4					
5.00-5.45 5.00	SPT N=18 D		4,5/4,4,5,5	82.55	5.45	Complete at 5.45m		
Remarks Groundwater was not encountered							Scale (approx) 1:50	Logged By LB
							Figure No. J16202.BH4	

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Number BH5	
Excavation Method Opendrive Sampler		Dimensions		Ground Level (mOD) 106.00		Client Countryside Properties PLC		Job Number J16202	
		Location 537076 E 240823 N		Dates 07/09/2016		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.40	E				(0.70)	MADE GROUND (brown sandy silt with gravel of chalk and flint, fine to medium, rootlets and wood fragments)			
1.00-1.45 1.00	SPT N=23 D		4,4/5,5,7,6	105.30	0.70	CHALK: recovered as structureless white with specks of orange staining with scattered flint and occasional partings of brown silty clay.			
2.00-2.45 2.00	SPT N=21 D		4,5/5,5,5,6						
3.00-3.45 3.00	SPT N=16 D		2,2/3,4,4,5		(4.75)				
4.00-4.45 4.00	SPT N=17 D		3,2/3,4,5,5						
5.00-5.45 5.00	SPT N=23 D		3,4/4,5,6,8	100.55	5.45	Complete at 5.45m			
Remarks Groundwater was not encountered							Scale (approx) 1:50	Logged By LB	Figure No. J16202.BH4

GEA Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH6	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 1.50m		Ground Level (mOD) 104.00		Client Countryside Properties PLC		Job Number J16202	
		Location 537100 E 240571 N		Dates 17/11/2016- 22/11/2016		Engineer		Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
1.00-1.45 1.00-1.45	SPT N=6 D1			1,2/1,2,1,2	103.70 103.50	(0.30) 0.30 (0.20) 0.50	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal, ash, coal, and flint cobbles, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: recovered as chalk fragments CHALK: recovered as structureless CHALK composed of offwhite and greyish white, with orange staining, sandy gravelly silt. Gravel is very weak to weak, low density, offwhite with frequent orange staining and occasional black specks, subangular to subrounded, with scattered flint gravel	                                     	
2.00-2.45 2.00-2.45	SPT N=10 D2			2, 1/2,3,2,3					
3.00-3.45 3.00-3.45	SPT N=8 D3			1,1/2,1,2,3					
4.00-4.45 4.00-4.45	SPT N=8 D4			1,1/1,2,2,3					
5.00-5.45 5.00-5.45	SPT N=9 D5			3,3/2,2,2,3					
6.00	D6								
6.50-6.95 6.50-6.95	SPT N=17 D7			3,3/4,4,4,5					
7.50	D8								
8.00-8.45 8.00-8.45	SPT N=18 D9			4,3/4,4,5,5					
9.00	D10								
9.50-9.95 9.50-9.95	SPT N=9 D11			2,2/2,2,2,3					
Remarks Groundwater was not encountered. Falling head test performed at 5 m, 10 m, 15 m and 20 m.							Scale (approx) 1:50	Logged By LB	
							Figure No. J16202.BH6		

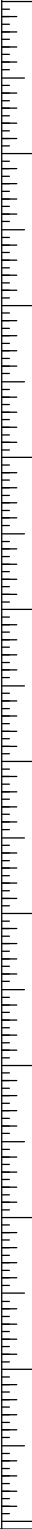
 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH6	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 1.50m		Ground Level (mOD) 104.00		Client Countryside Properties PLC		Job Number J16202	
		Location 537100 E 240571 N		Dates 17/11/2016- 22/11/2016		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50	D12								
11.00-11.45 11.00-11.45	SPT N=22 D13			4,5/6,5,5,6					
12.00	D14								
12.50-12.95 12.50-12.95	SPT N=48 D15			3,10/14,8,12,14					
13.50	D16								
14.00-14.45	U1			56 blows					
14.45-14.50	D17								
15.00	D18					(19.50)			
15.50-15.95 15.50-15.95	SPT N=50 D19			4,6/14,10,16,10					
16.50	D20								
17.00-17.45 17.00-17.45	SPT N=36 D21			5,6/6,7,12,11					
18.00	D22								
18.50-18.95 18.50-18.95	SPT N=38 D23			5,5/5,8,10,15					
19.50	D24								
					84.00	20.00			
Remarks								Scale (approx) 1:50	Logged By LB
								Figure No. J16202.BH6	

		Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH7			
Boring Method Cable Percussion		Casing Diameter 150mm cased to m		Ground Level (mOD) 83.00		Client Countryside Properties PLC		Job Number J16202	
		Location 536905 E 240704 N		Dates 20/12/2016- 21/12/2016		Engineer		Sheet 1/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.50	B1					(0.70)	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal, concrete and brick fragments, and flint cobbles, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine)		
1.00-1.45 1.00-1.45	CPT N=17 B2			3,4/4,5,4,4	82.30	0.70 (1.05)	CHALK: recovered as structureless CHALK composed of offwhite, creamish white and brown with orange staining gravelly silt of communited chalk. Gravel is low to medium density, weak offwhite and creamish white chalk, subangular to subrounded		
1.75 2.00-2.45	D1 U1			60 blows	81.25	1.75	CHALK: recovered as structureless CHALK composed of slightly silty, subangular to subrounded gravel and cobbles. Clasts are low density, very weak to weak, offwhite and creamish white with frequent orange staining, rare black specks and scattered flint gravel		
2.50 2.75	B3 D2								
3.00-3.45 3.00-3.45	SPT N=30 D3			6,7/8,7,7,8					
3.50 3.75	B4 D4								
4.00-4.45	U2			70 blows					
4.50 4.75	B5 D5								
5.00-5.45 5.00-5.45	SPT N=31 D6			5,7/8,7,8,8					
5.75 6.00	D7 B6								
6.50-6.95	U3			80 blows					
7.00	B7								
7.75 8.00-8.45 8.00-8.45	D8 SPT N=36 D9			6,8/9,8,9,10		(13.25)			
8.50	B8								
9.00	D10								
9.50-9.95	U4			80 blows 20/12/2016: 21/12/2016:					
Remarks Groundwater was not encountered Falling head tests conducted at 6.5 m, 10 m and 15 m								Scale (approx) 1:50	Logged By LB
								Figure No. J16202.BH7	

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH7	
Boring Method Cable Percussion		Casing Diameter 150mm cased to m		Ground Level (mOD) 83.00		Client Countryside Properties PLC		Job Number J16202	
		Location 536905 E 240704 N		Dates 20/12/2016- 21/12/2016		Engineer		Sheet 2/2	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50	B9								
11.00-11.45 11.00-11.50	SPT N=28 D11			3,5/6,7,7,8					
12.00	D12								
12.50-12.95	U5			80 blows		(13.25)			
13.50	B10								
14.55-15.00 14.55-15.00 14.55-15.00	SPT N=35 B11 D13			5,7/8,7,8,12					
				21/12/2016:	68.00	15.00			
							Complete at 15.00m		
Remarks								Scale (approx) 1:50	Logged By LB
								Figure No. J16202.BH7	

GEA Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH8	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 6.20m		Ground Level (mOD) 91.00		Client Countryside Properties PLC		Job Number J16202	
		Location 536750 E 240643 N		Dates 19/12/2016-20/12/2016		Engineer		Sheet 1/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
1.00-1.45	U1			50 blows	90.50	(0.50) 0.50	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal and flint cobbles, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine)		
1.50	B1						CHALK: recovered as structureless CHALK composed of slightly silty, subangular to subrounded gravel and cobbles. Clasts are low density, very weak to weak, offwhite and creamish white with frequent orange staining, rare black specks and scattered flint gravel and cobbles		
1.75	D1								
2.00-2.45	SPT N=8			2,2/2,2,2,2					
2.00-2.45	D2								
2.75	D3								
3.00-3.45	U2			65 blows					
3.50	B2								
3.75	D4								
4.00-4.45	SPT N=31			2,4/6,9,8,8					
4.00-4.45	D5								
4.75	D6								
5.00-5.45	U3			65 blows					
5.50	B3								
6.00	D7								
6.50-6.95	SPT N=25			2,4/5,6,7,7					
6.50-6.95	D8								
7.50	B4								
8.00-8.45	U4			60 blows					
9.00	D9								
9.50-9.95	SPT N=30			6,5/6,7,7,10					
9.50-9.95	D10								
Remarks Groundwater was not encountered Falling head tests conducted at 5 m, 10 m, 15 m and 20 m								Scale (approx) 1:50	Logged By LB
								Figure No. J16202.BH8	

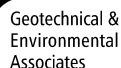
 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH8	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 6.20m		Ground Level (mOD) 91.00		Client Countryside Properties PLC		Job Number J16202	
		Location 536750 E 240643 N		Dates 19/12/2016- 20/12/2016		Engineer		Sheet 2/3	
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
10.50	D11								
11.00-11.45	B5								
11.50-11.95 11.50-11.95	SPT N=35 D12			7,9/10,9,8,8					
12.50	B6								
13.00-13.45 13.00-13.45	SPT N=34 D13			7,7/8,8,9,9					
14.00	D14								
14.50-14.95	U5			80 blows					
15.00-15.50	B7			19/12/2016: 20/12/2016:		(19.50)			
16.00-16.45 16.00-16.50	SPT N=37 D15			7,8/7,9,9,12					
16.50-17.00 16.75	B8 D16								
17.25 17.50-17.95 17.50-17.95	D17 SPT N=44 D18			10,11/10,11,11,12					
18.00-18.50	B9								
18.75 19.00-19.45 19.00-19.45 19.25	D19 SPT N=36 D20 D21			5,7/7,8,11,10					
19.50-20.00	B10								
20.00-20.45	D22			20/12/2016:	71.00	20.00			
Remarks								Scale (approx) 1:50	Logged By LB
								Figure No. J16202.BH8	

 Geotechnical & Environmental Associates					Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Borehole Number BH8	
Boring Method Cable Percussion		Casing Diameter 150mm cased to 6.20m		Ground Level (mOD) 91.00		Client Countryside Properties PLC		Job Number J16202		
		Location 536750 E 240643 N		Dates 19/12/2016- 20/12/2016		Engineer		Sheet 3/3		
Depth (m)	Sample / Tests	Casing Depth (m)	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
20.00-20.45	SPT N=50			3,5/6,9,13,22						
Remarks								Scale (approx) 1:50	Logged By LB	
								Figure No. J16202.BH8		

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP1	
Excavation Method JCB 3CX		Dimensions 2200 x 600 x 1000		Ground Level (mOD) 107.00		Client Countryside Properties PLC		Job Number J16202	
		Location 537155 E 240593 N		Dates 07/09/2016		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.80	B			106.70 106.00	(0.30) 0.30 (0.70) 1.00	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: Very weak, low-density, white with orange and brown staining, CHALK. Fractures medium spaced, infilled, becoming very closely spaced and clean with depth (Grade C5, becoming grade B5) Complete at 1.00m		 	
Plan						Remarks Groundwater was not encountered Sides of trial pit remained stable during excavation			
						Scale (approx) 1:50		Logged By LB	
						Figure No. J16202.TP1			

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP2	
Excavation Method JCB 3CX		Dimensions 2200 x 600 x 900		Ground Level (mOD) 110.00		Client Countryside Properties PLC		Job Number J16202	
		Location 537052 E 240554 N		Dates 07/09/2016		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.90	B			109.70 109.10	(0.30) 0.30 (0.60) 0.90	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: Very weak, low-density, white with orange and brown staining, CHALK. Fractures medium spaced, infilled, becoming very closely spaced and clean with depth (Grade C5, becoming grade B5) Complete at 0.90m		 	
Plan						Remarks			
. .						Groundwater was not encountered Sides of trial pit remained stable during excavation			
						Scale (approx) 1:50		Logged By LB	
						Figure No. J16202.TP2			

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP3	
Excavation Method JCB 3CX		Dimensions 2600 x 600 x 1200		Ground Level (mOD) 73.00		Client Countryside Properties PLC		Job Number J16202	
		Location 536945 E 240772 N		Dates 07/09/2016		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
1.00	B			72.40 71.80	(0.60) 0.60	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal, tile and brick fragments, and flint cobbles gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine)			
					(0.60) 1.20	CHALK: Very weak, low-density, white with orange and brown staining, CHALK. Fractures medium spaced, infilled, becoming very closely spaced and clean with depth (Grade C5, becoming grade B5)			
					Complete at 1.20m				
Plan						Remarks			
.						Groundwater was not encountered Sides of trial pit remained stable during excavation			
.									
.									
.									
.									
.									
						Scale (approx) 1:50	Logged By LB	Figure No. J16202.TP3	



Widbury Barn
Widbury Hill
Ware, Herts
SG12 7QE

Site

Newmarket Road, Royston SG8 7NJ

Trial Pit Number
TP4

Excavation Method

JCB 3CX

Dimensions

2400 x 800 x 950

Ground Level (mOD)

96.00

Client	
---------------	--

Countryside Properties PLC

Job Number
J16202

Location

536738 E 240556 N

Dates

07/09/2016

Engineer

Sheet
1/1

Dept
(m)

Sample / Tests

Water
Depth
(m)

Field Records

Level
(mOD)Depth
(m)
(Thickness)

Description

Legend

Water

95.72

(0.28)

0.28

(0.67)

95.05

0.95

MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments and flint cobbles, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine)

CHALK: Very weak, low-density, white with orange and brown staining, CHALK. Fractures medium spaced, infilled, becoming very closely spaced and clean with depth (Grade C5, becoming grade B5)

Complete at 0.95m

Plan

Remarks

Groundwater was not encountered
Sides of trial pit remained stable during excavation

Scale (approx)

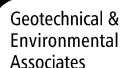
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Logged By

LB

Figure No.

J16202.TP4



Widbury Barn
Widbury Hill
Ware, Herts
SG12 7QE

Site

Newmarket Road, Royston SG8 7NJ

**Trial Pit
Number**
TP6

Excavation Method

JCB 3CX

Dimensions

2.1 x 0.7 x 2.5

Ground Level (mOD)

84.00

Client	
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Countryside Properties PLC

Job Number
J16202

Location

536710 E 240702 N

Dates

21/09/2016

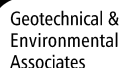
Engineer

Sheet

1/1

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Plan 	Remarks Groundwater was not encountered Sides of trial pit remained stable during excavation		



Widbury Barn
Widbury Hill
Ware, Herts
SG12 7QE

Site

Newmarket Road, Royston SG8 7NJ

**Trial Pit
Number**
TP7

Excavation Method

JCB 3CX

Dimensions

2.1 x 0.9 x 2.9

Ground Level (mOD)

87.00

Client	
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Countryside Properties PLC

Job Number	J16202
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Location

537029 E 240753 N

Dates

21/09/2016

Engineer

Sheet
1/1

Depth
(m)

Sample / Tests

Water
Depth
(m)

Field Records

Level
(mODDepth
(m)
(Thickness)

Description

Legend

Water

1.40
1.40
1.40

BBB

86.60

(0.40)
0.40

MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments and flint cobbles, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine)

CHALK: Very weak, low density off-white / cream with frequent orange staining and rare black specks silty CHALK, with scattered flint gravel. Fractures are very closely spaced, infilled with light brown-communitated chalk (Grade C5). The upper 200 mm has patches that are structureless (Grade Dc / Dm). At depth the fractures become open and clean, with patches of structureless chalk (Grade C5 to B4). From about 2.00 m the chalk fractures become more prominent (Grade B3).

84.10

2.90

Complete at 2.90m

Plan

Remarks

Groundwater was not encountered
Sides of trial pit remained stable during excavation

Scale (approx)

1:50

Logged By

LB

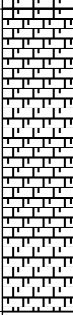
Figure No.

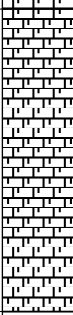
J16202.TP7

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP8	
Excavation Method JCB 3CX		Dimensions 2900 x 700 x 3000		Ground Level (mOD)		Client Countryside Properties PLC		Job Number J16202	
		Location		Dates 01/11/2016		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.50	D				(0.25) 0.25 (0.35) 0.60	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine)			
1.00	D				(1.00)	CHALK: structured, very weak to weak, low density, offwhite CHALK, with brown clay and communited chalk infill and orange staining (Grade C5)			
1.50	B				1.60	CHALK: structured, very weak, low density, white with black specks CHALK with open clean discontinuities, shell fragments and orange staining (Grade B5)			
2.00	B				(1.40)	CHALK: structured, very weak, low density white CHALK, with open clean discontinuities and orange staining (Grade B4, becoming B3 at 2.00 m)			
2.50	B					Flint cobble band			
3.00	B				3.00	Complete at 3.00m			
Plan						Remarks Groundwater was not encountered			
.									
.									
.									
.									
.									
.									
Scale (approx) 1:50				Logged By LB		Figure No. J16202.TP8			

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP9		
Excavation Method JCB 3CX		Dimensions 3500 x 700 x 3300		Ground Level (mOD)		Client Countryside Properties PLC		Job Number J16202		
		Location		Dates 01/11/2016		Engineer		Sheet 1/1		
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
0.50	D				(0.28) 0.28 (0.22) 0.50	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: structured, very weak, low density, offwhite CHALK, with structureless patches (Grade Dm), brown infill of clay and communited chalk and orange staining (Grade C5)		 		
1.00	D					CHALK: structured, very weak, low density, white CHALK, with open and clean discontinuities and orange staining (Grade B4, becoming B2 at 1.80 m)				
1.50	D									
2.00	B				(2.80)	Black specks				
2.50	B					Band of large flint cobbles				
3.00	B					Band of large flint cobbles				
3.30	B				3.30	Complete at 3.30m				
Plan .						Remarks Groundwater was not encountered Sides of trial pit remained stable during excavation				
						Scale (approx) 1:50		Logged By LB		Figure No. J16202.TP9

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP10		
Excavation Method JCB 3CX		Dimensions 2900 x 700 x 3000		Ground Level (mOD)		Client Countryside Properties PLC		Job Number J16202		
		Location				Dates 01/11/2016		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
0.50	D				(0.36) 0.36 (0.24) 0.60	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: structureless CHALK, composed of an offwhite and brown matrix of clay and comminuted chalk and white silty chalk gravel (Grade Dm/Dc)		 		
1.00	D					CHALK: structured, very weak, low density, offwhite CHALK, with orange staining and scattered flint gravel and cobbled (Grade C5, becoming B3 at 1.20 m)				
1.50	D				(2.40)					
2.00	D									
2.50	D									
3.00	D				3.00	Complete at 3.00m				
Plan .						Remarks Groundwater was not encountered Sides of trial pit remained stable during excavation				
						Scale (approx) 1:50		Logged By LB		Figure No. J16202.TP10

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP11	
Excavation Method JCB 3CX		Dimensions 2500 x 700 x 2500		Ground Level (mOD)		Client Countryside Properties PLC		Job Number J16202	
		Location		Dates 01/11/2016		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.50	D				0.30 0.30 0.20 0.50	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: structureless CHALK, composed of a brown matrix of clay and comminuted chalk and white chalk gravel (Grade Dm/Dc)		 	
1.00	D					CHALK: structured, very weak, low density, offwhite to white CHALK, with open, clean discontinuities and orange staining (Grade C5 to B3) Bands of flint gravel and cobbles at 0.80 m, 1.20 m and 2.50 m			
1.50	D				(2.00)				
2.00	D								
2.50	D				2.50	Complete at 2.50m			
Plan						Remarks Groundwater was not encountered Sides of trial pit remained stable during excavation			
						Scale (approx) 1:50	Logged By LB	Figure No. J16202.TP11	

 Geotechnical & Environmental Associates				Widbury Barn Widbury Hill Ware, Herts SG12 7QE		Site Newmarket Road, Royston SG8 7NJ		Trial Pit Number TP12		
Excavation Method JCB 3CX		Dimensions 2200 x 700 x 2500		Ground Level (mOD)		Client Countryside Properties PLC		Job Number J16202		
		Location				Dates 01/11/2016		Engineer		Sheet 1/1
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water	
0.50	D				(0.30) 0.30 (0.20) 0.50	MADE GROUND (light brownish grey sandy gravelly silt with rootlets, metal fragments, gravel of chalk and flint is fine-medium, angular-rounded, sand is very fine to fine) CHALK: structureless CHALK, composed of a brown matrix of clay and commuted chalk and white chalk gravel (Grade Dm/Dc)		 		
1.00	D					CHALK: structured, very weak, low density, offwhite to white CHALK, with open, clae discontinuities and orange staining (Grade C5 to B3)				
1.50	D				(2.00)					
2.00	B									
2.50	B				2.50	Patches of structureless putty chalk Complete at 2.50m				
Plan .					Remarks 					
					Scale (approx) 1:50		Logged By LB		Figure No. J16202.TP12	

Site	Newmarket Road, Royston SG8 7NJ	Job Number	J16202
Client	Countryside Properties PLC	Sheet	1/3
Engineer			

Trial Pit No: 1
Dimensions (m): 2.2 x 0.6 x 1.0

Soakage Test No: 1

Time (mins)	Depth to water (m)
0	0.70
1	0.70
2	0.70
3	0.70
4	0.70
5	0.70
6	0.70
7	0.70
10	0.70
15	0.70
20	0.70
25	0.71
30	0.72
45	0.75
60	0.75
90	0.77
120	0.79
180	0.8

Trial Pit No: 2
Dimensions (m): 2.2 x 0.6 x 0.9

Soakage Test No: 1

Time (mins)	Depth to water (m)
0	0.75
0.5	0.75
1	0.75
2	0.75
3	0.75
4	0.76
5	0.76
6	0.76
7	0.77
10	0.78
15	0.79
20	0.81
25	0.82
30	0.82
60	0.92
90	DRY

Site	Newmarket Road, Royston SG8 7NJ	Job Number	J16202
Client	Countryside Properties PLC	Sheet	2/3
Engineer			

Trial Pit No: 3
Dimensions (m): 2.6 x 0.6 x 1.2

Soakage Test No: 1

Time (mins)	Depth to water (m)
0	0.89
0.5	0.89
1	0.90
2	0.90
3	0.90
4	0.90
5	0.91
6	0.92
7	0.92
10	0.93
15	0.95
25	1.01
30	1.01
45	1.06
60	1.08
90	1.11
120	1.17

Trial Pit No: 5
Dimensions (m): 2.6 x 0.7 x 2.4

Soakage Test No: 1

Time (mins)	Depth to water (m)
0	1.40
1	1.44
2	1.44
3	1.45
4	1.47
5	1.48
6	1.49
7	1.52
10	1.55
15	1.60
20	1.65
25	1.70
30	1.78
60	1.87
90	1.98
110	2.28
refill	110
	1.66
	111
	1.67
	112
	1.69
	113
	1.70
	114
	1.72
	115
	1.76
	150
	1.99
	226
	2.4

Site	Newmarket Road, Royston SG8 7NJ	Job Number	J16202
Client	Countryside Properties PLC	Sheet	3/3
Engineer			

Trial Pit No: 6
Dimensions (m): 2.1 x 0.7 x 2.5

Soakage Test No: 1

Time (mins)	Depth to water (m)
0	1.17
1	1.20
2	1.21
3	1.26
4	1.27
5	1.28
6	1.29
7	1.31
10	1.35
15	1.40
25	1.44
30	1.50
60	1.63
90	1.71
120	1.84
180	1.90

Trial Pit No: 7
Dimensions (m): 2.1 x 0.9 x 2.9

Soakage Test No: 1

Time (mins)	Depth to water (m)
0	2.12
1	2.28
2	2.36
3	2.40
4	2.49
5	2.49
6	2.58
7	2.59
8	2.64
9	2.67
10	2.68
11	2.69
13	2.73
14	2.75
15	2.79
17	2.86
18	2.89
19	DRY

Site Newmarket Road, Royston SG8 7NJ

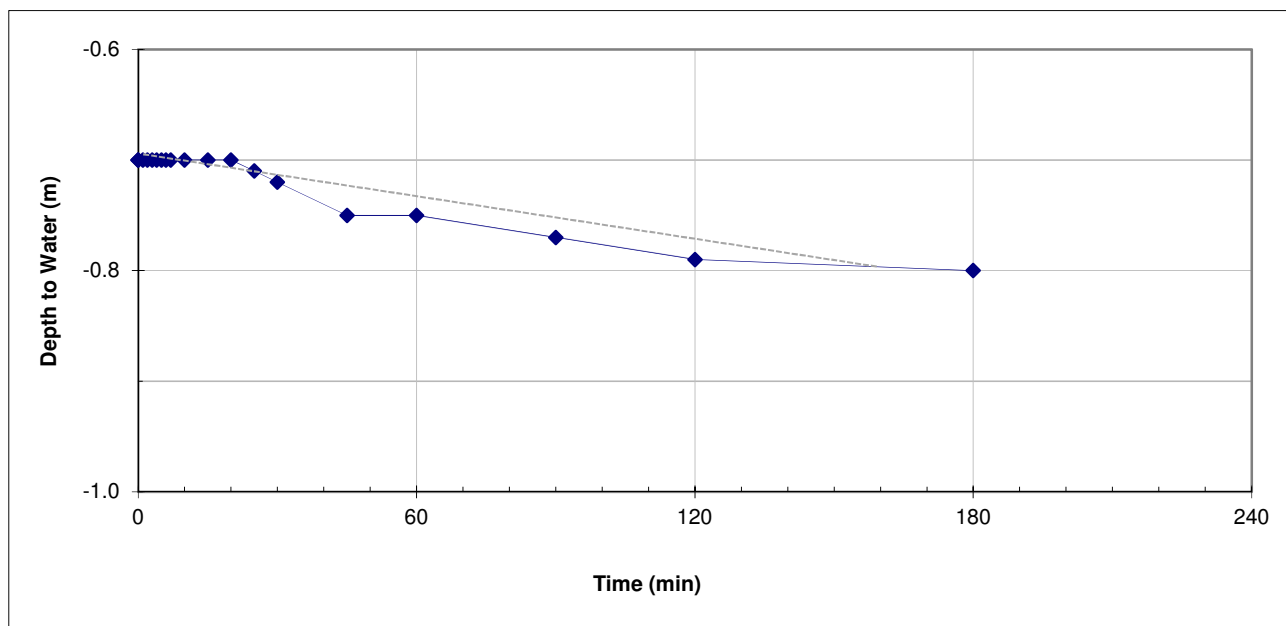
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Engineer

Job Number
J16202

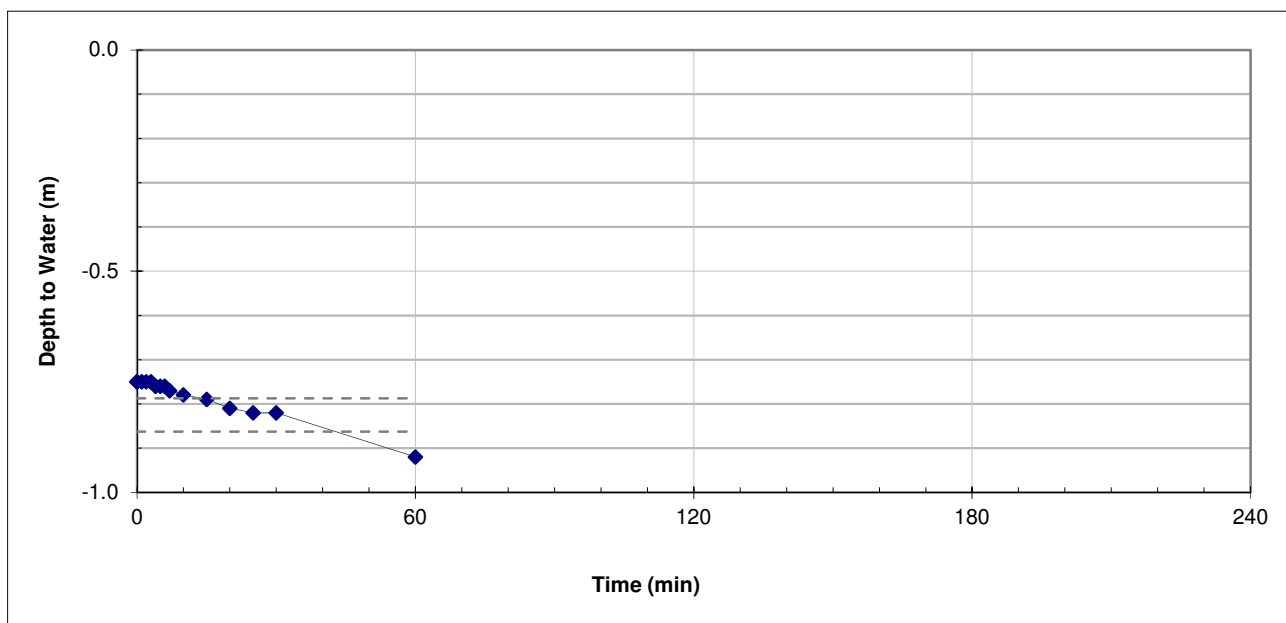
Sheet
1/3

Trial Pit No. TP1 Soakage Test No. 1
Pit Length (m) 2.2 Pit Width (m) 0.6 Pit Depth (m) 1



Design Soakage Rate 5.1E-06 m/s (based on linear portion of graph as shown)
0.44 m/day

Trial Pit No. TP2 Soakage Test No. 1
Pit Length (m) 2.2 Pit Width (m) 0.6 Pit Depth (m) 0.9



Design Soakage Rate 3.5E-05 m/s (based on BRE 365 method)
3.04 m/day

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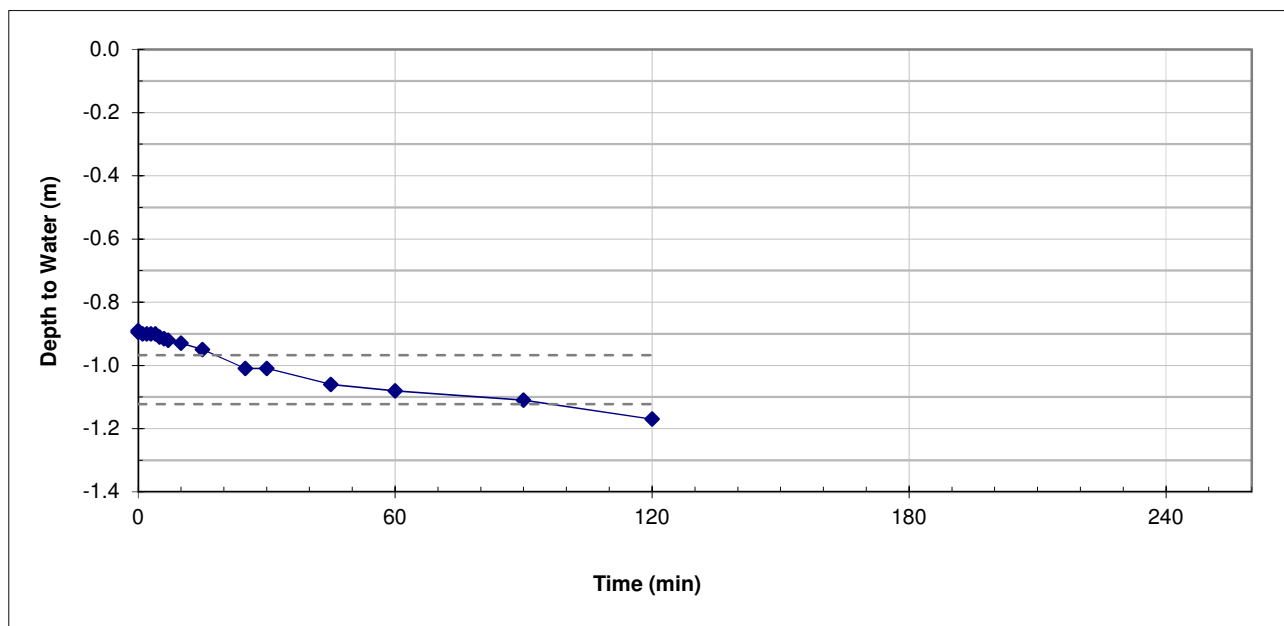
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Job Number
J16202

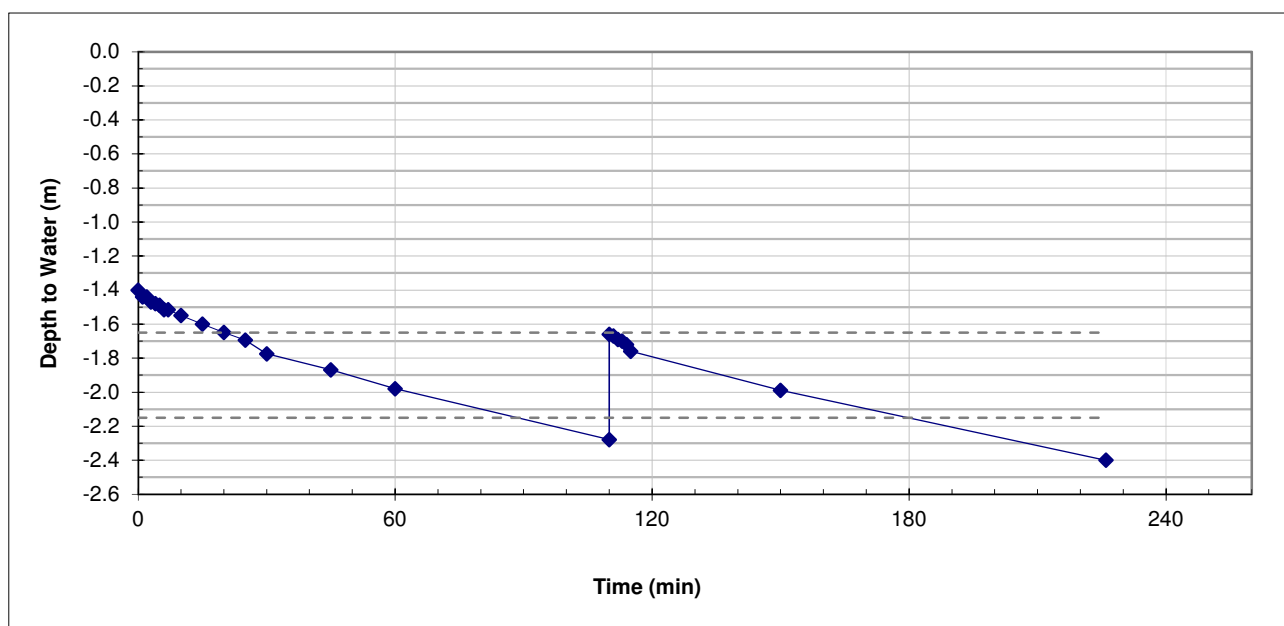
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2/3

Trial Pit No. TP3 Soakage Test No. 1
Pit Length (m) 2.6 Pit Width (m) 0.6 Pit Depth (m) 1.2



Design Soakage Rate 2.0E-05 m/s (based on BRE 365 method)
1.73 m/day

Trial Pit No. TP5 Soakage Test No. 1
Pit Length (m) 2.6 Pit Width (m) 0.7 Pit Depth (m) 2.4



Design Soakage Rate 4.4E-05 m/s (based on BRE 365 method)
3.82 m/day

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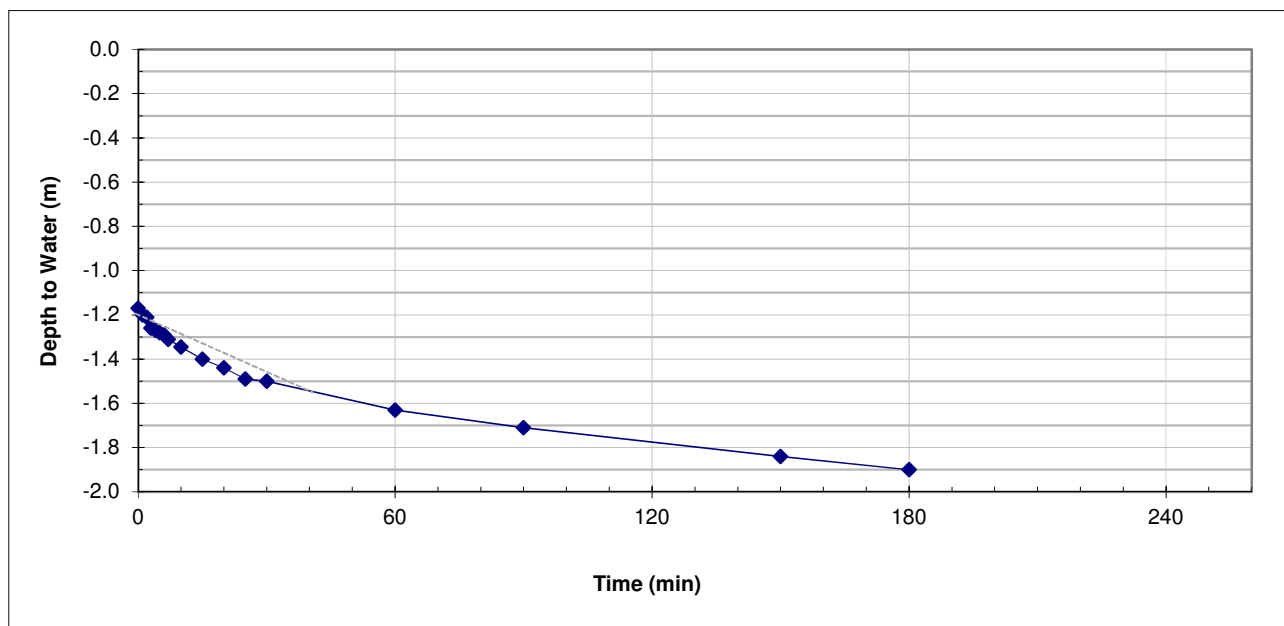
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Engineer

Job Number
J16202

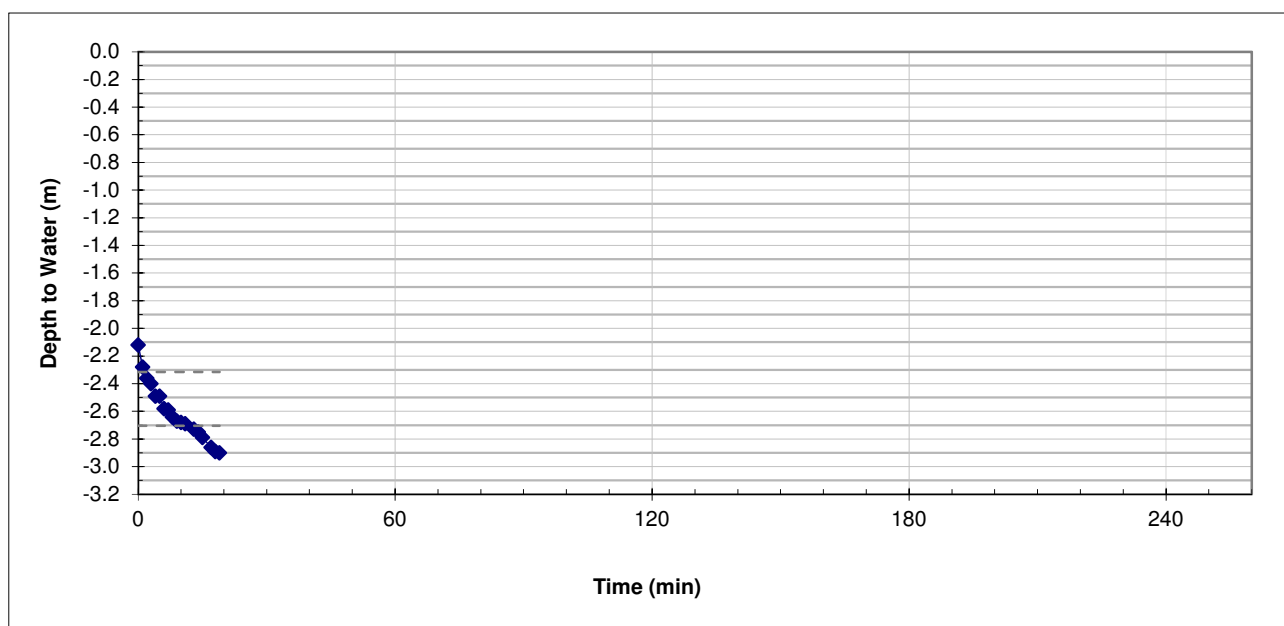
Sheet
3/3

Trial Pit No. TP6 Soakage Test No. 1
Pit Length (m) 2.1 Pit Width (m) 0.7 Pit Depth (m) 2.5



Design Soakage Rate 3.0E-05 m/s (based on linear portion of graph as shown)
2.57 m/day

Trial Pit No. TP7 Soakage Test No. 1
Pit Length (m) 2.1 Pit Width (m) 0.9 Pit Depth (m) 2.9



Design Soakage Rate 2.9E-04 m/s (based on BRE 365 method)
25.09 m/day



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Borehole Soakage Test

Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 18 November 2016

Borehole No: 6

Test No: 1

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 5.00

Casing depth (m): 1.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 2
D2 (m) 1.4
T1 (min) 3
T2 (min) 25

Time (mins)	Depth to Water (m)	Depth of Water (m)
1	2.80	2.20
2	2.94	2.06
3	3.00	2.00
4	3.05	1.95
5	3.10	1.90
6	3.13	1.87
7	3.17	1.83
8	3.20	1.80
9	3.23	1.77
10	3.27	1.73
15	3.39	1.61
20	3.50	1.50
25	3.60	1.40

Soakage Volume (m³) 0.011

Soakage Area (m²) 0.82

Time (min) 22

Soakage rate (m/sec) 9.81033E-06

Soakage rate (m/day) 0.847612819

Remarks:

Test carried out in cable percussion borehole
Borehole collapsed to 3.6 m after 25 minutes



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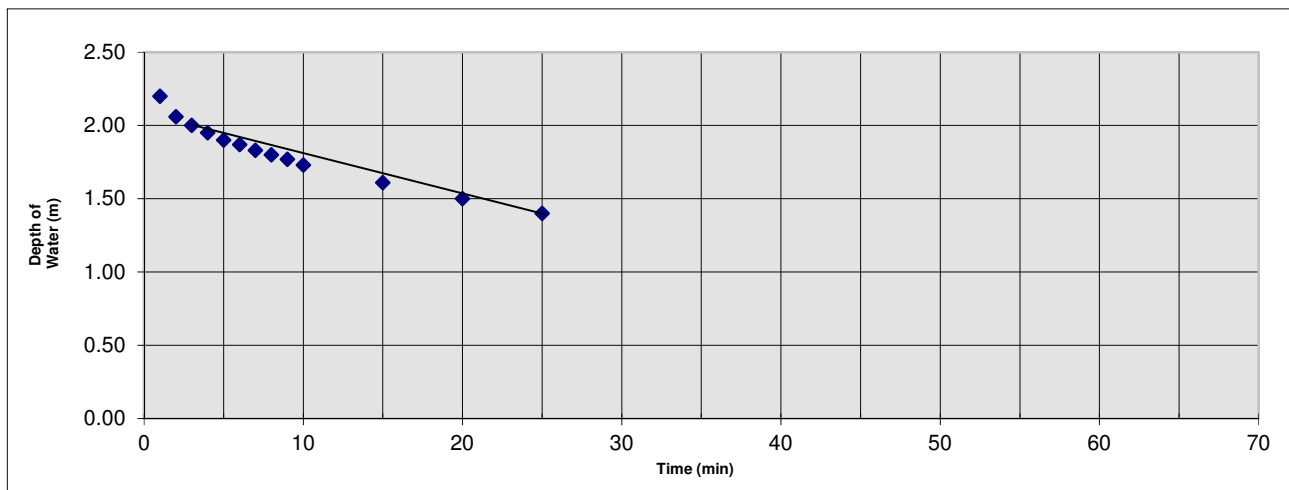
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 1



Remarks:

Test carried out in Cable percussion borehole
Borehole collapsed to 3.6 m after 25 minutes



Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 22 November 2016

Borehole No: 6

Test No: 2

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 10.00

Casing depth (m): 1.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 3.3

D2 (m) 1.1

T1 (min) 2.5

T2 (min) 20

Time (mins)	Depth to Water (m)	Depth of Water (m)
-------------	-----------------------	-----------------------

1	5.95	4.05
---	------	------

2	6.31	3.69
---	------	------

3	6.63	3.37
---	------	------

4	6.92	3.08
---	------	------

5	7.18	2.82
---	------	------

6	7.40	2.60
---	------	------

7	7.60	2.40
---	------	------

8	7.78	2.22
---	------	------

9	7.94	2.06
---	------	------

10	8.09	1.91
----	------	------

15	8.68	1.32
----	------	------

20	8.90	1.10
----	------	------

Soakage Volume (m³) 0.039

Soakage Area (m²) 1.05

Time (min) 18

Soakage rate (m/sec)	3.51157E-05
-----------------------------	-------------

Soakage rate (m/day)	3.033998404
-----------------------------	-------------

Remarks:

Test carried out in Cable percussion borehole

Borehole collapsed to 8.9 m after 20 minutes



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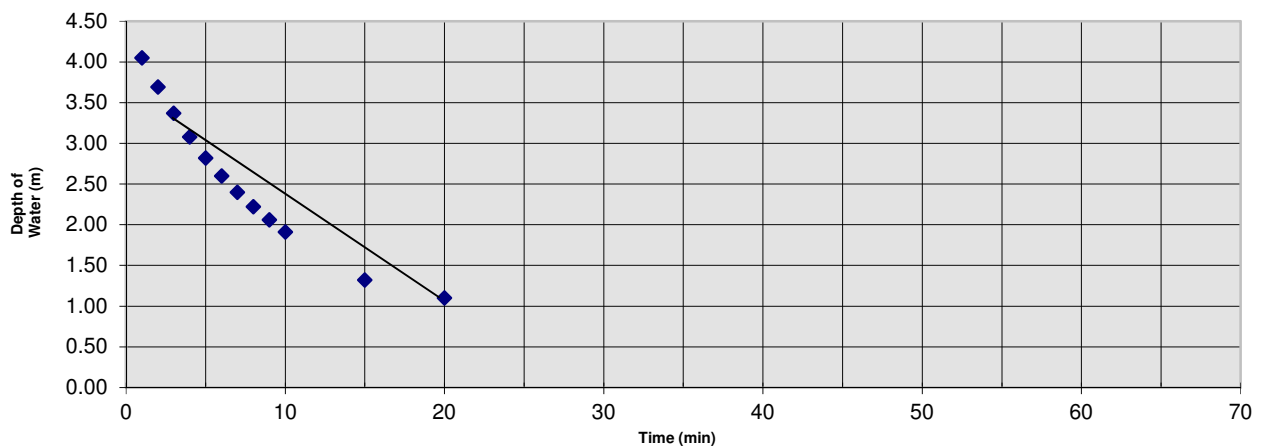
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 2



Remarks:

Test carried out in Cable percussion borehole
Borehole collapsed to 8.9 m after 20 minutes



Borehole Soakage Test

Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 22 November 2016

Borehole No: 6

Test No: 3

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 15.00

Casing depth (m): 1.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 4.2

D2 (m) 3.2

T1 (min) 10

T2 (min) 60

Time (mins)	Depth to Water (m)	Depth of Water (m)
-------------	-----------------------	-----------------------

1	8.70	6.30
---	------	------

2	9.54	5.46
---	------	------

3	9.96	5.04
---	------	------

4	10.20	4.80
---	-------	------

5	10.38	4.62
---	-------	------

6	10.52	4.48
---	-------	------

7	10.65	4.35
---	-------	------

8	10.74	4.26
---	-------	------

9	10.80	4.20
---	-------	------

10	10.84	4.16
----	-------	------

15	11.00	4.00
----	-------	------

20	11.17	3.83
----	-------	------

25	11.32	3.68
----	-------	------

30	11.43	3.57
----	-------	------

35	11.55	3.45
----	-------	------

40	11.61	3.39
----	-------	------

45	11.66	3.34
----	-------	------

50	11.69	3.31
----	-------	------

55	11.72	3.28
----	-------	------

60	11.74	3.26
----	-------	------

Soakage Volume (m³) 0.018

Soakage Area (m²) 1.76

Time (min) 50

Soakage rate (m/sec) 3.34448E-06

Soakage rate (m/day) 0.288963211

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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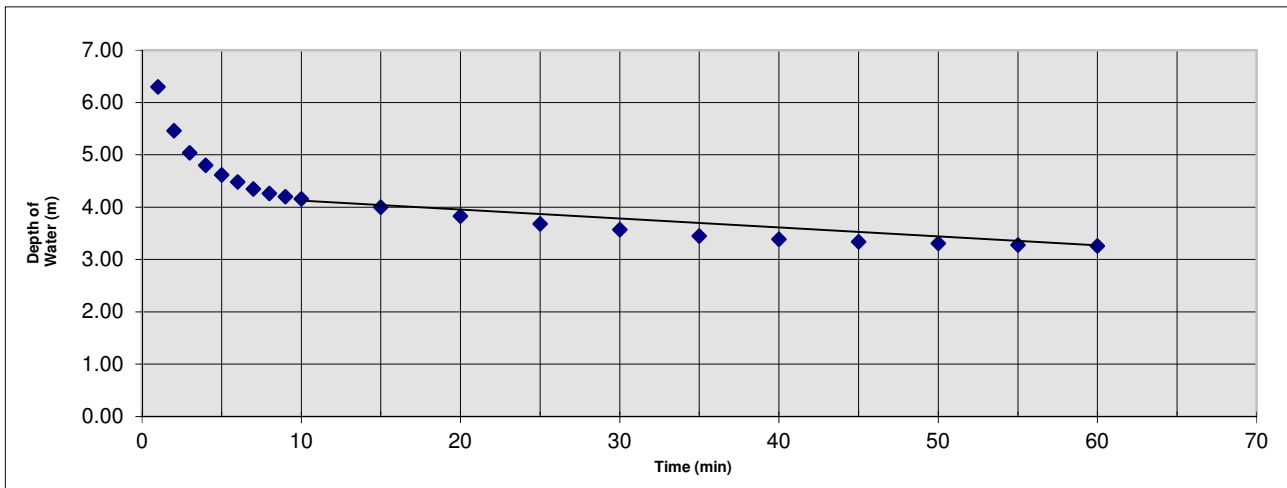
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 3



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 22 November 2016

Borehole No: 6

Test No: 4

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 20.00

Casing depth (m): 1.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 0.35

D2 (m) 0

T1 (min) 1

T2 (min) 3

Time (mins)	Depth to Water (m)	Depth of Water (m)
-------------	-----------------------	-----------------------

1	19.65	0.35
---	-------	------

2	19.95	0.05
---	-------	------

3	20.00	0.00
---	-------	------

Soakage Volume (m³) 0.006

Soakage Area (m²) 0.10

Time (min) 2

Soakage rate (m/sec)	5.14706E-04
-----------------------------	-------------

Soakage rate (m/day)	44.47058824
-----------------------------	-------------

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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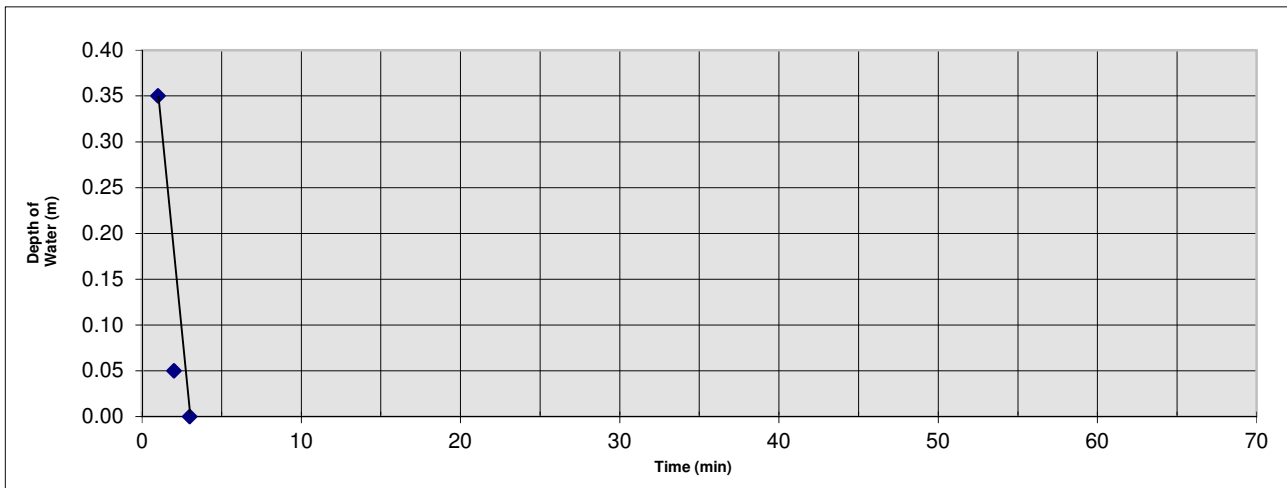
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 4



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Site Newmarket Road, Royston, Herts, SG8 7NJ

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Engineer

Job Number
J16202

Sheet
1/2

Date: 19 December 2016

Borehole No: 8

Test No: 1

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 5.50

Casing depth (m): 3.20

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m²) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 4.5

D2 (m) 0.8

T1 (min) 2

T2 (min) 30

Time (mins)	Depth to Water (m)	Depth of Water (m)
-------------	-----------------------	-----------------------

1	0.86	4.64
---	------	------

2	1.07	4.43
---	------	------

3	1.19	4.31
---	------	------

4	1.32	4.18
---	------	------

5	1.40	4.10
---	------	------

10	2.52	2.98
----	------	------

15	3.10	2.40
----	------	------

20	3.50	2.00
----	------	------

30	4.70	0.80
----	------	------

45	4.90	0.60
----	------	------

Soakage Volume (m³) 0.065

Soakage Area (m²) 1.27

Time (min) 28

Soakage rate (m/sec) 3.07309E-05

Soakage rate (m/day) 2.655149502

Remarks:

Test carried out in Cable percussion borehole

Sides of borehole remained stable during test



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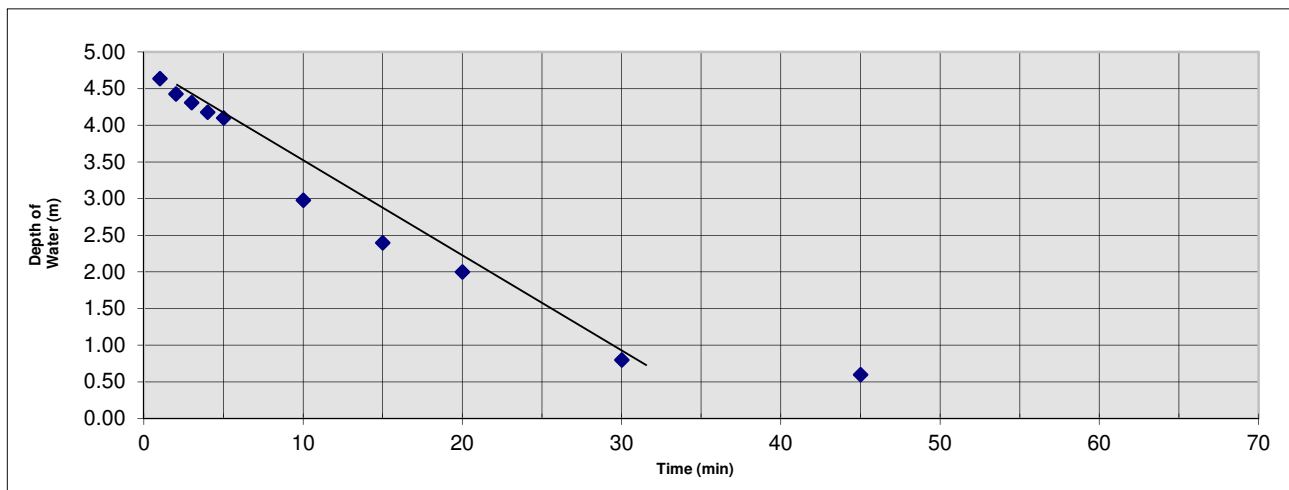
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 1



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 20 December 2016

Borehole No: 7

Test No: 1

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 6.50

Casing depth (m): 5.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 6.2

D2 (m) 2

T1 (min) 0

T2 (min) 35

Time (mins)	Depth to Water (m)	Depth of Water (m)
0	0.00	6.50
1	0.40	6.10
2	0.80	5.70
3	1.20	5.30
4	1.55	4.95
5	1.95	4.55
10	2.95	3.55
15	3.75	2.75
20	4.25	2.25
30	4.60	1.90
45	5.50	1.00

Soakage Volume (m³) 0.074

Soakage Area (m²) 1.95

Time (min) 35

Soakage rate (m/sec) 1.81269E-05

Soakage rate (m/day) 1.566163142

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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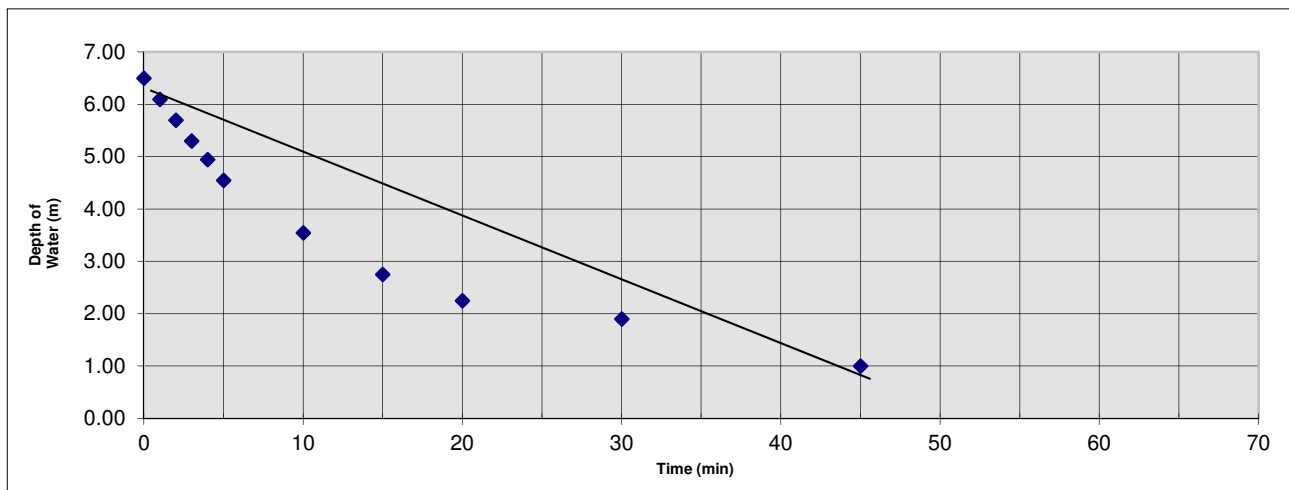
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Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 1



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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Job Number
J16202

Sheet
1/2

Date: 20 November 2016

Borehole No: 7

Test No: 2

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 10.00

Casing depth (m): 5.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 3.5

D2 (m) 1.3

T1 (min) 0

T2 (min) 5

Time (mins)	Depth to Water (m)	Depth of Water (m)
-------------	-----------------------	-----------------------

0	6.10	3.90
---	------	------

1	7.20	2.80
---	------	------

2	8.00	2.00
---	------	------

3	8.50	1.50
---	------	------

4	8.80	1.20
---	------	------

5	9.00	1.00
---	------	------

10	9.50	0.50
----	------	------

15	Sludge	
----	--------	--

Soakage Volume (m³) 0.039

Soakage Area (m²) 1.15

Time (min) 5

Soakage rate (m/sec) 1.12821E-04

Soakage rate (m/day) 9.747692308

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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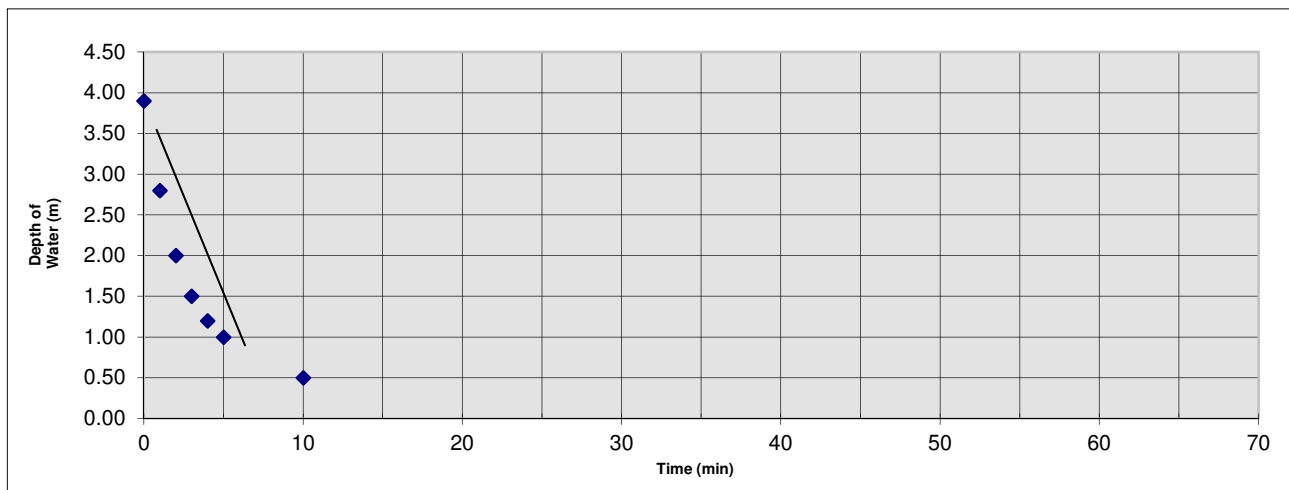
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 2



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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Borehole Soakage Test

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Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 21 November 2016

Borehole No: 7

Test No: 3

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 15.00

Casing depth (m): 5.00

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 3.6

D2 (m) 0.8

T1 (min) 0

T2 (min) 15

Time (mins)	Depth to Water (m)	Depth of Water (m)
0	10.50	4.50
1	11.50	3.50
2	12.00	3.00
3	12.50	2.50
4	12.90	2.10
5	13.30	1.70
10	13.90	1.10
15	14.10	0.90
30	14.40	0.60
45	14.50	0.50
60	14.70	0.30

Soakage Volume (m³) 0.049

Soakage Area (m²) 1.05

Time (min) 15

Soakage rate (m/sec) 5.21415E-05

Soakage rate (m/day) 4.505027933

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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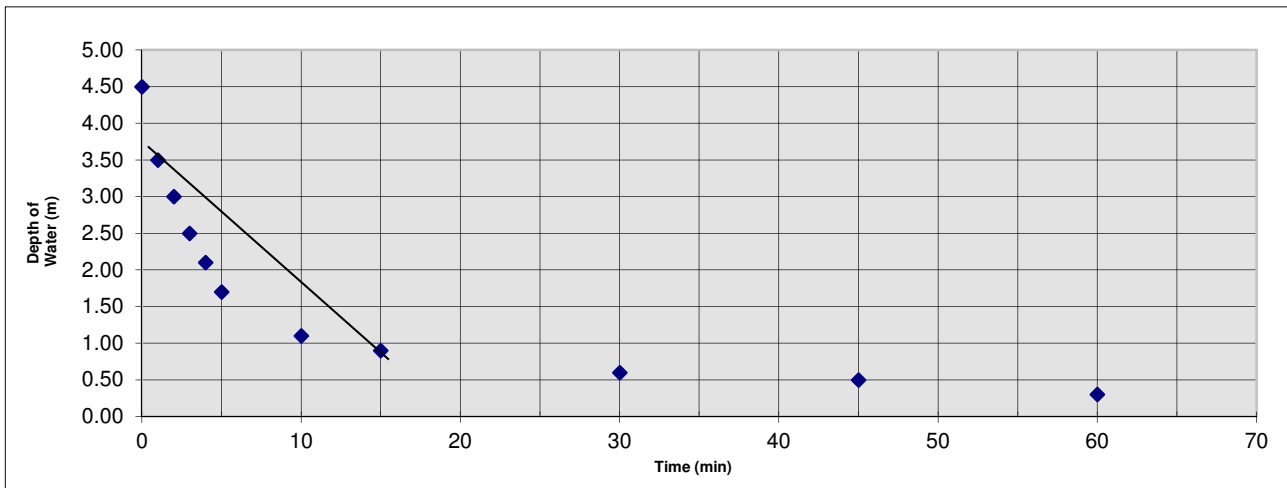
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Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 3



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 19 December 2016

Borehole No: 8

Test No: 2

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 10.00

Casing depth (m): 6.20

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 7

D2 (m) 1

T1 (min) 1

T2 (min) 30

Time (mins)	Depth to Water (m)	Depth of Water (m)
0	1.90	8.10
1	2.90	7.10
2	3.15	6.85
3	3.35	6.65
4	3.60	6.40
5	3.80	6.20
10	4.90	5.10
15	5.90	4.10
20	6.85	3.15
30	8.80	1.20
45	9.55	0.45

Soakage Volume (m³) 0.106

Soakage Area (m²) 1.90

Time (min) 29

Soakage rate (m/sec) 3.20273E-05

Soakage rate (m/day) 2.767161311

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



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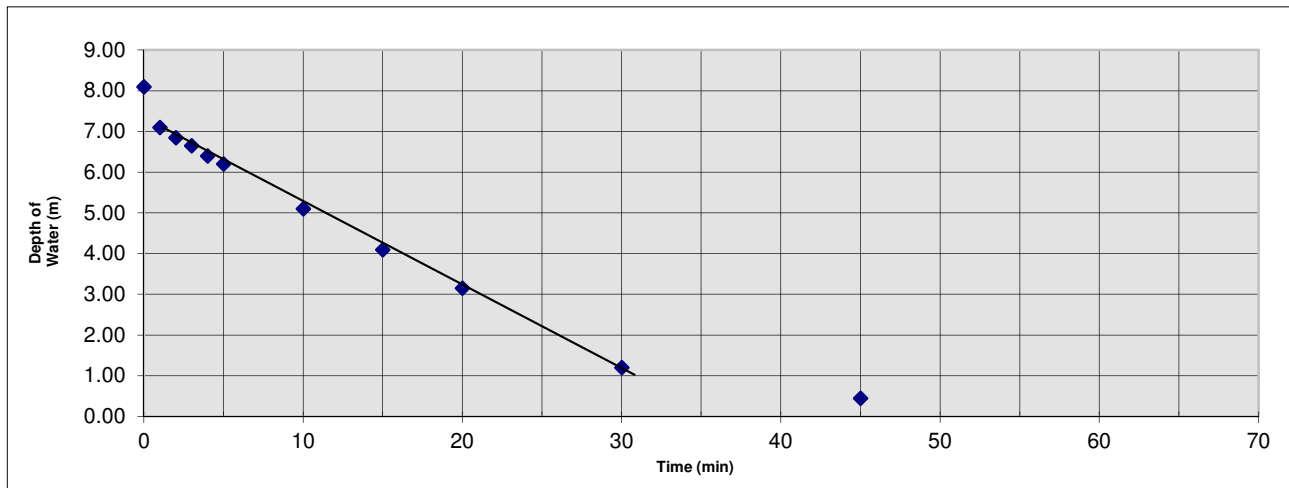
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 2



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 19 December 2016

Borehole No: 8

Test No: 3

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 15.00

Casing depth (m): 6.20

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 10
D2 (m) 1.9
T1 (min) 1
T2 (min) 10

Time (mins)	Depth to Water (m)	Depth of Water (m)
0	5.00	10.00
2	5.50	9.50
4	6.00	9.00
6	6.40	8.60
8	6.80	8.20
10	7.20	7.80
15	8.20	6.80
20	9.20	5.80
30	10.90	4.10
45	13.10	1.90

Soakage Volume (m³) 0.143

Soakage Area (m²) 2.82

Time (min) 9

Soakage rate (m/sec) 9.39457E-05

Soakage rate (m/day) 8.11691023

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Geotechnical &
Environmental
Associates

Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

Borehole Soakage Test

Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

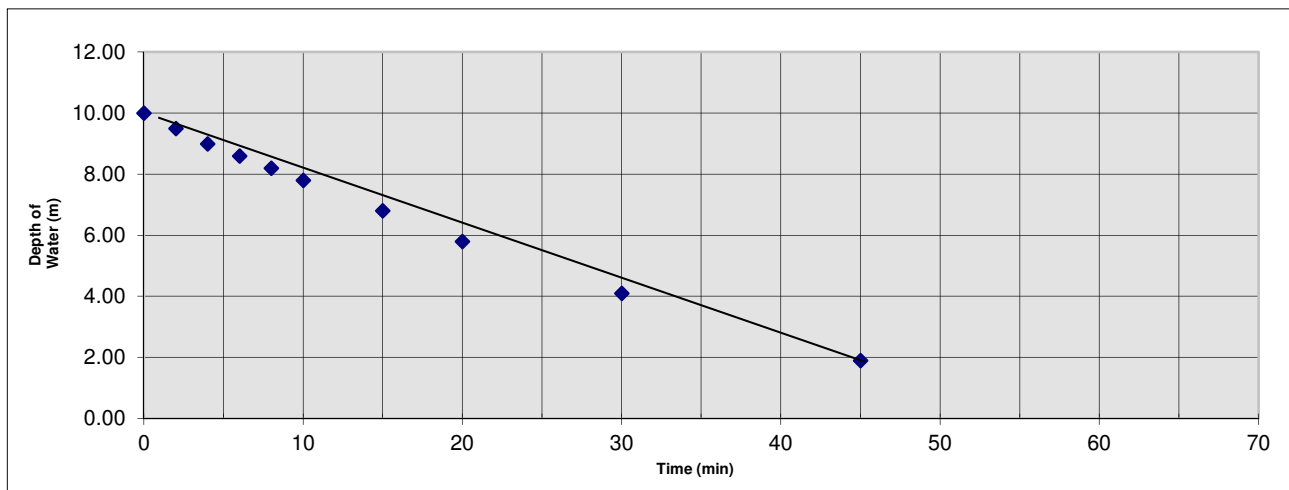
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 3



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

Engineer

Job Number
J16202

Sheet
1/2

Date: 20 December 2016

Borehole No: 8

Test No: 4

Test Data

Soakage Calculation

Before start of test:

Borehole depth (m): 20.00

Casing depth (m): 6.20

Water level (m): DRY

Borehole Diameter (m) 0.1500

Borehole Area (m) 0.0177

Borehole Perimeter (m) 0.471

From Plot: D1 (m) 6.5

D2 (m) 1.5

T1 (min) 0

T2 (min) 20

Time (mins)	Depth to Water (m)	Depth of Water (m)
0	13.50	6.50
1	13.50	6.50
2	14.00	6.00
3	14.50	5.50
4	15.00	5.00
5	15.50	4.50
10	17.00	3.00
15	18.00	2.00
20	18.50	1.50
30	18.90	1.10
45	19.50	0.50

Soakage Volume (m³) 0.088

Soakage Area (m²) 1.90

Time (min) 20

Soakage rate (m/sec) 3.86997E-05

Soakage rate (m/day) 3.343653251

Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Geotechnical &
Environmental
Associates

Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

Borehole Soakage Test

Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties

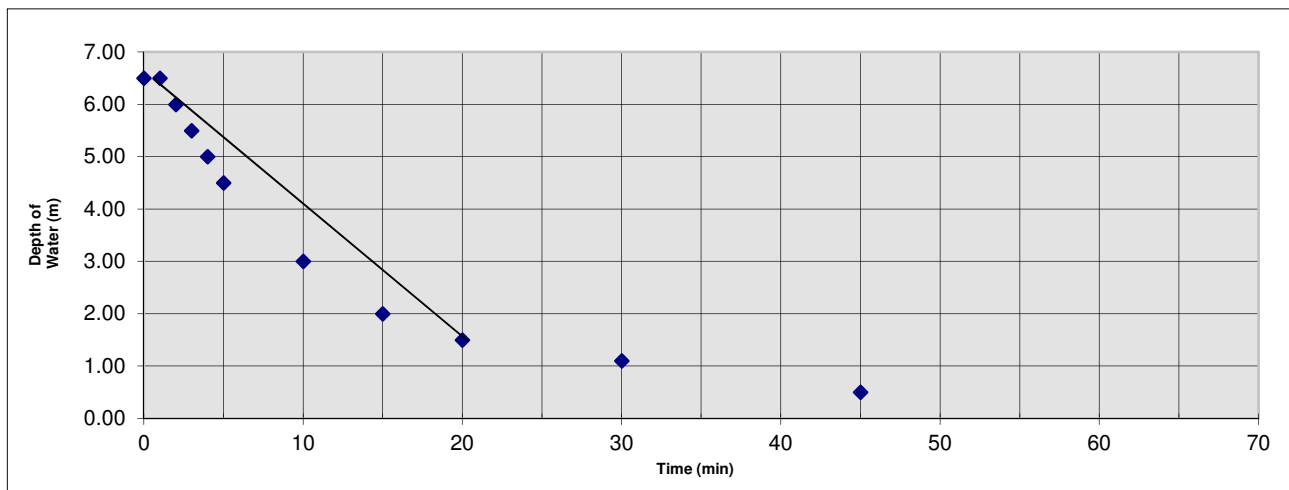
Engineer

Job Number
J16202

Sheet
2/2

Soakage Graph

Test No: 4



Remarks:

Test carried out in Cable percussion borehole
Sides of borehole remained stable during test



Saturation Moisture Content - Summary of Results
Tested in accordance with BS1377 : Part 2 : 1990, clause 3.3 unless annotated otherwise.

Job No. 21558	Project Name Royston	Programme	
		Samples received	08/09/2016
		Schedule received	20/10/2016
Project No. J16202	Client GEA	Project started	20/10/2016
		Testing Started	25/10/2016

Hole No.	Sample				Description	SMC %	NMC %	Bulk Density Mg/m3	Dry Density Mg/m3	Remarks - Sample size complies with BS1377:1990: Part 2 (Yes/No)
	Ref	Top	Base	Type						
BH3	-	4.00	-	D	Off white putty CHALK with fmc intact chalk fragments	27	27	2.00	1.57	No
BH4	-	3.00	-	D	Off white putty CHALK with fm intact chalk fragments	35	32	1.83	1.38	No
TP1	-	0.80	-	D	Fmc intact CHALK fragments	35	32	1.82	1.39	Yes
TP2	-	0.90	-	D	Fmc intact CHALK fragments	32	30	1.88	1.44	Yes
TP3	-	1.00	-	D	Fmc intact CHALK fragments	29	24	1.88	1.52	Yes

	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com								Checked and Approved	
									Initials	J.P
								Date:	26/10/2016	
2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)								MSF-5-R18	



Saturation Moisture Content - Summary of Results
Tested in accordance with BS1377 : Part 2 : 1990, clause 3.3 unless annotated otherwise.

Job No. 21882	Project Name Royston	Programme	
		Samples received	03/11/2016
		Schedule received	02/11/2016
Project No. J16202	Client GEA	Project started	03/11/2016
		Testing Started	03/11/2016

Hole No.	Sample				Description	SMC %	NMC %	Bulk Density Mg/m3	Dry Density Mg/m3	Remarks - Sample size complies with BS1377:1990: Part 2 (Yes/No)
	Ref	Top	Base	Type						
TP8	-	0.50	-	D	Off white fmc CHALK fragments	28	27	1.95	1.54	NO
TP8	-	1.00	-	D	Off white fmc CHALK fragments	32	30	1.90	1.46	NO
TP8	-	1.50	-	B	Off white fmc CHALK fragments	34	34	1.88	1.41	YES
TP8	-	2.00	-	B	Off white fmc CHALK fragments	33	32	1.89	1.44	YES
TP8	-	3.00	-	B	Off white fmc CHALK fragments	33	32	1.89	1.43	YES
TP9	-	0.50	-	D	Off white fmc CHALK fragments	28	26	1.94	1.54	NO
TP9	-	1.00	-	D	Off white fmc CHALK fragments	31	31	1.91	1.46	NO
TP9	-	1.50	-	D	Off white fmc CHALK fragments	31	31	1.91	1.46	NO
TP9	-	2.00	-	B	Off white fmc CHALK fragments	30	29	1.94	1.50	YES
TP9	-	3.00	-	B	Off white fmc CHALK fragments	30	30	1.94	1.50	YES
TP11	-	0.50	-	D	Off white fmc CHALK fragments	32	29	1.86	1.44	NO
TP11	-	1.00	-	D	Off white fmc CHALK fragments	30	29	1.92	1.49	NO

	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com								Checked and Approved	
									Initials	J.P
								Date:	04/11/2016	
2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)								MSF-5-R18	



Saturation Moisture Content - Summary of Results
Tested in accordance with BS1377 : Part 2 : 1990, clause 3.3 unless annotated otherwise.

Job No. 21882	Project Name Royston	Programme	
		Samples received	03/11/2016
		Schedule received	02/11/2016
Project No. J16202	Client GEA	Project started	03/11/2016
		Testing Started	03/11/2016

Hole No.	Sample				Description	SMC %	NMC %	Bulk Density Mg/m3	Dry Density Mg/m3	Remarks - Sample size complies with BS1377:1990: Part 2 (Yes/No)
	Ref	Top	Base	Type						
TP11	-	1.50	-	D	Off white fmc CHALK fragments	28	27	1.95	1.53	NO
TP11	-	2.00	-	D	Off white fmc CHALK fragments	31	30	1.91	1.47	NO
TP11	-	2.50	-	D	Off white fmc CHALK fragments	30	29	1.92	1.49	NO
TP12	-	0.50	-	D	Off white fmc CHALK fragments	32	30	1.88	1.45	NO
TP12	-	1.00	-	D	Off white fmc CHALK fragments	33	31	1.86	1.43	NO
TP12	-	1.50	-	D	Off white fmc CHALK fragments	35	30	1.82	1.39	YES
TP12	-	2.00	-	B	Off white fmc CHALK fragments	31	30	1.91	1.47	NO
TP12	-	2.50	-	B	Off white fmc CHALK fragments	32	31	1.89	1.44	NO

	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com								Checked and Approved	
									Initials	J.P
								Date:	04/11/2016	
2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)								MSF-5-R18	



Saturation Moisture Content - Summary of Results
Tested in accordance with BS1377 : Part 2 : 1990, clause 3.3 unless annotated otherwise.

Job No. 22049	Project Name Royston	Programme	
		Samples received	06/12/2016
		Schedule received	06/12/2016
Project No. J16202	Client GEA	Project started	06/12/2016
		Testing Started	07/12/2016

Hole No.	Sample				Description	SMC %	NMC %	Bulk Density Mg/m3	Dry Density Mg/m3	Remarks - Sample size complies with BS1377:1990: Part 2 (Yes/No)
	Ref	Top	Base	Type						
BH6	-	6.00	-	D	Off white putty CHALK with fmc intact chalk fragments	33	31	1.87	1.42	No
BH6	-	9.00	-	D	Off white putty CHALK with fmc intact chalk fragments	33	30	1.86	1.43	No
BH6	-	12.00	-	D	Off white putty CHALK with fmc intact chalk fragments	30	27	1.91	1.50	No
BH6	-	16.65	-	D	Off white putty CHALK with fmc intact chalk fragments	30	28	1.91	1.49	No
BH6	-	19.50	-	D	Off white and occasional brownish grey putty CHALK with fmc intact chalk fragments	30	28	1.91	1.50	No

	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com								Checked and Approved	
									Initials	J.P
								Date:	08/12/2016	
2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)								MSF-5-R18	

					Saturation Moisture Content - Summary of Results Tested in accordance with BS1377 : Part 2 : 1990, clause 3.3 unless annotated otherwise.							
Job No. 22171		Project Name Royston								Programme		
										Samples received	03/01/2017	
										Schedule received	09/01/2017	
Project No. J16202		Client GEA								Project started	10/01/2017	
										Testing Started	10/01/2017	
Hole No.	Sample				Description	SMC %	NMC %	Bulk Density Mg/m3	Dry Density Mg/m3	Remarks - Sample size complies with BS1377:1990: Part 2 (Yes/No)		
Ref	Top	Base	Type									
BH7	-	1.00	-	B	Off white fm intact CHALK fragments in a brown and off white chalky clayey matrix	27	27	1.97	1.55	No		
BH7	-	2.00	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	28	26	1.96	1.55	No		
BH7	-	4.00	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	29	29	1.96	1.52	No		
BH7	-	6.50	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	28	28	1.96	1.53	No		
BH7	-	7.75	-	D	Off white FMC intact CHALK fragments in a putty chalk matrix	33	31	1.88	1.44	No		
BH7	-	9.50	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	30	31	1.95	1.48	No		
BH7	-	12.50	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	33	32	1.90	1.44	No		
BH8	-	1.00	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	32	30	1.87	1.44	No		
BH8	-	2.00	-	D	Off white FMC intact CHALK fragments in a putty chalk matrix	35	34	1.86	1.39	No		
BH8	-	3.50	-	B	Off white FMC intact CHALK fragments in a putty chalk matrix	35	35	1.87	1.39	No		
BH8	-	5.00	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	31	31	1.93	1.47	No		
BH8	-	6.00	-	D	Off white FMC intact CHALK fragments in a putty chalk matrix	32	32	1.92	1.45	No		
 Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com											Checked and Approved	
											Initials	J.P
											Date:	11/01/2017
2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)									MSF-5-R18		



Saturation Moisture Content - Summary of Results
Tested in accordance with BS1377 : Part 2 : 1990, clause 3.3 unless annotated otherwise.

Job No. 22171	Project Name Royston	Programme	
		Samples received	03/01/2017
		Schedule received	09/01/2017
Project No. J16202	Client GEA	Project started	10/01/2017
		Testing Started	10/01/2017

Hole No.	Sample				Description	SMC %	NMC %	Bulk Density Mg/m3	Dry Density Mg/m3	Remarks - Sample size complies with BS1377:1990: Part 2 (Yes/No)
	Ref	Top	Base	Type						
BH8	-	8.00	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	31	31	1.92	1.47	No
BH8	-	10.50	-	D	Off white FMC intact CHALK fragments in a putty chalk matrix	24	24	2.02	1.64	No
BH8	-	12.50	-	B	Off white FMC intact CHALK fragments in a putty chalk matrix	30	30	1.93	1.48	No
BH8	-	14.50	-	U	Off white FMC intact CHALK fragments in a putty chalk matrix	29	28	1.95	1.52	No
BH8	-	16.75	-	D	Off white FMC intact CHALK fragments in a putty chalk matrix	26	27	2.00	1.58	No
BH8	-	18.00	-	B	Off white FMC intact CHALK fragments in a putty chalk matrix	32	31	1.91	1.45	No
BH8	-	20.00	-	D	Off white FMC intact CHALK fragments in a putty chalk matrix	29	26	1.92	1.52	No

	Test Report by K4 SOILS LABORATORY Unit 8 Olds Close Olds Approach Watford Herts WD18 9RU Tel: 01923 711 288 Email: James@k4soils.com								Checked and Approved	
									Initials	J.P
									Date:	11/01/2017
2519	Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)								MSF-5-R18	

[illegible]

Initials	K.P
Date	06/10/2016



Geotechnical &
Environmental
Associates

Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

SPT & Cohesion / Depth Graph

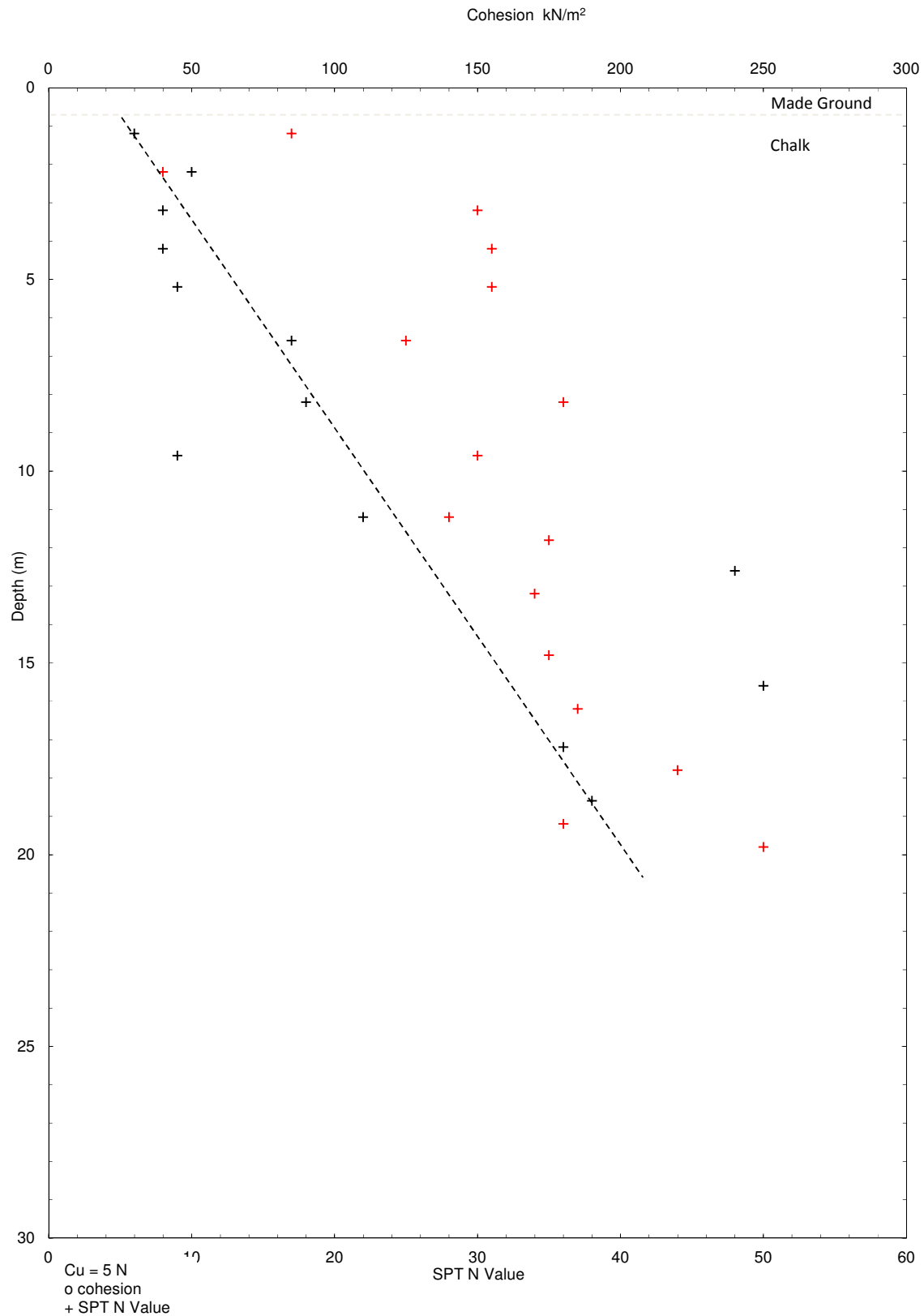
Site Newmarket Road, Royston, Herts, SG8 7NJ

Client Countryside Properties PLC

Engineer

Job Number
J16202

Sheet
1 / 1





Analytical Report Number: 16-27324

Project / Site name: Newmarket Road, Royston, SG8 7NJ

Your Order No: J16202

Lab Sample Number				626989	626990	626991	626992	626993
Sample Reference				BH1	BH2	BH3	BH4	BH5
Sample Number				D	D	D	D	D
Depth (m)				0.30	0.30	0.30	0.40	0.20
Date Sampled				07/09/2016	07/09/2016	07/09/2016	07/09/2016	07/09/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	13	13	11	14
Total mass of sample received	kg	0.001	NONE	1.2	1.1	1.1	1.2	1.1

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.3	8.1	8.5	8.5	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Total Sulphate as SO ₄	mg/kg	50	MCERTS	960	1000	1200	940	1000
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0097	0.013	0.0061	0.0060	0.0079
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	7.4	8.7	12	5.4	7.8
Total Organic Carbon (TOC)	%	0.1	MCERTS	2.1	2.4	2.5	1.8	2.4

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60	< 1.60	< 1.60	< 1.60
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Analytical Report Number: 16-27324

Project / Site name: Newmarket Road, Royston, SG8 7NJ

Your Order No: J16202

Lab Sample Number				626989	626990	626991	626992	626993
Sample Reference				BH1	BH2	BH3	BH4	BH5
Sample Number				D	D	D	D	D
Depth (m)				0.30	0.30	0.30	0.40	0.20
Date Sampled				07/09/2016	07/09/2016	07/09/2016	07/09/2016	07/09/2016
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.0	3.1	4.2	1.6	4.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.5	0.5	0.5	0.7
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	10	10	7.4	5.0	7.4
Copper (aqua regia extractable)	mg/kg	1	MCERTS	21	16	17	13	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	44	31	30	26	29
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	< 0.3	< 0.3	0.6	0.7
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	6.2	7.9	6.5	5.7	7.8
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	1.6	< 1.0	2.1
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	31	35	29	27	36

Petroleum Hydrocarbons

TPH (C8 - C10)	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	ISO 17025	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	ISO 17025	< 1.0	5.1	< 1.0	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	ISO 17025	5.4	10	8.6	< 1.0	3.6



Analytical Report Number : 16-27324

Project / Site name: Newmarket Road, Royston, SG8 7NJ

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
626989	BH1	D	0.30	Brown loam and sand with gravel.
626990	BH2	D	0.30	Brown loam and sand with gravel and chalk.
626991	BH3	D	0.30	Brown loam and sand with gravel and vegetation.
626992	BH4	D	0.40	Brown loam and sand with gravel.
626993	BH5	D	0.20	Brown loam and sand with gravel and chalk.

Analytical Report Number : 16-27324

Project / Site name: Newmarket Road, Royston, SG8 7NJ

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	NONE
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Site	32 Green Street & 17 Dunraven Street, London W1K 7FL	Job Number J16044
Client	Green Street Developments	Sheet 1 / 2
Engineer	Constructure	

Proposed End Use Residential with plant uptake

Soil pH 8

Soil Organic Matter content % 2.5

Contaminant	Screening Value mg/kg	Data Source	Contaminant	Screening Value mg/kg	Data Source
Metals			Anions		
Arsenic	37	C4SL	Soluble Sulphate	500 mg/l	Structures
Cadmium	26	C4SL	Sulphide	50	Structures
Chromium (III)	3000	LQM/CIEH	Chloride	400	Structures
Chromium (VI)	21	C4SL	Others		
Copper	2,330	LQM/CIEH	Organic Carbon (%)	6	Methanogenic potential
Lead	200	C4SL	Total Cyanide	140	WRAS
Elemental Mercury	1	SGV	Total Mono Phenols	290	SGV
Inorganic Mercury	170	SGV	PAH		
Nickel	97	LQM/CIEH	Naphthalene	5.30	C4SL exp & LQM/CIEH
Selenium	350	SGV	Acenaphthylene	400	LQM/CIEH
Zinc	3,750	LQM/CIEH	Acenaphthene	480	LQM/CIEH
Hydrocarbons			Fluorene	380	LQM/CIEH
Benzene	0.34	C4SL	Phenanthrene	200	LQM/CIEH
Toluene	320	SGV	Anthracene	4,900	LQM/CIEH
Ethyl Benzene	180	SGV	Fluoranthene	460	LQM/CIEH
Xylene	120	SGV	Pyrene	1,000	LQM/CIEH
Aliphatic C5-C6	55	LQM/CIEH	Benzo(a) Anthracene	6.7	C4SL exp & LQM/CIEH
Aliphatic C6-C8	160	LQM/CIEH	Chrysene	11	C4SL exp & LQM/CIEH
Aliphatic C8-C10	46	LQM/CIEH	Benzo(b) Fluoranthene	9.5	C4SL exp & LQM/CIEH
Aliphatic C10-C12	230	LQM/CIEH	Benzo(k) Fluoranthene	14.1	C4SL exp & LQM/CIEH
Aliphatic C12-C16	1700	LQM/CIEH	Benzo(a) pyrene	4.40	C4SL
Aliphatic C16-C35	64,000	LQM/CIEH	Indeno(1 2 3 cd) Pyrene	5.6	C4SL exp & LQM/CIEH
Aromatic C6-C7	See Benzene	LQM/CIEH	Dibenzo(a h) Anthracene	1.27	C4SL exp & LQM/CIEH
Aromatic C7-C8	See Toluene	LQM/CIEH	Benzo (g h i) Perylene	69	C4SL exp & LQM/CIEH
Aromatic C8-C10	65	LQM/CIEH	Screening value for PAH	62.9	B(a)P / 0.15
Aromatic C10-C12	160	LQM/CIEH	Chlorinated Solvents		
Aromatic C12-C16	310	LQM/CIEH	1,1,1 trichloroethane (TCA)	27.2	LQM/CIEH
Aromatic C16-C21	480	LQM/CIEH	tetrachloroethane (PCA)	1.25	LQM/CIEH
Aromatic C21-C35	1100	LQM/CIEH	tetrachloroethene (PCE)	2.32	LQM/CIEH
PRO (C ₅ –C ₁₀)	646	Calc	trichloroethene (TCE)	0.308	LQM/CIEH
DRO (C ₁₂ –C ₂₈)	66,490	Calc	1,2-dichloroethane (DCA)	0.008	LQM/CIEH
Lube Oil (C ₂₈ –C ₄₄)	65,100	Calc	vinyl chloride (Chloroethene)	0.000184	LQM/CIEH
TPH	1000	Trigger for speciated testing	tetrachloromethane (Carbon tetra	0.039	LQM/CIEH
			trichloromethane (Chloroform)	1.99	LQM/CIEH

Notes

Concentrations measured below the above values may be considered to represent 'uncontaminated conditions' which pose 'LOW' risk to human health. Concentrations measured in excess of these values indicate a potential risk which require further, site specific risk assessment.

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009

LQM/CIEH - Generic Assessment Criteria for Human Health Risk Assessment 2nd edition (2009) derived using CLEA 1.04 model 2009

C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk

C4SL exp & LQM/CIEH calculated using C4SL revisions to exposure assessment but LQM/CIEH health criteria values

Calc - sum of nearest available carbon range specified including BTEX for PRO fraction

B(a)P / 0.15 - GEA experience indicates that Benzo(a) pyrene (one of the most common and most carcinogenic of the PAHs) rarely exceeds 15% of the total

PAH concentration, hence this Total PAH threshold is regarded as being conservative

Site	32 Green Street & 17 Dunraven Street, London W1K 7FL	Job Number J16044
Client	Green Street Developments	Sheet 2 / 2
Engineer	Constructure	

Proposed End Use **Residential with plant uptake**

The key generic assumptions for this end use are as follows;

- ☐ that groundwater will not be a critical risk receptor;
- ☐ that the critical receptor for human health will be a young female aged 0 to 6 years old;
- ☐ that the exposure duration will be six years;
- ☐ that the building type equates to a terraced house.
- ☐ that the critical exposure pathways will be direct soil and indoor dust ingestion, consumption of home grown produce, consumption of soil adhering to home grown produce, skin contact with soils and dust, and inhalation of dust and vapours

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of the generic screening value there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include:

- ☐ additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- ☐ site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- ☐ soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

95900613_1_1

Customer Reference:

J16202

National Grid Reference:

536910, 240650

Slice:

A

Site Area (Ha):

14.65

Search Buffer (m):

1000

Site Details:

2 Burloes Cottages
Newmarket Road
ROYSTON
Hertfordshire
SG8 7NJ

Client Details:

Mr S Branch
GEA Ltd
Widbury Barn
Widbury Hill
Ware
Herts
SG12 7QE

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	9
Hazardous Substances	-
Geological	10
Industrial Land Use	13
Sensitive Land Use	18
Data Currency	19
Data Suppliers	25
Useful Contacts	26

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v50.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes		Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 1				1
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 1		Yes		
Pollution Incidents to Controlled Waters					
Prosecutions Relating to Authorised Processes	pg 1				1
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 1		1		4 (*19)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 7	Yes	n/a	n/a	n/a
Drift Deposits			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 7	Yes	n/a	n/a	n/a
Source Protection Zones	pg 7	1	1		3
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Detailed River Network Lines					n/a
Detailed River Network Offline Drainage	pg 8		Yes		n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 9	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 9				1
Potentially Infilled Land (Water)	pg 9				1
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 10	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 10	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 11				1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities	pg 11				2
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 11	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 11	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 11	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 11	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 12	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 12	Yes	Yes	n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 13		2		24
Fuel Station Entries	pg 15				1
Points of Interest - Commercial Services	pg 15				2
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 15				7
Points of Interest - Public Infrastructure	pg 16				9
Points of Interest - Recreational and Environmental	pg 16		2	2	4
Gas Pipelines	pg 17				1
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 18	2			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A10NE (E)	0	2	536913 240649
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A6NE (S)	422	2	536913 240000
1	Local Authority Pollution Prevention and Controls Name: H Precious & Son Location: Melbourn Road, ROYSTON, Hertfordshire, . Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: Not Given Dated: 19th March 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station Status: Authorised Positional Accuracy: Manually positioned to the road within the address or location	A13NE (NW)	879	3	535969 241309
	Nearest Surface Water Feature	A15SW (NE)	186	-	537181 241015
2	Prosecutions Relating to Authorised Processes Location: Garden Walk, Royston, Hertfordshire, SG8 7HP Prosecution Text: EA Data 02/11/1998, Supplying a radioactive source on hire to a person not registered to hold one; not having a person competent to ensure compliance with registration conditions; and failing to keep adequate records Prosecution Act: RSA93 s32(1b) Hearing Date: 6th October 1998 Verdict: Guilty Fine: 15000 Costs: 1305 Positional Accuracy: Manually positioned to the road within the address or location	A14SW (NW)	577	4	536391 241298
3	Water Abstractions Operator: Sir G Newman Licence Number: 6/33/30/*G/0093 Permit Version: 100 Location: Well E Of Royston Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 3; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1970 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11SE (E)	141	4	537300 240500
4	Water Abstractions Operator: Stanley Hoy & Sons Licence Number: 6/33/30/*G/0078 Permit Version: 100 Location: Well At Hyde Farm Ne Of Royston Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 3; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st June 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A15SE (NE)	605	4	537600 241200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Rayner Brothers, Licence Number: 6/33/30/*g/107 Permit Version: Not Supplied Location: Well At Mile End Farm, ROYSTON Authority: Environment Agency, Anglian Region Abstraction: Domestic & Agriculture Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 1 Yearly Rate (m3): 2050 Details: C Chalk 3; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(SW)	1872	4	536000 238700
	Water Abstractions Operator: J. Dodkin Limited, Licence Number: 6/33/30/*g/050 Permit Version: Not Supplied Location: Well At Muncey's Farm, MELBOURN Authority: Environment Agency, Anglian Region Abstraction: Domestic & Agriculture Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 1 Yearly Rate (m3): 4550 Details: C Chalk 3; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(NE)	1987	4	538200 242500
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (H1) - Soils which readily transmit liquid discharges because they are either shallow, or susceptible to rapid by-pass flow directly to rock, gravel or groundwater Map Sheet: Sheet 32 North Essex Scale: 1:100,000	A10NE (E)	0	4	536913 240649
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 32 North Essex Scale: 1:100,000	A10NE (NW)	0	4	536810 240771
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A10NE (E)	0	2	536913 240649
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A10NE (NW)	0	2	536881 240685
6	Source Protection Zones Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A10NE (E)	0	4	536913 240649
7	Source Protection Zones Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A11SW (E)	64	4	537241 240557
8	Source Protection Zones Name: Eagle Tavern Source: Environment Agency, Head Office Reference: An080 Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A7NE (SE)	568	4	537309 240015

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	Source Protection Zones Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A5NE (SW)	715	4	536034 240258
10	Source Protection Zones Name: Eagle Tavern Source: Environment Agency, Head Office Reference: An080 Type: Groundwater Source	A7SE (SE)	895	4	537400 239700
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
	Detailed River Network Lines None				
11	Detailed River Network Offline Drainage River Type: Tertiary River Hydrographic Area: D005	A15SW (NE)	186	4	537182 241014
12	Detailed River Network Offline Drainage River Type: Tertiary River Hydrographic Area: D005	A15SW (NE)	227	4	537194 241055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Hertfordshire County Council - Has supplied landfill data		0	5	536913 240649
	Local Authority Landfill Coverage Name: North Hertfordshire District Council - Has supplied landfill data		0	3	536913 240649
	Local Authority Landfill Coverage Name: South Cambridgeshire District Council - Has supplied landfill data		251	6	537228 241064
	Local Authority Landfill Coverage Name: Cambridgeshire County Council - Has not been able to supply Landfill data		251	7	537228 241064
13	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1990	A9SE (W)	583	10	536150 240382
14	Potentially Infilled Land (Water) Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1899	A9SW (W)	874	10	535831 240593

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	A10NE (E)	0	2	536913 240649
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A10NE (E)	0	2	536913 240649
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A10NE (NW)	0	2	536881 240685
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A10NW (W)	203	2	536482 240706
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NW (S)	277	2	537071 240243
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A6SW (SW)	719	2	536504 239741
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A16NW (NE)	981	2	537708 241618

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	BGS Recorded Mineral Sites Site Name: Stile Plantation Chalk Pit Location: , Royston, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 165882 Type: Opencast Status: Ceased Operator: Not Supplied Operator Location: Not Supplied Periodic Type: Cretaceous Geology: New Pit Chalk Formation Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A9SE (W)	632	2	536101 240378
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Man-Made Mining Cavities Easting: 536200 Northing: 240300 Distance: 547 Quadrant Reference: A9 Quadrant Reference: SE Bearing Ref: SW Cavity Type: Historical Lime Kiln-Potential Chalk Mining Commodity: Chalk Solid Geology Detail: Middle Chalk Formation Superficial Geology No Details Detail:	A9SE (SW)	547	8	536200 240300
	Man-Made Mining Cavities Easting: 536000 Northing: 239800 Distance: 961 Quadrant Reference: A5 Quadrant Reference: SE Bearing Ref: SW Cavity Type: Chalkwell/Denehole Commodity: Chalk Solid Geology Detail: Middle Chalk Formation Superficial Geology Glacial Till Detail:	A5SE (SW)	961	8	536000 239800
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NE (NW)	0	2	536881 240685
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NW (W)	203	2	536482 240706
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A10NE (N)	0	2	536875 240774
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NE (NW)	0	2	536881 240685
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NE (N)	1	2	536897 240818
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NW (W)	203	2	536482 240706
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NE (NW)	0	2	536881 240685
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NW (W)	203	2	536482 240706
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NE (NW)	0	2	536881 240685
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10NW (W)	203	2	536482 240706
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A10NE (E)	0	2	536913 240649

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	Contemporary Trade Directory Entries Name: Email Mum Location: 20, Ascot Road, Royston, Hertfordshire, SG8 9JD Classification: Cleaning Services - Domestic Status: Active Positional Accuracy: Automatically positioned to the address	A10SW (W)	206	-	536502 240613
17	Contemporary Trade Directory Entries Name: P S B Carpet Care Location: 9, Newman Avenue, Royston, SG8 7LE Classification: Carpet, Curtain & Upholstery Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A14SE (NW)	209	-	536661 241010
18	Contemporary Trade Directory Entries Name: Ironing Angel Location: Parklands, Royston, Hertfordshire, SG8 9HJ Classification: Ironing & Home Laundry Services Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A9SE (W)	513	-	536201 240539
19	Contemporary Trade Directory Entries Name: Mark Weatherhead Location: Garden Walk, Royston, Hertfordshire, SG8 7HT Classification: Agricultural Vehicles Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SE (NW)	562	-	536215 241107
19	Contemporary Trade Directory Entries Name: Mark Weatherhead Ltd Location: Garden Walk, Royston, Hertfordshire, SG8 7HT Classification: Agricultural Machinery - Sales & Service Status: Active Positional Accuracy: Automatically positioned to the address	A13SE (NW)	562	-	536215 241107
20	Contemporary Trade Directory Entries Name: Metrology Sales & Services Location: 45, Garden Walk, Royston, Hertfordshire, SG8 7HT Classification: Testing, Inspection & Calibration Equipment Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SE (NW)	635	-	536146 241136
21	Contemporary Trade Directory Entries Name: Harry Collins Location: Barkway Rd, Royston, Hertfordshire, SG8 9NB Classification: Radio Communication Equipment Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7SW (S)	637	-	536940 239820
22	Contemporary Trade Directory Entries Name: Aladdin Cleaning Services Location: 24, Grange Bottom, Royston, Hertfordshire, SG8 9UQ Classification: Carpet, Curtain & Upholstery Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A5NE (SW)	643	-	536127 240205
23	Contemporary Trade Directory Entries Name: Cleaning Assurance Ltd Location: 34, Priory Close, Royston, SG8 7DU Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A9SE (W)	687	-	536043 240403
24	Contemporary Trade Directory Entries Name: P & G Logistics Location: 32, Kingston Vale, Royston, Hertfordshire, SG8 9UG Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A5NE (SW)	695	-	536153 240040
25	Contemporary Trade Directory Entries Name: Proctor Engineering Location: Meridian Works, Barkway Rd, Royston, Hertfordshire, SG8 9NB Classification: Commercial Vehicle Servicing, Repairs, Parts & Accessories Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A7SW (S)	776	-	537133 239738
25	Contemporary Trade Directory Entries Name: The Royston M O T Centre Location: Wickstead Park, Barkway Road, Royston, Hertfordshire, SG8 9NB Classification: Mot Testing Centres Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A7SW (S)	818	-	537162 239703

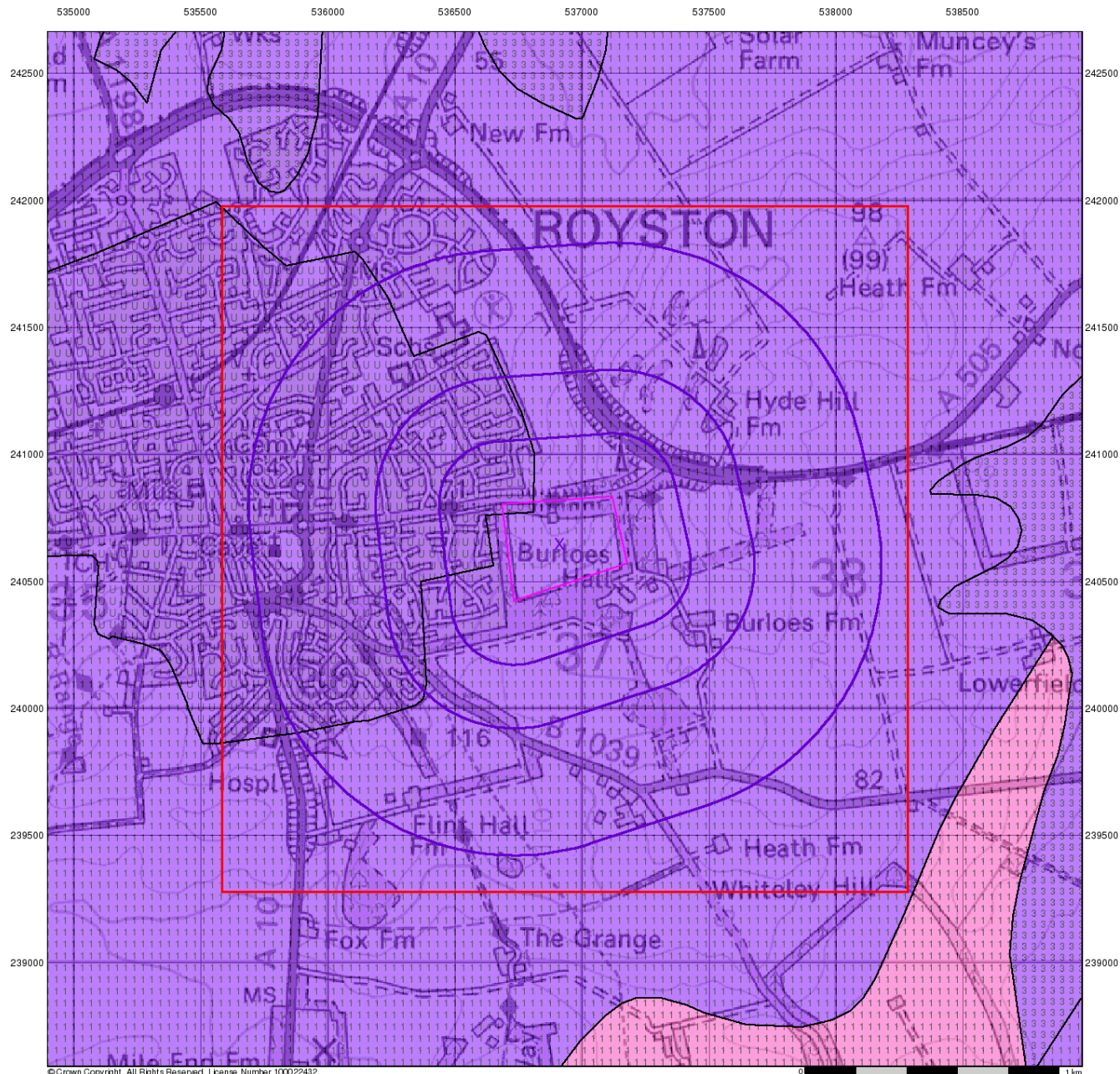
Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	Points of Interest - Manufacturing and Production Name: Works Location: SG8 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13SW (W)	996	9	535738 241105
41	Points of Interest - Public Infrastructure Name: Cemetery Location: SG8 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A13SE (NW)	807	9	536023 241261
41	Points of Interest - Public Infrastructure Name: Cemetery Location: SG8 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A13SE (NW)	830	9	535995 241261
41	Points of Interest - Public Infrastructure Name: Cemetery Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A13SE (NW)	836	9	535984 241256
42	Points of Interest - Public Infrastructure Name: Hertfordshire Constabulary Location: Melbourn Street, Royston, SG8 7BZ Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A9NW (W)	868	9	535821 240741
42	Points of Interest - Public Infrastructure Name: Royston Police Station Location: Melbourn Street, Royston, SG8 7BZ Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A9NW (W)	868	9	535821 240741
42	Points of Interest - Public Infrastructure Name: Royston Police Station Location: Melbourn Street, Royston, SG8 7BZ Category: Central and Local Government Class Code: Police Stations Positional Accuracy: Positioned to address or location	A9NW (W)	868	9	535821 240741
43	Points of Interest - Public Infrastructure Name: Cemetery Location: Not Supplied Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A13SW (NW)	911	9	535844 241147
43	Points of Interest - Public Infrastructure Name: Cemetery Location: SG8 Category: Infrastructure and Facilities Class Code: Cemeteries and Crematoria Positional Accuracy: Positioned to an adjacent address or location	A13SW (NW)	911	9	535844 241147
44	Points of Interest - Public Infrastructure Name: Bus Station Location: SG8 Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to address or location	A9SW (W)	974	9	535753 240404
45	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SE (NW)	235	9	536726 241040
45	Points of Interest - Recreational and Environmental Name: Playground Location: Newman Avenue, SG8 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A14SE (NW)	235	9	536726 241040

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	Points of Interest - Recreational and Environmental Name: Play Area Location: Furze Grove, SG8 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A10SW (SW)	453	9	536281 240383
46	Points of Interest - Recreational and Environmental Name: Play Area Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A10SW (W)	455	9	536278 240392
47	Points of Interest - Recreational and Environmental Name: Playground Location: Priory Lane, SG8 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A9SW (W)	864	9	535848 240540
47	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9SW (W)	865	9	535846 240542
47	Points of Interest - Recreational and Environmental Name: Playground Location: Fish Hill, SG8 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A9SW (W)	901	9	535809 240555
47	Points of Interest - Recreational and Environmental Name: Playground Location: SG8 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A9SW (W)	906	9	535802 240566
48	Gas Pipelines Name: FM03 - Gt Wilbraham to Whitwell Nat Grid: Owned By National Grid Diameter (mm): 900 Building Proximity: 78 Distance (m): Status: Active Pipe Length (m): 54620.4 Pipe Number: Feeder 3	A8SW (SE)	841	10	537759 239952

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	Nitrate Vulnerable Zones Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A10NE (E)	0	12	536913 240649
50	Nitrate Vulnerable Zones Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A10NE (E)	0	12	536913 240649

Contact	Name and Address	Contact Details
2	British Geological Survey - Enquiry Service British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
3	North Hertfordshire District Council - Environmental Health Department Council Offices, Gernon Road, Letchworth, Hertfordshire, SG6 3JF	Telephone: 01462 474000 Fax: 01462 474559 Website: www.north-herts.gov.uk
4	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
5	Hertfordshire County Council - Spatial Planning and Economy Unit County Hall, Hertford, Hertfordshire, SG13 8DN	Telephone: 01992 556266 Fax: 01992 556015 Email: spatialplanning@hertfordshire.gov.uk Website: www.hertsdirect.org
6	South Cambridgeshire District Council South Cambridgeshire Hall, Cambourne Business Park, Cambourne, Cambridgeshire, CB23 6EA	Telephone: 08450 450 500 Website: www.scambs.gov.uk
7	Cambridgeshire County Council Shire Hall, Castle Hill, Cambridge, Cambridgeshire, CB3 0AP	Telephone: 01223 717111 Fax: 01223 717201 Website: www.camcnty.gov.uk
8	Peter Brett Associates Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN	Telephone: 0118 950 0761 Fax: 0118 959 7498 Email: reading@pba.co.uk Website: www.pba.co.uk
9	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
10	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmark.co.uk
11	Natural England County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
12	Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
13	Environment Agency - Head Office Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



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0 1 km



Groundwater Vulnerability

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

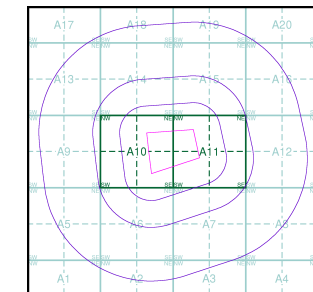
Geological Classes

- Major Aquifer (Highly Permeable)**
- Minor Aquifer (Variably Permeable)**
- Non Aquifer (Negligibly Permeable)**
- Water or Sea**
- Drift Deposit**

Soil Classes

- High (H) 1, 2, 3, U
- Intermediate (I) 1, 2
- Low
- High (H) 1, 2, 3, U
- Intermediate (I) 1, 2
- Low
-

Site Sensitivity Context Map - Slice A



Order Details

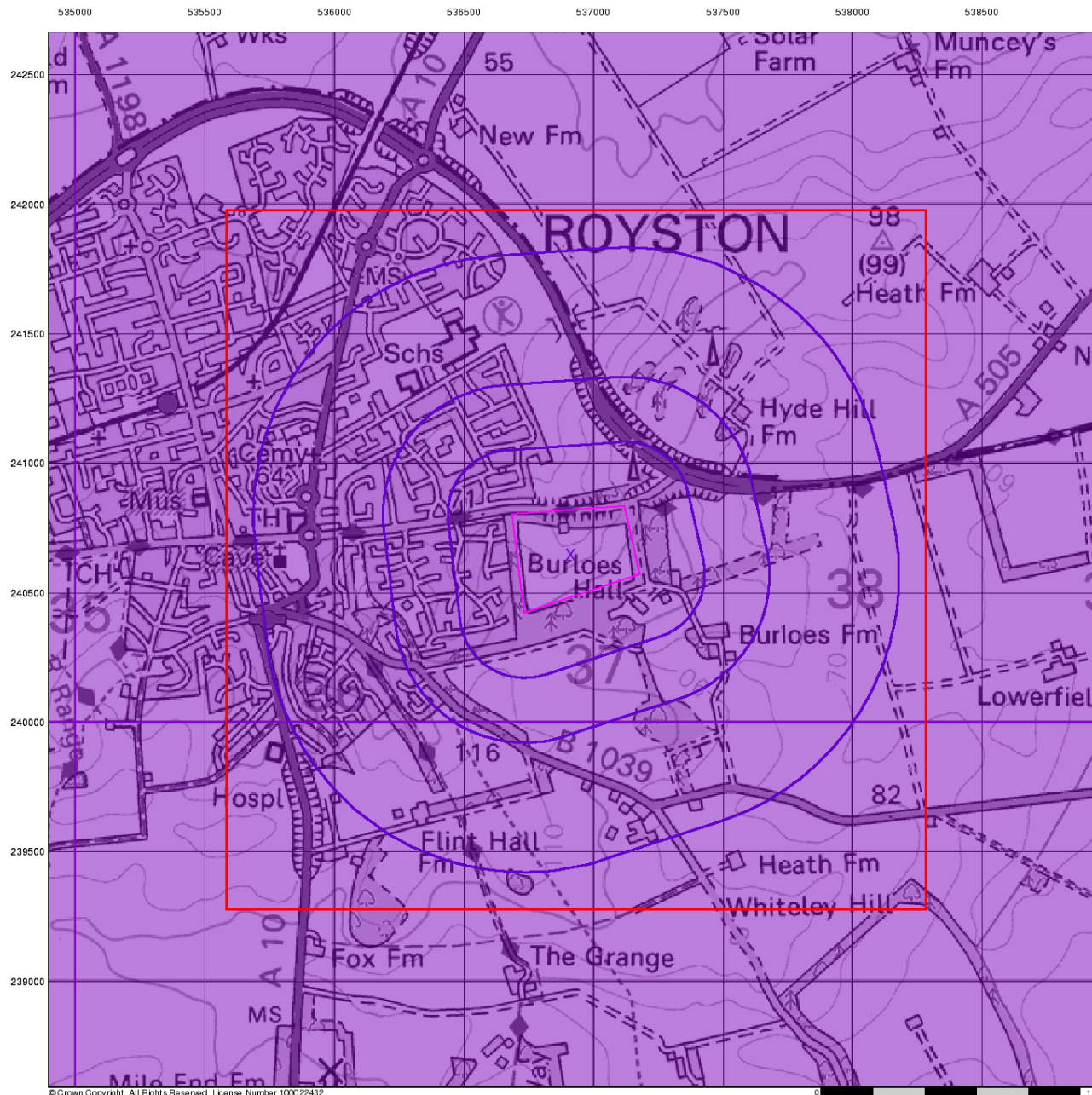
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 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



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 Fax: 0844 844 9951
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Bedrock Aquifer Designation

General

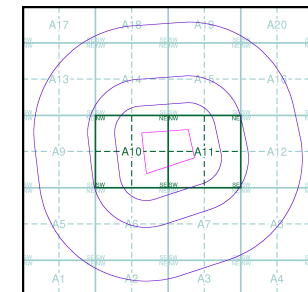
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- 8 Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

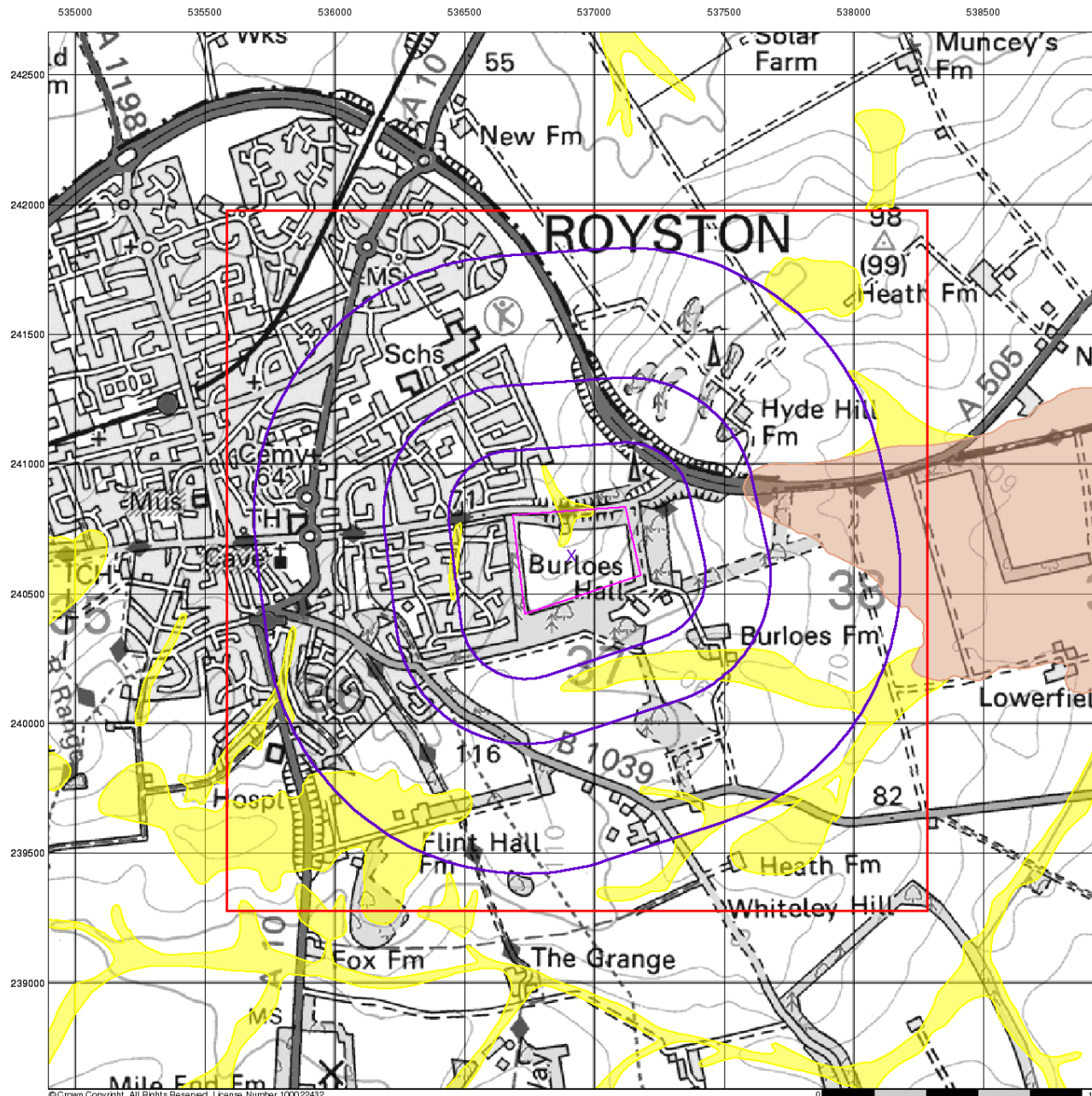


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

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Superficial Aquifer Designation

General

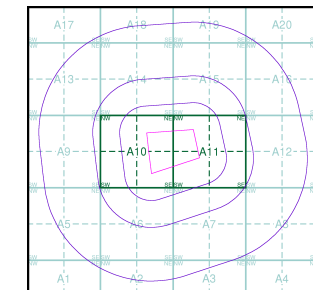
- ◇ Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown
- Unknown (Lakes and Landslip)

Site Sensitivity Context Map - Slice A

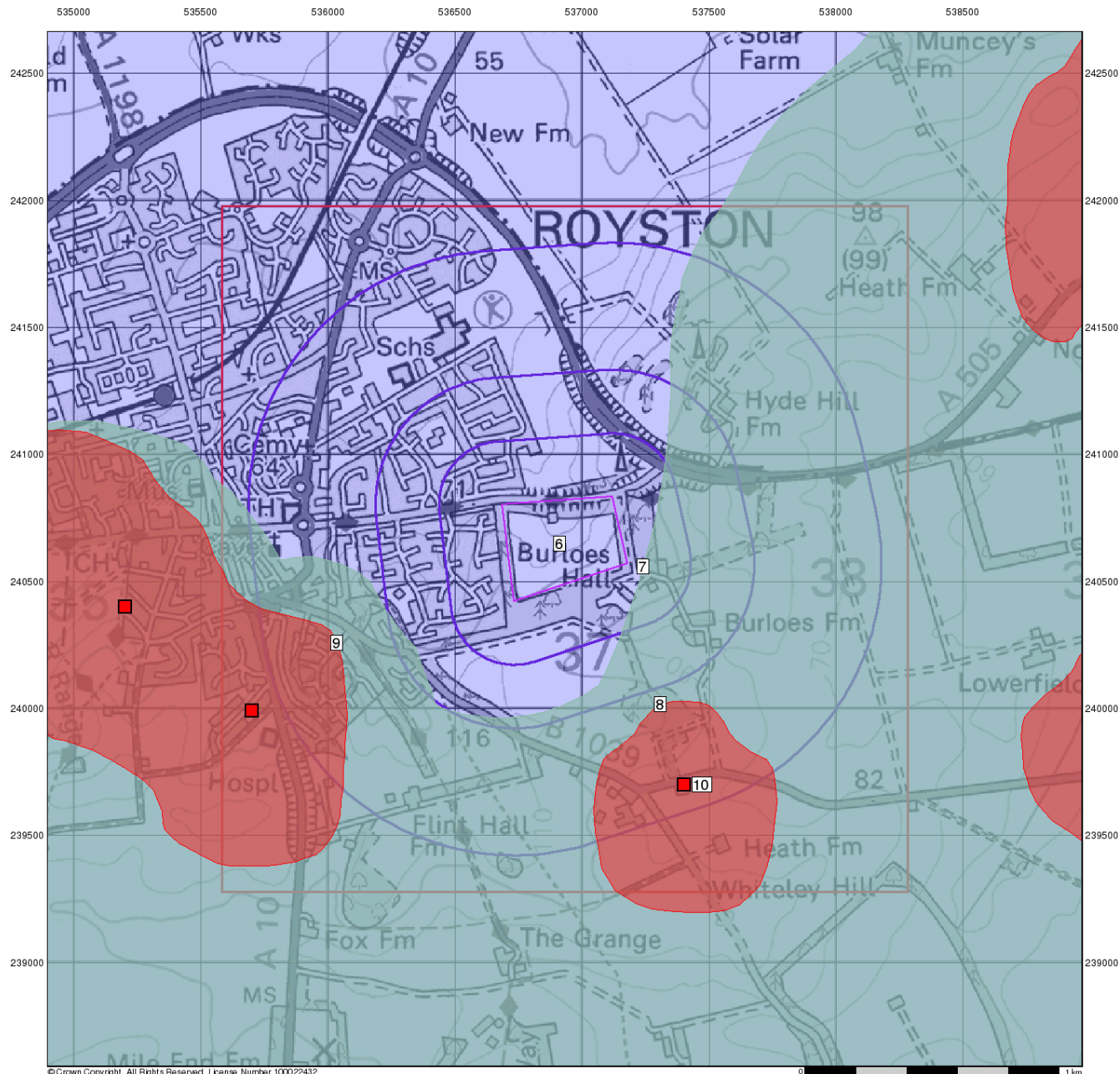


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

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0 1 km

Source Protection Zones

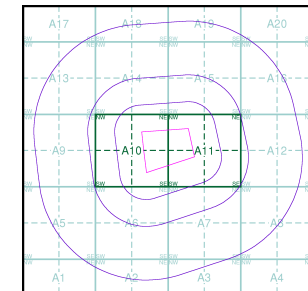
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Agency and Hydrological

- Inner zone (Zone 1)
- Inner zone - subsurface activity only (Zone 1c)
- Outer zone (Zone 2)
- Outer zone - subsurface activity only (Zone 2c)
- Total catchment (Zone 3)
- Total catchment - subsurface activity only (Zone 3c)
- Special interest (Zone 4)
- Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A

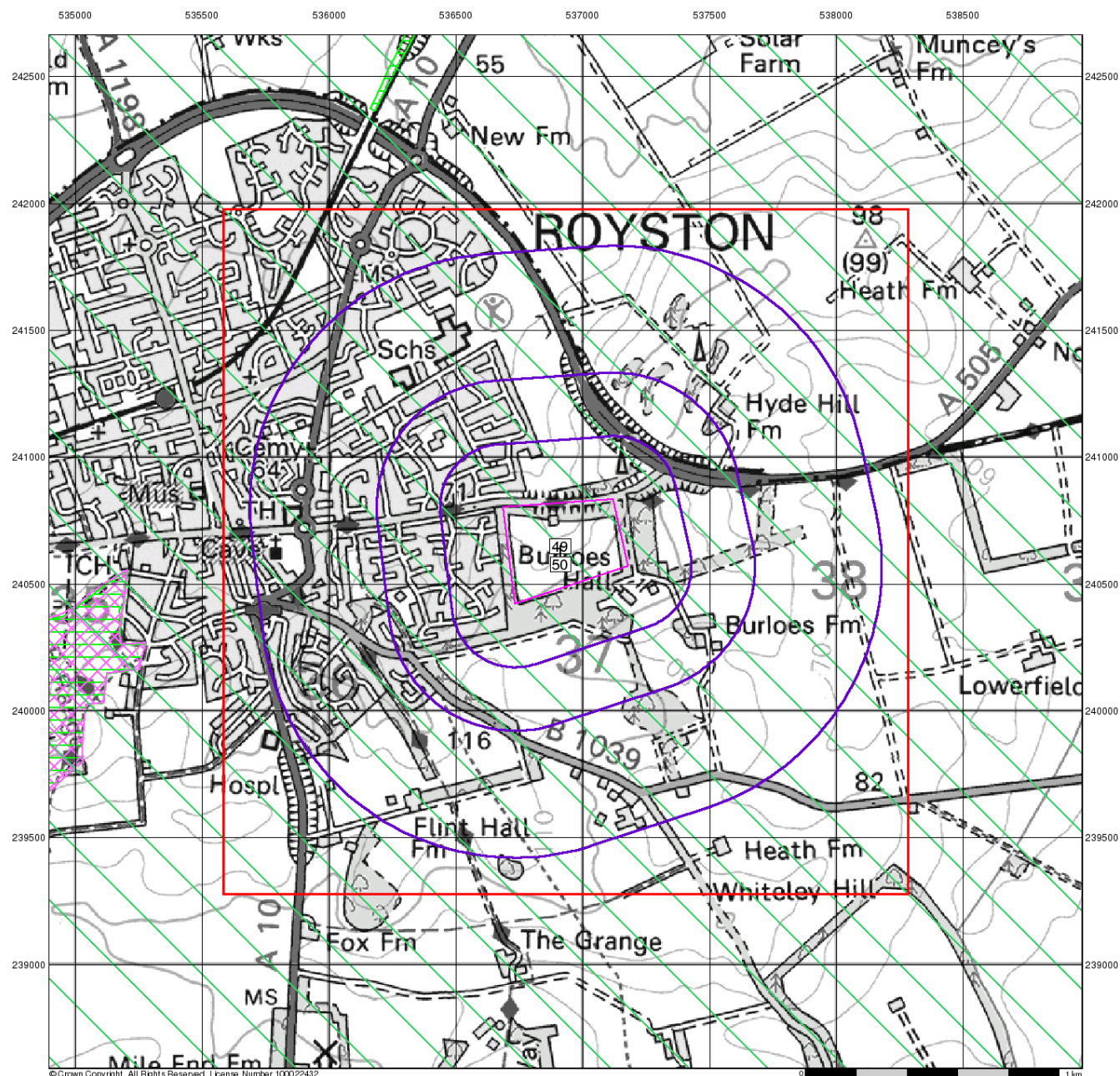


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



Sensitive Land Uses

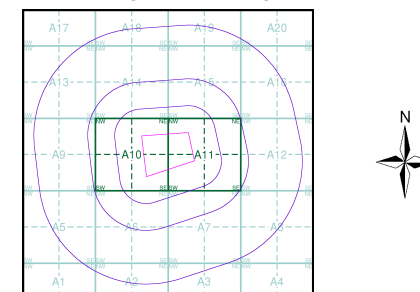
General

-  Specified Site
  Specified Buffer(s)
  Bearing Reference Point
 Slice
  Map ID

Sensitive Land Uses

- | | | | |
|---|------------------------------------|---|-------------------------------------|
|  | Ancient Woodland |  | National Park |
|  | Area of Adopted Green Belt |  | Nitrate Sensitive Area |
|  | Area of Unadopted Green Belt |  | Nitrate Vulnerable Zone |
|  | Area of Outstanding Natural Beauty |  | Ramsar Site |
|  | Environmentally Sensitive Area |  | Site of Special Scientific Interest |
|  | Forest Park |  | Special Area of Conservation |
|  | Local Nature Reserve |  | Special Protection Area |
|  | Marine Nature Reserve |  | World Heritage Sites |
|  | National Nature Reserve | | |

Site Sensitivity Context Map - Slice A



Order Details

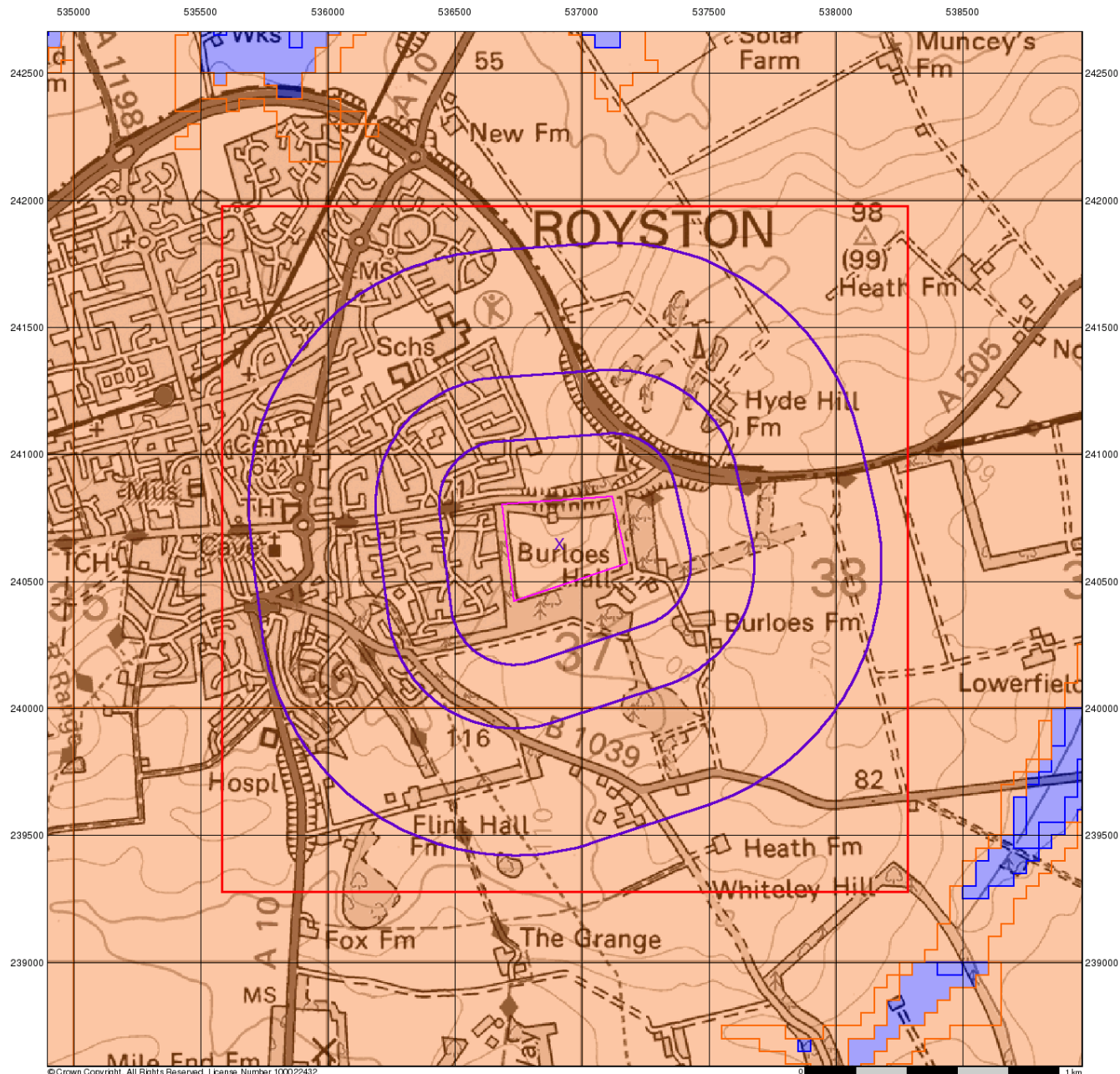
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Customer Ref:	J16202
National Grid Reference:	536910, 240650
Slice:	A
Site Area (Ha):	14.65
Search Buffer (m):	1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



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BGS Flood GFS Data

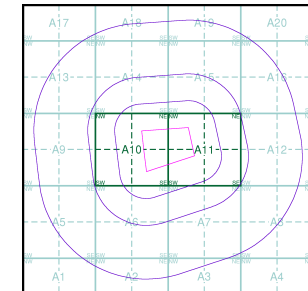
General

- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point
- Slice

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding to Occur
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding to Occur at Surface

Site Sensitivity Context Map - Slice A

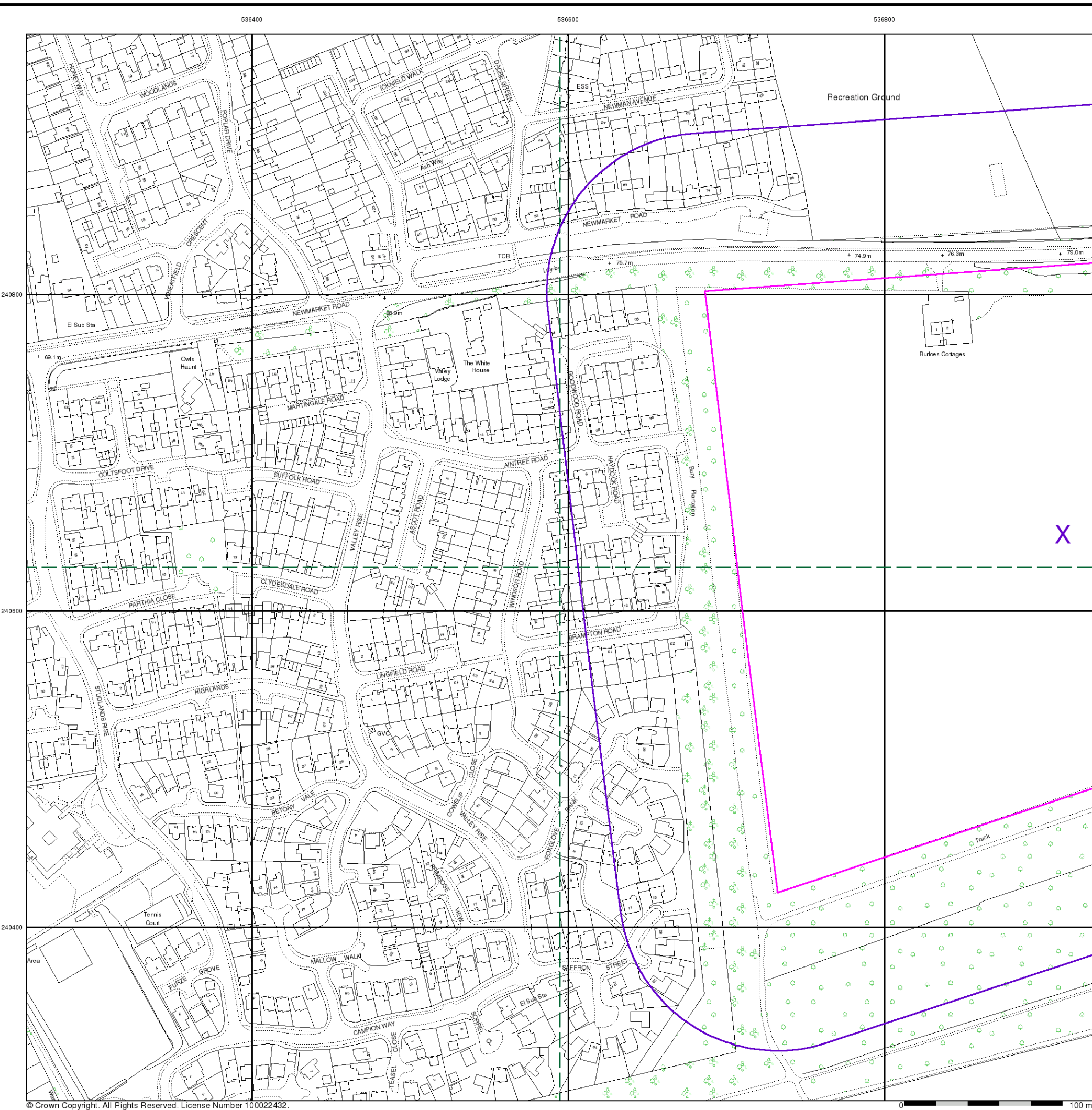


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location
- Pylon
- Overhead Transmission Line

Agency and Hydrological

- Contaminated Land Register Entry or Notice (Location)
- Contaminated Land Register Entry or Notice
- Discharge Consent
- Enforcement or Prohibition Notice
- Integrated Pollution Control
- Integrated Pollution Prevention Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

Hazardous Substances

- COMAH Site
- Explosive Site
- NIHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

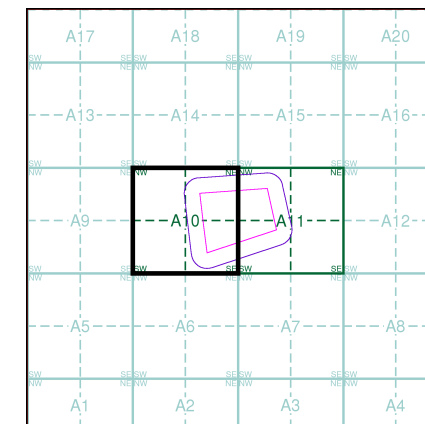
Geological

- BGS Recorded Mineral Site

Waste

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Non-water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Potentially Infilled Land (Water)
- Registered Landfill Site
- Registered Landfill Site (Location)
- Registered Landfill Site (Point Buffered to 100m)
- Registered Landfill Site (Point Buffered to 250m)
- Registered Waste Transfer Site (Location)
- Registered Waste Transfer Site
- Registered Waste Treatment or Disposal Site (Location)
- Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A10



Order Details

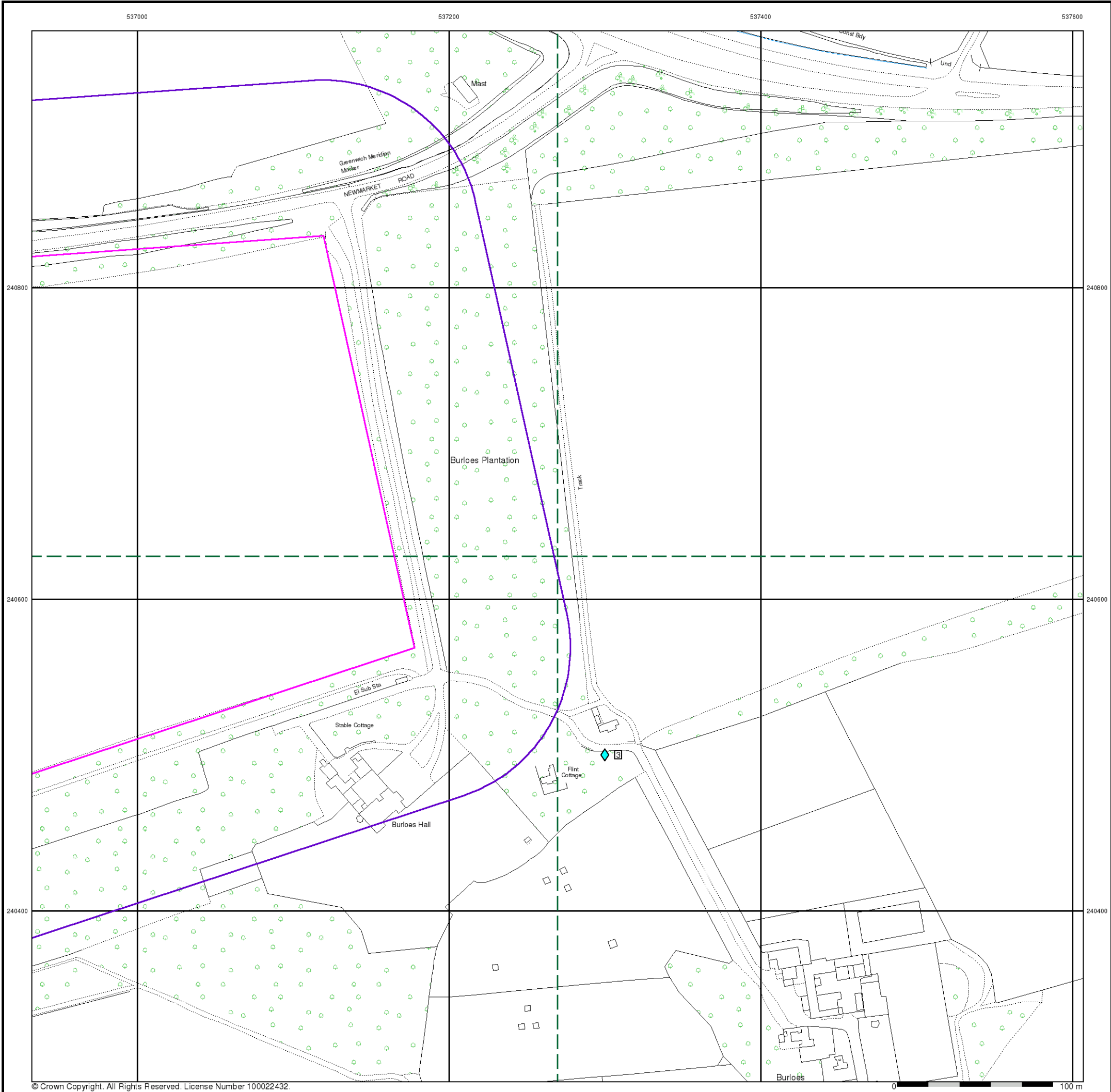
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Slice: A
Site Area (Ha): 14.65
Plot Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



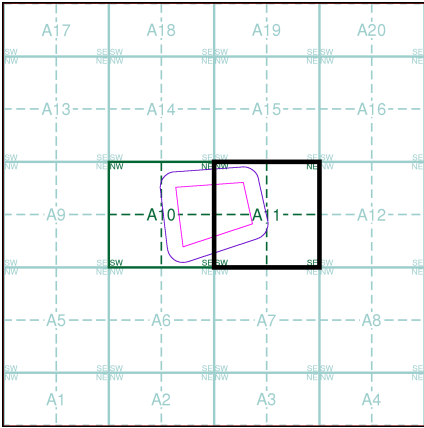
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



General

- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
 - Several of Type at Location
 - Pylon
 - Overhead Transmission Line
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
 - BGS Recorded Mineral Site
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Segment A11



Order Details

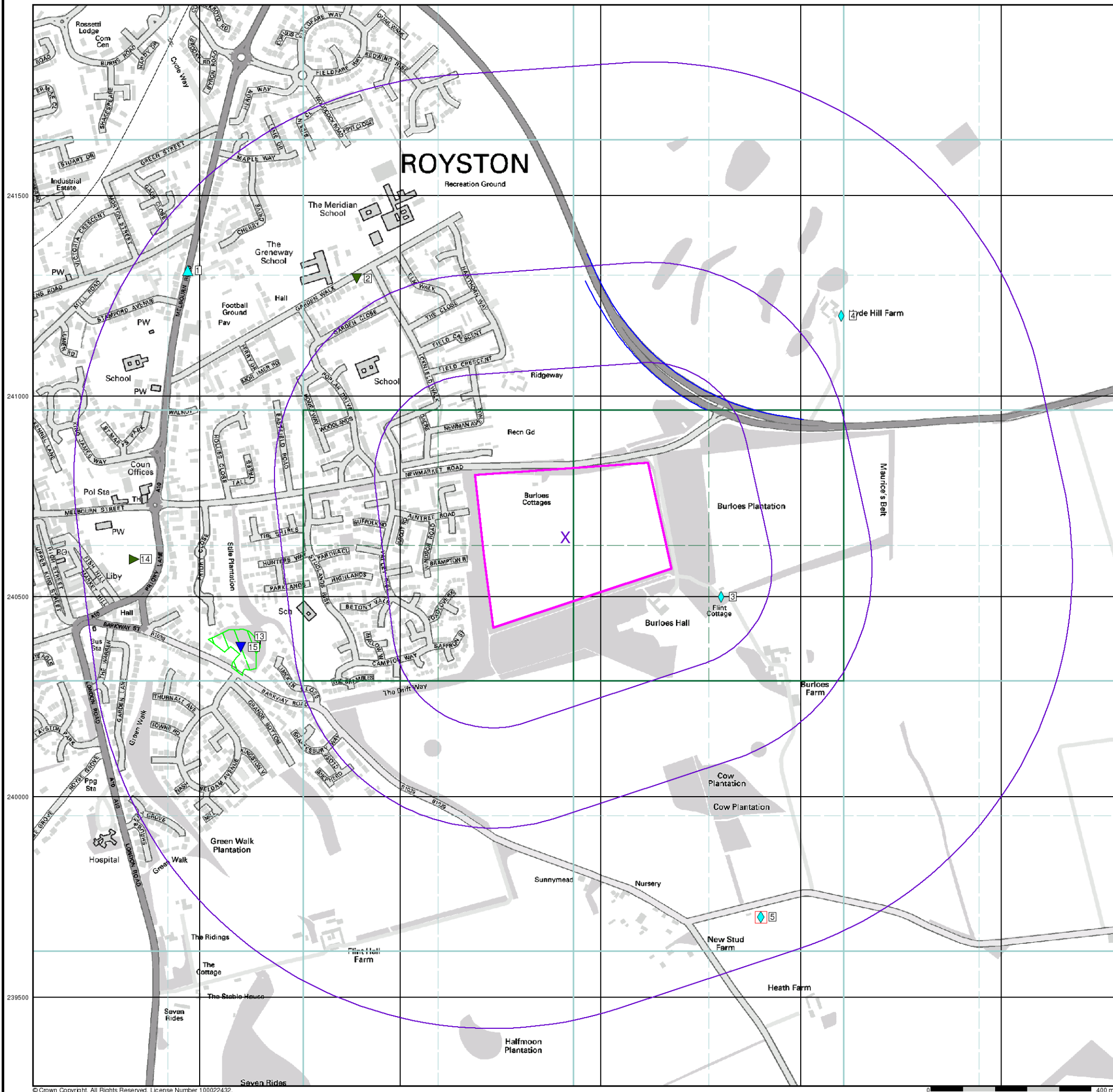
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Plot Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ

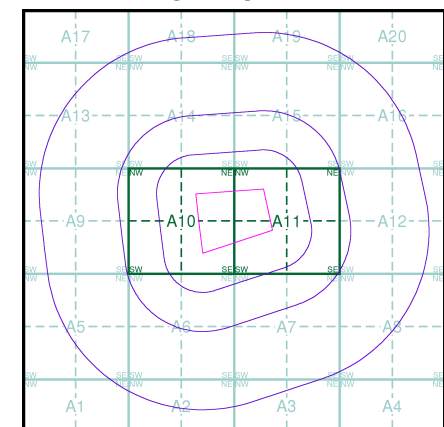


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- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
 - Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution Control
 - Integrated Pollution Prevention Control
 - Local Authority Integrated Pollution Prevention and Control
 - Local Authority Pollution Prevention and Control Enforcement
 - Pollution Incident to Controlled Waters
 - Prosecution Relating to Authorised Processes
 - Prosecution Relating to Controlled Waters
 - Registered Radioactive Substance
 - River Network or Water Feature
 - River Quality Sampling Point
 - Substantiated Pollution Incident Register
 - Water Abstraction
 - Water Industry Act Referral
- Waste**
- BGS Recorded Landfill Site (Location)
 - BGS Recorded Landfill Site
 - EA Historic Landfill (Buffered Point)
 - EA Historic Landfill (Polygon)
 - Integrated Pollution Control Registered Waste Site
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Non-water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Potentially Infilled Land (Water)
 - Registered Landfill Site
 - Registered Landfill Site (Location)
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 250m)
 - Registered Waste Transfer Site (Location)
 - Registered Waste Transfer Site
 - Registered Waste Treatment or Disposal Site (Location)
 - Registered Waste Treatment or Disposal Site
- Hazardous Substances**
- COMAH Site
 - Explosive Site
 - NIHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site

Site Sensitivity Map - Slice A



Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



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Industrial Land Use Map

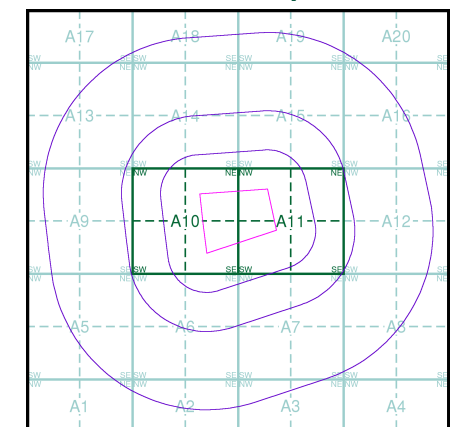
General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Points of Interest - Commercial Services
- Points of Interest - Education and Health
- Points of Interest - Manufacturing and Production
- Points of Interest - Public Infrastructure
- Points of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



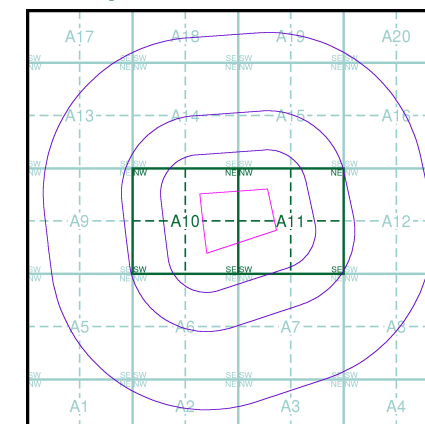
General

-  Specified Site
- Specified Buffer(s)
-  Bearing Reference Point

Agency and Hydrological (Flood)

-  Extreme Flooding from Rivers or Sea without Defences (Zone 2)
-  Flooding from Rivers or Sea without Defences (Zone 3)
-  Area Benefiting from Flood Defence
-  Flood Water Storage Areas
-  Flood Defence

Flood Map - Slice A



Order Details

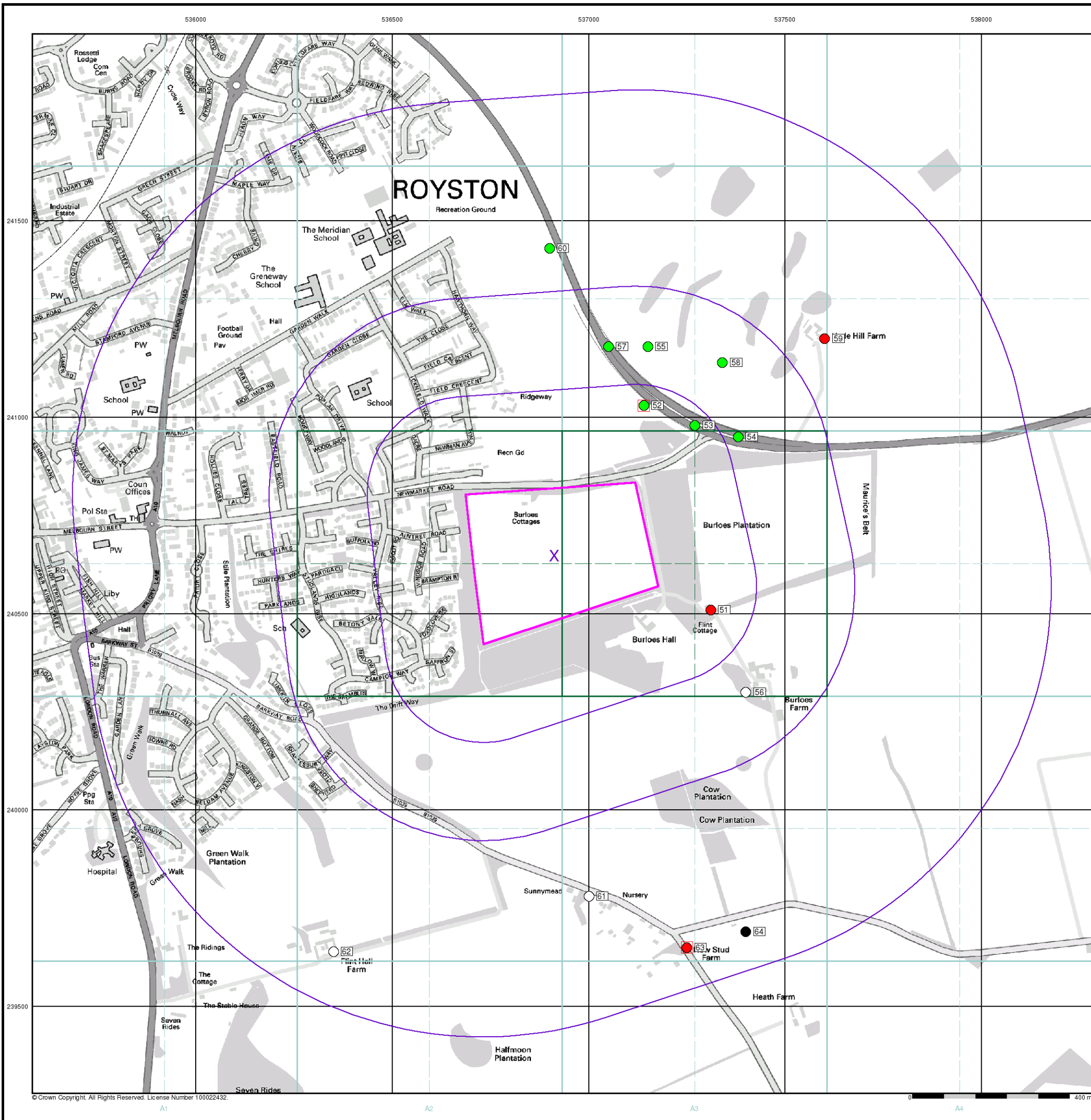
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



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Web: www.envirocheck.co.uk



General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Map ID
- Several of Type at Location

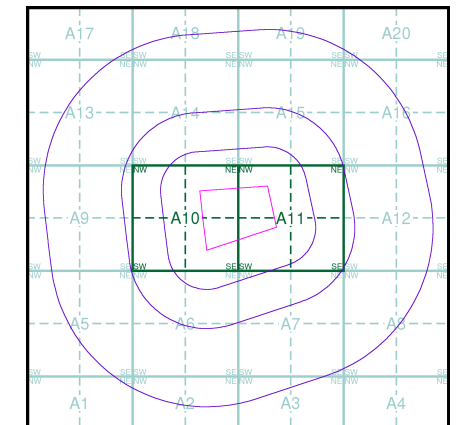
Agency and Hydrological (Boreholes)

- BGS Borehole Depth 0 - 10m
- BGS Borehole Depth 10 - 30m
- BGS Borehole Depth 30m +
- Confidential
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ

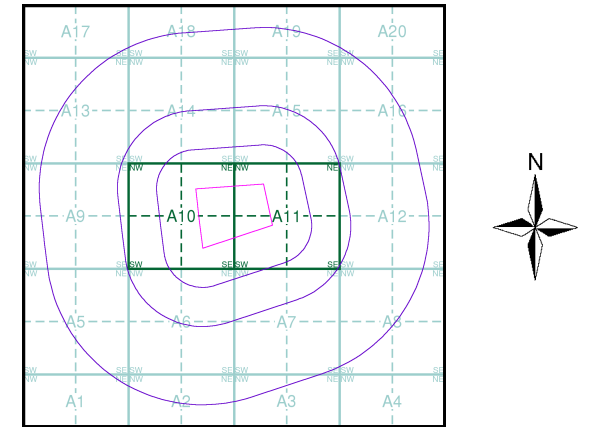


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 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



- General**
- Specified Site
 - Specified Buffer(s)
 - Bearing Reference Point
 - Map ID
- Detailed River Network Data**
- | | |
|--------------------------|-------------------------------------|
| Primary River | Extended Culvert (greater than 50m) |
| Secondary River | Underground River (inferred) |
| Tertiary River | Underground River (local knowledge) |
| Canal | Downstream of High Water Mark |
| Canal Tunnel | Downstream of Seaward Extension |
| Undefined River | Not assigned River feature |
| Lake/Reservoir | |
| Offline Drainage Feature | |
- Contours (height in metres)**
- Standard Contour 105
- Master Contour 100
- Spot Height 167.3
- MLW Mean Low Water
- MHW Mean High Water

EA/NRW Detailed River Network Map - Slice A



Order Details

Order Number: 95900613_1_1

Customer Ref: J16202

National Grid Reference: 536910, 240650

Slice: A

Site Area (Ha): 14.65

Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ

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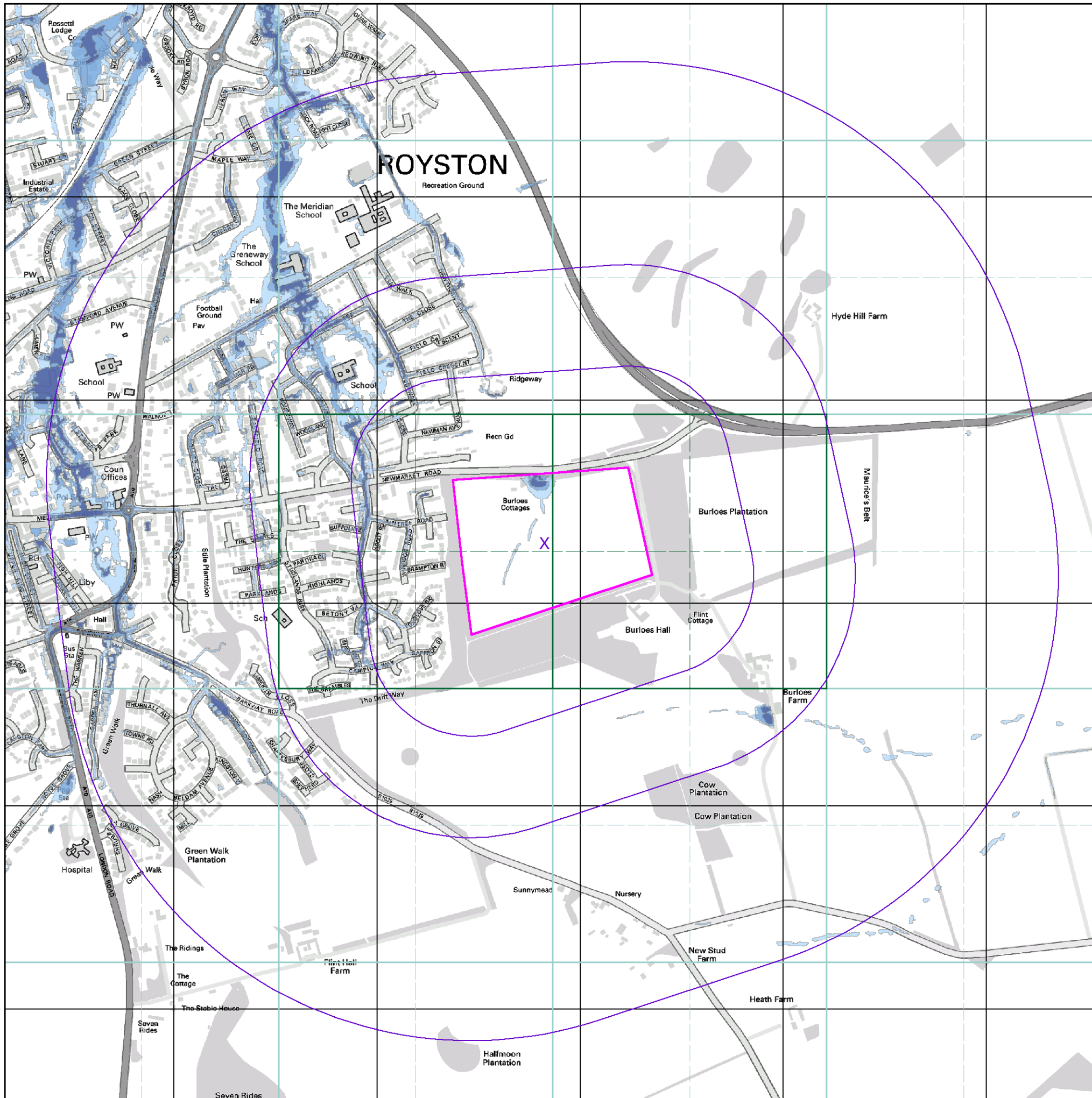
241500

241000

240500

240000

239500



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General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Risk of Flooding from Surface Water

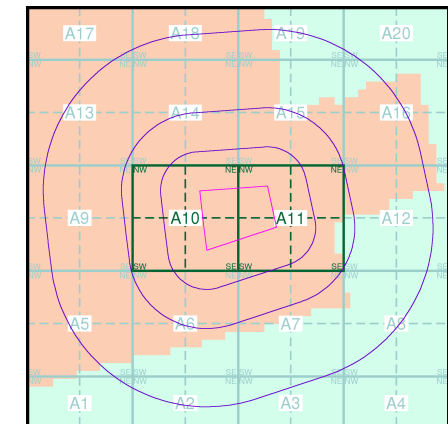
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 1000

Site Details

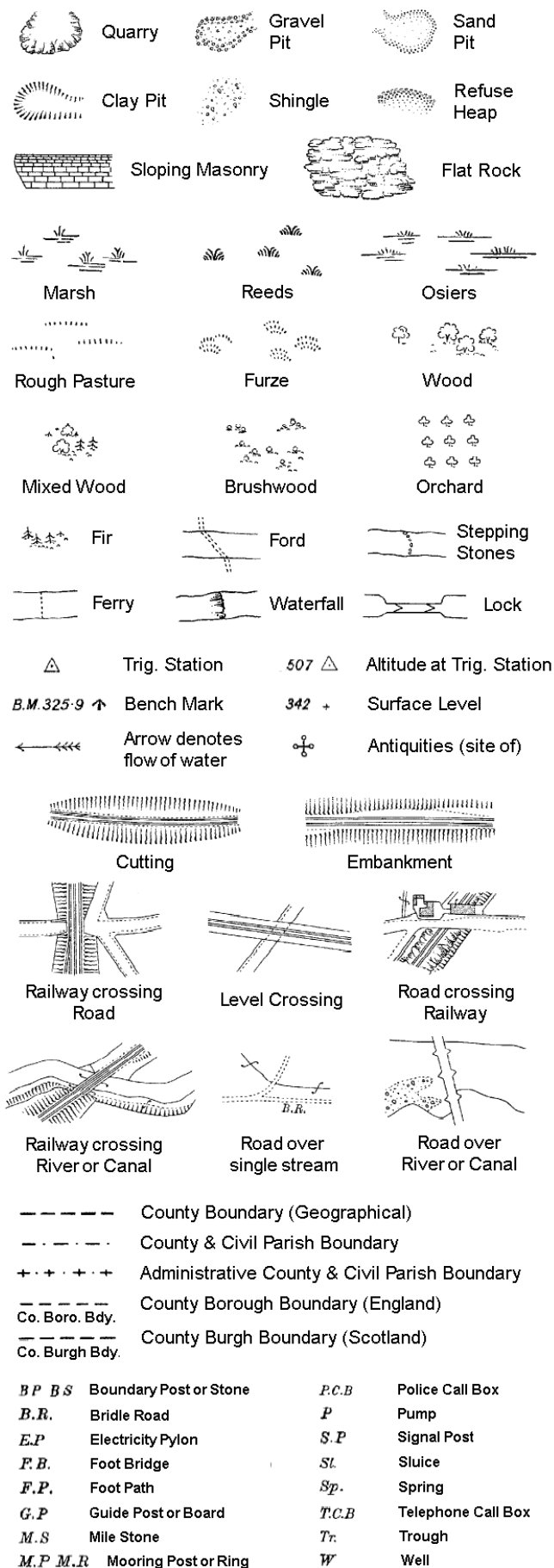
2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



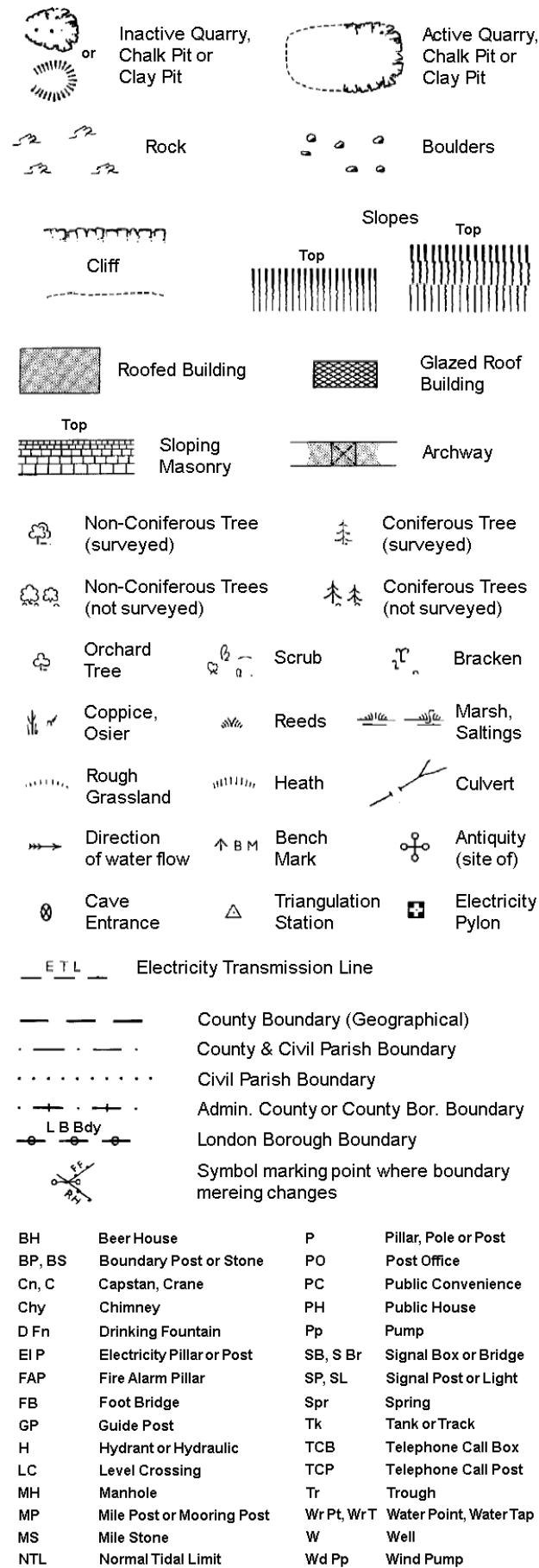
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Mapping Legends

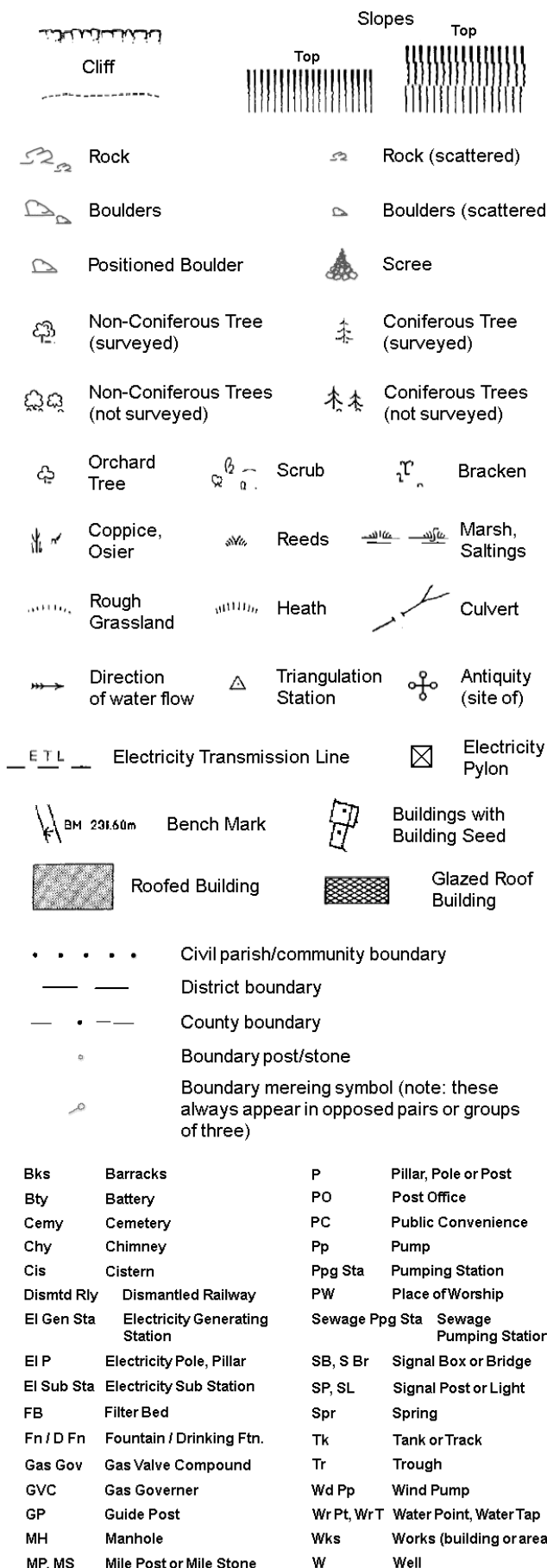
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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



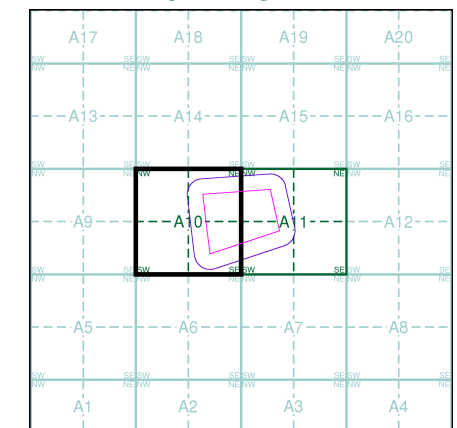
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hertfordshire	1:2,500	1878	2
Cambridgeshire & Isle Of Ely	1:2,500	1887	3
Hertfordshire	1:2,500	1898	4
Cambridgeshire & Isle Of Ely	1:2,500	1903	5
Hertfordshire	1:2,500	1921	6
Hertfordshire	1:2,500	1938	7
Ordnance Survey Plan	1:2,500	1971	8
Supply of Unpublished Survey Information	1:2,500	1973	9
Ordnance Survey Plan	1:2,500	1977	10
Additional SIMs	1:2,500	1979	11
Ordnance Survey Plan	1:2,500	1984	12
Additional SIMs	1:2,500	1987	13
Additional SIMs	1:2,500	1988	14
Additional SIMs	1:2,500	1989	15
Large-Scale National Grid Data	1:2,500	1993	16
Historical Aerial Photography	1:2,500	2000	17

Historical Map - Segment A10



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

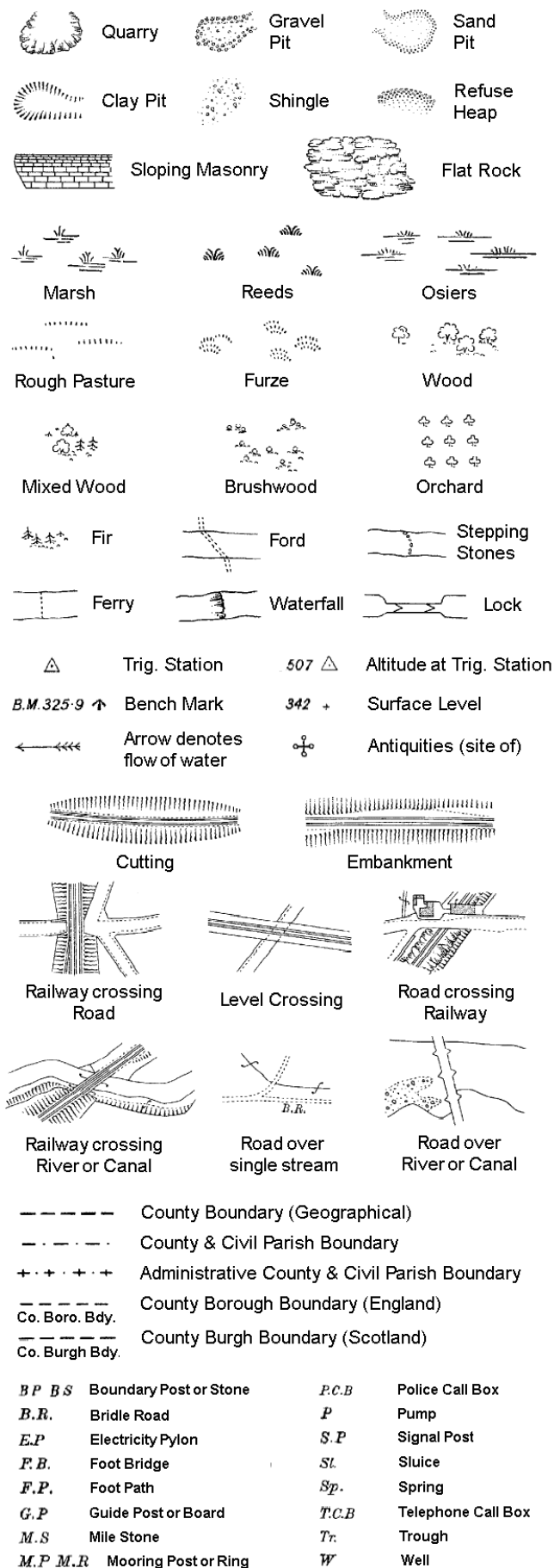
2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



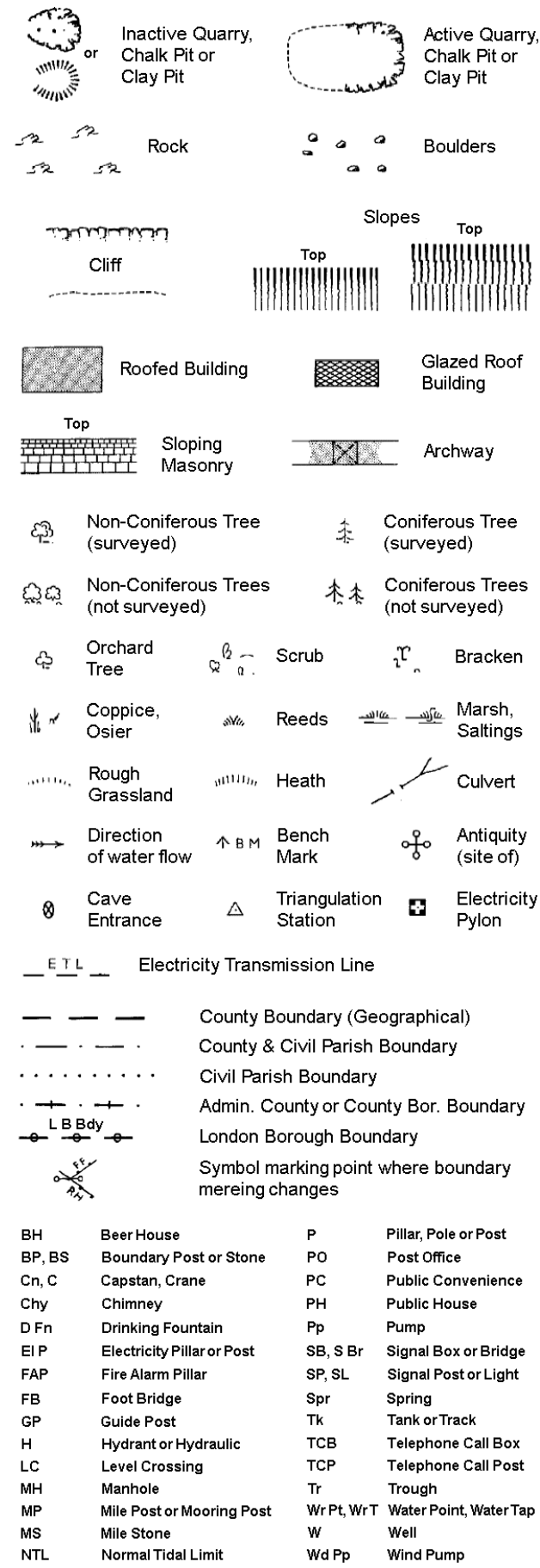
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Mapping Legends

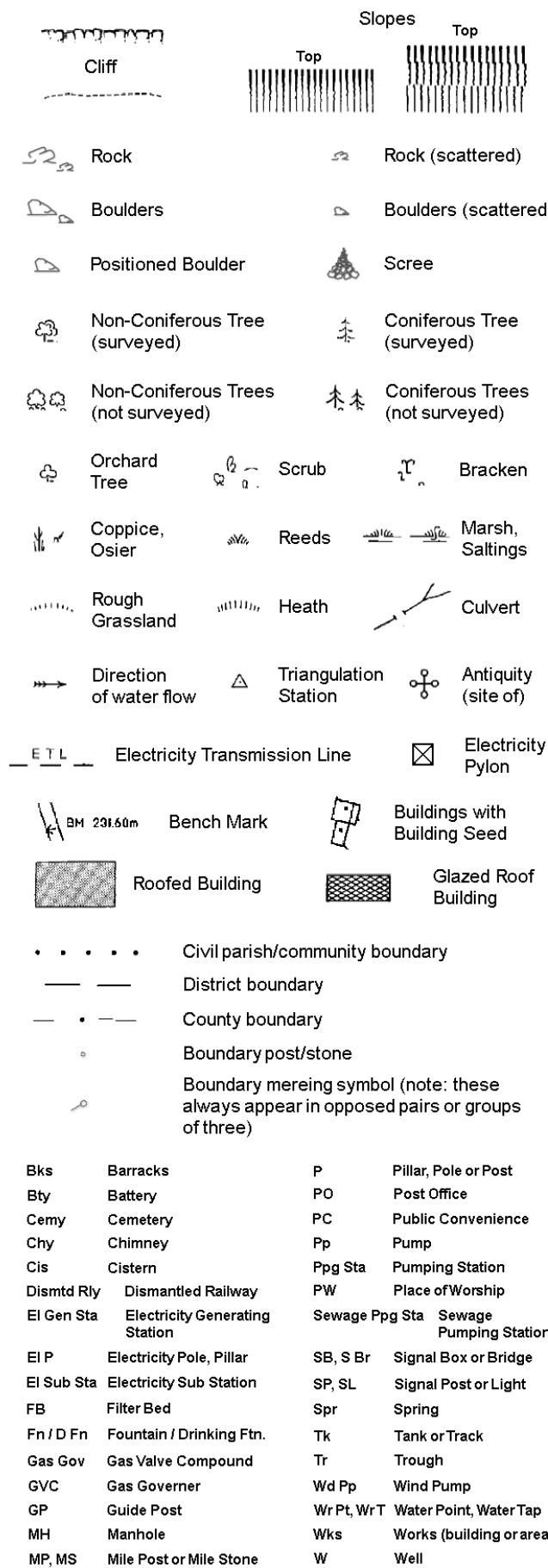
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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



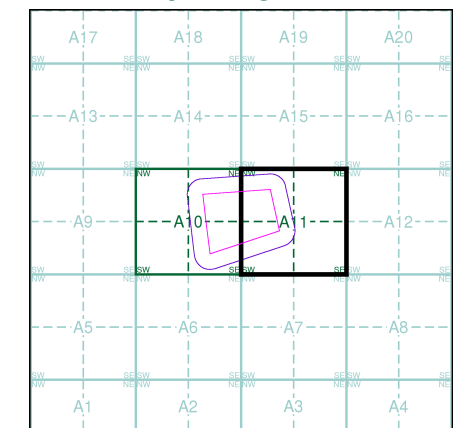
Large-Scale National Grid Data 1:2,500 and 1:1,250



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hertfordshire	1:2,500	1878	2
Cambridgeshire & Isle Of Ely	1:2,500	1887	3
Hertfordshire	1:2,500	1898	4
Cambridgeshire & Isle Of Ely	1:2,500	1903	5
Hertfordshire	1:2,500	1921	6
Hertfordshire	1:2,500	1938	7
Ordnance Survey Plan	1:2,500	1971	8
Supply of Unpublished Survey Information	1:2,500	1973	9
Ordnance Survey Plan	1:2,500	1977 - 1984	10
Additional SIMs	1:2,500	1979 - 1983	11
Ordnance Survey Plan	1:2,500	1984	12
Additional SIMs	1:2,500	1987	13
Additional SIMs	1:2,500	1988	14
Additional SIMs	1:2,500	1989	15
Large-Scale National Grid Data	1:2,500	1993	16
Historical Aerial Photography	1:2,500	2000	17

Historical Map - Segment A11



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



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

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		
	Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Fenced Un-Fenced		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		
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	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
	Bracken		Heath
	Marsh		Reeds
	Building		Glasshouse
	Sloping Masonry		Pylon
	Electricity Transmission Line		Pole
	Cutting		Embankment
	Road Under		Road Over
	Level Crossing		Foot Bridge
	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 Shown only when not coincident with other boundaries		
	Civil Parish Shown alternately when coincidence of boundaries occurs		
	Boundary Post or Stone		Police Station
	Church		Post Office
	Club House		Public Convenience
	Fire Engine Station		Public House
	Foot Bridge		Signal Box
	Fountain		Spring
	Guide Post		Telephone Call Box
	Mile Post		Telephone Call Post
	Mile Stone		Well

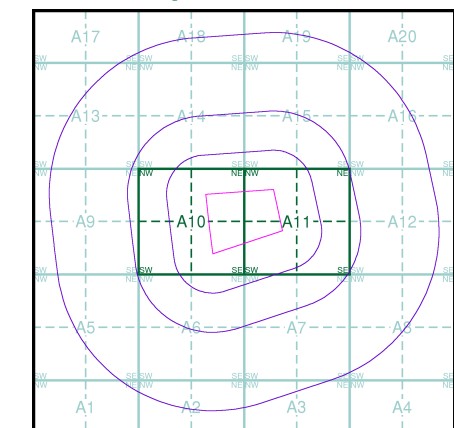
1:10,000 Raster Mapping

	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
	Mean high water (springs)		Mean low water (springs)
	Telephone line (where shown)		Electricity transmission line (with poles)
	Bench mark (where shown)		Triangulation station
	Point feature (e.g. Guide Post or Mile Stone)		Pylon, flare stack or lighting tower
	Site of (antiquity)		Glasshouse
	General Building		Important Building

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Essex	1:10,560	1880	2
Hertfordshire	1:10,560	1882 - 1883	3
Cambridgeshire & Isle Of Ely	1:10,560	1886	4
Hertfordshire	1:10,560	1899	5
Cambridgeshire & Isle Of Ely	1:10,560	1903 - 1904	6
Essex	1:10,560	1924	7
Hertfordshire	1:10,560	1925	8
Hertfordshire	1:10,560	1925	9
Hertfordshire	1:10,560	1938 - 1947	10
Essex	1:10,560	1938	11
Cambridgeshire & Isle Of Ely	1:10,560	1950	12
Hertfordshire	1:10,560	1950	13
Essex	1:10,560	1951	14
Ordnance Survey Plan	1:10,000	1960	15
Ordnance Survey Plan	1:10,000	1966	16
Ordnance Survey Plan	1:10,000	1973	17
Ordnance Survey Plan	1:10,000	1980 - 1984	18
Ordnance Survey Plan	1:10,000	1987	19
Ordnance Survey Plan	1:10,000	1990	20
10K Raster Mapping	1:10,000	1999	21
10K Raster Mapping	1:10,000	2006	22
VectorMap Local	1:10,000	2016	23

Historical Map - Slice A

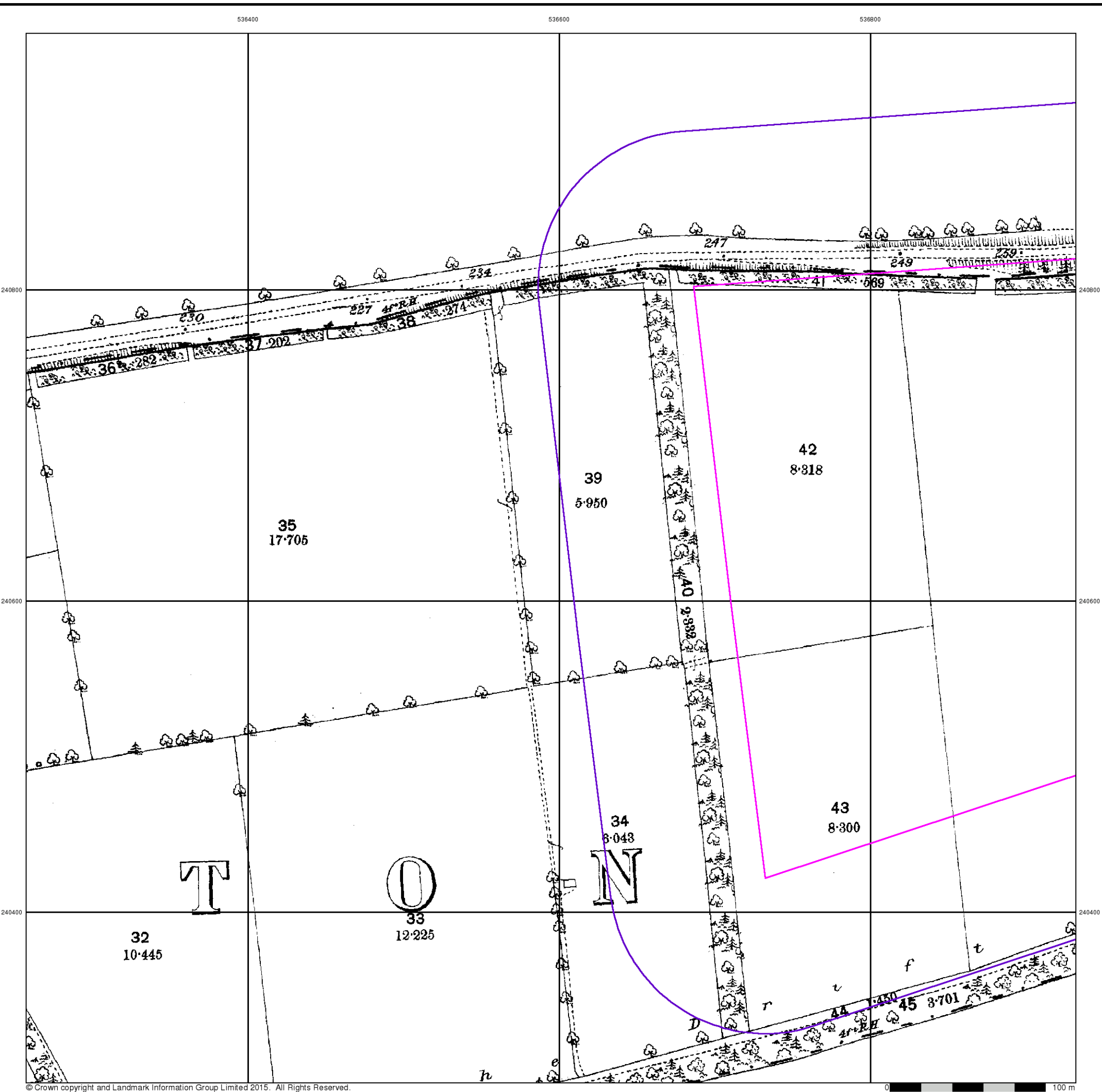


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



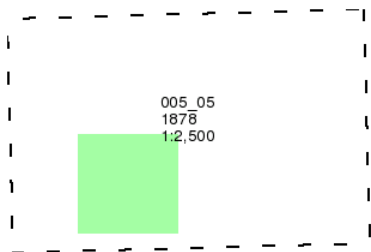
Hertfordshire

Published 1878

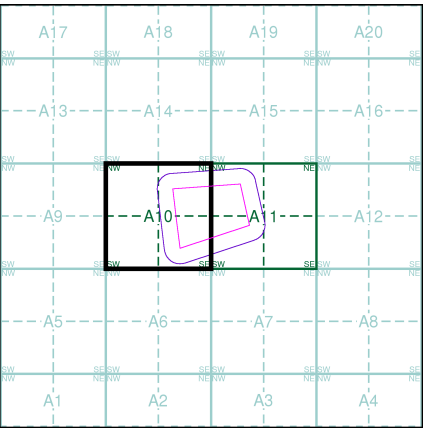
Source map scale - 1:2,500

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 A10



Order Details

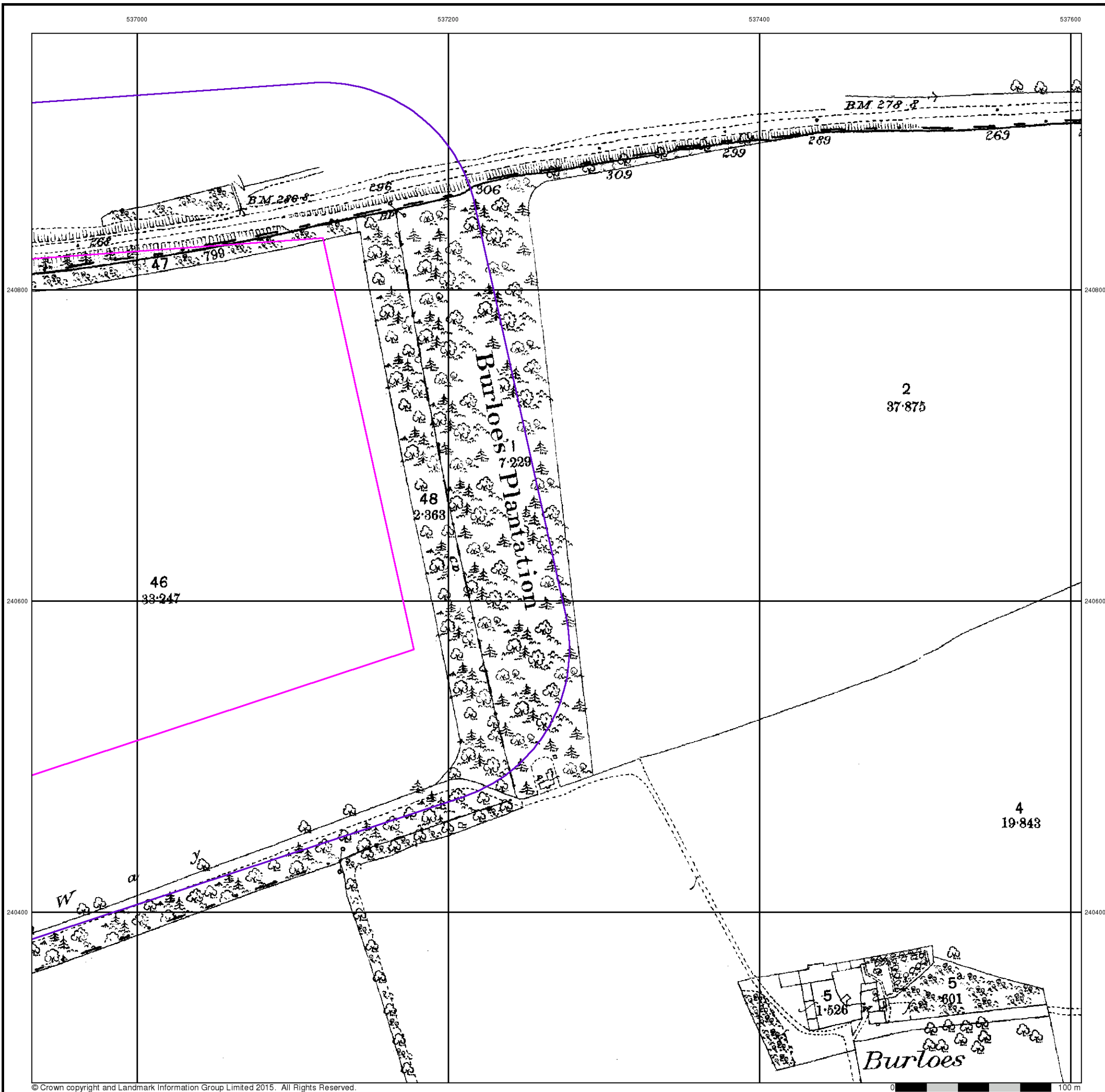
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



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Fax: 0844 844 9951
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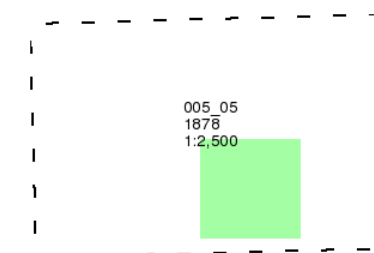
Hertfordshire

Published 1878

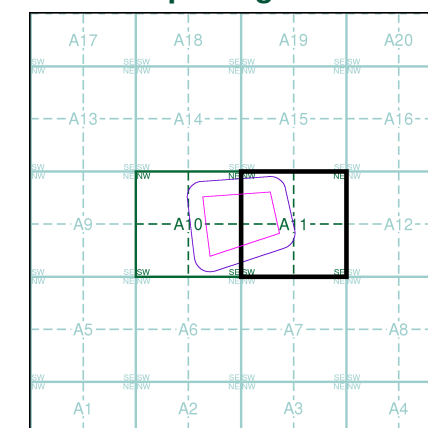
Source map scale - 1:2,500

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 A11



Order Details

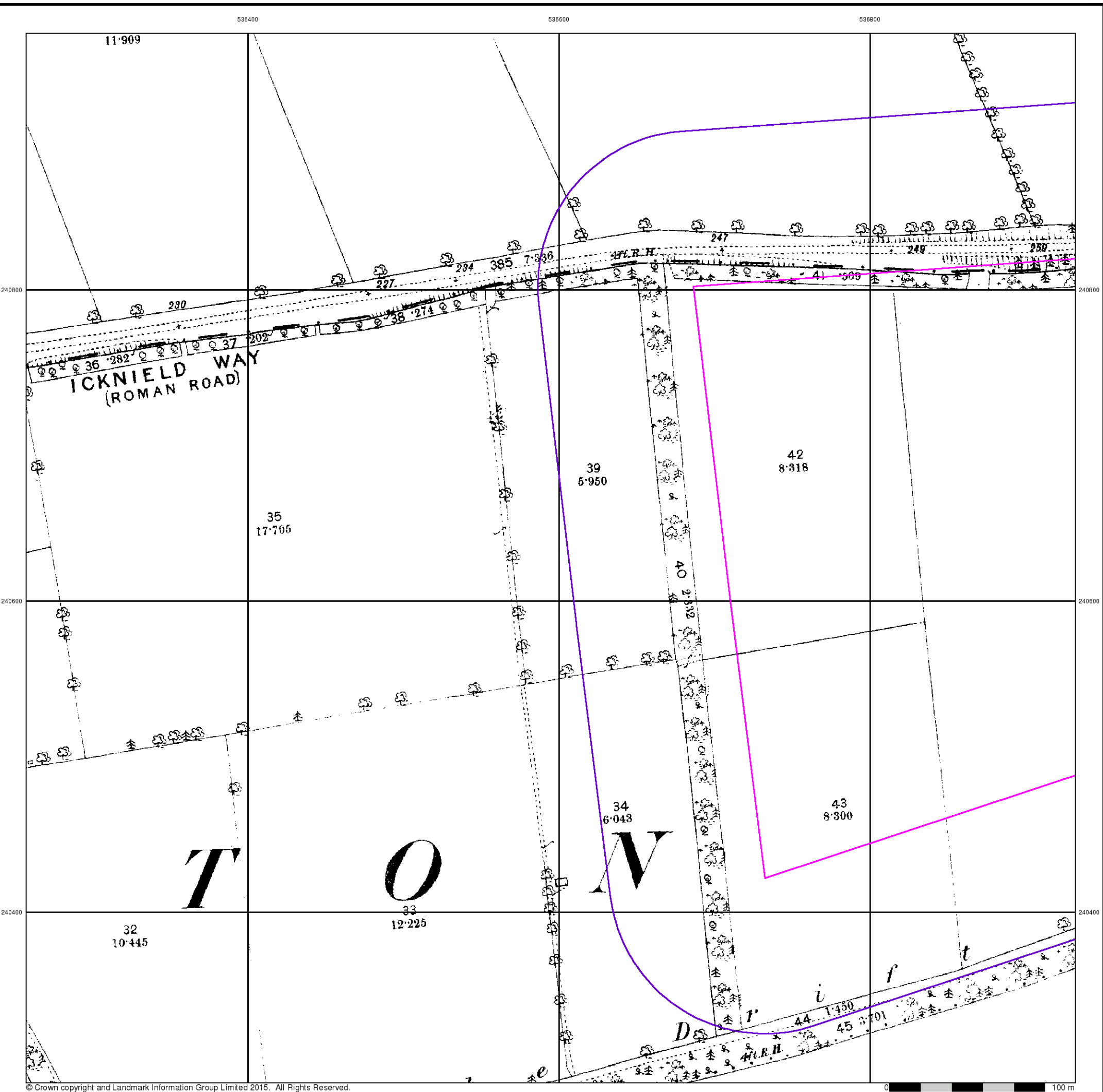
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



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



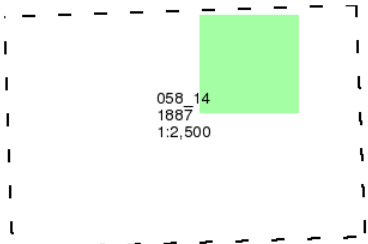
Cambridgeshire & Isle Of Ely

Published 1887

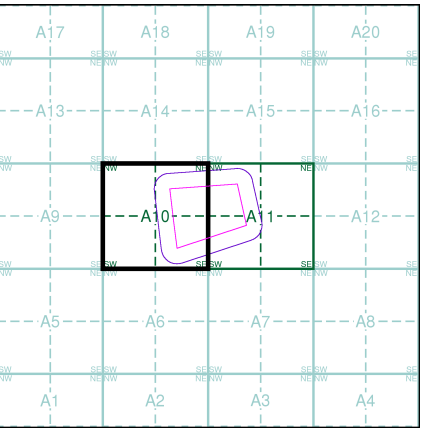
Source map scale - 1:2,500

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 A10



Order Details

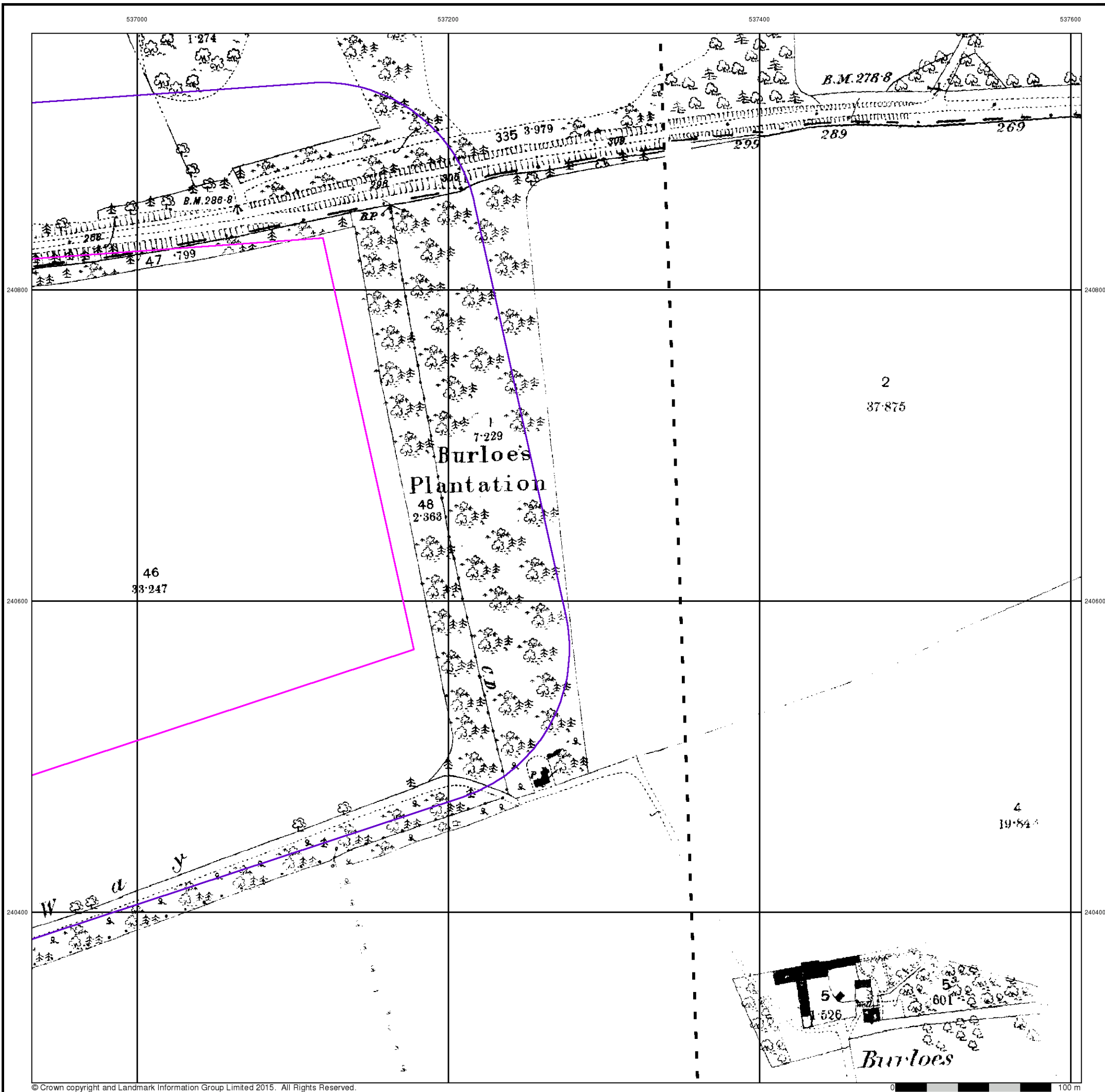
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Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
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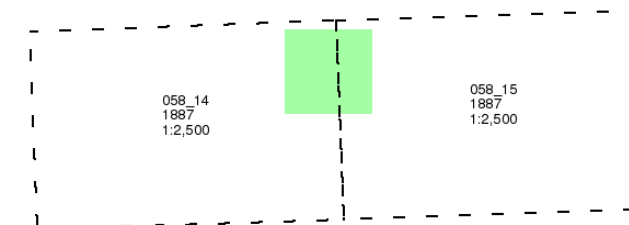
Cambridgeshire & Isle Of Ely

Published 1887

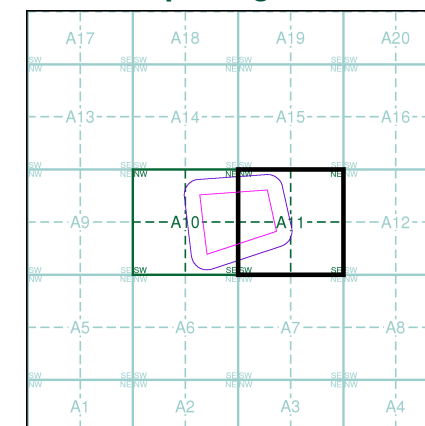
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Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

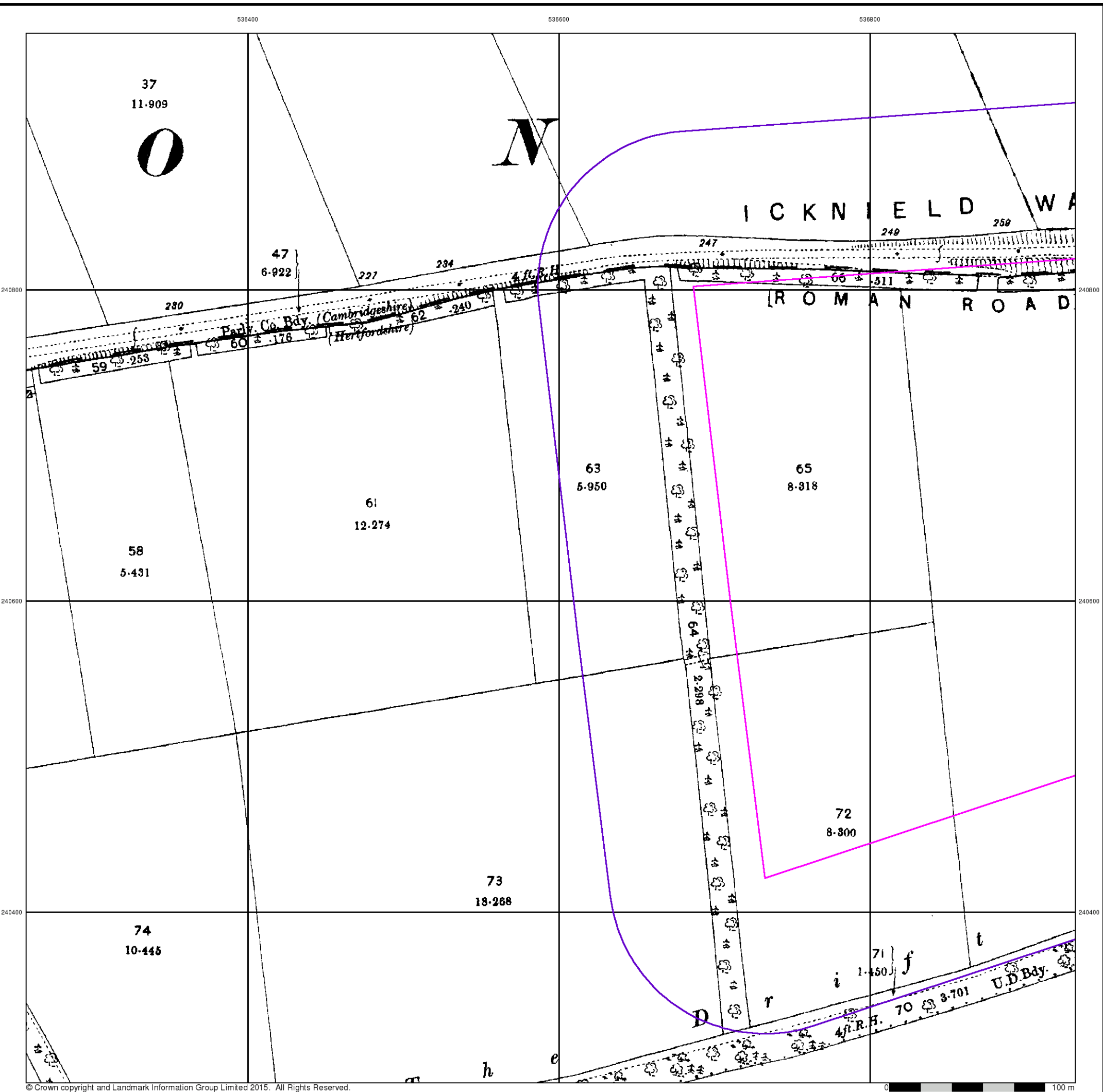
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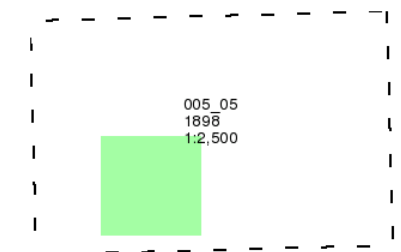
Hertfordshire

Published 1898

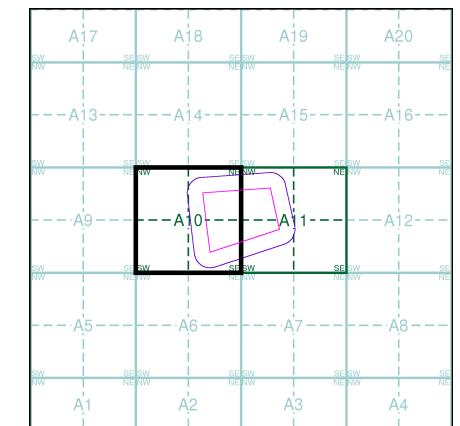
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Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

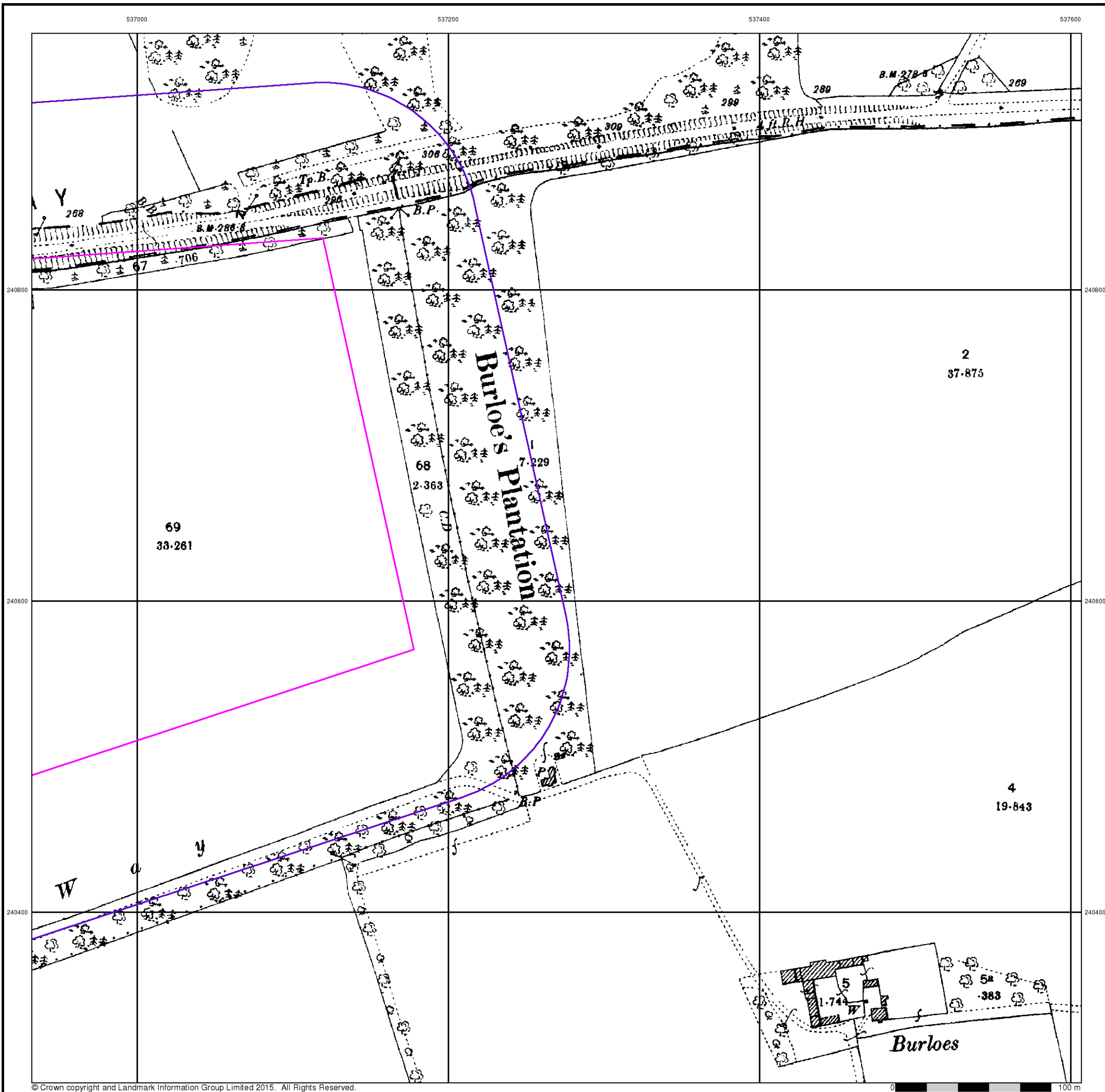
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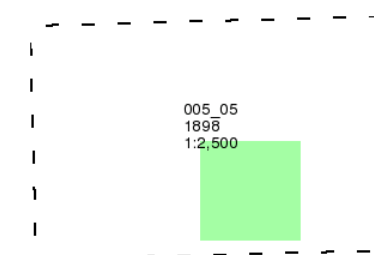
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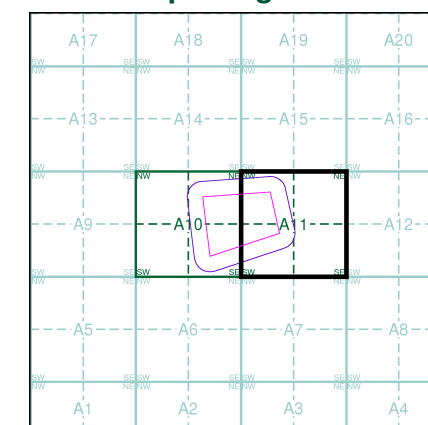
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Map Name(s) and Date(s)



Historical Map - Segment A11

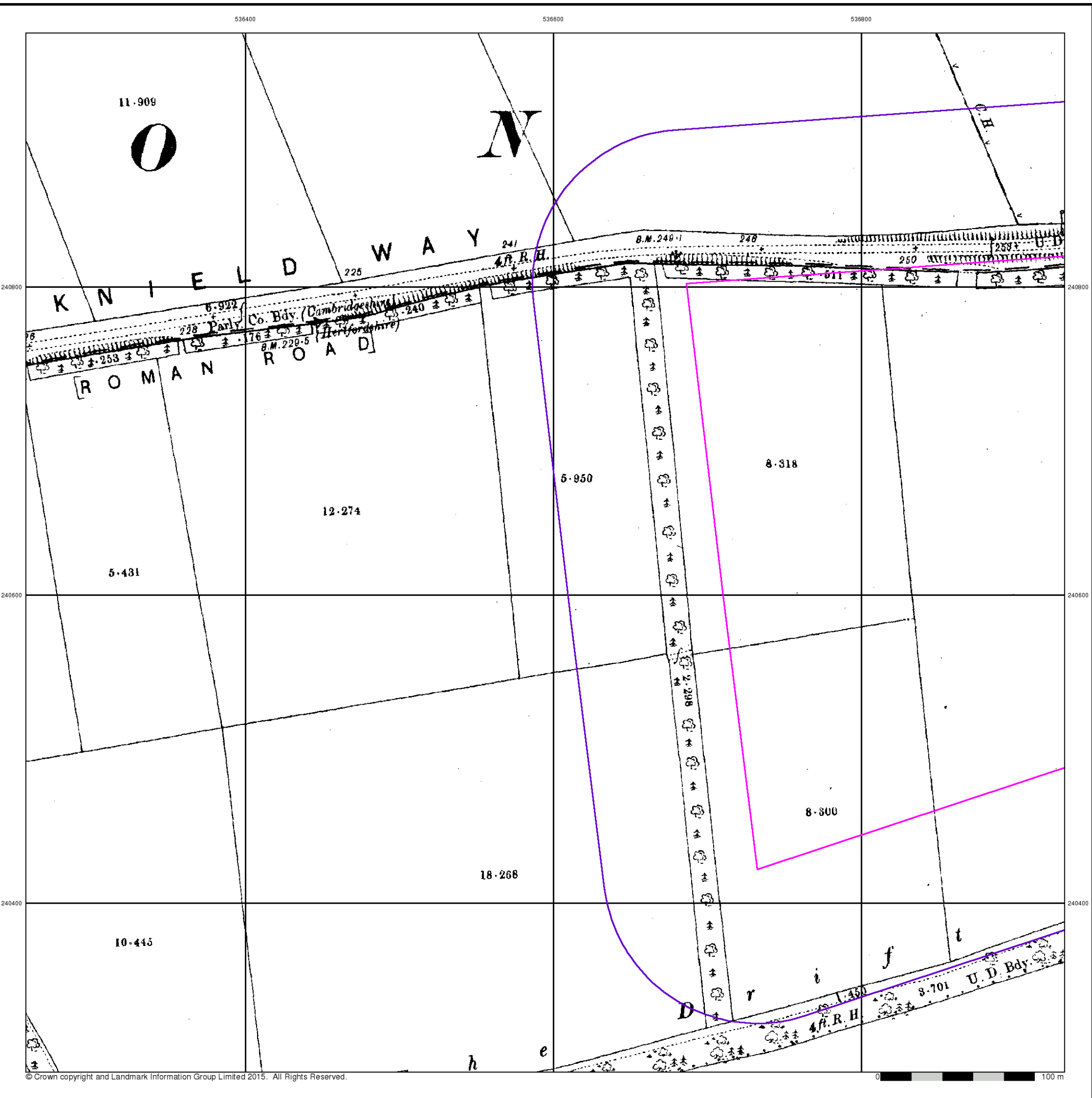


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Site Details

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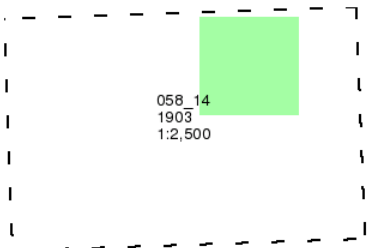
Cambridgeshire & Isle Of Ely

Published 1903

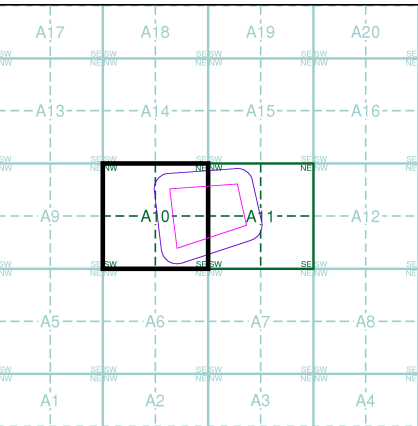
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Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

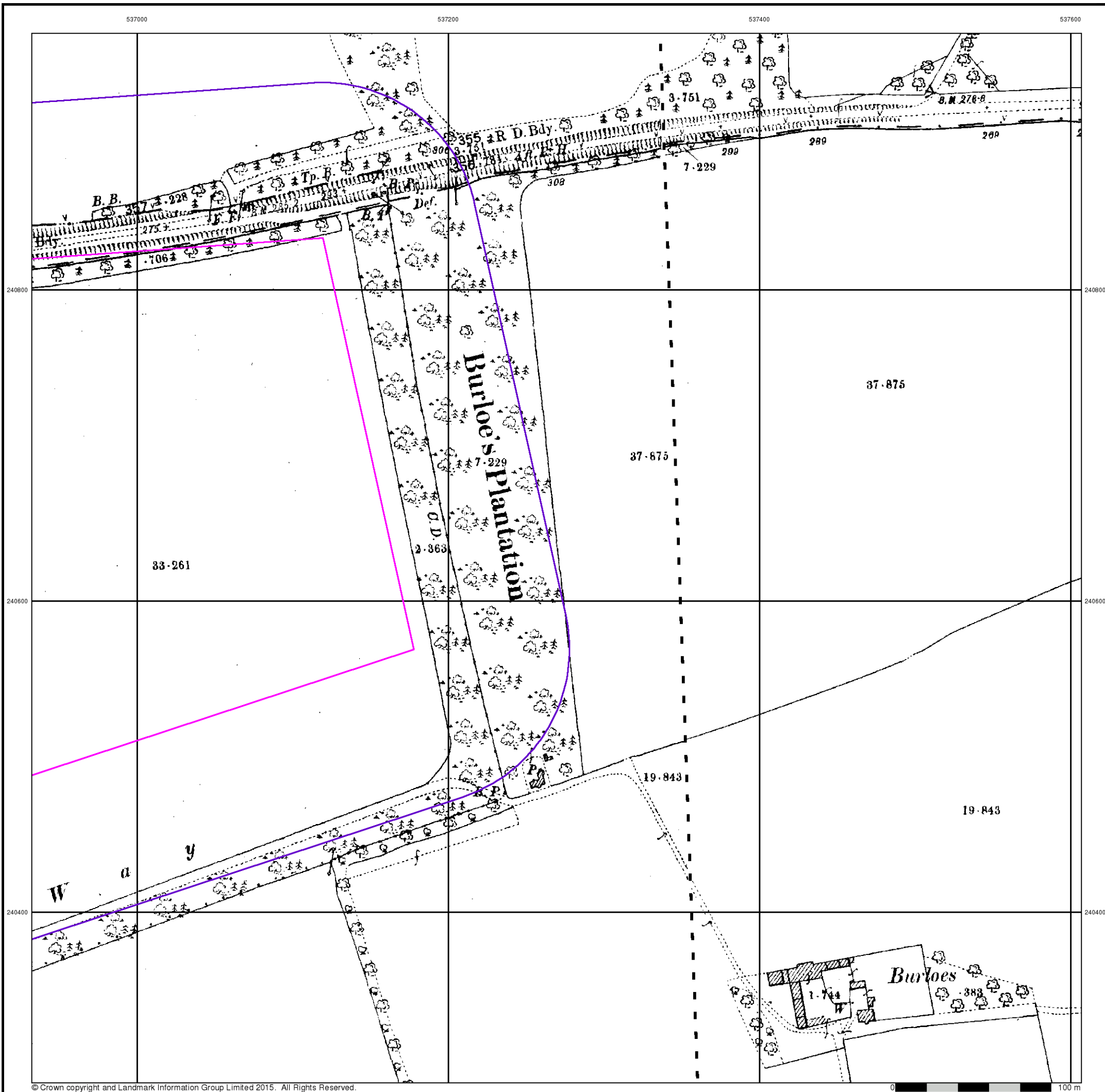
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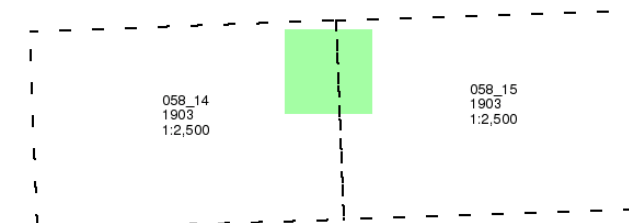
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Published 1903

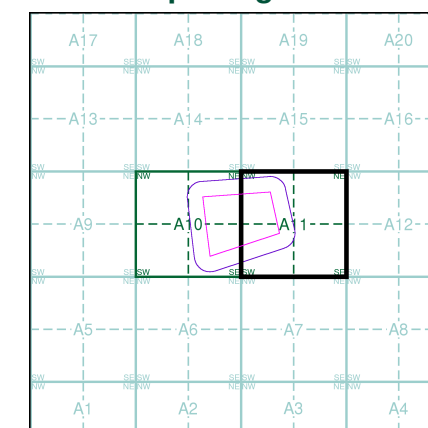
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Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

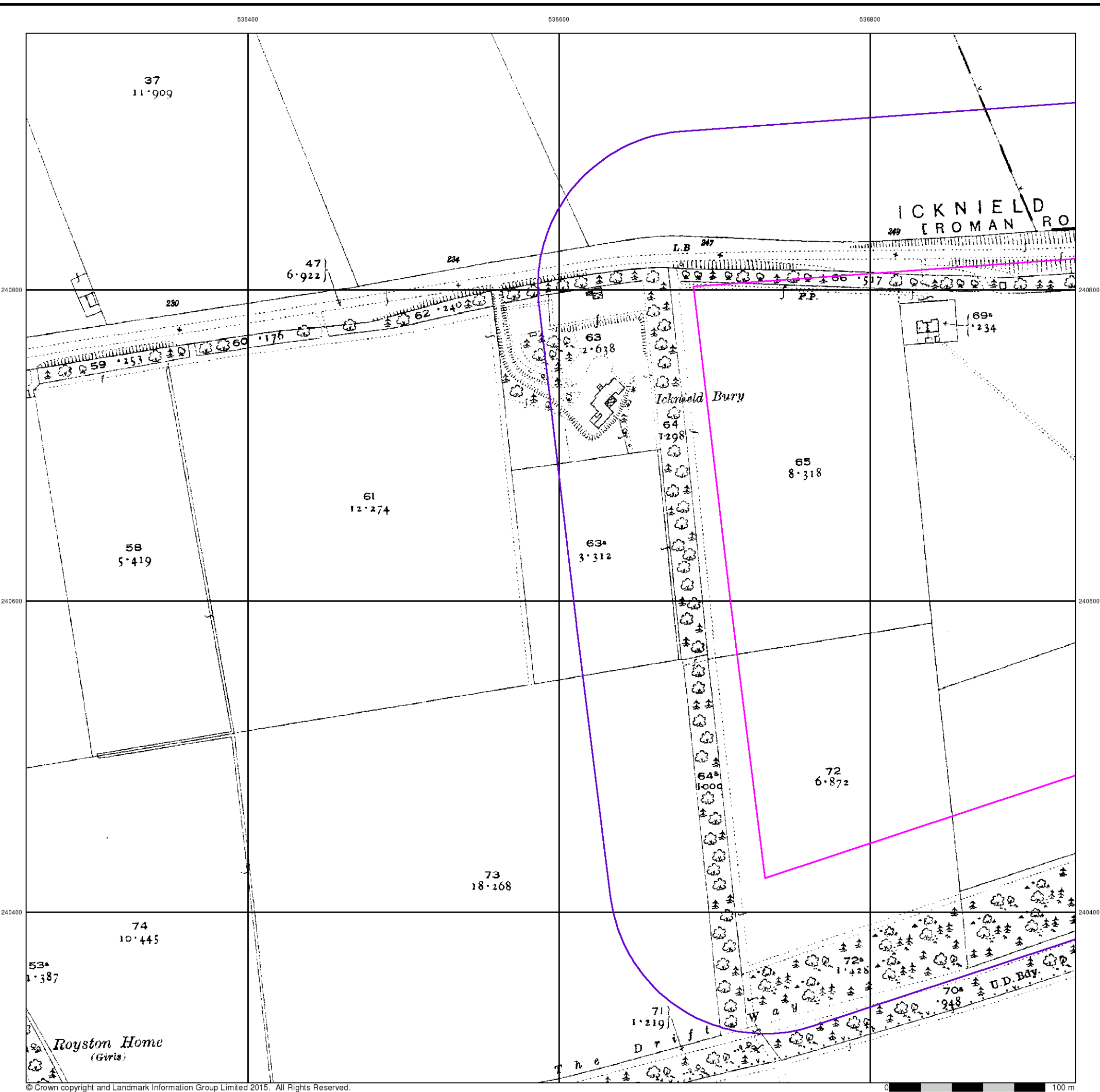
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Site Details

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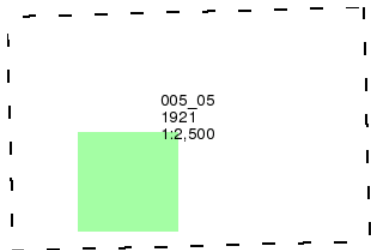
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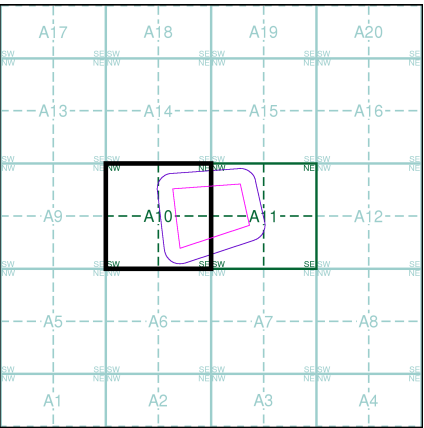
Hertfordshire
Published 1921
Source map scale - 1:2,500

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Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

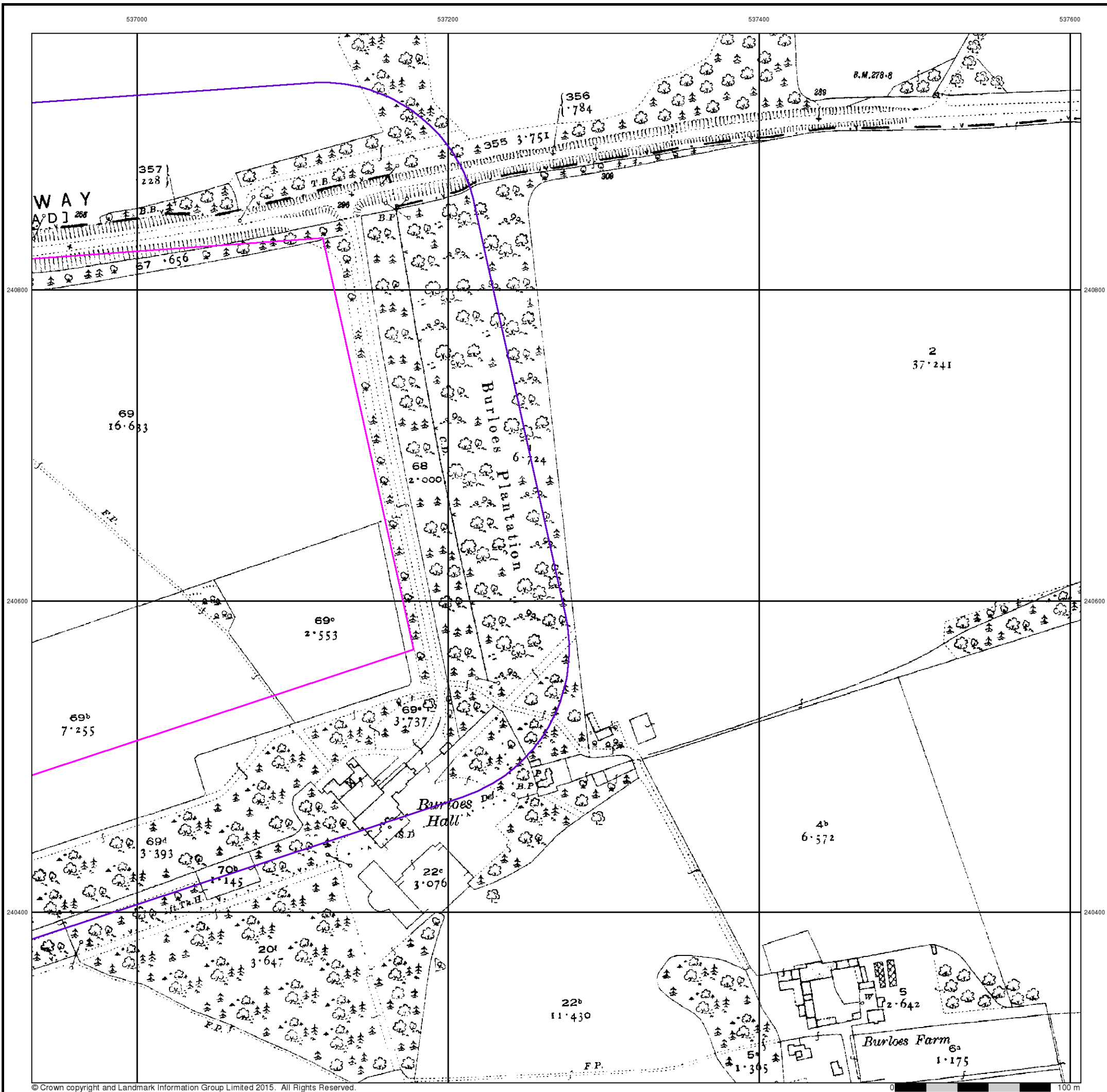
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Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
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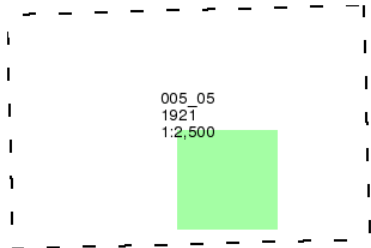
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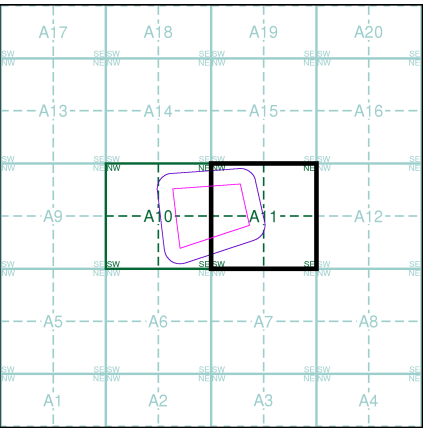
Hertfordshire
Published 1921
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Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

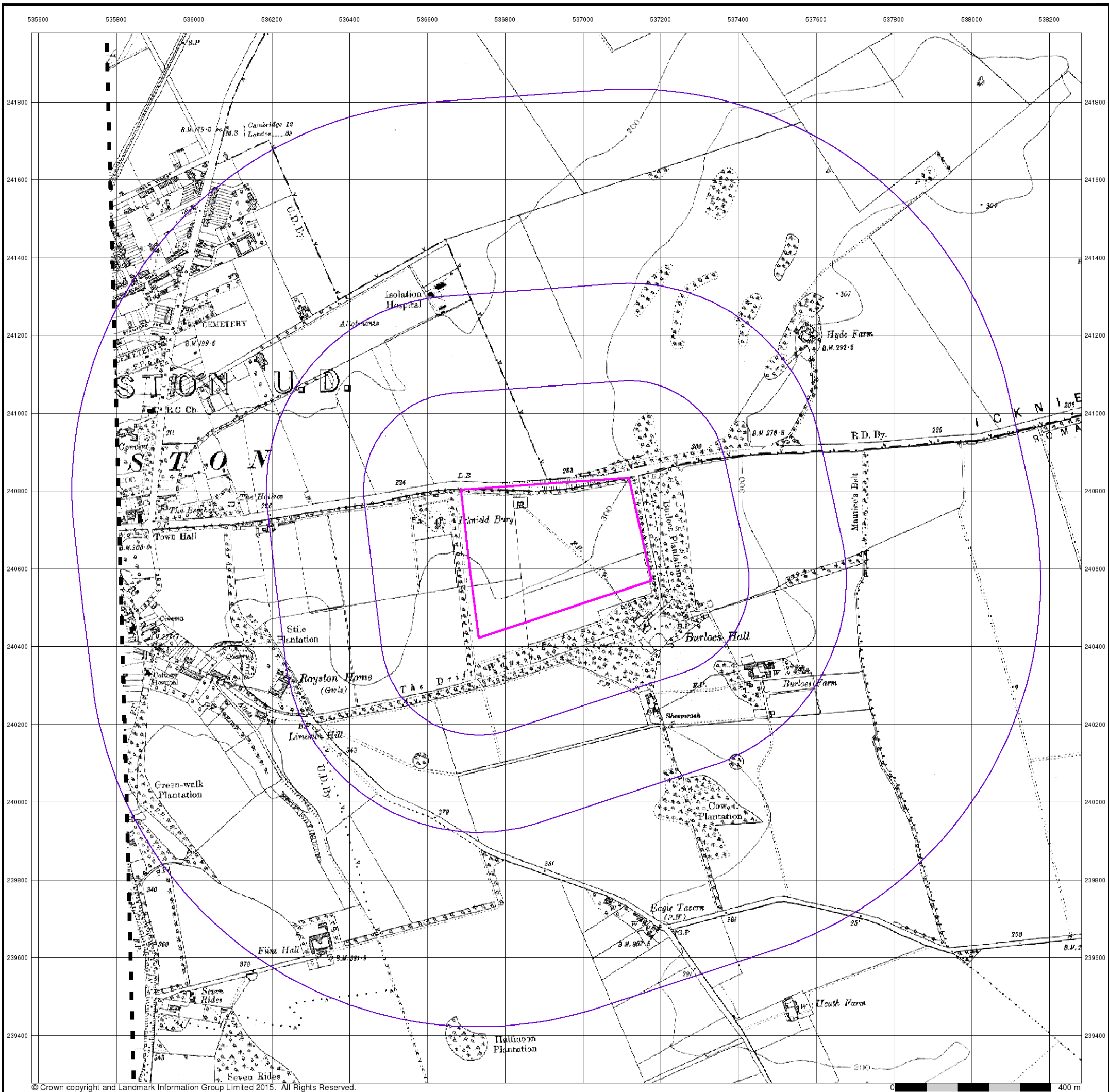
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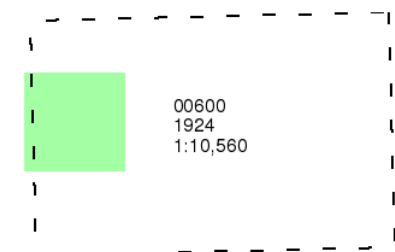
Essex

Published 1924

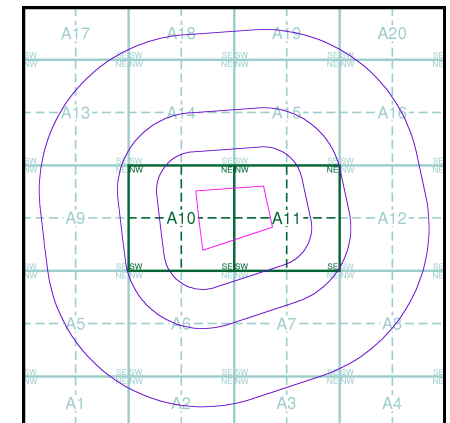
Source map scale - 1:10,560

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

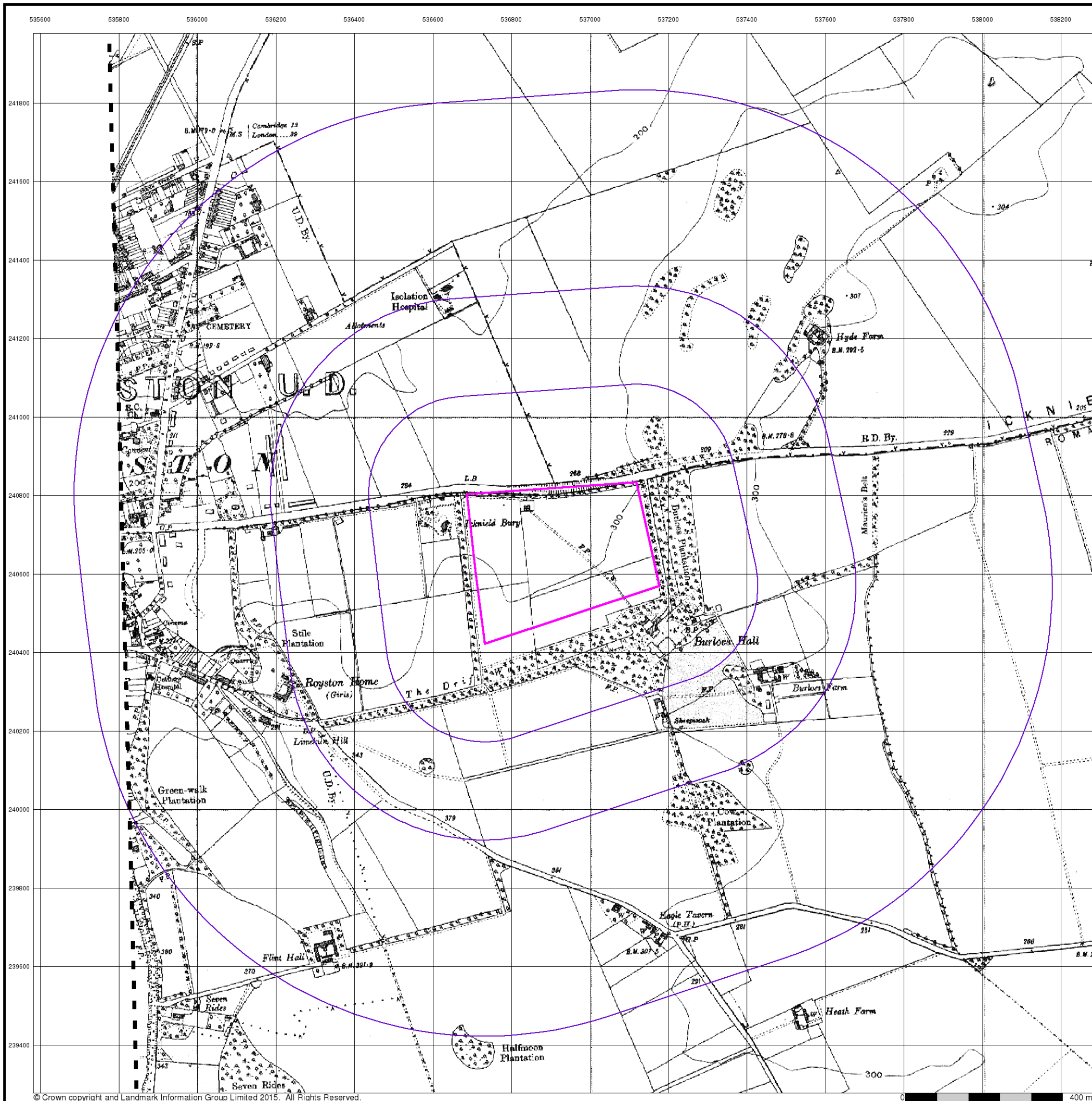
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Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 1000

Site Details

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Hertfordshire, SG8 7NJ



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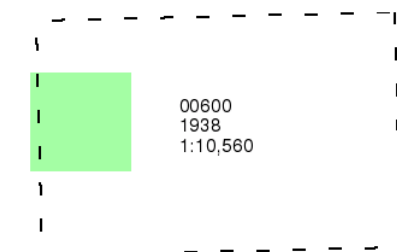
Essex

Published 1938

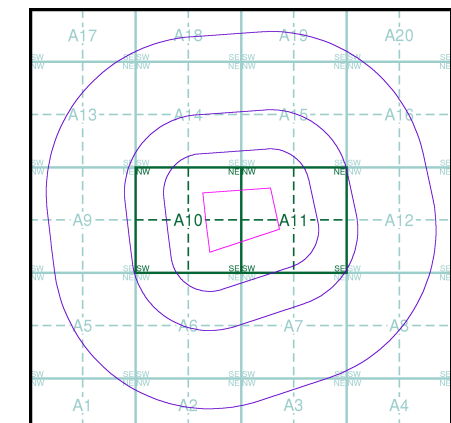
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

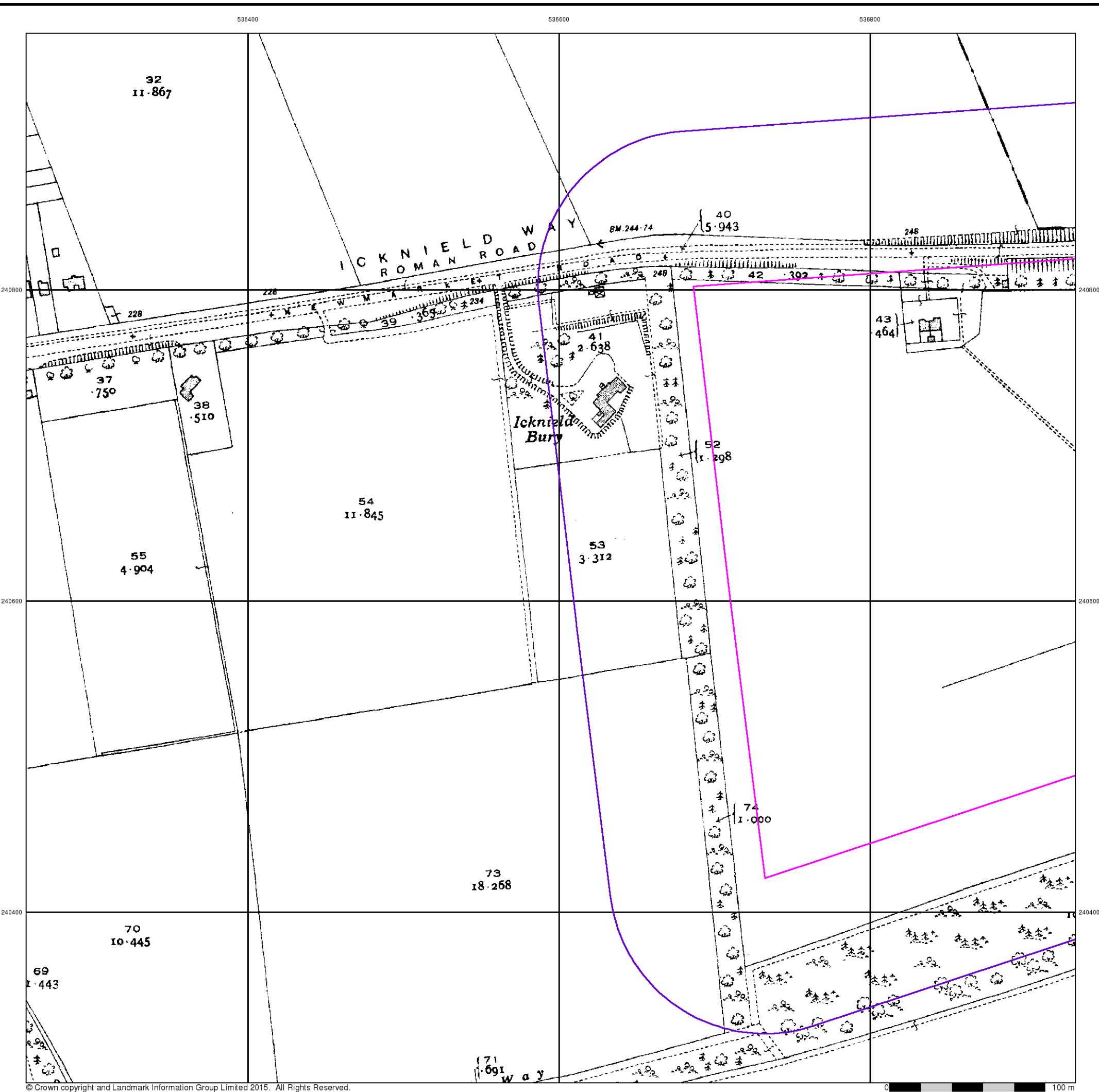
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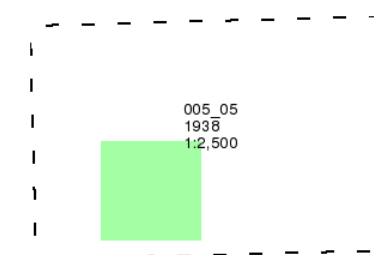
Hertfordshire

Published 1938

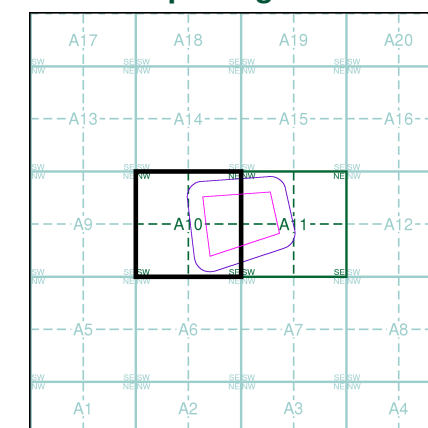
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered 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 A10

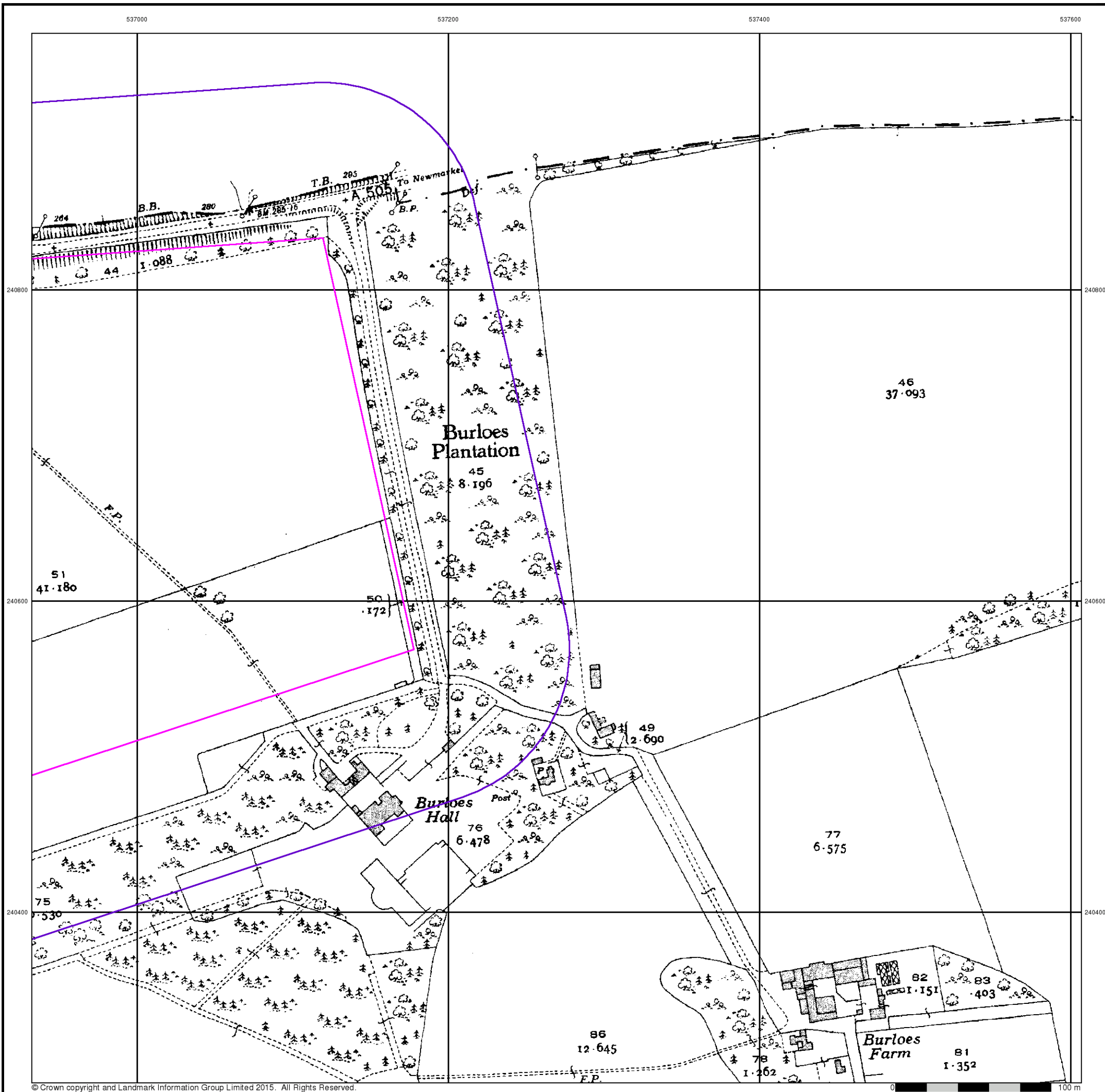


Order Details

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Site Details

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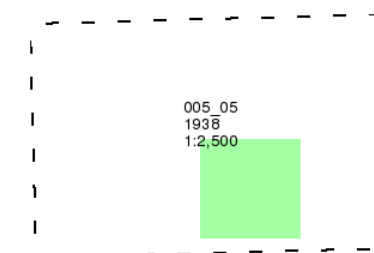
Hertfordshire

Published 1938

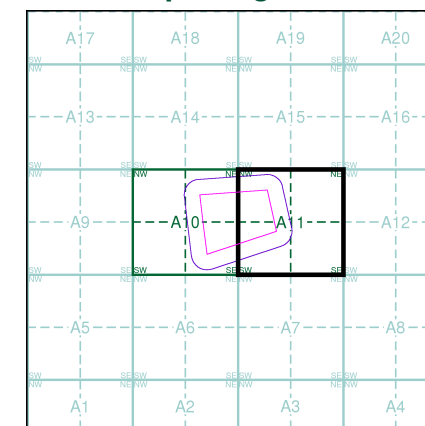
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Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

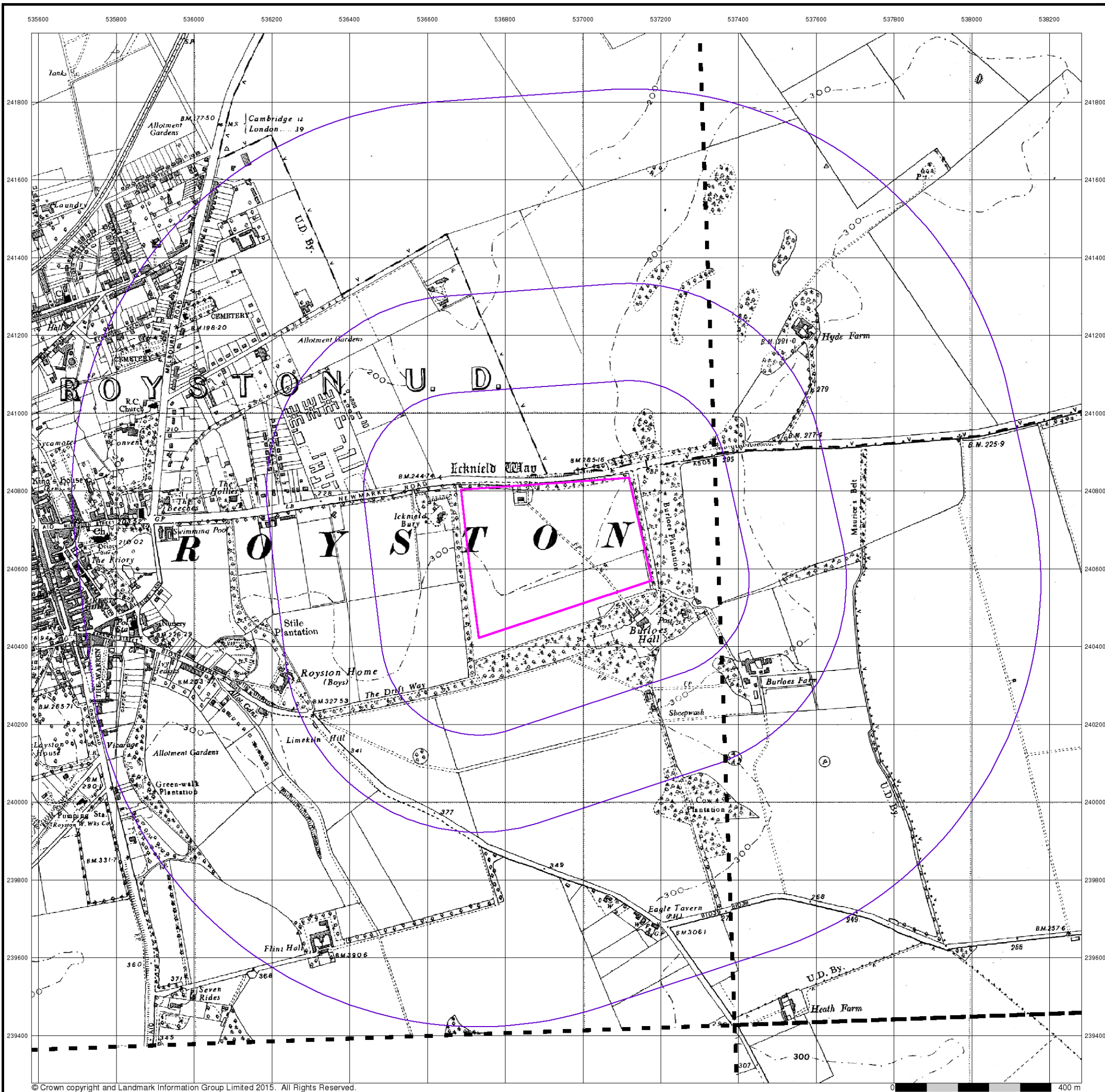
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Site Area (Ha): 14.65
Search Buffer (m): 100

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Cambridgeshire & Isle Of Ely

Published 1950

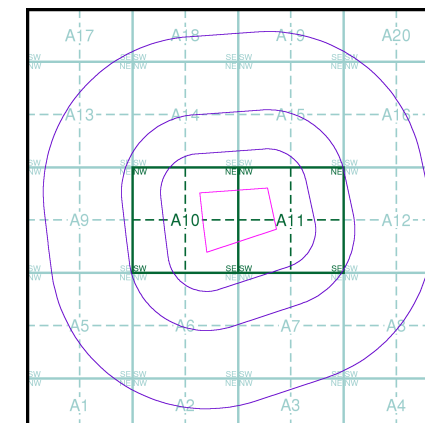
Source map scale - 1:10,560

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)

058SW 1950 1:10,560	058SE 1950 1:10,560
062ANE 1950 1:10,560	

Historical Map - Slice A



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
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Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
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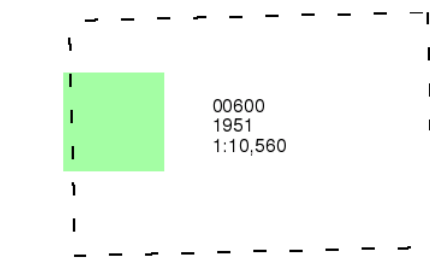
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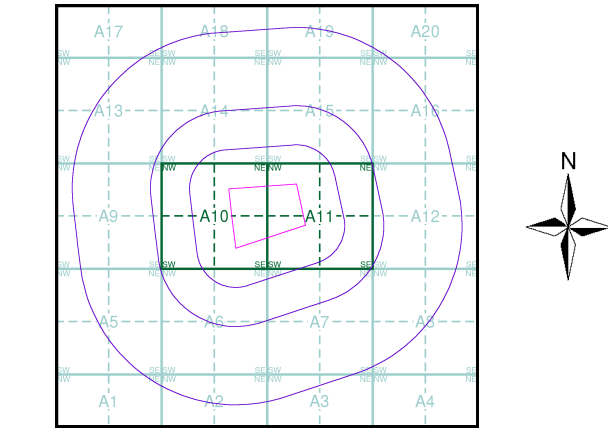
Essex
Published 1951
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

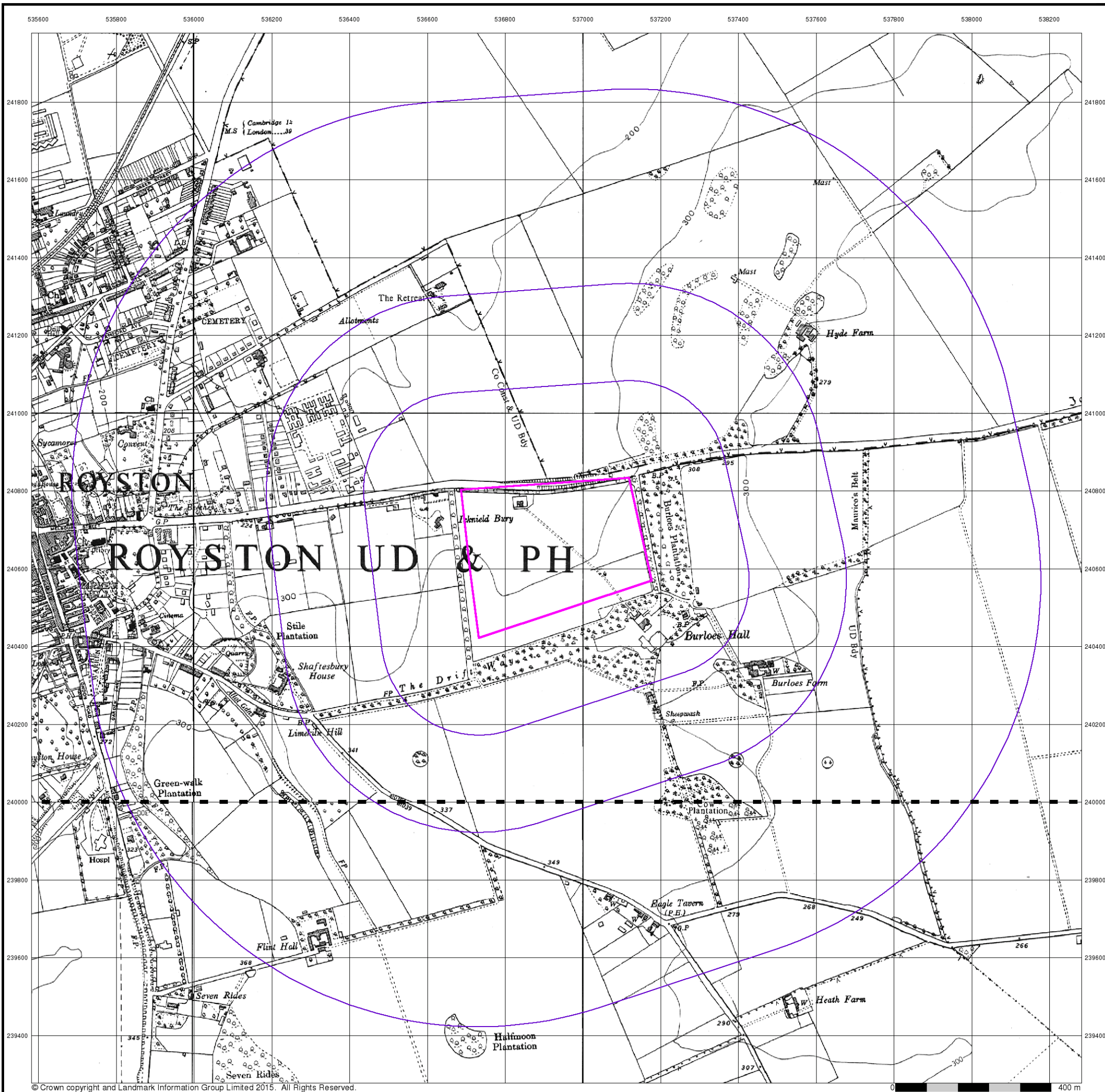
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Ordnance Survey Plan

Published 1960

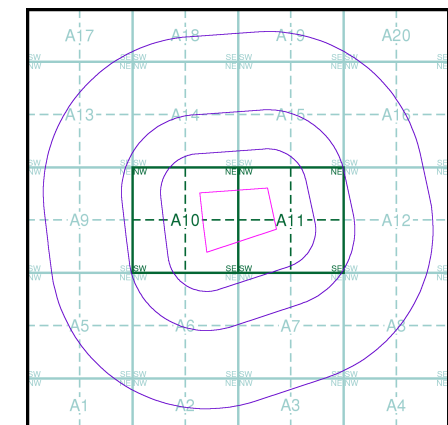
Source map scale - 1:10,000

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Map Name(s) and Date(s)

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1:10,560	
TL33NE	1960
1:10,560	

Historical Map - Slice A

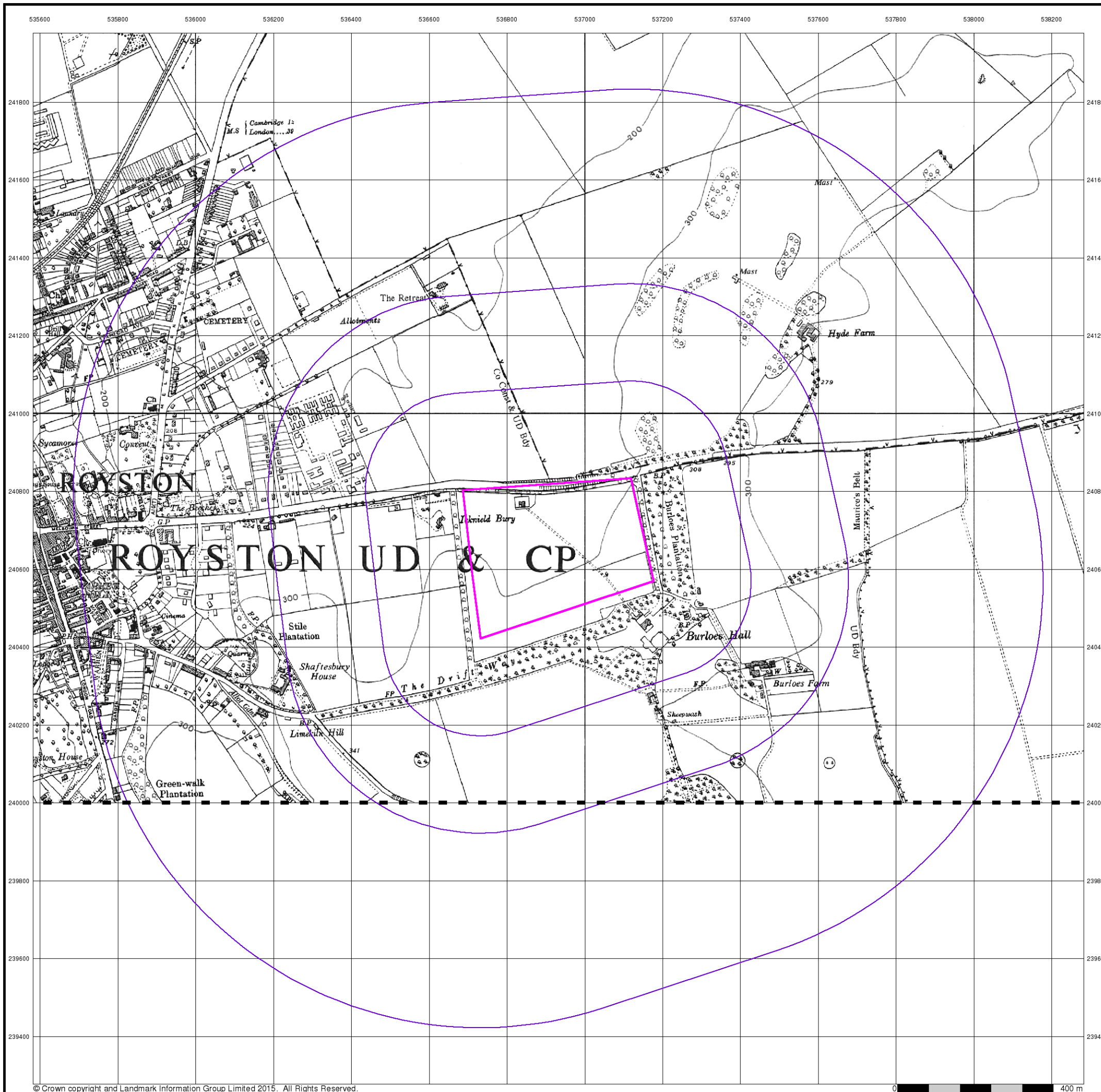


Order Details

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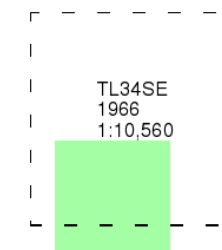
Ordnance Survey Plan

Published 1966

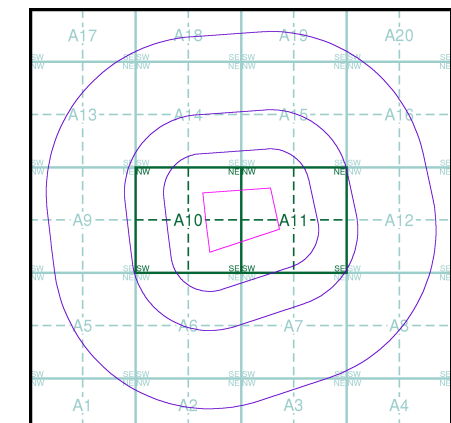
Source map scale - 1:10,000

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)



Historical Map - Slice A



Order Details

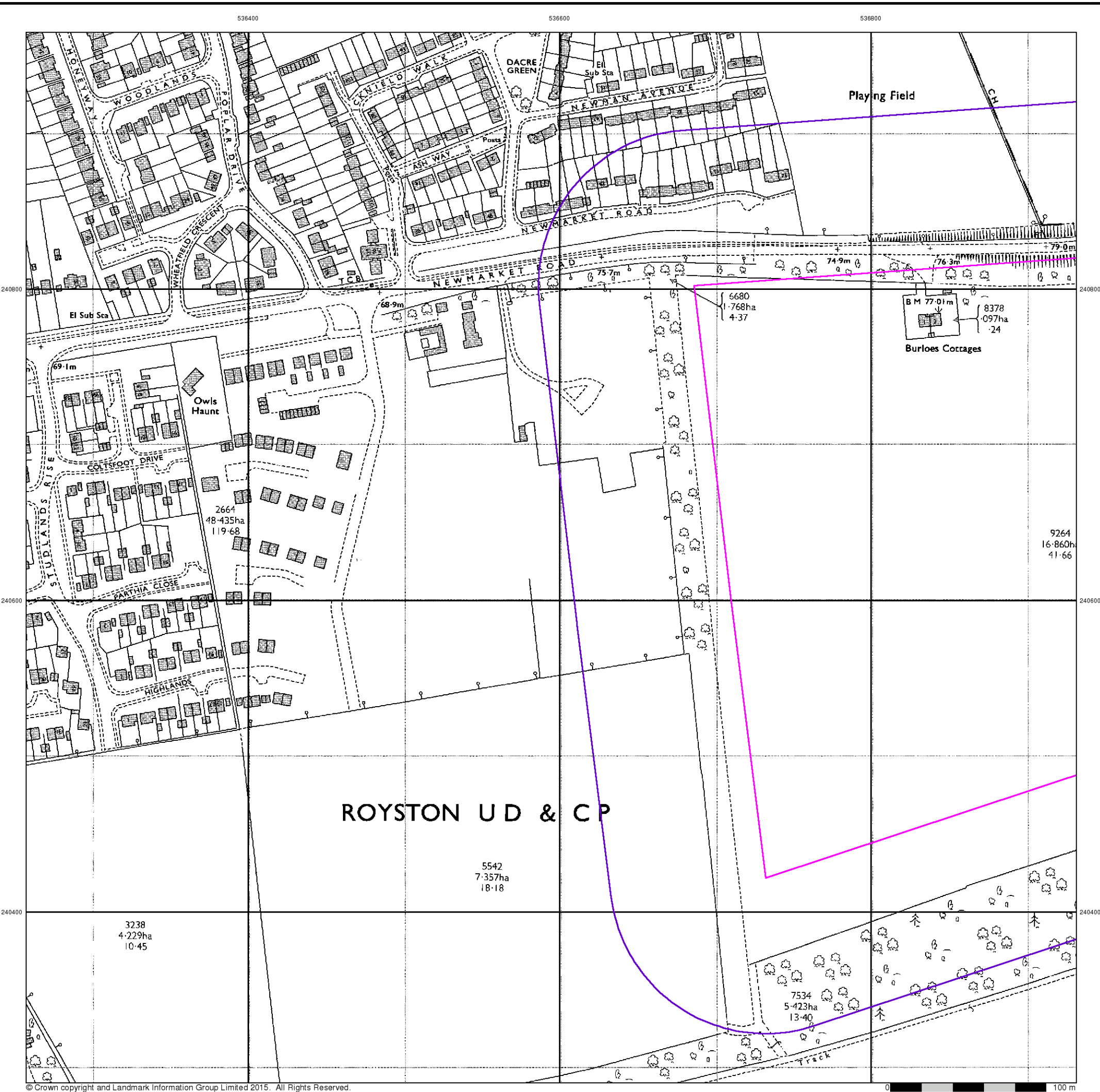
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



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



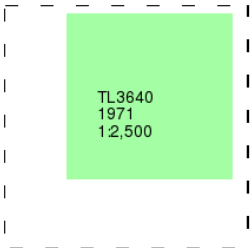
Ordnance Survey Plan

Published 1971

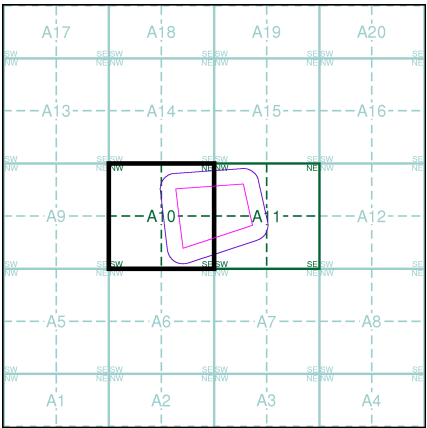
Source map scale - 1:2,500

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 A10



Order Details

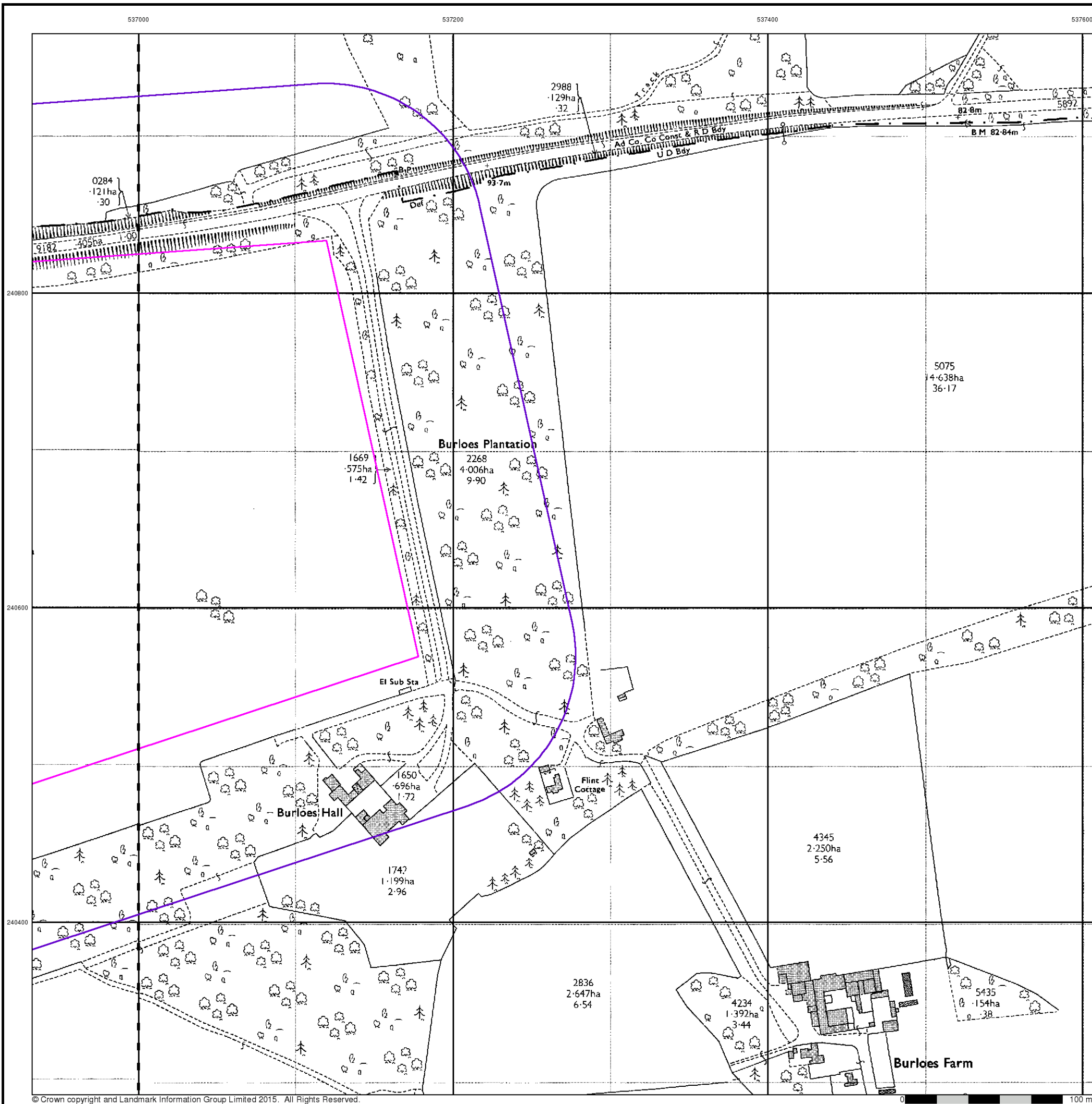
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

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Hertfordshire, SG8 7NJ



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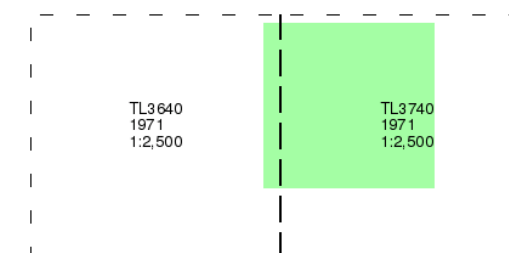
Ordnance Survey Plan

Published 1971

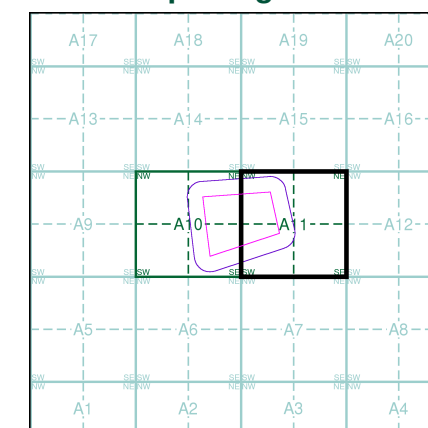
Source map scale - 1:2,500

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 A11

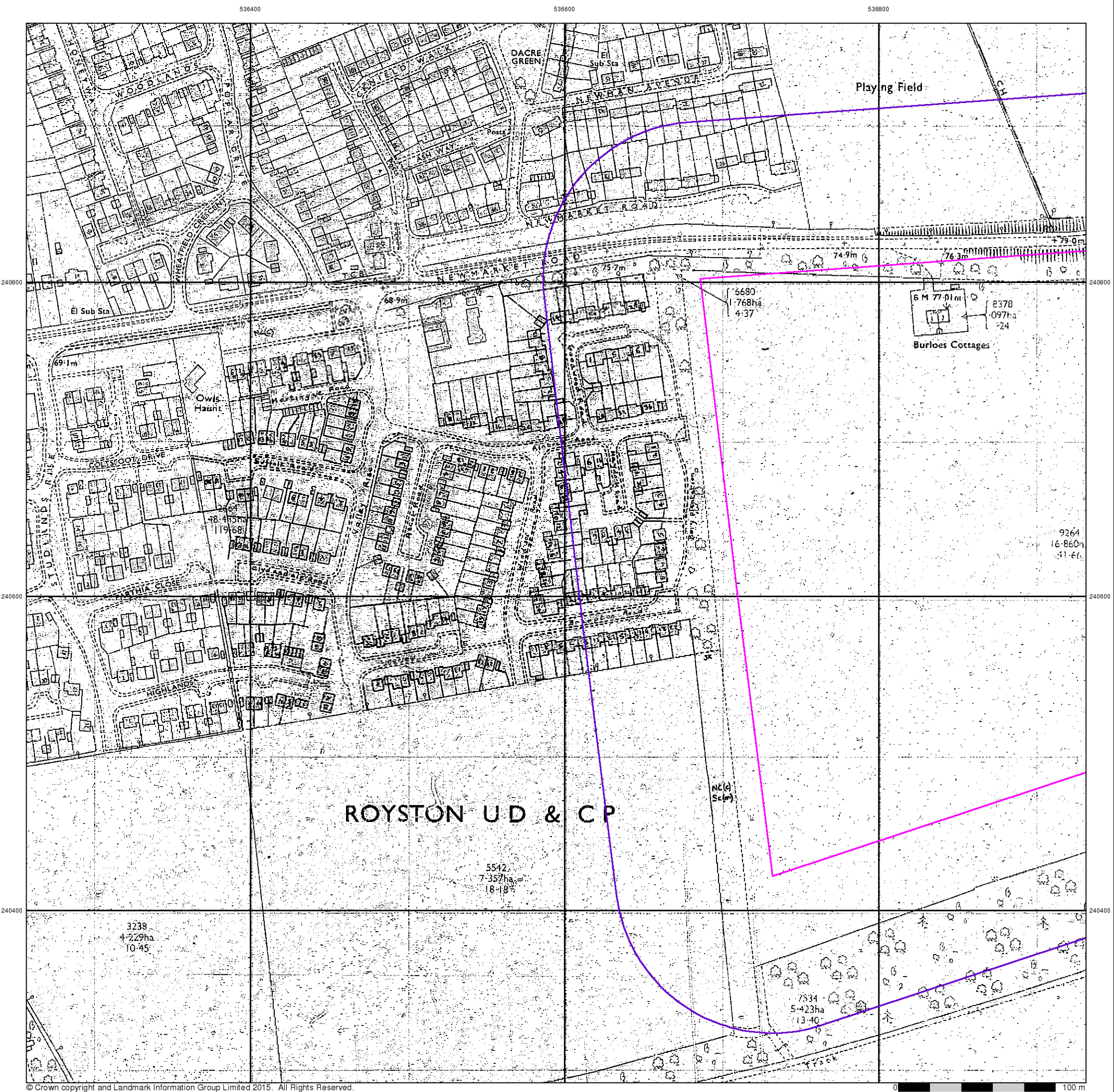


Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



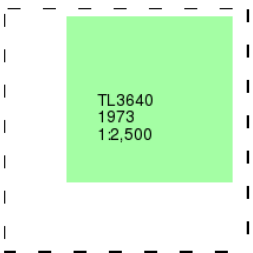
Supply of Unpublished Survey Information

Published 1973

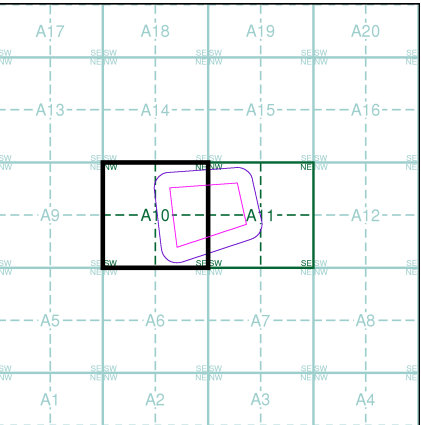
Source map scale - 1:2,500

SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a 'work-in-progress' plan as they showed updates of individual areas on a map. These maps were unpublished, and they do not represent a single moment in time. They were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

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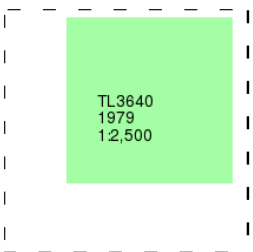
Additional SIMs

Published 1979

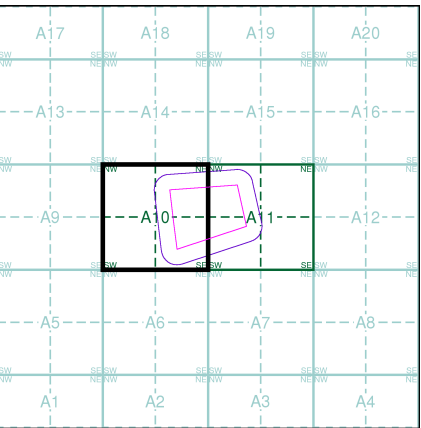
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

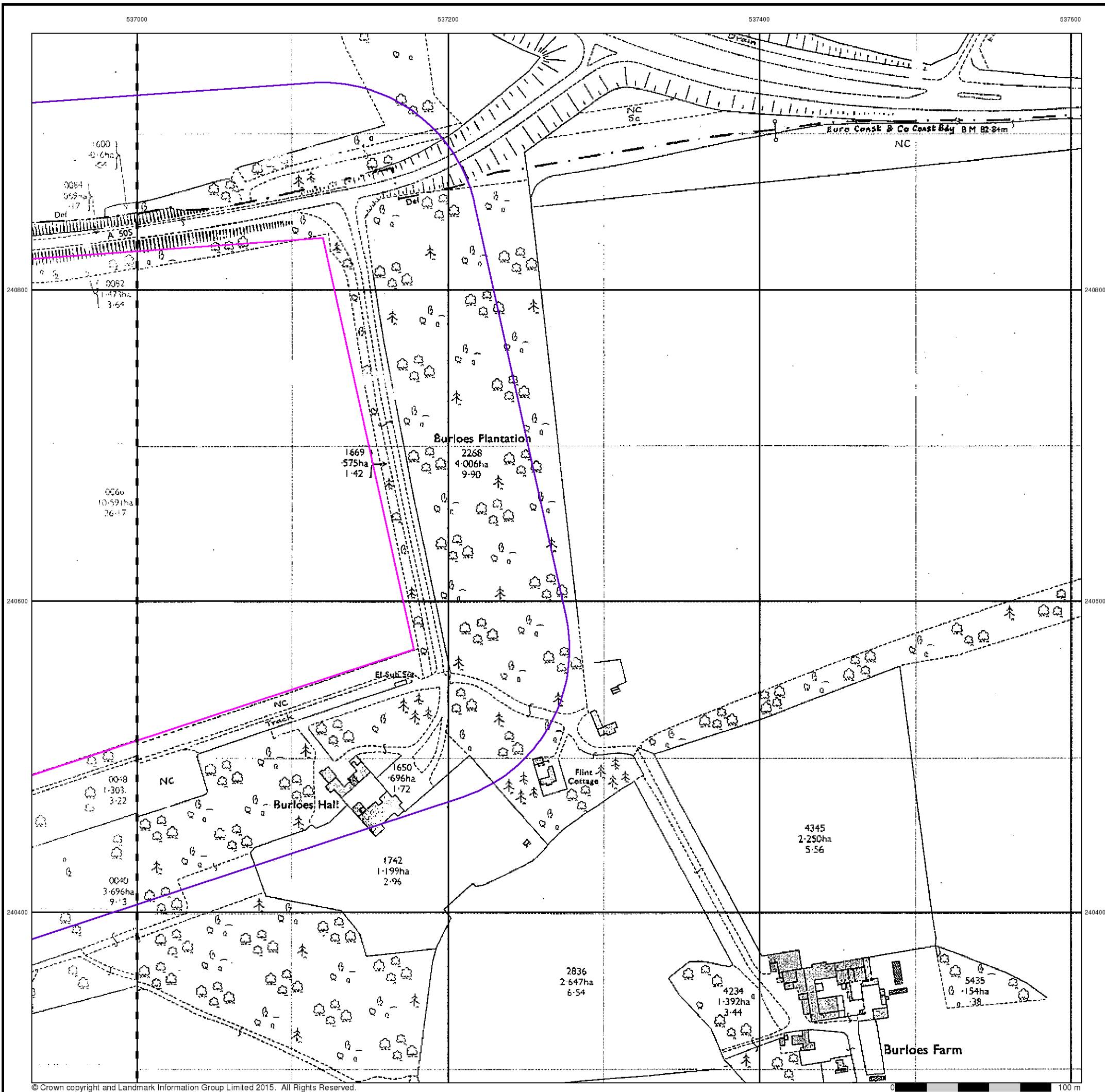
Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
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Site Details

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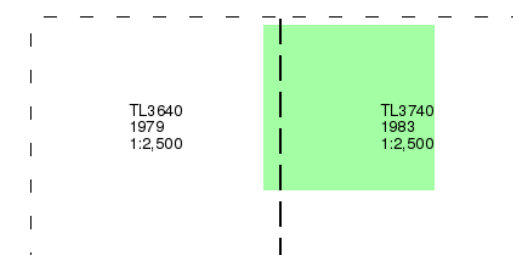
Additional SIMs

Published 1979 - 1983

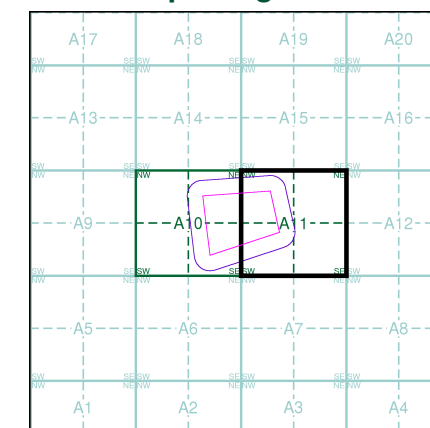
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A11

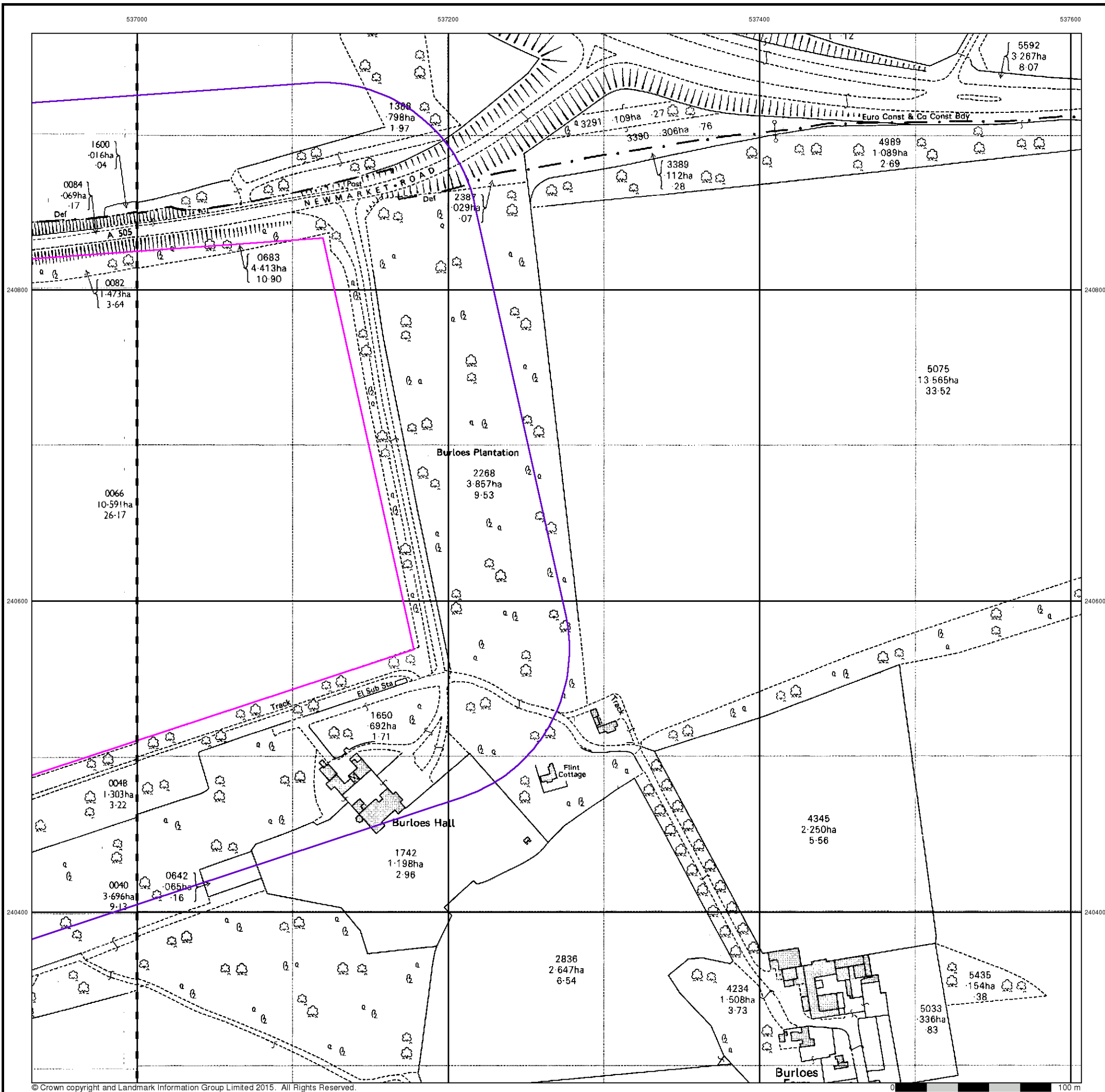


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



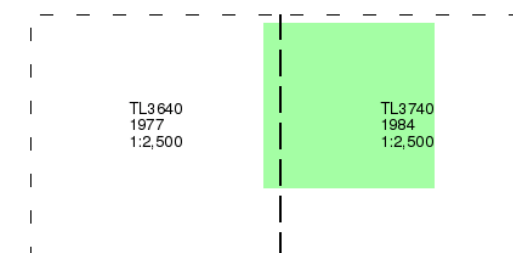
Ordnance Survey Plan

Published 1977 - 1984

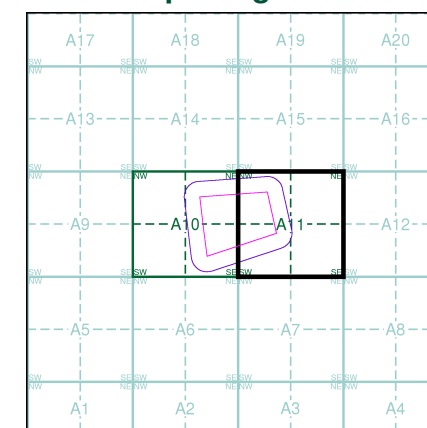
Source map scale - 1:2,500

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 A11

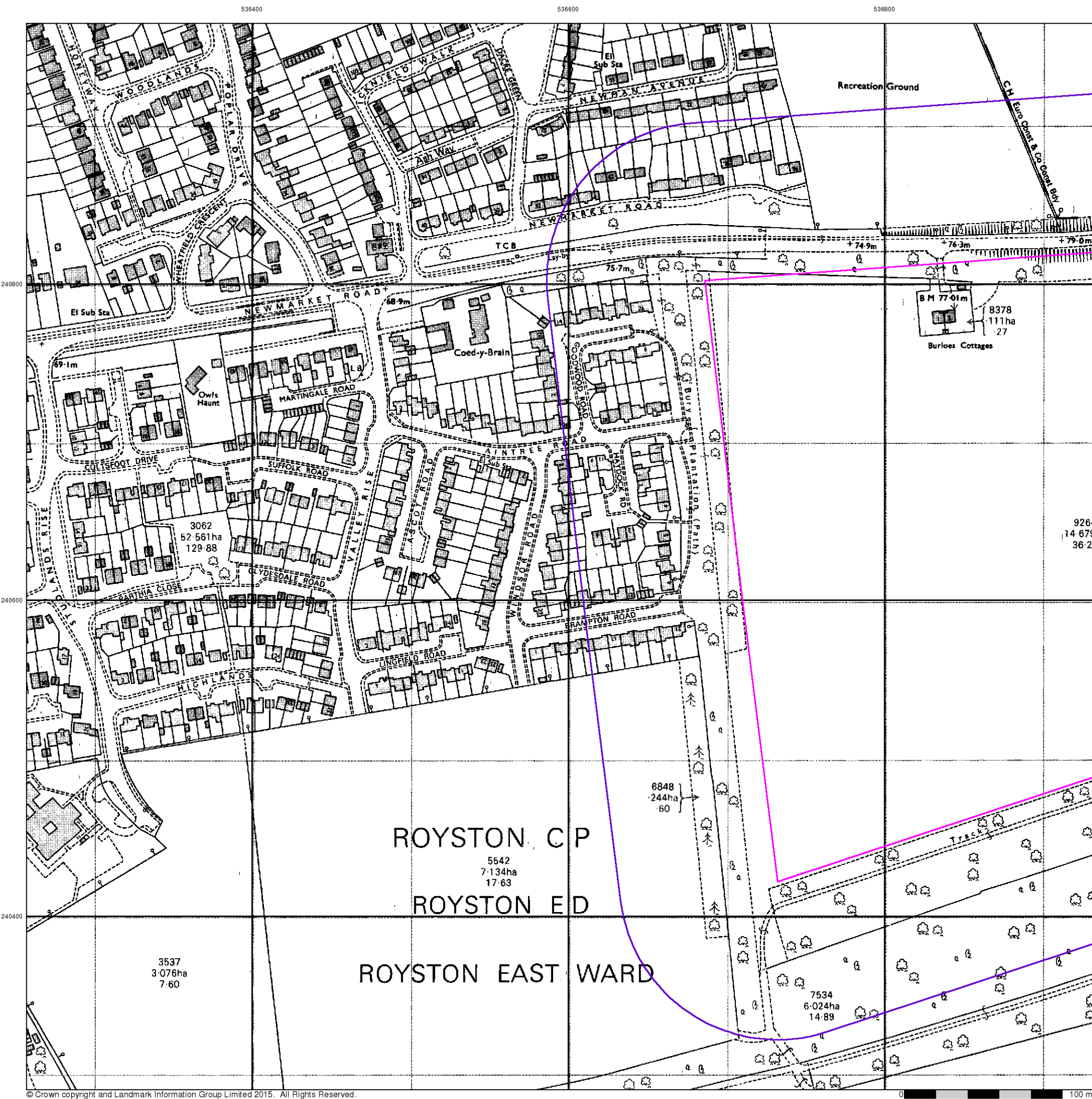


Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON, Hertfordshire, SG8 7NJ



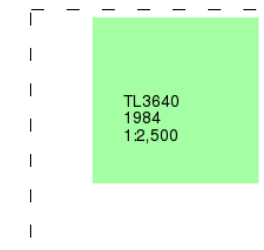
Ordnance Survey Plan

Published 1984

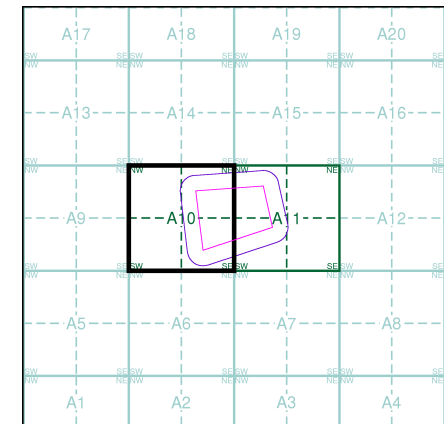
Source map scale - 1:2,500

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 A10



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

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Fax: 0844 844 9951
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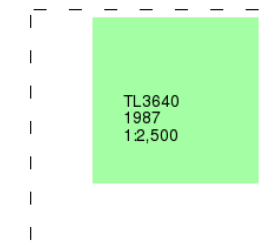
Additional SIMs

Published 1987

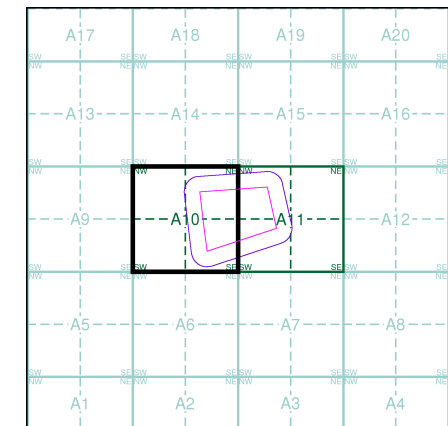
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

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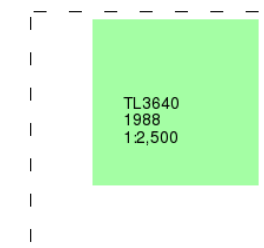
Additional SIMs

Published 1988

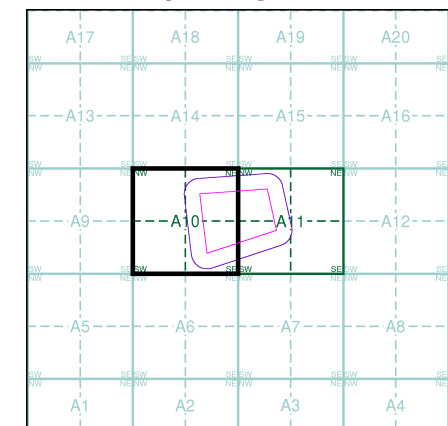
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 100

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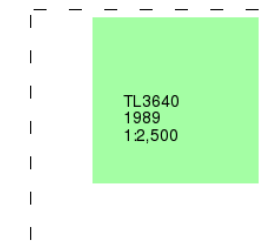
Additional SIMs

Published 1989

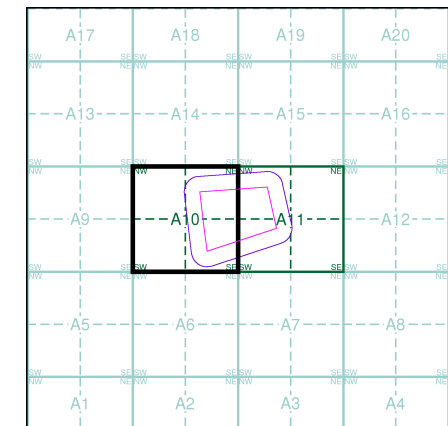
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

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536400

536600

536800



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0 100 m



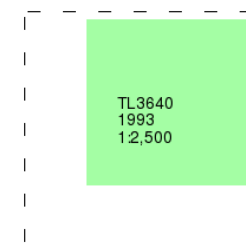
Large-Scale National Grid Data

Published 1993

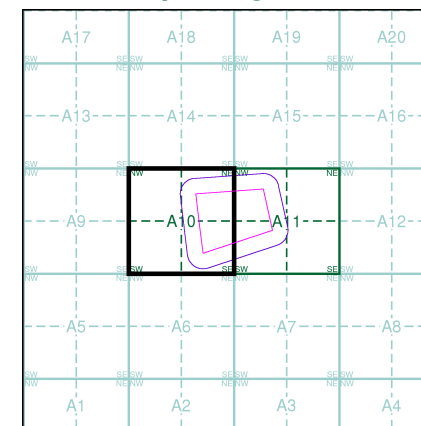
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so 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)



Historical Map - Segment A10



Order Details

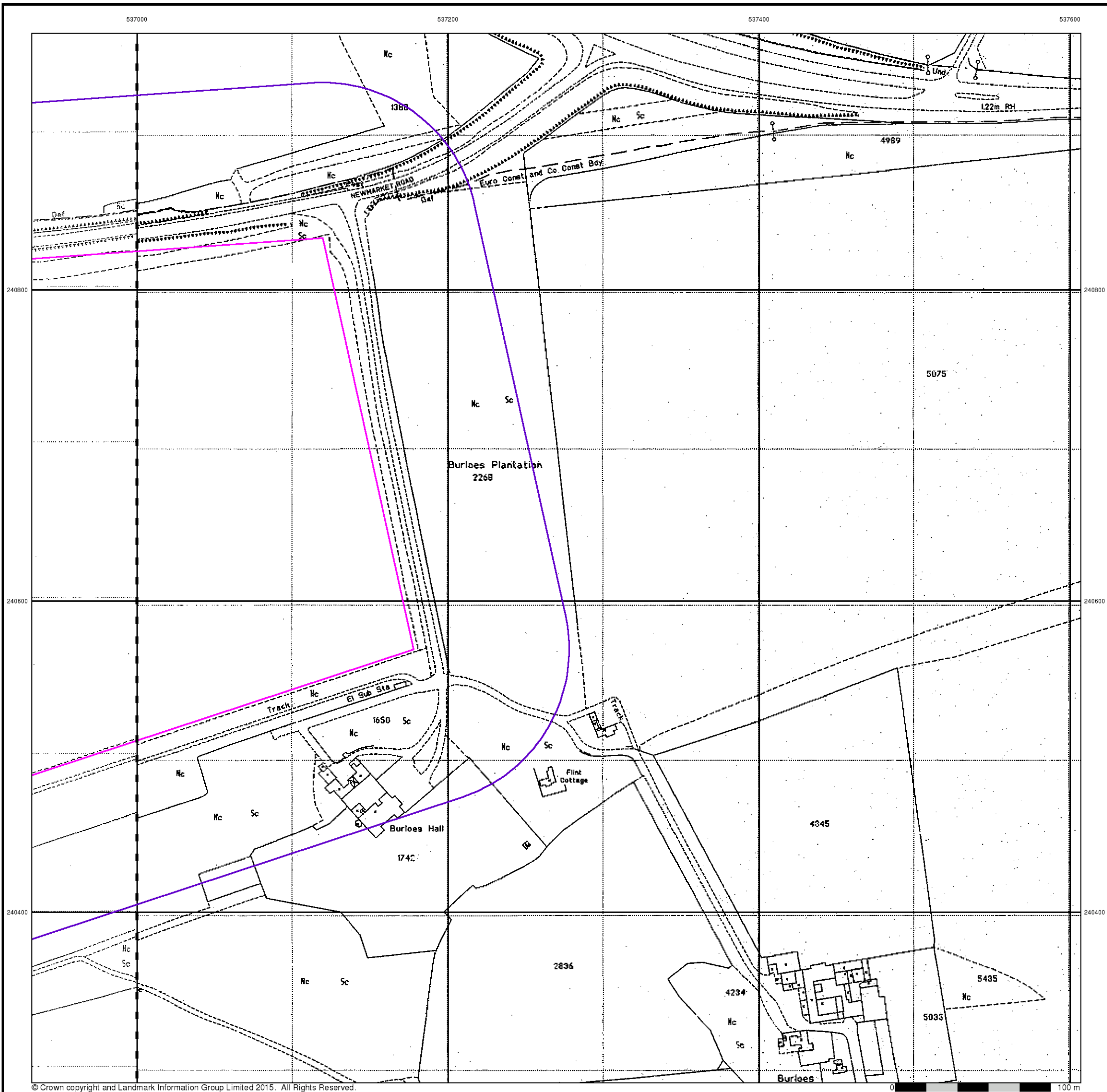
Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 100

Site Details

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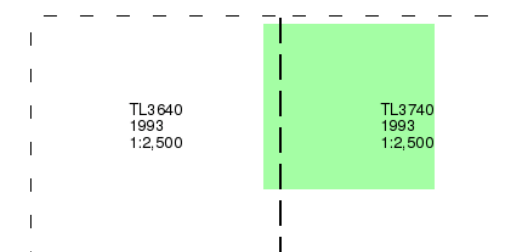
Large-Scale National Grid Data

Published 1993

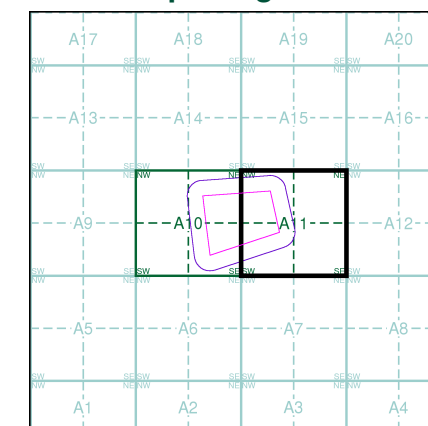
Source map scale - 1:2,500

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so 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)



Historical Map - Segment A11



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
Hertfordshire, SG8 7NJ



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

536400

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240800

240800

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240600

240400

240400



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0 100 m

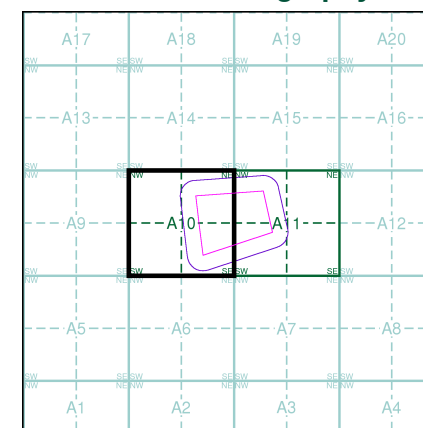


Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A10



Order Details

Order Number: 95900613_1_1
 Customer Ref: J16202
 National Grid Reference: 536910, 240650
 Slice: A
 Site Area (Ha): 14.65
 Search Buffer (m): 100

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
 Hertfordshire, SG8 7NJ



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

537000

537200

537400

537600

240800

240600

240400

240800

240600

240400



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0 100 m

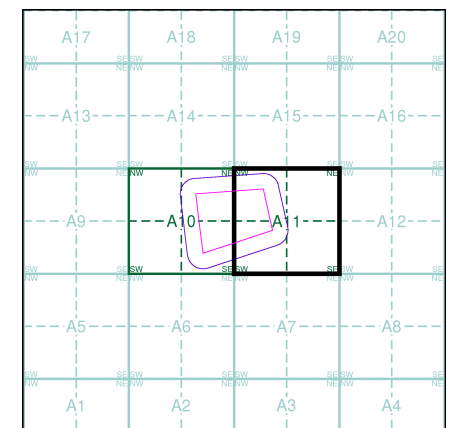


Historical Aerial Photography

Published 2000

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A11



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 100

Site Details

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Tel: 0844 844 9952
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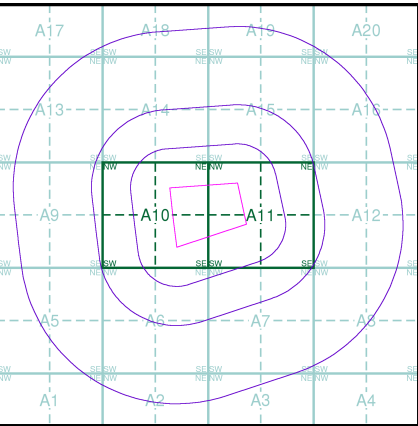
10k Raster Mapping
Published 1999
Source map scale - 1:10,000

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)

TL34SE	1999
1:10,000	
TL33NE	1999
1:10,000	

Historical Map - Slice A



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
Search Buffer (m): 1000

Site Details

2 Burloes Cottages, Newmarket Road, ROYSTON,
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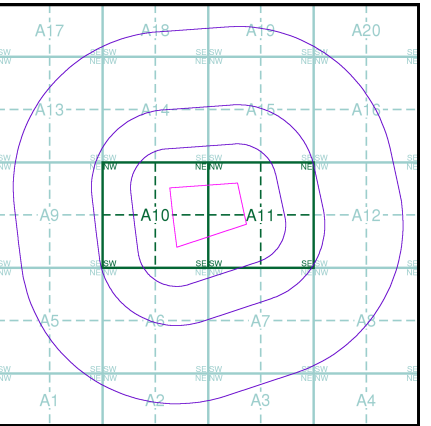
10k Raster Mapping
Published 2006
Source map scale - 1:10,000

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)

TL34SE	2006	1:10,000
TL33NE	2006	1:10,000

Historical Map - Slice A



Order Details

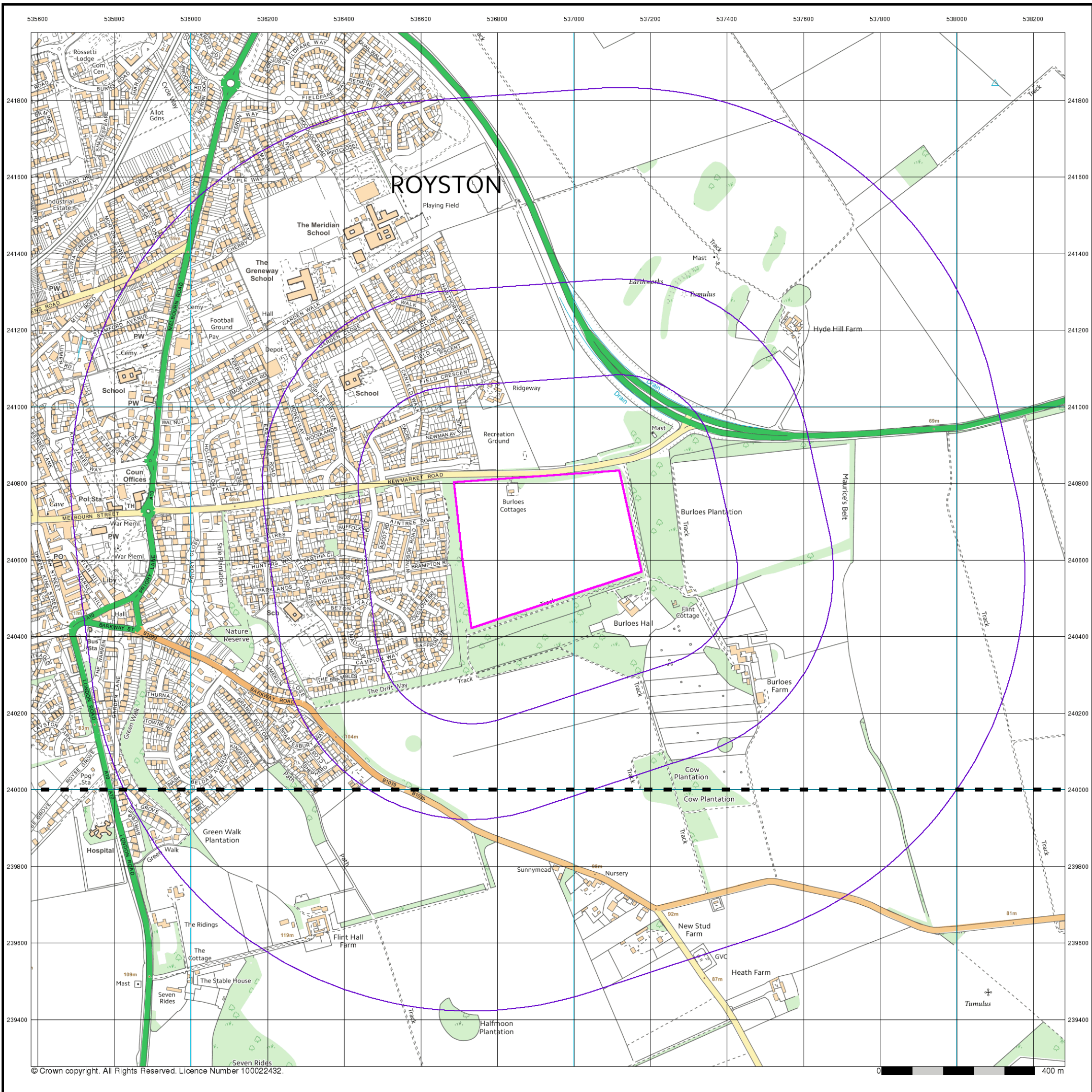
Order Number:	95900613_1_1
Customer Ref:	J16202
National Grid Reference:	536910, 240650
Slice:	A
Site Area (Ha):	14.65
Search Buffer (m):	1000

Site Details

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VectorMap Local

Published 2016

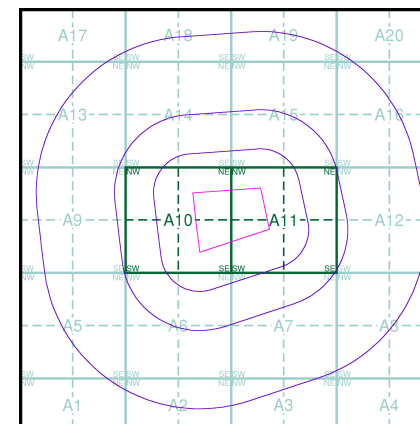
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

TL34SE
2016
Variable
TL33NE
2016
Variable

Historical Map - Slice A



Order Details

Order Number: 95900613_1_1
Customer Ref: J16202
National Grid Reference: 536910, 240650
Slice: A
Site Area (Ha): 14.65
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Geotechnical &
Environmental
Associates

Widbury Barn
Widbury Hill
Ware
Herts SG12 7QE

Site Plan

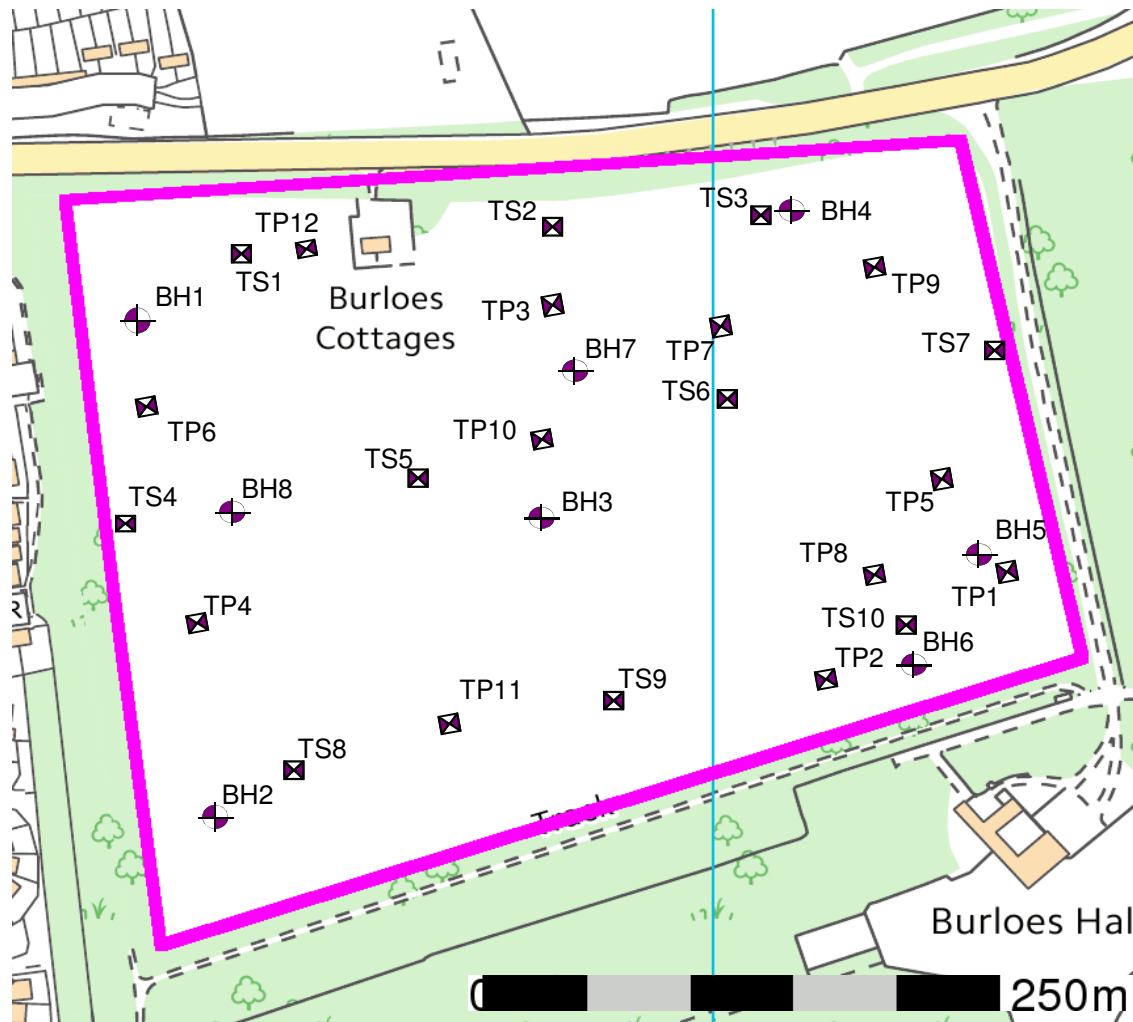
Site Newmarket Road, Royston SG8 7NJ

Client Countryside Properties PLC

Engineer

Job Number
J16202

Sheet
1 / 1



Geotechnical & Environmental Associates (GEA) is an engineer-led and client-focused independent specialist providing a complete range of geotechnical and contaminated land investigation, analytical and consultancy services to the property and construction industries.

We have offices at

Widbury Barn
Widbury Hill
Ware
Hertfordshire
SG12 7QE
tel 01727 824666
mail@gea-ltd.co.uk

Church Farm
Gotham Road
Kingston on Soar
Notts
NG11 0DE
tel 01509 674888
midlands@gea-ltd.co.uk

Enquiries can also be made on-line at

www.gea-ltd.co.uk

where information can be found on all of the services that we offer.

