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Geotechnical &
Environmental
Consultants

Tutbury
East Staffordshire

**Phase I Desk Study
For
Peveril Homes Limited**



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Project No: 29197		Date: 17 th November 2009	
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Comments			

1.0 INTRODUCTION

1.1 Introduction

GeoDyne Limited has been appointed by the Client, Peveril Homes Limited, to undertake a Phase I Desk Study on land at Tutbury, East Staffordshire.

1.2 Scope of Works

The scope of the Phase I Desk Study included the following:

- Detailed site walkover.
- Review of available historical and contemporary Ordnance Survey publications relating to the site.
- Review of the sites geology, hydrology, hydrogeology and groundwater vulnerability.
- Review of the sites radon status.
- Review of the sites coal mining status.
- Commission of a detailed Landmark Envirocheck[®] Report relating to the site.

1.3 Project Understanding

It is understood that the Client proposes to redevelop the site with a residential end use with associated gardens and hard standing. The foregoing understanding has formed the basis of our assessment. Where the proposed site end use is not consistent with our current understanding, it would be necessary to review our assessment to ensure it continues to apply.

1.4 Limitations

The conclusions and recommendations made in this report are limited to those that can be made based on the findings of the investigation. Where comments are made based on information obtained from third parties, GeoDyne Limited assumes that all third party information is true and correct. No independent action has been undertaken to validate the findings of third parties, unless specifically stated.

This report has been prepared in accordance with our understanding of current best practice. However changes to best practice, guidance or legislation may necessitate revision of this report after the date of issue.

GeoDyne Limited has prepared this report for the sole use and reliance of the Client, Peveril Homes Limited and their appointees, in accordance with our standard Conditions & Limitations (included in Appendix VII). This report may not be used or relied upon by any unauthorised third party without the explicit written agreement of GeoDyne Limited.

2.0 SITE DESCRIPTION & HISTORY

2.1 Site Description

The site comprises an irregularly shaped parcel of land situated off Burton Road, Tutbury, East Staffordshire and may be located centred on approximate Ordnance Survey National Grid Reference 421430E 328220N. The site covers an area of approximately 15Ha (Hectares) and is located within a predominantly rural setting with Tutbury to the west and north of the site. A site location plan (Figure No. 29197/01) is included as Appendix I of this report.

A site visit was undertaken on 9th November 2009. At the time of our visit the site comprised a mixture of arable and pastoral farmland. Arable crops were present in a large field in the north-east and a smaller field in the south-west. The remainder of the site was grassed with grazing cattle present. Ground levels fell gently from a high point at approximately the centre of the site towards the boundaries. In the north-east, the fall in ground level steepened to meet Burton Road at the lowest point of the site.

The north-eastern part of the site comprised a large crop field with small undulations. A hedgerow – with large metal gates: one in the eastern extent and another towards the north of the site – separated the large crop field from the rest of the site. A mature tree was noted at approximately the centre of the site within the hedgerow. A pond, surrounded by dense vegetation of trees and bushes, was observed in the north of the site next to the large crop field. Two man-hole covers were noted adjacent to the pond within the north-western field, suggesting the presence of buried services in this locality.

The north-west of the site comprised an area of grass very gently sloping down to the north-east with undulations (orientated approximately north to south). A wire fence was noted leading from the north-western boundary into the field. The large metal gate in the north of the site allowed access from this area into the large crop field. A line of discontinuous trees, sporadically positioned, led from the western boundary towards the centre of the site.

The majority of the southern area of the site was occupied by land similar to that in the north-west of the site: grassed and gently sloping, from the highest point on site, towards the south-east. Gentle undulations in the ground were noted orientated approximately west to east. Cattle were noted to occupy this area of the site. A ridge, orientated east to west and positioned towards the centre of the site, was identified and appeared to increase ground levels in the north by approximately 0.30m above the southern area of the site. A row of wooden fence posts were observed crossing the grassed field in the centre of the site presumably indicating the location of former/proposed fence.

Burton Road lay within a cutting whose embankment (which comprised a combination of hedgerow, bushes and trees) formed the majority of the eastern boundary of the site. Access to the site was gained via two large (locked) metal gates located on a track, cut into the embankment, in the south of the boundary. A further gated access was present in the north-eastern corner of the site where site levels fell to meet that of Burton Road. The southern boundary of the site was occupied primarily by a hedgerow with sporadic trees. A small dried-up pond was observed beyond the south-east of the site, immediately adjacent to the southern boundary.

The southern section of the western boundary comprised a hedgerow within which two large metal gates were present: one led into the rectangular crop field and the other into the cattle field from Green Lane. The northern section of the western boundary comprised a mixture of hedges, trees and fences beyond which gardens to residential properties were observed. The northernmost boundary of the site comprised dense hedges and trees beyond which residential properties and associated gardens were noted.

Additionally, immediately adjacent to the north-east of the site, an electricity sub-station (within a secure compound) was identified. The sub-station compound was provided with an 'Environmental Awareness' notice stating that the equipment is 'PCB contaminated'. Selected pictures are appended.

An annotated site plan (Figure No. 29197/02) is included as Appendix II of this report, with a plan showing general views of the site (Figure No. 29197/03) included as Appendix III. Selected plates are included as Appendix VI of this report.

2.2 Site History

The historical and contemporary Ordnance Survey publications included within the Landmark Envirocheck® Report have been reviewed by GeoDyne Limited to establish the history of the site and its environs. The historical Ordnance Survey maps are included as Appendix IV of this report.

It should be noted that the site boundaries marked on the historical sheets within the Envirocheck® Report appear to 'shift' on several of the maps. This is due to Envirocheck® transposition and scaling algorithm inaccuracies.

The key findings of the historical search are summarised in Table 1.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	Features on Site	Features off Site
1883 – 1885	<ul style="list-style-type: none"> The site appears to be undeveloped and comprises several fields. A pond is indicated in the north of the site. A pond is indicated in the south-east of the site. Non-Coniferous trees are scattered sporadically across the site. 	<ul style="list-style-type: none"> The site appears to be located within a rural setting. A road is indicated immediately adjacent to the east of the site. Two small ponds are indicated immediately adjacent to the south-east of the site and a third pond is indicated approximately 10m to the south-east of the site. 'Green Lane' is indicated immediately adjacent to the west of the site. 'Iron Walls Lane' is indicated approximately 40m to the north-west of the site.
c.1901	<ul style="list-style-type: none"> Trees are no longer indicated on the site. 	<ul style="list-style-type: none"> The pond approximately 10m to the south-east of the site is no longer indicated.
1923 – 1938	<ul style="list-style-type: none"> No significant changes to the site are indicated. 	<ul style="list-style-type: none"> 'The Firs' is indicated approximately 40m to the north-east of the site.
c.1955	<ul style="list-style-type: none"> No significant changes to the site are indicated. 	<ul style="list-style-type: none"> Residential dwellings appear to be indicated immediately adjacent to the north-west of the site.
1970 – 1989	<ul style="list-style-type: none"> Some field boundaries are no longer indicated. 	<ul style="list-style-type: none"> The Firs is now indicated as 'New Farm'. The road immediately to the east of the site is indicated as 'Burton Road' and is situated mostly within a cutting. One of the small ponds to the immediate south-east of the site is no longer shown. 'Green Lane Farm' is indicated immediately adjacent to the south-west of the site. Continuing residential development occurs to the immediate west and north of the site over this period.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	Features on Site	Features off Site
c.1991	<ul style="list-style-type: none"> Access to the site in a small cutting is indicated in the south-east of the site. 	<ul style="list-style-type: none"> A roundabout is indicated approximately 10m to the north-east of the site. A new road and cutting is indicated approximately 50m to the north-east of the site.
1992 – 2009	<ul style="list-style-type: none"> A field boundary is no longer indicated in the north of the site. The pond in the south-east of the site is no longer indicated. A new field boundary is indicated in the north-west of the site. 	<ul style="list-style-type: none"> An electricity sub-station ('El. Sub Sta') is indicated immediately adjacent to the north of the site.

3.0 GEOLOGY & ENVIRONMENTAL SETTING

3.1 Geological References

The following geological publications were referred to:

- British Geological Survey (BGS) 1:50,000 Series Sheet 140 (Solid and Drift Edition), *'Burton Upon Trent'* (1982).
- BGS 1:10,560 Series Sheet SK 22 NW (Provisional Edition) (1955).
- BGS Sheet Memoir 140, *'Geology of the Country between Burton upon Trent, Rugeley and Uttoxeter'* (1955).
- NRA (now the Environment Agency) Policy and Practice for the Protection of Groundwater – Groundwater Vulnerability 1:100,000 Map Series, Sheet 23 *'Leicestershire'* (1996).
- The Coal Authority and The Law Society Publication *'Coal Mining and Brine Subsidence Claim Searches - Directory and Guidance'*, Sixth Edition (2006).
- BRE Report BR211 *'Radon: guidance on protective measures for new dwellings'* (2007).

3.2 Geology

The geological map publications indicate that much of the western extent of the site is immediately underlain by Boulder Clay dating from the Quaternary period.

Keuper Marl (now Mercia Mudstone Group) is indicated to underlie the Boulder Clay, and outcrop at the surface across the rest of the site, on the geological map publications.

The geological map publications indicate the presence of Glacial Sand and Gravel approximately 80m to the south-west of the site.

Boulder clay is described within the BGS memoir as comprising *'...red marly and stony clay carrying pebbles of quartzite, quartz, Carboniferous chert, and rare flint.'*

The BGS memoir describes Keuper Marl as consisting *"...red-brown, chocolate or dark red mudstones, often with circular green spots known as 'fish-eyes' and occasional mottling...only certain beds are appreciably calcareous. The uppermost part of the Keuper Series...consists of grey-green marl, known as Tea-green Marl, which contains beds of hard, white, porcellaneous mudstone up to a few feet in thickness."*

Glacial Sand and Gravel is described within the BGS memoir as comprising *"...sand and gravel...Pebbles noted in the fields include pale grey quartzite, quartz, Carboniferous chert and mudstone, black quartzite, a grey porphyry, Carboniferous limestone and rare flint."*

3.3 Coal Mining

The site does not lie in an area requiring the commission of a coal mining report in accordance with The Law Society and The Coal Authority (CA) publication *'Coal Mining and Brine Subsidence Claim Searches, Directory and Guidance, Sixth Edition'* (2006).

A coal mining report is therefore not required, and no coal mining investigations or precautions are considered necessary at the site.

3.4 Radon

The Landmark Envirocheck® Report identifies that the site is not located in an area where radon protection measures are required in new dwellings. No radon precautions are therefore required at the site.

3.5 Faults

No faults are indicated on the geological map publications to be present at or within 250m of the site.

3.6 Made Ground

Made Ground is indicated on the geological map publications at the site or within 250m of the site.

3.7 Hydrogeology

Groundwater Vulnerability

The site is indicated to be underlain by a Non-Aquifer of Negligible Permeability across the site. This designation is anticipated to relate to the Mercia Mudstone Group (Keuper Marl) indicated to be at the site on the geological publications.

Minor Aquifers are defined as '*...containing insignificant quantities of groundwater from a third group. However, groundwater flow through such rocks, although imperceptible, does take place and needs to be considered in assessing the risk associated with persistent pollutants. Some Non-Aquifers can yield water in sufficient quantities for domestic use and provide base flow to rivers.*'

Source Protection Zones

GeoDyne Limited has reviewed the online environmental database published by the Environment Agency (EA), which indicates that the site does not lie within a Source Protection Zone (SPZ), as designated by the EA. This is confirmed by the Landmark Envirocheck® Report.

The Groundwater Vulnerability Map within the Envirocheck® Report is included in Appendix V and confirms the hydrogeology of the site and immediate environs.

3.8 Hydrology

A review of the hydrological maps included within the Envirocheck® Report (presented in Appendix V) has revealed the following information with regards to the hydrological assessment of the site:

Flood Risk

The Envirocheck® Report indicates that the site is not at risk from '*Flooding from Rivers or Sea without Defences*'.

Surface Water

The closest surface water feature is indicated by the Envirocheck® Report on the site. The grid reference provided indicates that the surface water feature relates to the pond in the north of the site.

3.9 Landmark Envirocheck® Report

A Landmark Envirocheck® Report was commissioned to assist in ascertaining the environmental setting of the site. The full Envirocheck® Report is presented in Appendix V and has revealed the following key information (details are only listed where they are within potential influencing distance, i.e. 250m, of the site):

There are no significant Agency and Hydrological, Waste or Hazardous Substances issues indicated within the Envirocheck® Report at or within potential influencing distance of the site.

Geological

A review of entries relating to potential geological hazards, as listed in the Landmark Envirocheck® Report, and based on records held by the British Geological Survey, has identified the following:

- There is a 'Very Low' hazard potential from Landslide Ground Stability Hazards at the site.
- There is 'No' and a 'Very Low' hazard potential from Running Sand Ground Stability Hazards at the site.
- There is a 'Very Low' and a 'Low' hazard potential from Shrinking or Swelling Clay Ground Stability Hazards at the site.

Industrial Land Use

There are no Contemporary Trade Directory Entries or Fuel Station Entry listed for the site but 2No. Contemporary Trade Directory Entries identified within 250m of the site.

An entry relating to 'Md Fabrications' is indicated 21m to the west of the site. It is classified as 'Trailers & Towing Equipment' and is indicated as active.

The second entry relates to 'G R P Consultants' and is indicated 247m to the north-west of the site. It is classified as 'Glass Fibre Moulding, Materials & Manufacturers' and is indicated as active.

Sensitive Land Use

The site is indicated as being located within a Nitrate Vulnerable Zone, according to the Department for Environment, Food and Rural Affairs (DEFRA). In our experience a majority of this area of the country is defined as a Nitrate Vulnerable Zone and this classification is considered not to present a potential risk to the redevelopment of the site.

The Sensitive Land Uses Map, included within the Landmark Envirocheck® Report, is presented in Appendix V of this report.

3.10 Land Use Assessment

As part of the land use assessment, reference has been made to the '*Desk Reference Guide to potentially Contaminative Land Uses*' produced by Mr P Syms and published jointly by the ISVA (The Professional Society for Valuers and Auctioneers) in association with The Royal Institution of Chartered Surveyors (RICS) and the Chartered Institute of Environmental Health (CIEH).

We have also made reference to the Department for Environment, Food and Rural Affairs and the Environment Agency Contaminated Land Report CLR8 '*Potential Contaminants for the Assessment of Land*' (March 2002). This document identifies key contaminants which may potentially be present at a site as a result of a given historical land use.

3.10.1 On Site Assessment

The Phase I Desk Study information has revealed that the site has been undeveloped. However, the site has undergone several field boundary changes to create several large fields compared to a selection of smaller fields. The site currently consists of a small crop field, a large crop field and a field containing cattle. A pond was identified in the north of the site. A pond was identified by the historical maps c.1883 in the south-east of the site. The pond was no longer indicated c.1992. This may suggest possible infilling or drying-up of the pond. The walkover did not identify indications of a pond historically present on the site.

Based on the Syms/CLR 8 documents, the sites current and previous land uses do not fall within any of the risk based classifications identified within these publications. From our observations and information obtained during our walkover of the site, and our experience of similar sites, the potential key contamination at the site may include:

- Metals and metalloids.
- Natural Metal Enrichment (NME) in Natural Strata.
- Polycyclic Aromatic Hydrocarbons (PAHs) in any near surface soils.
- Acid/Sulphate contaminated soils.
- Pesticides from agricultural use of the land immediately adjacent to the site.
- Potentially hazardous ground gases generated from possible organic soils associated with a possible infilled pond historically present at the site (subject to further investigation in the southern area).

3.10.2 Off Site Assessment

Made Ground was not indicated on the geological map publications (possibly due to the age of the publication). The historical maps indicated the presence of a pond beyond the south-east of the site, adjacent to the southern boundary. This was identified during the walkover and observed to have dried-up. An electricity sub-station was identified immediately adjacent to the site in the north-east. The sub-station compound was provided with an '*Environmental Awareness*' notice stating that the equipment is '*PCB contaminated*'. The following key contaminants could therefore potentially impact the site from off site sources:

- Polychlorinated Biphenyls (PCBs) in the immediate vicinity of the Electricity Sub-Station.

4.0 CONCEPTUAL SITE MODEL

4.1 General

Recent guidance has been published by the Department of Environment, Food and Rural Affairs (DEFRA Circular 01/2006) '*Environmental Protection Act 1990: Part IIA – Contaminated Land*' (September 2006), which replaced the former DETR Circular 02/2000, and continues the promotion of the 'suitable for use approach'. DEFRA note '*The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore need to be assessed on a site-by-site basis*'.

The "suitable for use" approach then consists of three elements:

- (a) **ensuring that land is suitable for its current use** – in other words, identifying any land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise ("remediating" the land); the new contaminated land regime provides general machinery to achieve this;
- (b) **ensuring that land is made suitable for any new use, as planning permission is given for that new use** – in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risk to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes; and
- (c) **limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought** – in other words, recognising that the risks from contaminated land can be satisfactorily assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby risking distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

Also addressed within the DEFRA guidance is the issue of 'contaminated land'. '*Before the LOCAL AUTHORITY can make the judgement that any land appears to be CONTAMINATED LAND on the basis that SIGNIFICANT HARM is being caused, or that there is a SIGNIFICANT POSSIBILITY of such harm being caused, the authority must therefore identify a SIGNIFICANT POLLUTANT LINKAGE*'.

This means that each of the following has to be identified:

- (a) a CONTAMINANT;
- (b) a relevant RECEPTOR; and
- (c) a PATHWAY by means of which either:
 - (i) that CONTAMINANT is causing SIGNIFICANT HARM to that RECEPTOR, or

- (ii) *there is a SIGNIFICANT POSSIBILITY of such harm being caused by that CONTAMINANT to that RECEPTOR.*

Regarding the source – pathway – receptor (SPR) relationship, where any of the three elements of the SPR are not present, there is no risk and therefore land cannot be classified as statutory ‘contaminated land’.

Additional comment with respect to controlled waters

DEFRA Circular 01/2006 pg. 90 notes the following with respect to controlled waters.

A.35 *Section 78A(9) defines the pollution of controlled waters as: ‘the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter’.*

A.36 *Before determining that pollution of controlled waters is being, or is likely to be, caused, the local authority should be satisfied that a substance is continuing to enter controlled waters or is likely to enter controlled waters. For this purpose, the local authority should regard something as being “likely” when they judge it more likely than not to occur.*

A.37 *Land should not be designated as contaminated land where:*

- (a) *a substance is already present in controlled waters;*
- (b) *entry into controlled waters of that substance from land has ceased; and*
- (c) *it is not likely that further entry will take place.*

A.38 *Substances should be regarded as having entered controlled waters where:*

- (a) *they are dissolved or suspended in those waters; or*
- (b) *if they are immiscible with water, they have direct contact with those waters on or beneath the surface of the water.*

A.39 *The term “continuing to enter” should be taken to mean any entry additional to any which has already occurred.’*

4.2 Source-Pathway-Receptor Consideration

The following SPR assessment has been undertaken based on the assumption that the site will be redeveloped as a residential end use with gardens, associated soft landscaping and hard standing.

4.3 Consideration of Potential Sources of Contamination

The potential key contaminants that may be present at the site are primarily:

- Metals and metalloids associated with any Made Ground.
- Natural Metal Enrichment (NME) in Natural Strata.
- Polycyclic Aromatic Hydrocarbons (PAHs) in any Made Ground.
- Acid/Sulphate contaminated soils.
- Pesticides from agricultural use of the land.
- Polychlorinated Biphenyls (PCBs) in the immediate vicinity of the Electricity Sub-Station immediately adjacent to the site.
- Potentially hazardous ground gases generated from possible organic soils associated with a possible infilled pond historically present at the site.

4.4 Consideration of Potential Receptors

The potential receptors at the site are:

- The construction personnel (i.e. site workers) involved with the development of the site (typically short term (acute) exposure).
- The final end users i.e. site residents/occupants, workers (typically long term (chronic) exposure).
- Controlled waters.
- Buildings/construction materials.
- Flora and Fauna.

4.5 Consideration of Potential Pathways

The potential pathways at the site are primarily:

- Direct ingestion of soil.
- Inhalation of dust and vapours.
- Direct skin contact with the ground.
- Direct skin contact with buildings.
- Direct ingestion of home-grown produce.
- Vertical and lateral migration of contamination.
- Vertical and lateral migration of potentially hazardous ground gases/vapours.

4.6 Summary

A conceptual site model summarising the possible SPR pollutant linkages, produced by GeoDyne Limited, is presented in Table 2. It must be understood that the foregoing SPR assessment relates to the currently proposed redevelopment brief for the site.

TABLE 2 - SUMMARY OF SPR ASSESSMENT				
Source/Substance	Pathway	Receptor	Comments	Plausible Pollutant Linkage
Contaminated Made Ground and/or natural soils	Direct ingestion/skin contact	(1) Site Users / Residents (2) Site Workers	Commission selected soil samples for detailed chemical analysis.	?
Contaminated Made Ground and/or natural soils	Direct contact	(1) Buildings	Commission selected soil samples for detailed chemical analysis.	?
Contaminated Made Ground and/or natural soils	Inhalation of dust/vapours	(1) Site Users / Residents (2) Site Workers	Commission selected soil samples for detailed chemical analysis.	?
Contaminated Made Ground and/or natural soils	Ingestion from home-grown produce	(1) Site Users / Residents	Commission selected soil samples for detailed chemical analysis	?
Contaminated Made Ground and/or natural soils	Direct contact/uptake	(2) Flora and Fauna	Commission selected soil samples for detailed chemical analysis.	?

TABLE 2 - SUMMARY OF SPR ASSESSMENT				
Source/Substance	Pathway	Receptor	Comments	Plausible Pollutant Linkage
Ground gases	Vertical and lateral migration	(1) Site Users / Residents (2) Site Workers (3) Buildings	Undertake exploratory investigation works in the vicinity of the former pond, potentially followed by a programme of ground gas monitoring at the site if necessary.	?
Contaminated Soil/Water	Vertical and lateral migration	(1) Underlying Groundwater	The need for assessment of water would be dependent upon soil test results.	?
Radon	Vertical and lateral migration	(1) Site Users / Residents	No radon protective measures are required at the site.	✗
<p>KEY</p> <p>Where text is in Bold Italic item is potentially present. Where normal text is used item is not present/plausible.</p> <p>✗ – Pollutant linkage not plausible ✓ – Pollutant linkage plausible ? – Insufficient information, further work necessary</p>				

The foregoing conceptual model highlights the potential plausible pollutant linkages that may relate to the site and would therefore require addressing by appropriate Phase II Exploratory Works. The information contained within the conceptual model should be confirmed and revised upon completion of an appropriate intrusive investigation.

5.0 CONCLUSIONS

The following conclusions and recommendations are preliminary and subject to confirmation by an appropriate site specific Phase II Exploratory Investigation.

5.1 Site Summary

The site may be summarised as follows:

- The site is located in a predominantly rural area, with Burton Road immediately adjacent to the east, Green Lane and residential dwellings with associated rear gardens immediately to the west, and the village of Tutbury to the west and north of the site.
- Historically, the site has been undeveloped with the exception of field boundary changes which altered the site from several smaller fields to three larger fields. The historical map publications indicated the presence of a pond in the south-east of the site c.1883 until c.1992. This is likely to have been backfilled. Another pond is also indicated by the historical maps to be present in the north of the site since c.1883 (and was observed during the site visit).
- At the time of the site visit the site comprised a small crop field in the south-west and a large crop field in the north-east of the site. The north-western and much of the southern areas of the site comprised grazing pasture, presently occupied by cattle. A discontinuous line of sporadically positioned trees were identified leading from a mature tree in the centre to the sites western extent. Wooden fence posts were noted leading south-west from the mature tree in the centre to the small crop field. A discontinuous wire fence was observed in the north-west of the site leading into the field. Several large metal gates were located across the site allowing access into each section of the site.
- The sites highest point was located approximately south-west of the centre and the site gently sloped down to the sites extremities, steepening significantly further towards the north-east of the site.
- Access to the site can be gained through large (locked) metal gates from the south-east, north-east, south-west and western boundaries. The sites boundaries comprised a mixture of hedgerows, trees and fences.
- Much of the western and north-western areas are indicated on geological publications to be immediately underlain by superficial deposits of Boulder Clay. Keuper Marl (Mercia Mudstone Group) is indicated to underlie the superficial deposits and immediately outcrop over the rest of the site.
- The site is indicated to be underlain by a Non-Aquifer of Negligible Permeability across the site. The site is not within an identified Source Protection Zone.

5.2 Geotechnical Assessment

The foundation solution and floor slab design for the proposed buildings will depend on the results of intrusive investigation works. These works should determine the presence and nature of any Made Ground together with the depth to, and strength of, the Natural Strata.

The site is indicated to be underlain by either Boulder Clay or Mercia Mudstone strata at shallow depth. Both of these strata typically provide a suitable bearing stratum for traditional shallow foundations.

The likely presence of predominantly cohesive soils at shallow depth would result in the soils being potentially susceptible to volume change. Deepening of foundations due to the influence of trees may be necessary at the site where cohesive soils are encountered.

The use of ground bearing floor slabs is likely to be achievable across a majority of the site, based on the geotechnical properties of the ground. However, the floor slab requirements will be subject to the proposed finished floor levels in relation to existing, in addition to considering the potential for ground gas locally and the influence of trees (suspended ground floors are required where in excess of 0.60m of Made Ground is present or where foundations are deepened in excess of 1.50m due to the influence of trees).

A further consideration is the potential presence of excessive depths of topsoil, resulting from historical agricultural use (i.e. ploughing/cultivation of the land).

The sloping nature of the ground, particularly in the north-eastern area, may result in the requirement for localised regrading of levels and the use of retaining structures. Consideration of the impact of developing adjacent to the top of the (off site) slopes associated with the cutting to Burton Road may also be required, particularly if buildings are positioned very close to the site boundary.

5.3 Building Near Trees

The site contains a number of trees, some of which are mature, particularly at the extremities of the site and also in a discontinuous line from the western boundary to the centre of the site. Foundation designs in cohesive strata may need to be adjusted in accordance with NHBC Standards Chapter 4.2 '*Building near trees*', where building near existing, proposed or recently removed trees.

Suitable testing should be undertaken to confirm the volume change potential of the soils at the site during any Phase II works (if necessary)

5.4 Arborist Survey

It was noted that several mature trees were present locally across the site and around the sites perimeter. We would recommend that an arborist survey is undertaken prior to development.

5.5 Sources of Contamination

The Phase I Desk Study Works have identified the following possible key contaminants that may potentially be present at the site:

- Metals and metalloids associated with any Made Ground.
- Natural Metal Enrichment (NME) in Natural Strata.
- Polycyclic Aromatic Hydrocarbons (PAHs) in any Made Ground.
- Acid/Sulphate contaminated soils.
- Pesticides from agricultural use of the land.
- Polychlorinated Biphenyls (PCBs) in the immediate vicinity of the Electricity Sub-Station immediately adjacent to the site.
- Potentially hazardous ground gases generated from possible organic soils associated with a possible infilled pond historically present at the site.

5.6 Radon

With reference to the Landmark Envirocheck[®] Report, the site does not lie within an area requiring radon precautions in the construction of new dwellings.

Therefore, no specific mitigation measures in relation to radon issues are considered to be necessary at the site.

5.7 Coal Mining

The site does not lie in an area requiring the commission of a coal mining report in accordance with The Law Society and The Coal Authority (CA) publication '*Coal Mining and Brine Subsidence Claim Searches, Directory and Guidance, Sixth Edition*' (2006).

Therefore a coal mining report has not been obtained. The Landmark Envirocheck® Report confirms this.

5.8 Ground Gas Precautions

Made Ground is not indicated by the geological publications at or within 250m (potential influencing distance) of site. However, the historical maps and the site walkover identified the presence of a possible backfilled pond in the south-east of the site. This may produce potentially harmful ground gases (i.e. carbon dioxide and methane), which may adversely impact the proposed redevelopment of the site locally.

Based on the foregoing, it is recommended that further investigation is carried out in the vicinity of the former pond. This would aim to determine whether any significant depth of Made Ground is present which may be a potential source of ground gas. If present, localised gas monitoring of the site may be necessary in the vicinity of the pond.

5.9 Environmental Risk Assessment

As part of the Phase I Desk Study a qualitative assessment of potential environmental risk/development constraints has been undertaken with due consideration given to guidance issued by the Environment Agency, Department of the Environment, Food and Rural Affairs and other appropriate bodies.

The potential environmental risk has been assessed qualitatively using the source-pathway-receptor plausible pollutant linkage model introduced in the Environmental Protection Act 1990, and discussed in more detail in Section 4.

The following in-house qualitative assessment of risk has been undertaken based around the following definitions:

Low Risk – it is unlikely that an issue will arise at the site as a significant cost or liability for the owner or tenant of the site. Appropriate intrusive investigation works should be undertaken.

Medium Risk – it is possible that an issue will arise at the site as a significant cost or liability for the owner or tenant of the site. Appropriate intrusive investigation works should be undertaken.

High Risk – it is likely that an issue will arise at the site as a significant cost or liability for the owner or tenant of the site. Appropriate intrusive investigation works should be undertaken.

On the basis of the Phase I Desk Study information, it is considered that the site represents a potential **Low** of significant cost or liability to the owner or occupier (tenant) of the site. Appropriate Phase II Exploratory Investigation Works are recommended to further investigate, characterise and resolve the potential environmental liability/cost.

5.10 Statutory Consultation

We would recommend that a copy of this Phase I Desk Study report is issued to East Staffordshire Borough Council (ESBC) for review and comment. ESBC may additionally choose to submit the report to the Environment Agency (EA) or other appropriate consultee for comment, as necessary.

Any comments made by ESBC, or their appointed consultees, should be incorporated into the Phase II Exploratory Investigation to ensure that the intrusive investigation (and any subsequent remediation) are acceptable to all parties.

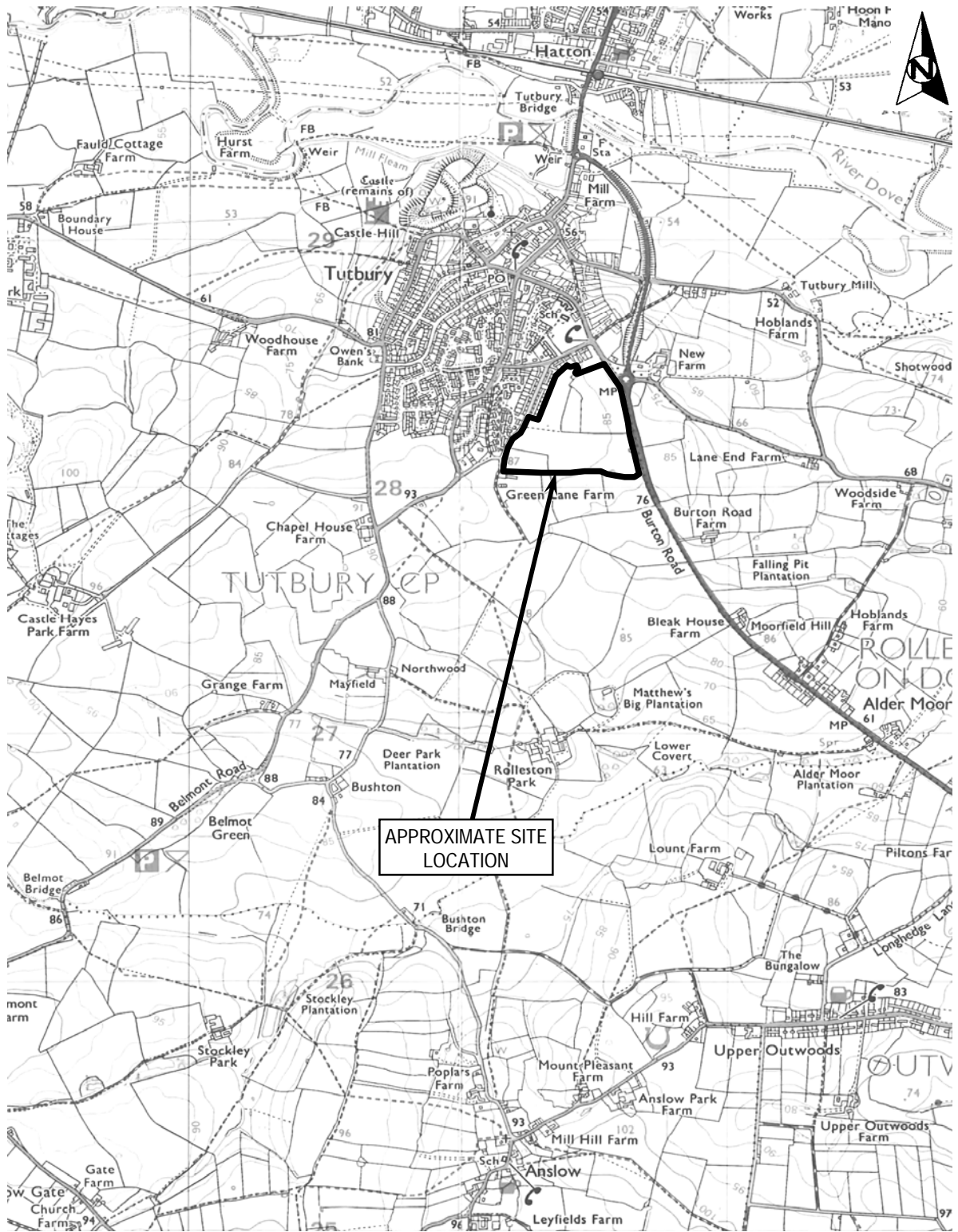
5.11 Recommended Phase II Exploratory Investigation Works

Proposed Phase II Exploratory Works should be sufficient to investigate the possible issues raised in the Phase I Desk Study and should be undertaken in general accordance with current industry best practice. Based on our current understanding (conceptual site model) it is recommended that Phase II works comprise the following, as a minimum:

- A programme of exploratory holes across the site to provide initial inspection of the near surface ground conditions for geotechnical and environmental purposes. These should target the area of the potential infilled former pond, as well as providing general coverage of the site.
- The installation of combined groundwater and ground gas monitoring points (in boreholes) at the site to enable a programme of ground gas/groundwater monitoring (if necessary).
- Geotechnical and environmental soil analysis.

APPENDIX I

**Site Location Plan
(Figure No. 29197/01)**



DO NOT SCALE

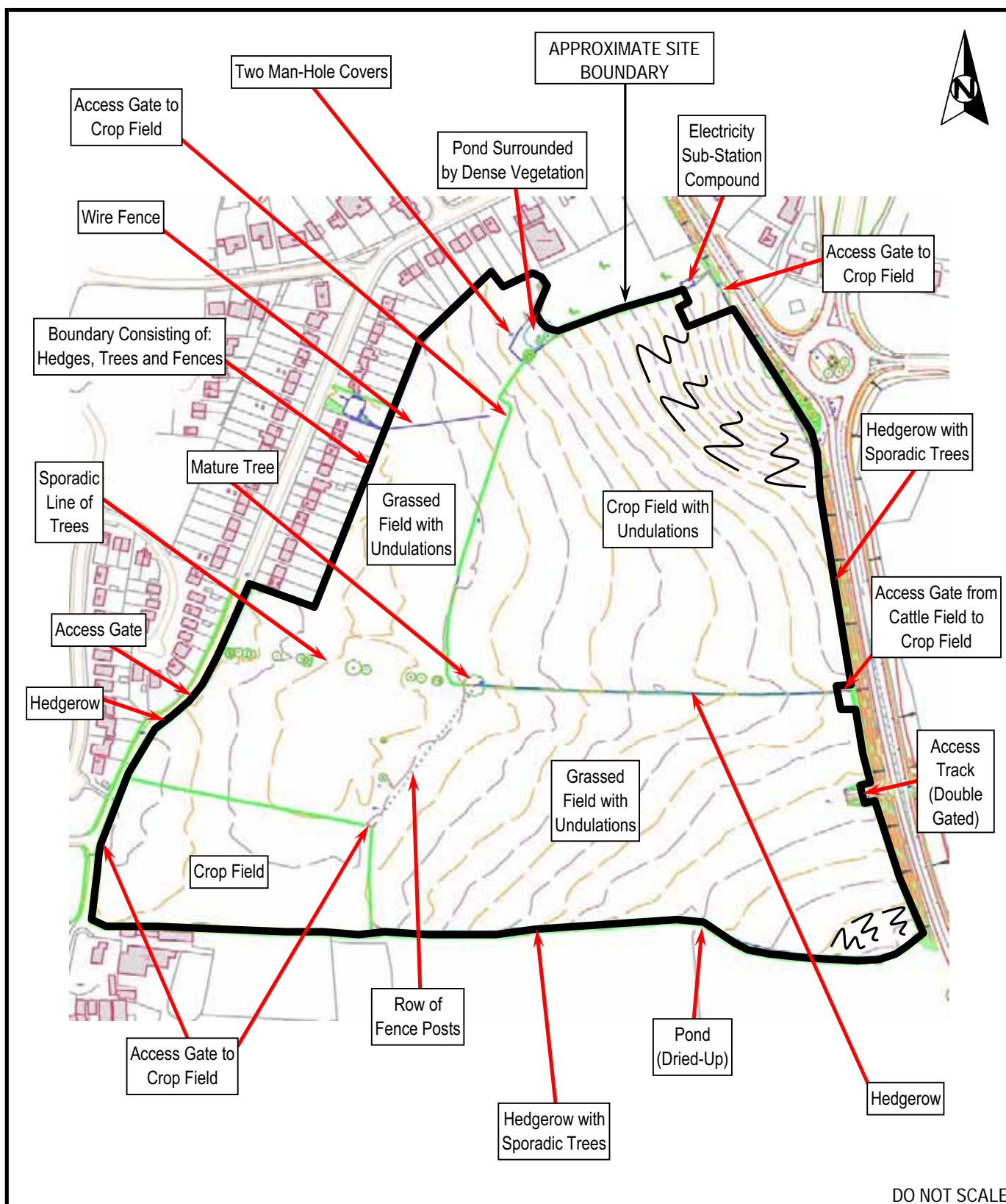
REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HER MAJESTY'S STATIONARY OFFICE. CROWN COPYRIGHT RESERVED. LICENCE NO. AL 100036261

Project No.	29197	Drawn	CH
Client	Peveril Homes Ltd	Checked	RS
		Approved	RS
Project	Tutbury East Staffordshire	Scale	NTS
		Date Drawn	10/11/2009
Title	Site Location Plan	Rev.	
		Figure No.	29197/01



APPENDIX II

**Annotated Site Plan
(Figure No. 29197/02)**



DO NOT SCALE

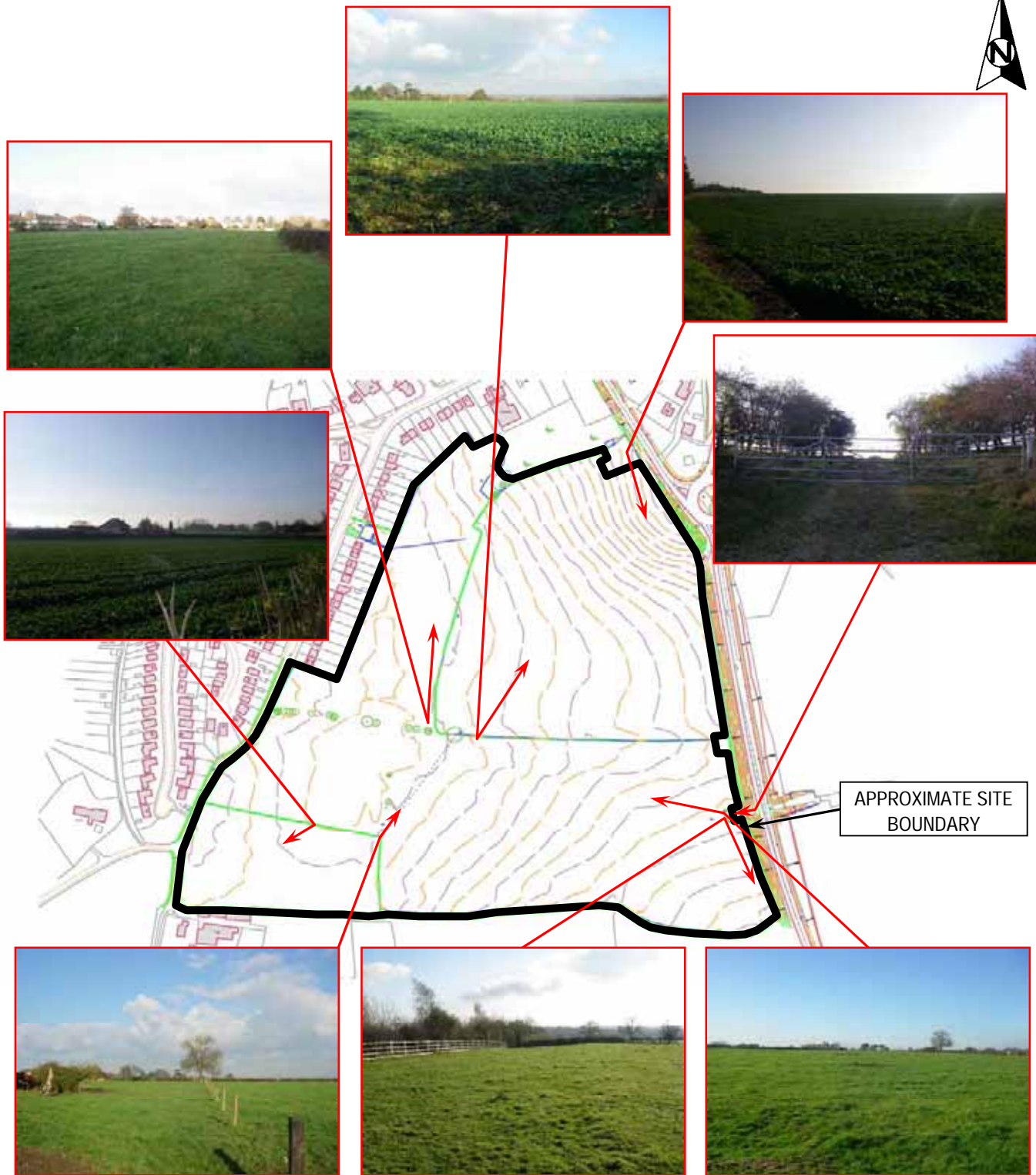
SITE PLAN SUPPLIED, EDITED AND REPRODUCED WITH PERMISSION FROM THE CLIENT PEVERIL HOMES LIMITED. DATA OBTAINED FROM GREENHATCH LTD DRWG NO. 13583_OGL (3) REV.1. ORDNANCE SURVEY MAP DATA REPRODUCED UNDER LICENCE NO. AL 100036261

Project No.	29197	Drawn	CH
Client	Peveril Homes Ltd	Checked	RS
		Approved	RS
Project	Tutbury East Staffordshire	Scale	NTS
		Date Drawn	11/11/2009
Title	Annotated Site Plan	Rev.	
		Figure No.	29197/02




APPENDIX III

**Site Plan Showing General Site Views
(Figure No. 29197/03)**



DO NOT SCALE

SITE PLAN SUPPLIED, EDITED AND REPRODUCED WITH PERMISSION FROM THE CLIENT PEVERIL HOMES LIMITED. DATA OBTAINED FROM GREENHATCH LTD DRWG NO. 13583_OGL (3) REV.1. ORDNANCE SURVEY MAP DATA REPRODUCED UNDER LICENCE NO. AL 100036261

Project No.	29197	Drawn	CH	
Client	Peveril Homes Ltd	Checked	RS	
		Approved	RS	
Project	Tutbury East Staffordshire	Scale	NTS	
		Date Drawn	11/11/2009	
		Rev.		
Title	Site Plan Showing General Site Views	Figure No.	29197/03	

APPENDIX IV
Historical Plans

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

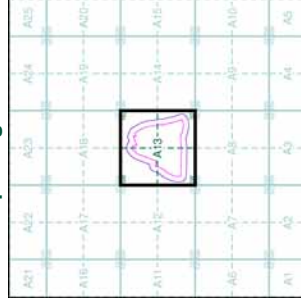
Large-Scale National Grid Data 1:2,500 and 1:1,250

GeoDyne

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pq.
Staffordshire	1:2,500	1883	2
Staffordshire	1:2,500	1901	3
Staffordshire	1:2,500	1923	4
Derbyshire	1:2,500	1923	5
Staffordshire	1:2,500	1938	6
Ordnance Survey Plan	1:2,500	1970	7
Ordnance Survey Plan	1:2,500	1970	8
Supply of Unpublished Survey Information	1:2,500	1973	9
Additional SIMs	1:2,500	1984	10
Additional SIMs	1:2,500	1988	11
Additional SIMs	1:2,500	1989	12
Additional SIMs	1:2,500	1991	13
Ordnance Survey Plan	1:2,500	1992	14
Large-Scale National Grid Data	1:2,500	1993	15
Large-Scale National Grid Data	1:2,500	1995 - 1996	16

Historical Map - Segment A13



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Site Area (Ha): 15.25
Search Buffer (m): 50

Site Details

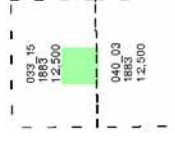
Tutbury, Staffordshire



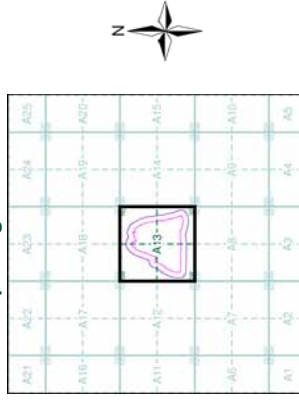
Tel: 0844 844 9552
Fax: 0844 844 9551
Web: www.envirocheck.co.uk

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 1886 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13

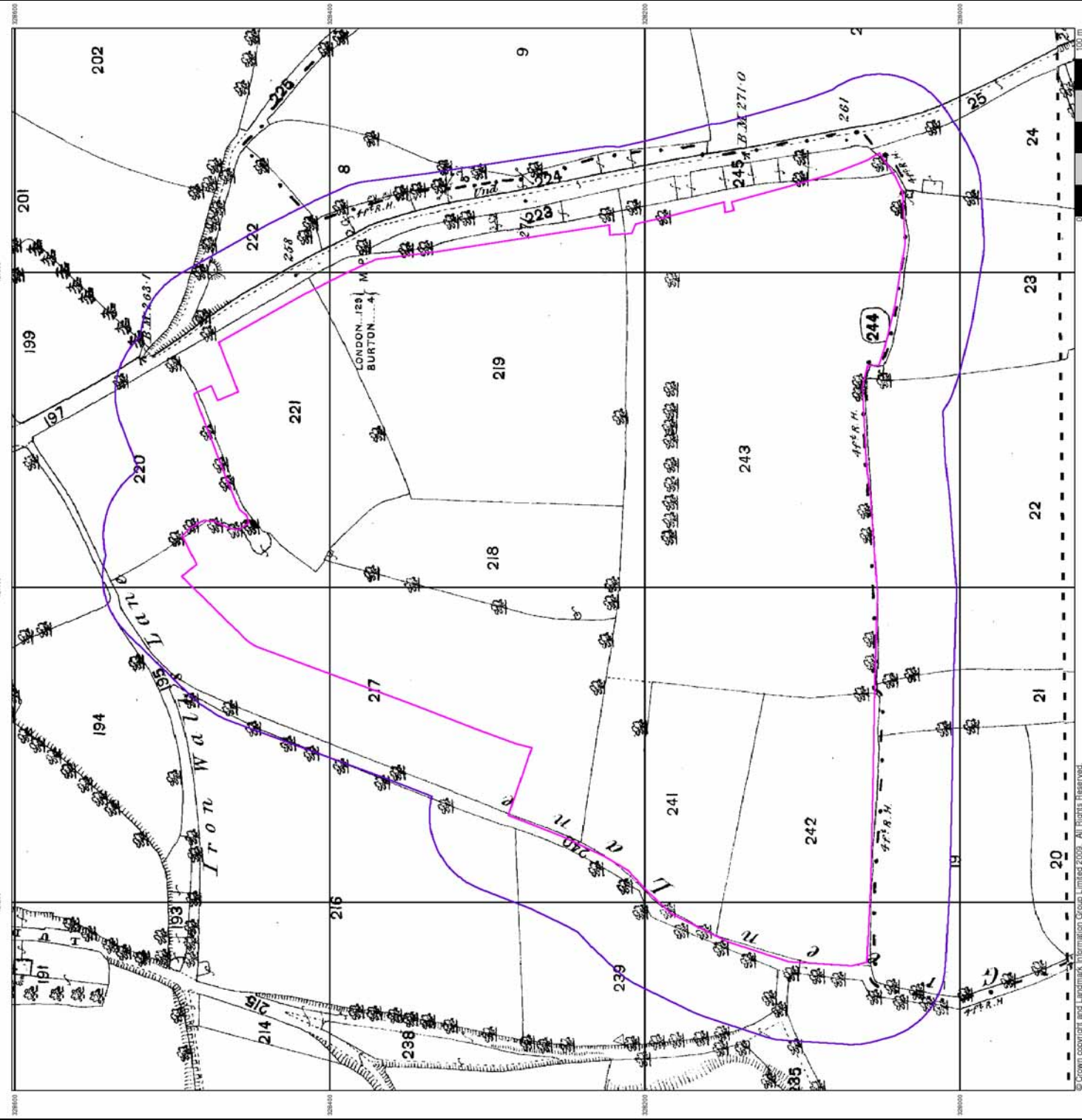


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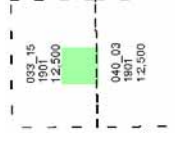
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Tutbury, Staffordshire

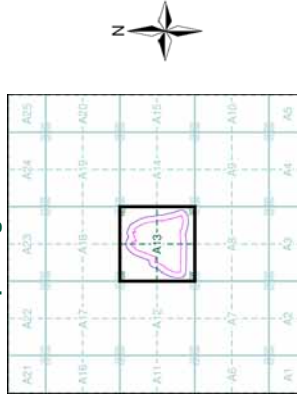


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Map Name(s) and Date(s)



Historical Map - Segment A13

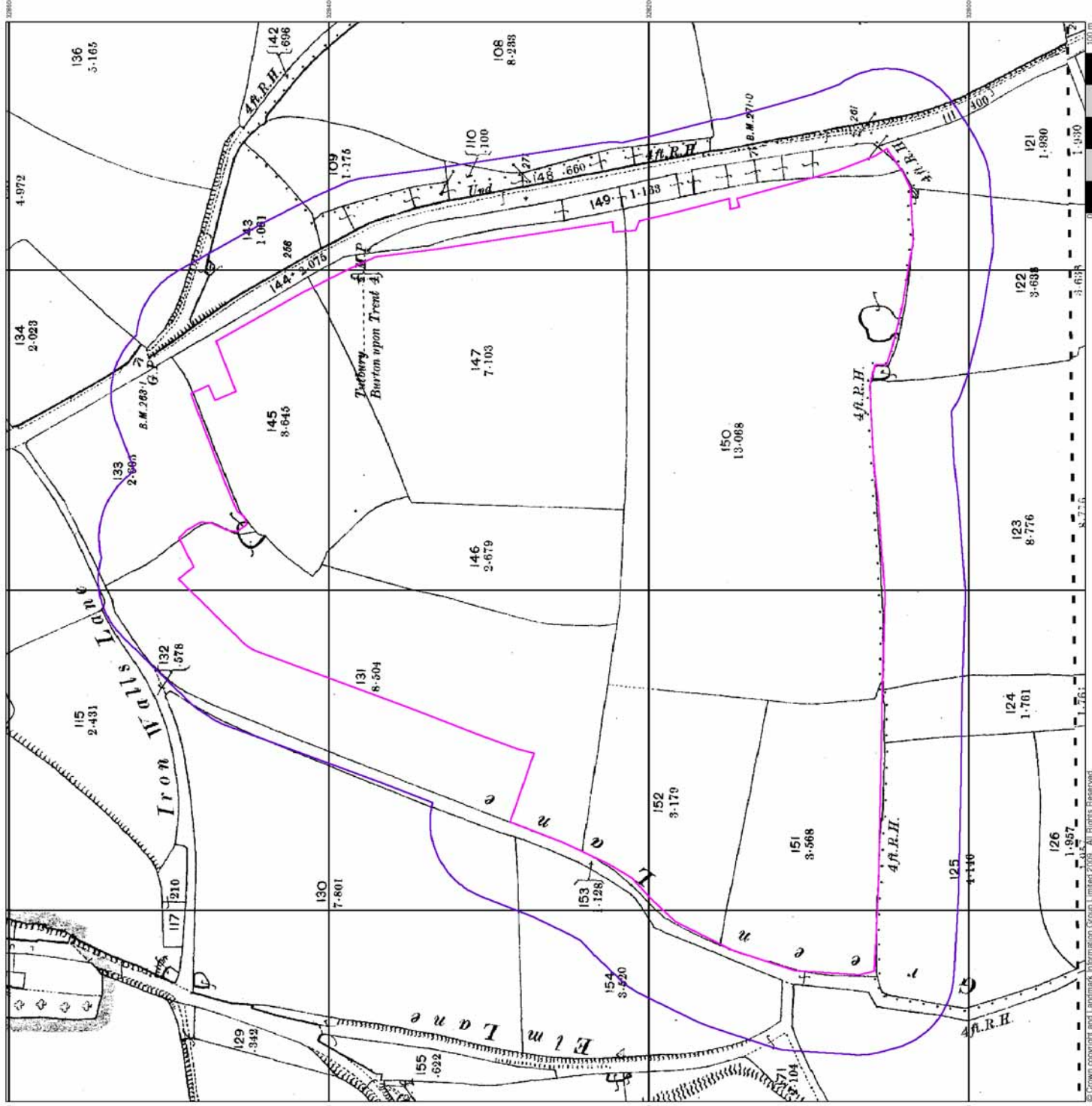


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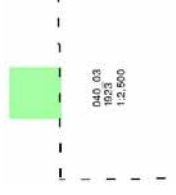
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Tutbury, Staffordshire

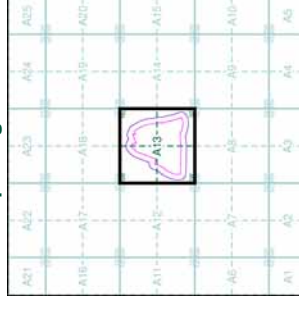


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Map Name(s) and Date(s)



Historical Map - Segment A13



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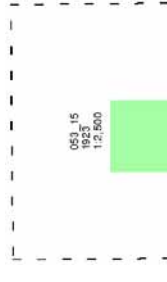
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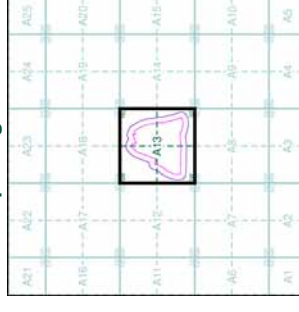
Tutbury, Staffordshire

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Map Name(s) and Date(s)



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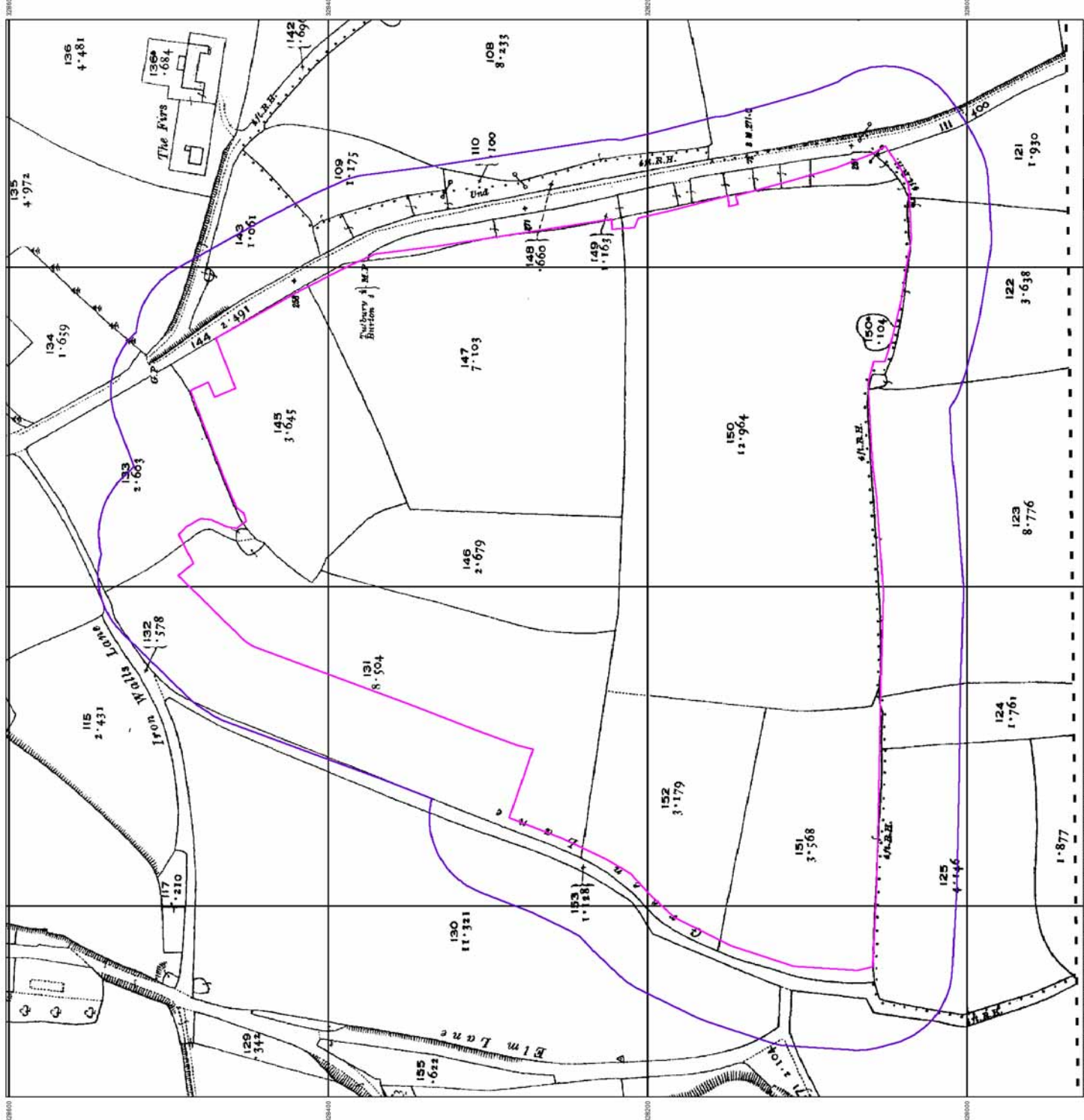


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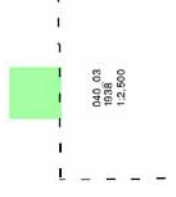
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Tutbury, Staffordshire

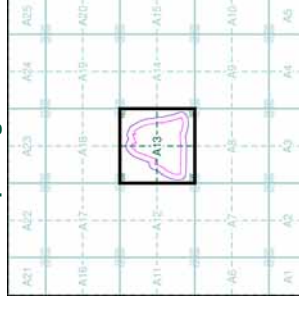


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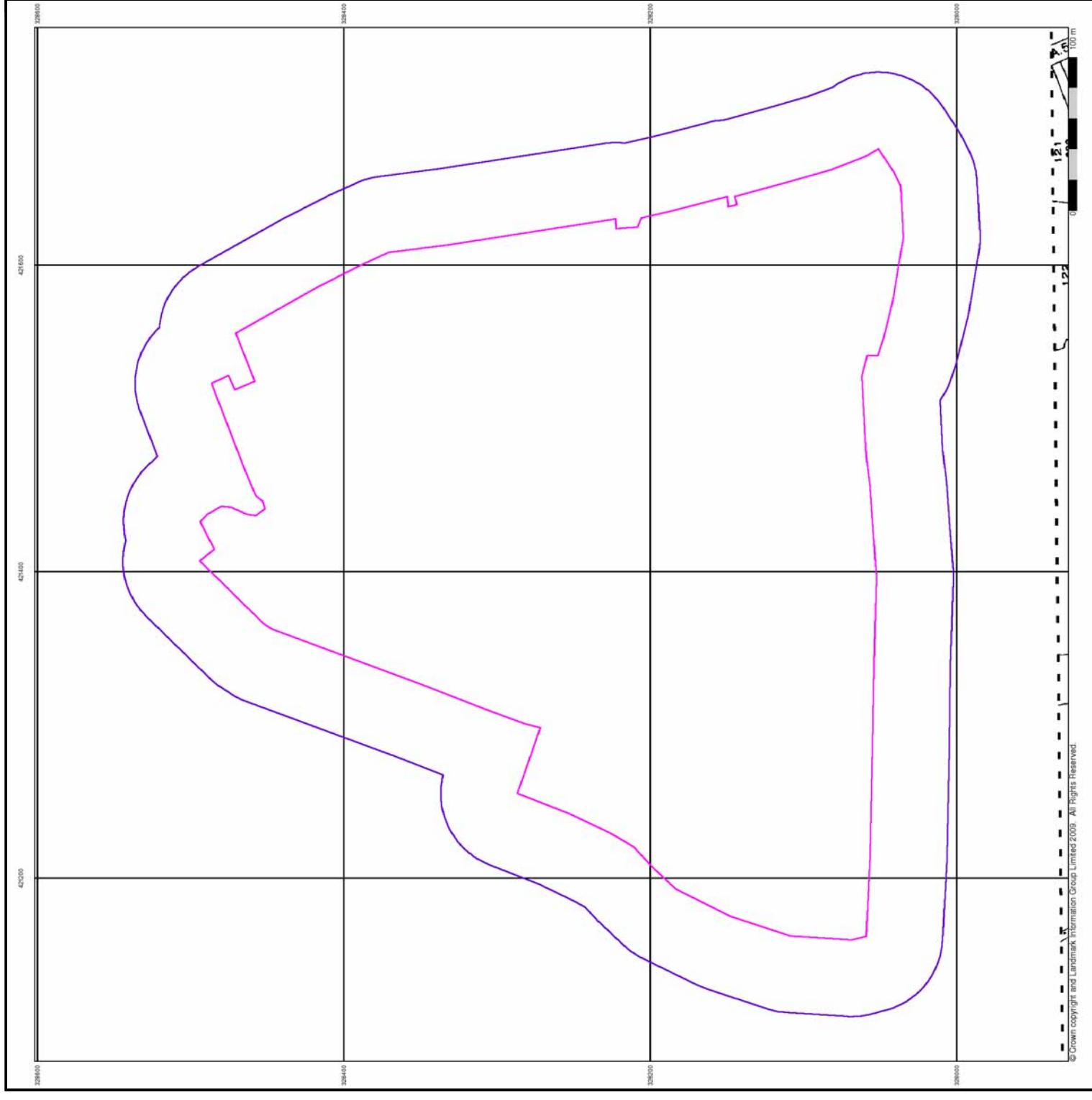


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Site Details

Tutbury, Staffordshire



GeoDyne

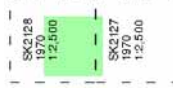
Ordnance Survey Plan

Published 1970

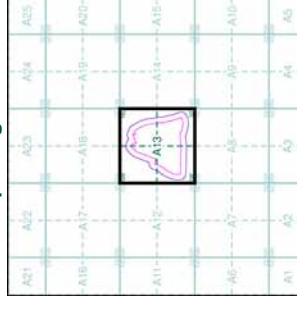
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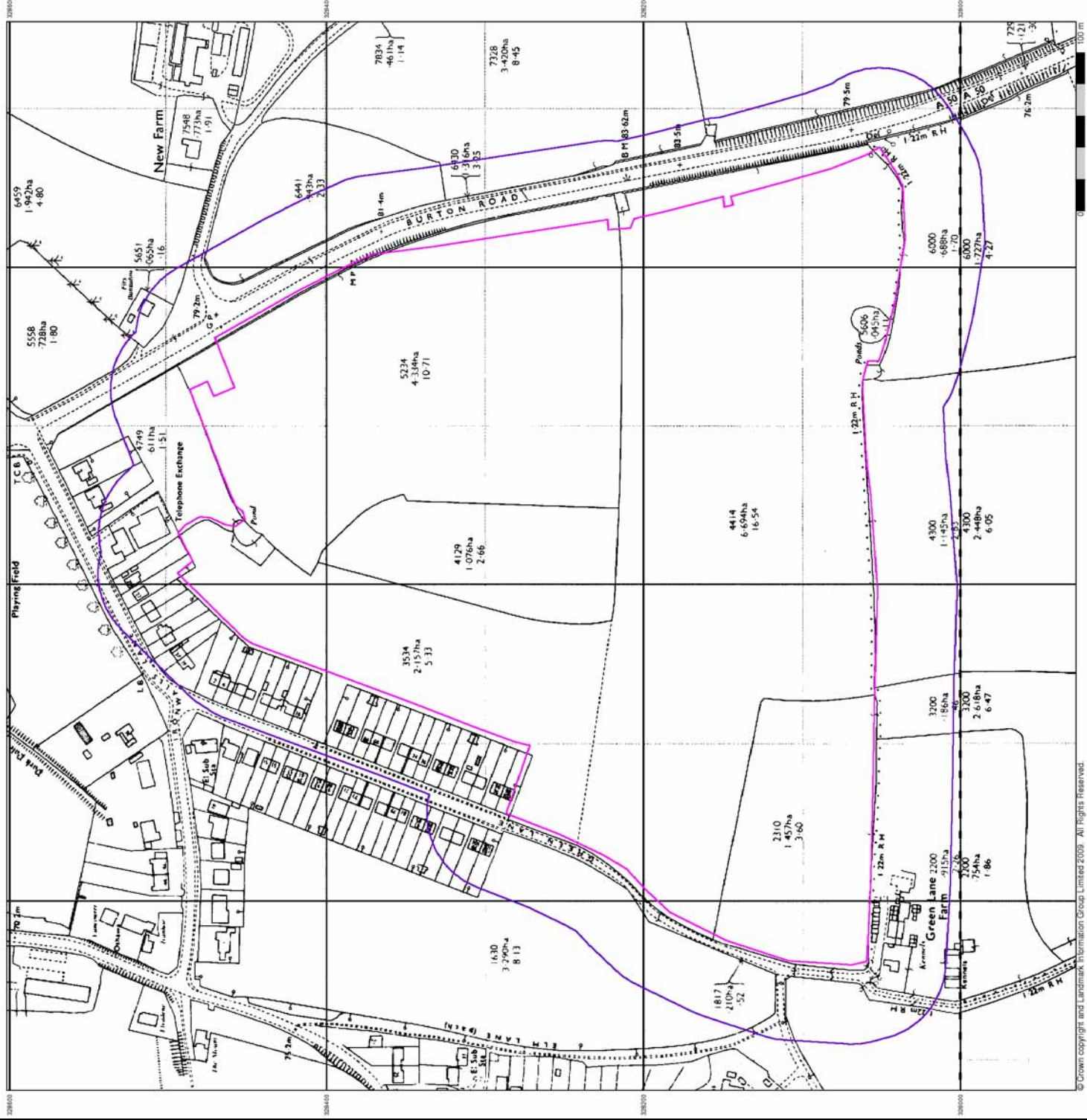
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Site Details

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GeoDyne

Ordnance Survey Plan

Published 1970

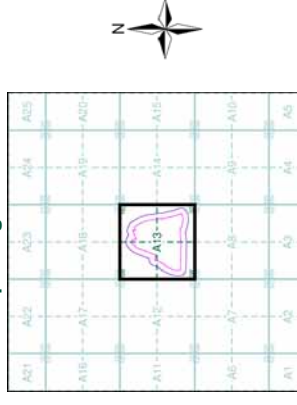
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Map Name(s) and Date(s)



Historical Map - Segment A13



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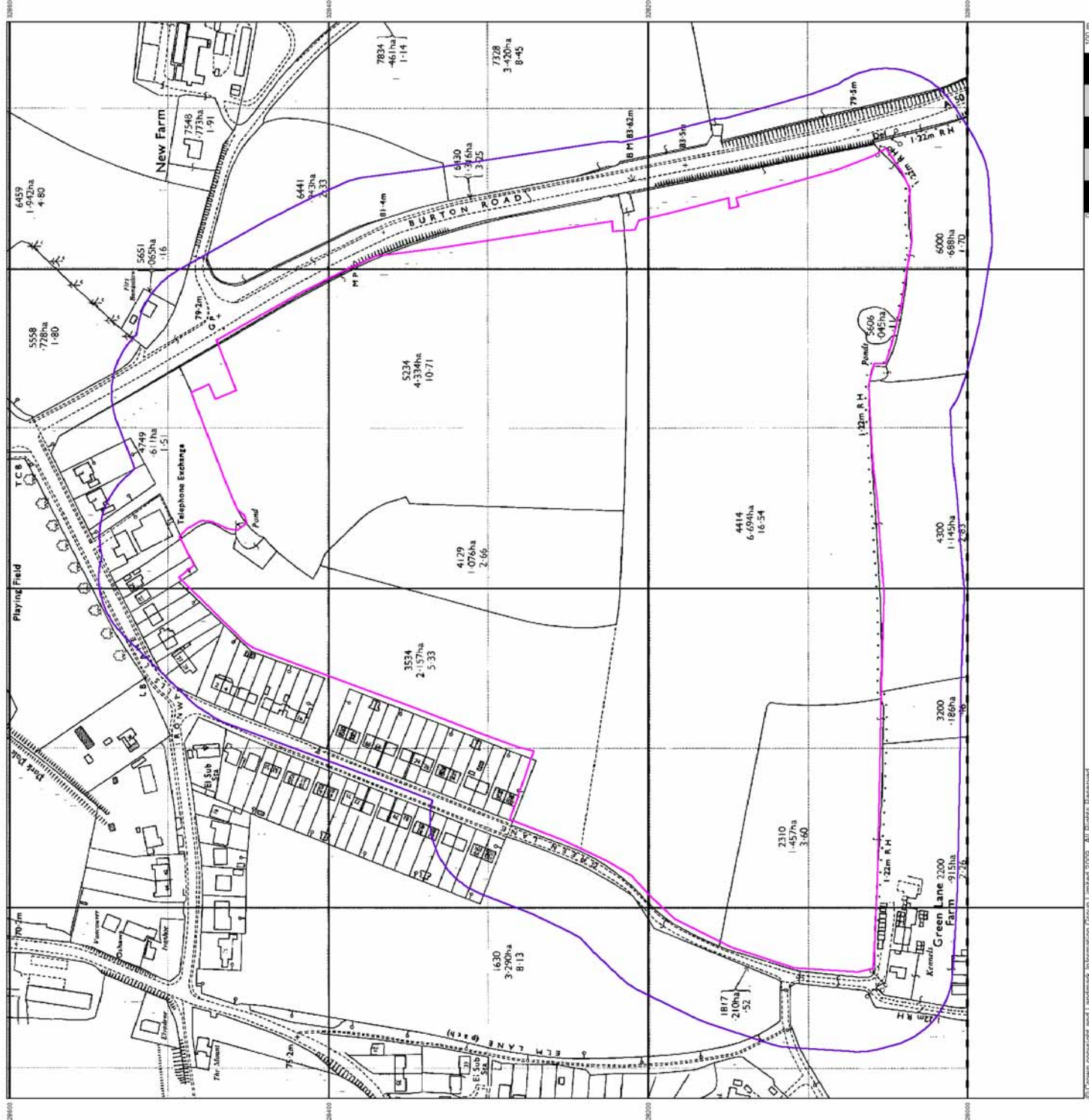
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Site Details

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Supply of Unpublished Survey Information

Published 1973

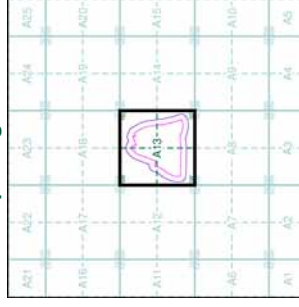
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SUSI maps (Supply of Unpublished Survey Information) were produced between 1972 and 1977, mainly for internal use at Ordnance Survey. These were more of a 'work-in-progress' plan as they showed updates of individual areas on a map. These maps were 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 A13



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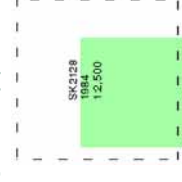
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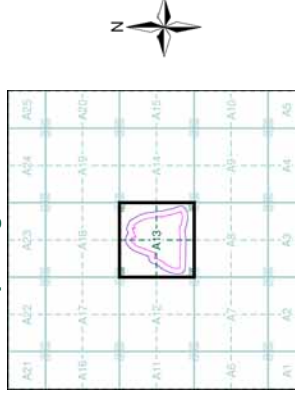
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

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 1984, 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 A13

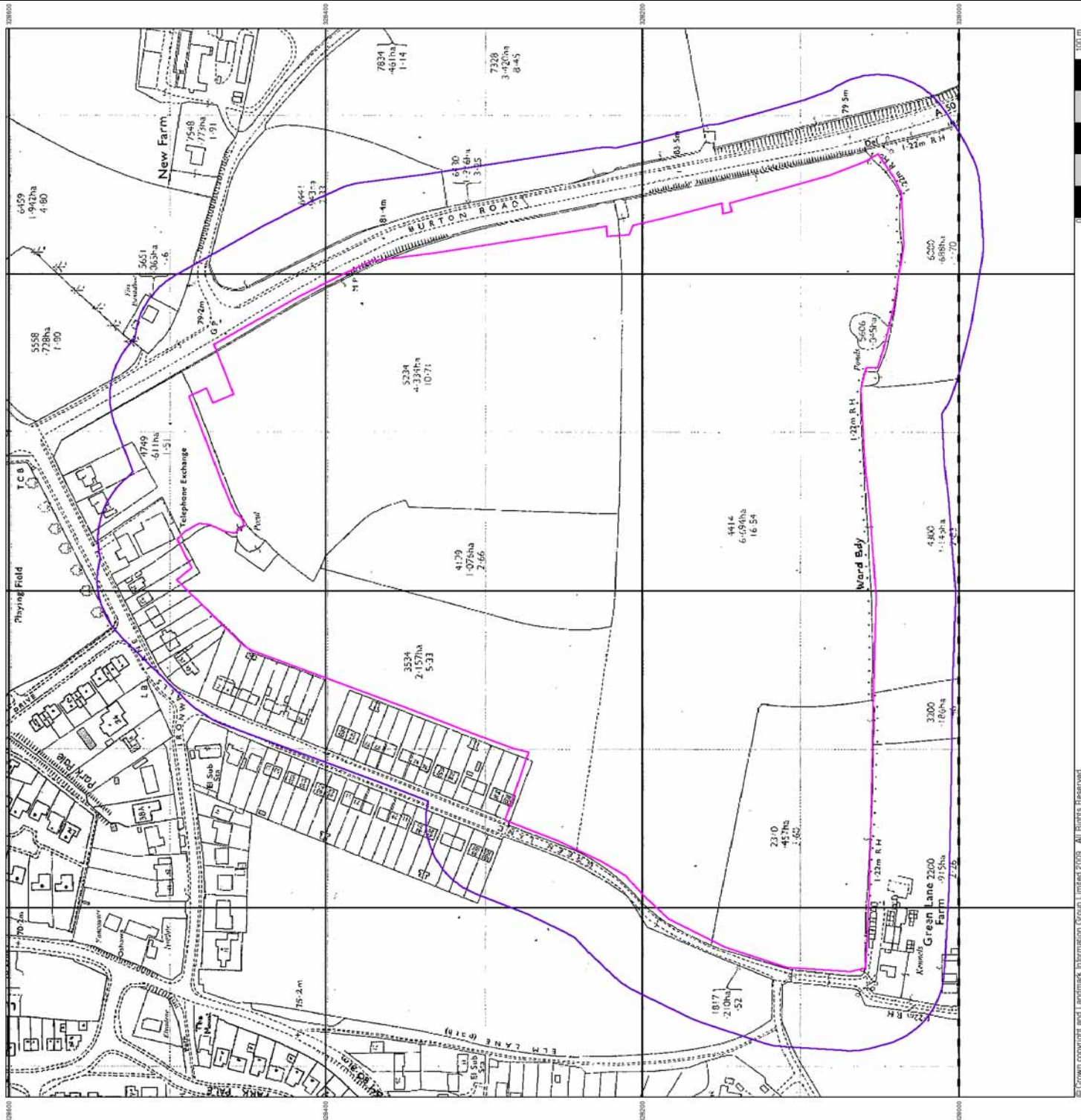


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Site Details

Tutbury, Staffordshire



GeoDyne

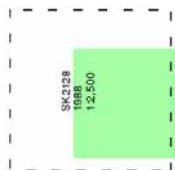
Additional SIMs

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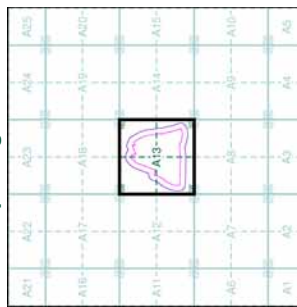
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Map Name(s) and Date(s)



Historical Map - Segment A13



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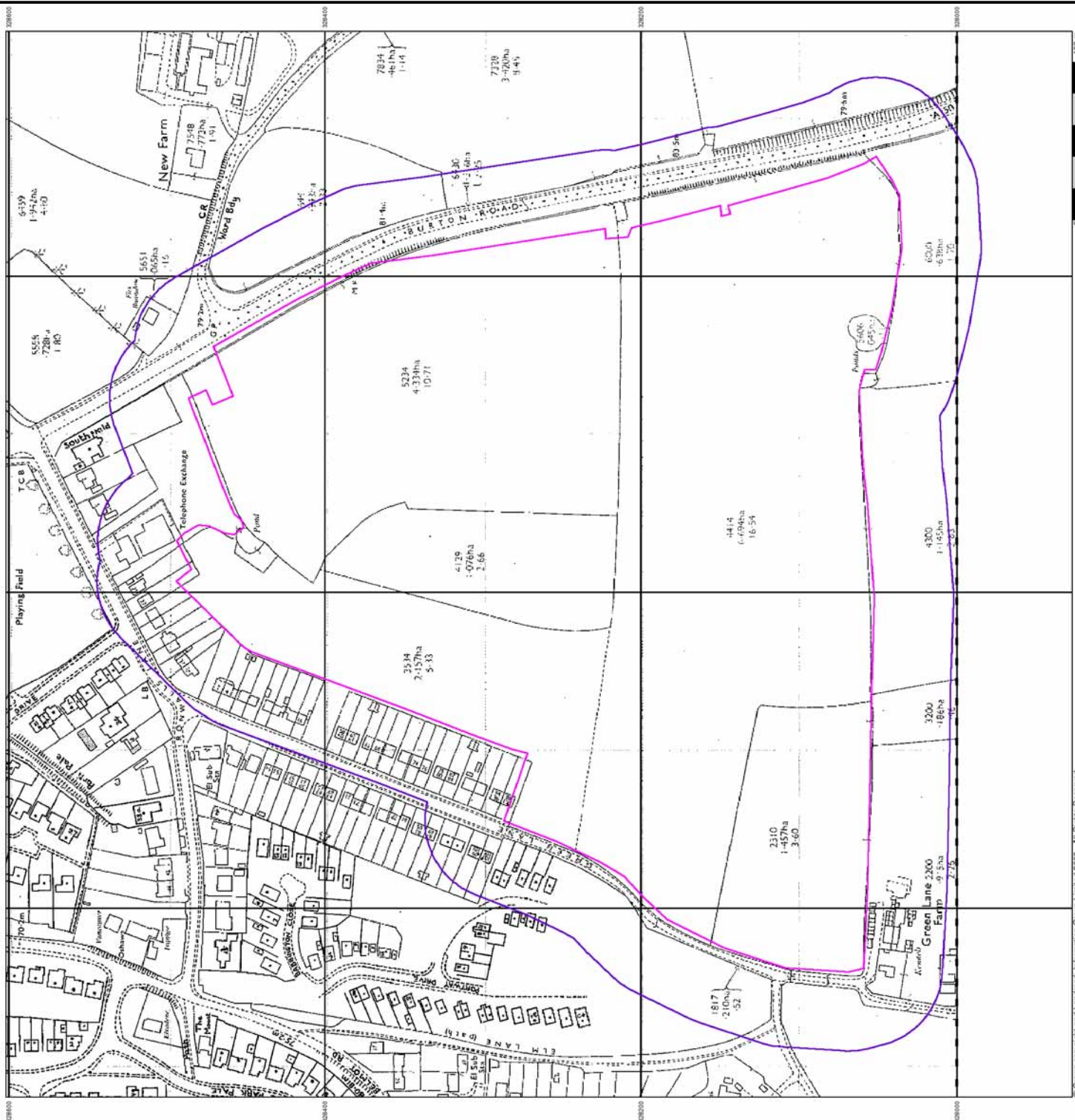
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Site Details

Tutbury, Staffordshire

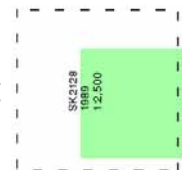


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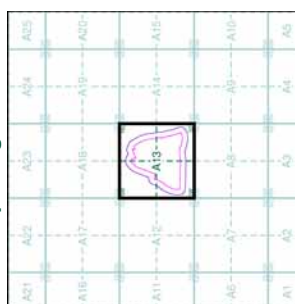


The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:12,500 scales.

Map Name(s) and Date(s)



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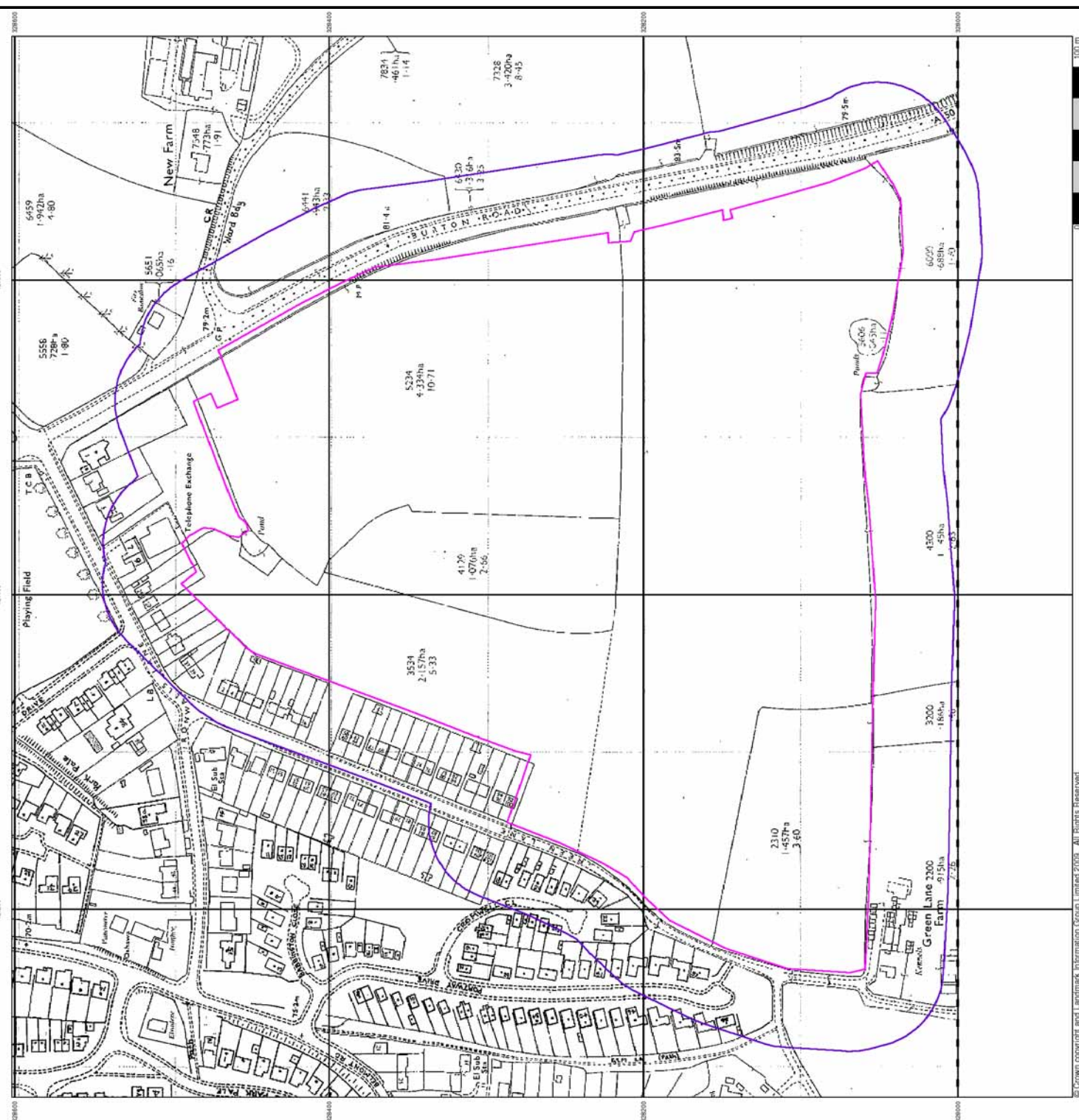


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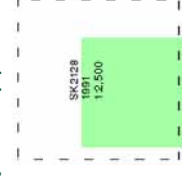
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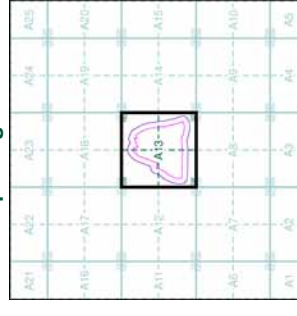


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Map Name(s) and Date(s)



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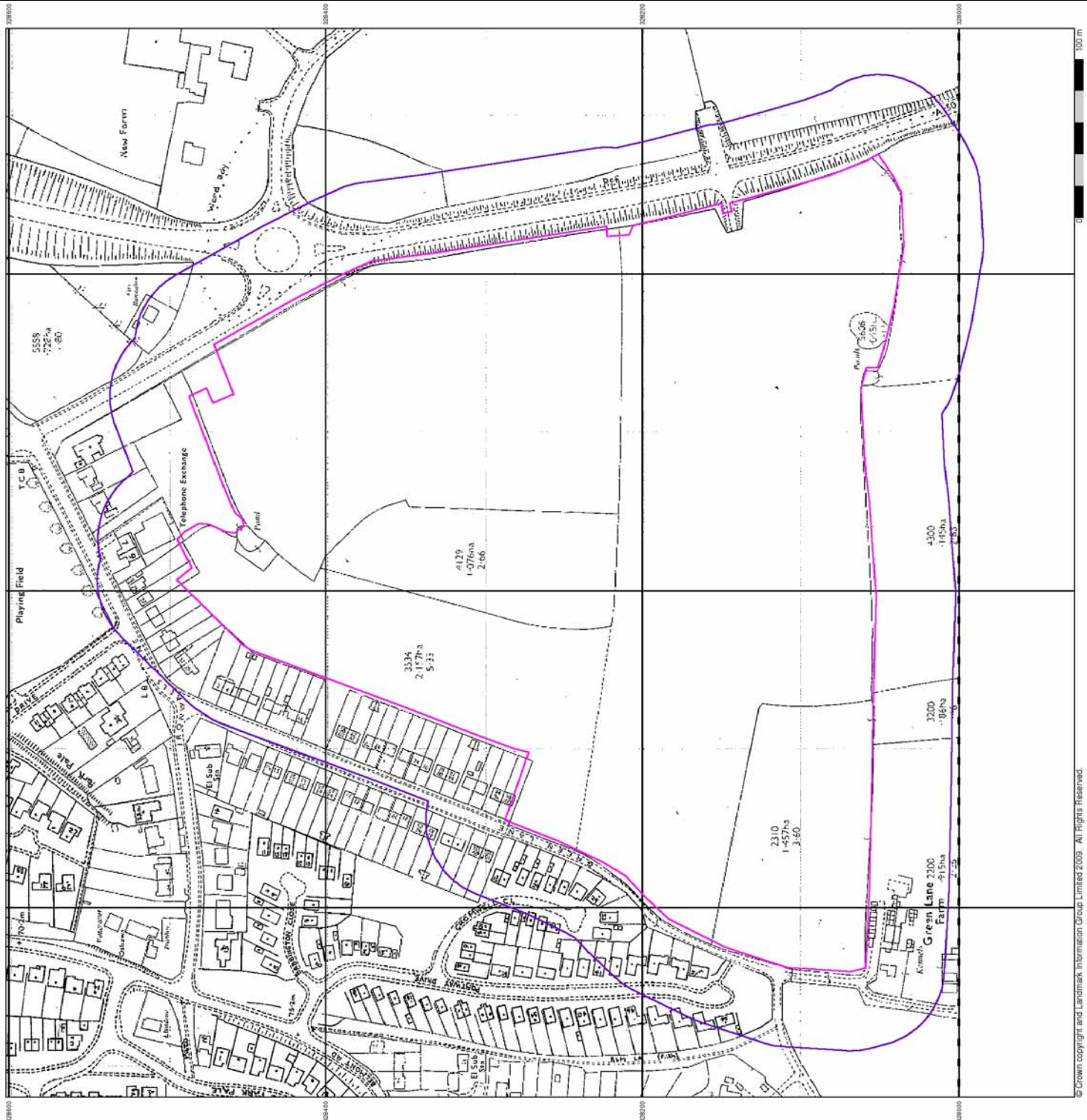


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Tutbury, Staffordshire



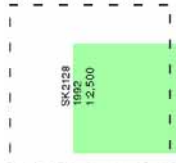
GeoDyne

Ordnance Survey Plan Published 1992

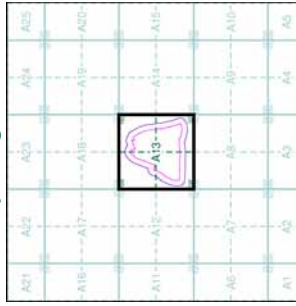
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Map Name(s) and Date(s)



Historical Map - Segment A13



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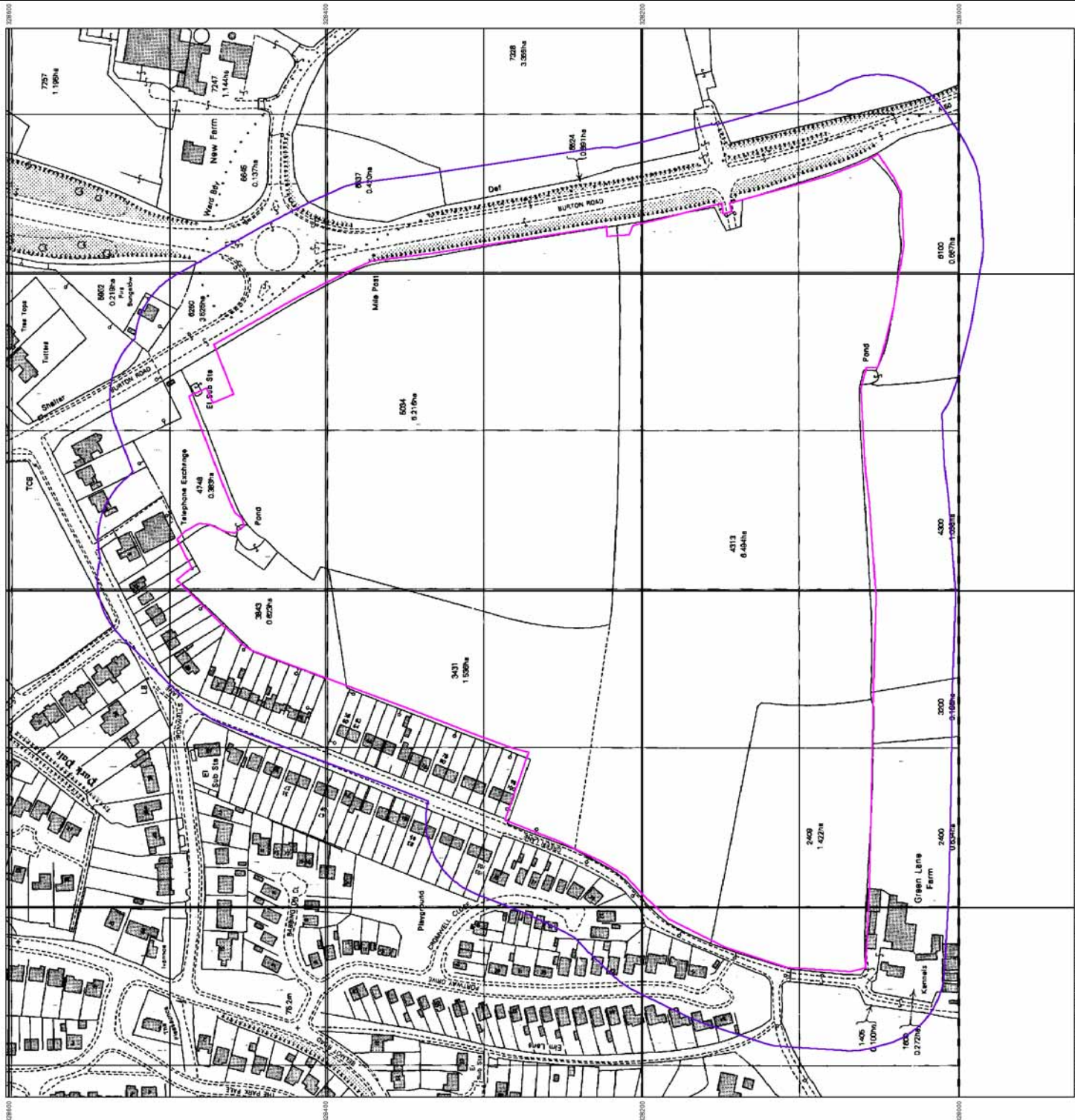
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Fax: 0844 844 9551
Web: www.envirocheck.co.uk

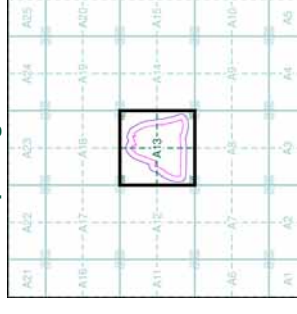


'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the forerunners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SK2128	1993
SK2127	1993
SK2126	1993
SK2125	1993

Historical Map - Segment A13

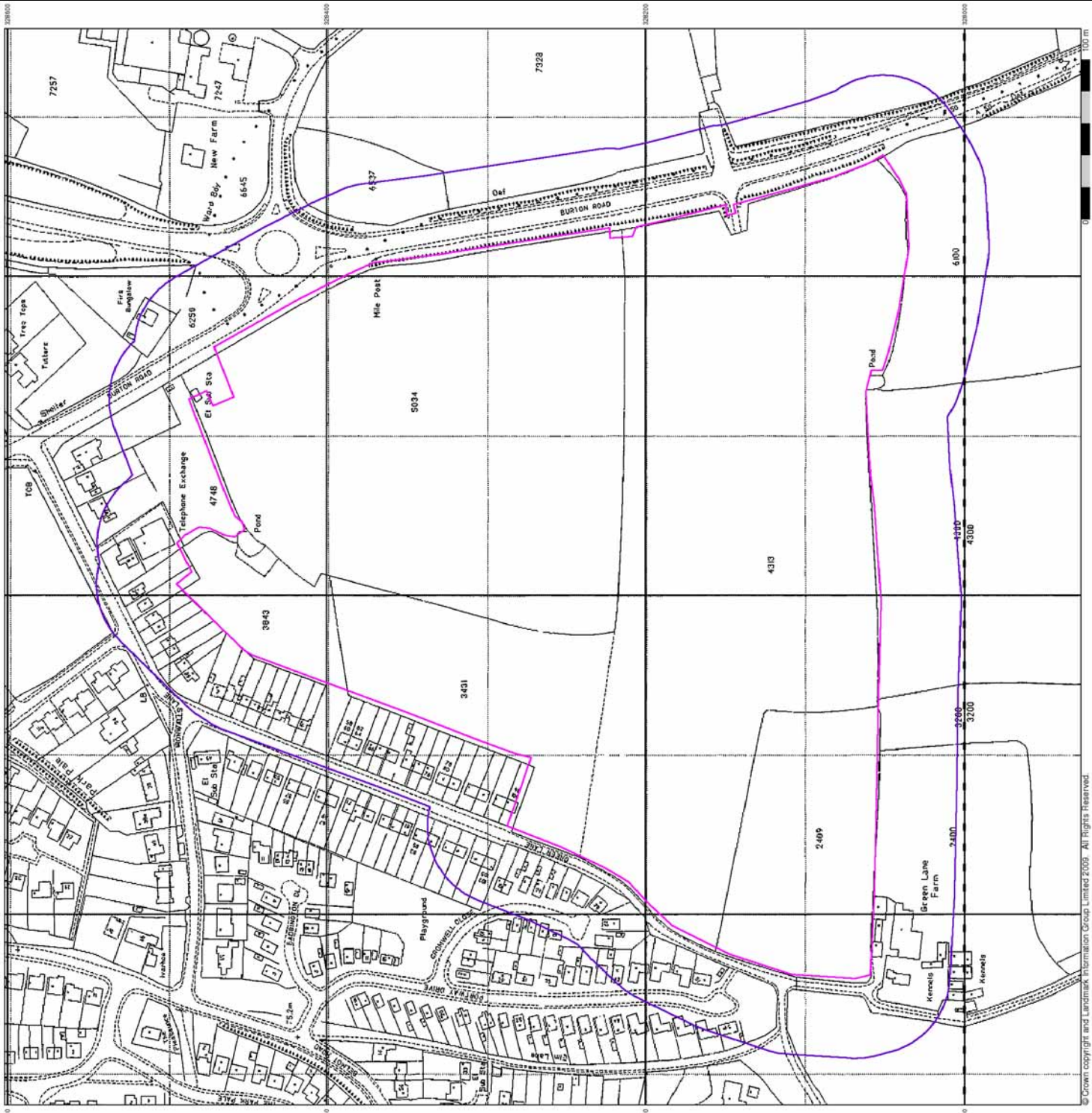


Order Details

Order Number: 29275671_1_1
 Customer Ref: 29197
 National Grid Reference: 421430, 328220
 Slice: A
 Site Area (Ha): 15.25
 Search Buffer (m): 50

Site Details

Tutbury, Staffordshire

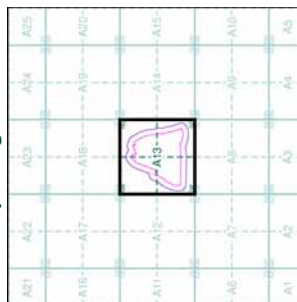


'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the forerunners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:12,500 scales.

Map Name(s) and Date(s)

SK2128	1995
SK2127	1996

Historical Map - Segment A13

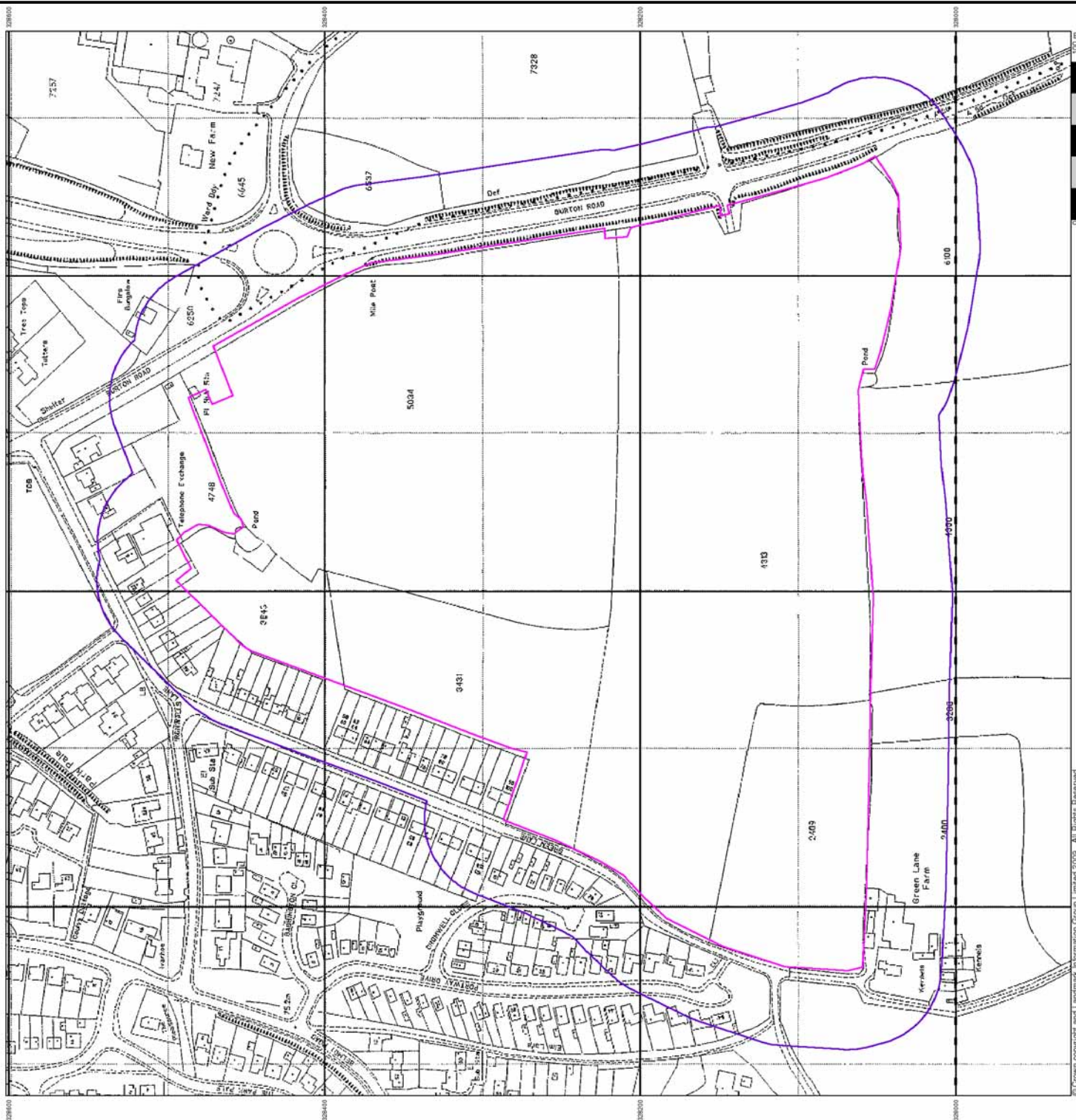


Order Details

Order Number: 29275671_1_1
 Customer Ref: 29197
 National Grid Reference: 421430, 328220
 Slice: A
 Site Area (Ha): 15.25
 Search Buffer (m): 50

Site Details

Tutbury, Staffordshire



Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Ordnance Survey Plan 1:10,000

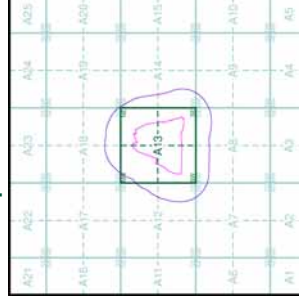
1:10,000 Raster Mapping

GeoDyne

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Staffordshire	1:10,560	1884 - 1885	2
Derbyshire	1:10,560	1885	3
Staffordshire	1:10,560	1901	4
Derbyshire	1:10,560	1901	5
Derbyshire	1:10,560	1924	6
Staffordshire	1:10,560	1924	7
Derbyshire	1:10,560	1938	8
Ordinance Survey Plan	1:10,000	1955	9
Ordinance Survey Plan	1:10,000	1973	10
Ordinance Survey Plan	1:10,000	1983	11
10K Raster Mapping	1:10,000	2000	12
10K Raster Mapping	1:10,000	2006	13
10K Raster Mapping	1:10,000	2009	14

Historical Map - Slice A



Order Details

Order Number: 29275671_1_1

Order Number: 2927307
Customer Ref: 29197

Customer Ref. 23197
National Grid Reference: 421430, 328220

Slice: A

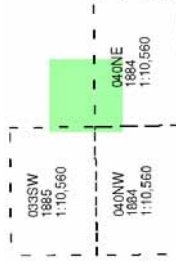
Site Area (Ha): 15.25

Site Details

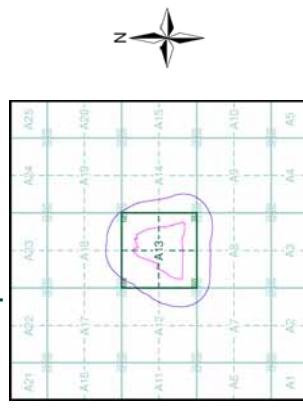
Site Details
Tutbury, Staffordshire

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1884 the 1:10,560 scale was adopted for mapping urban areas, these maps were used to update the 1:50,000 scale maps. The published date shown here is often to update the map, the actual date of the map is often later. The 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

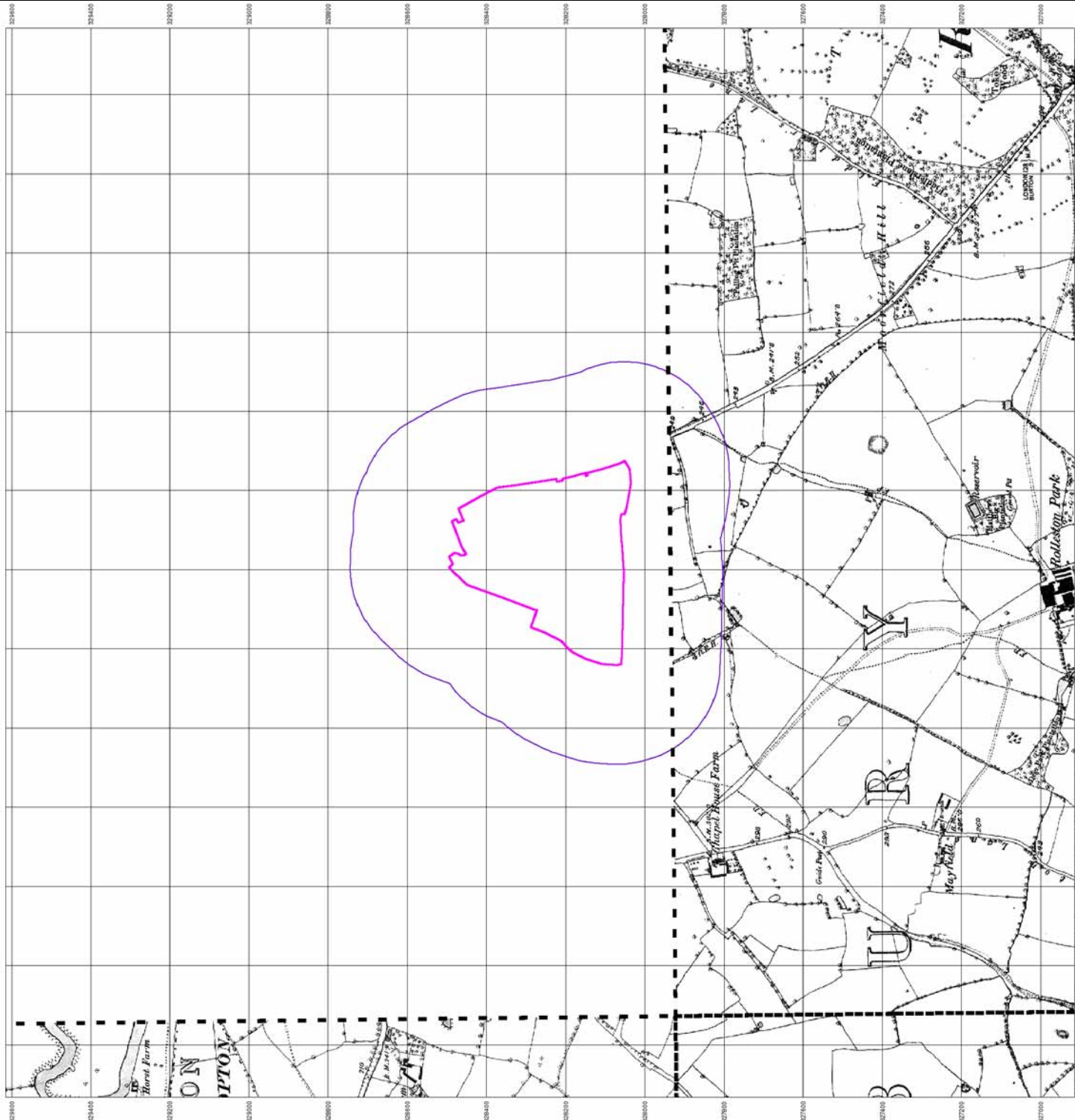


Order Details

Order Number: 29275671_1_1
 Customer Ref: 29197
 National Grid Reference: 421430, 328220
 Slice: A
 Site Area (Ha): 15.25
 Search Buffer (m): 250

Site Details

Tutbury, Staffordshire



053SE
1885
1:10,560

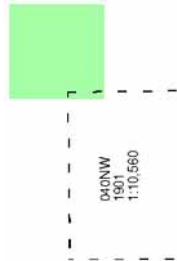
Order Number: 29275671_1_1
Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

Tutbury, Staffordshire

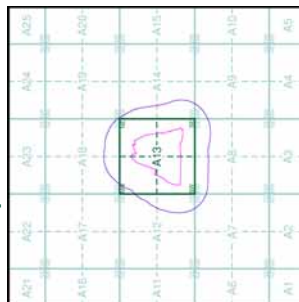


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:10,560 scale was adopted for mapping urban areas, these maps were used to update the 1:50,000 scale maps. The published maps were offered to update the 1:50,000 scale maps. The published 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: 29275671_1_1
Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

Site Details

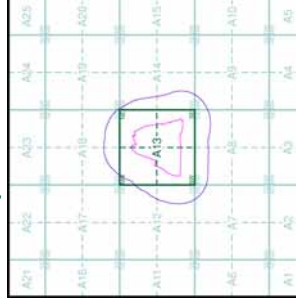
Tutbury, Staffordshire

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 1:10,560 scale was adopted for mapping urban areas, these maps were offered to update the 1:50,000 scale maps. The published maps are based on the 1:10,560 scale maps, which were produced by the Ordnance Survey. The maps are 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)

053SW	053SE
1901	1901
1:10,560	1:10,560
	057ANE
	1901
	1:10,560

Historical Map - Slice A

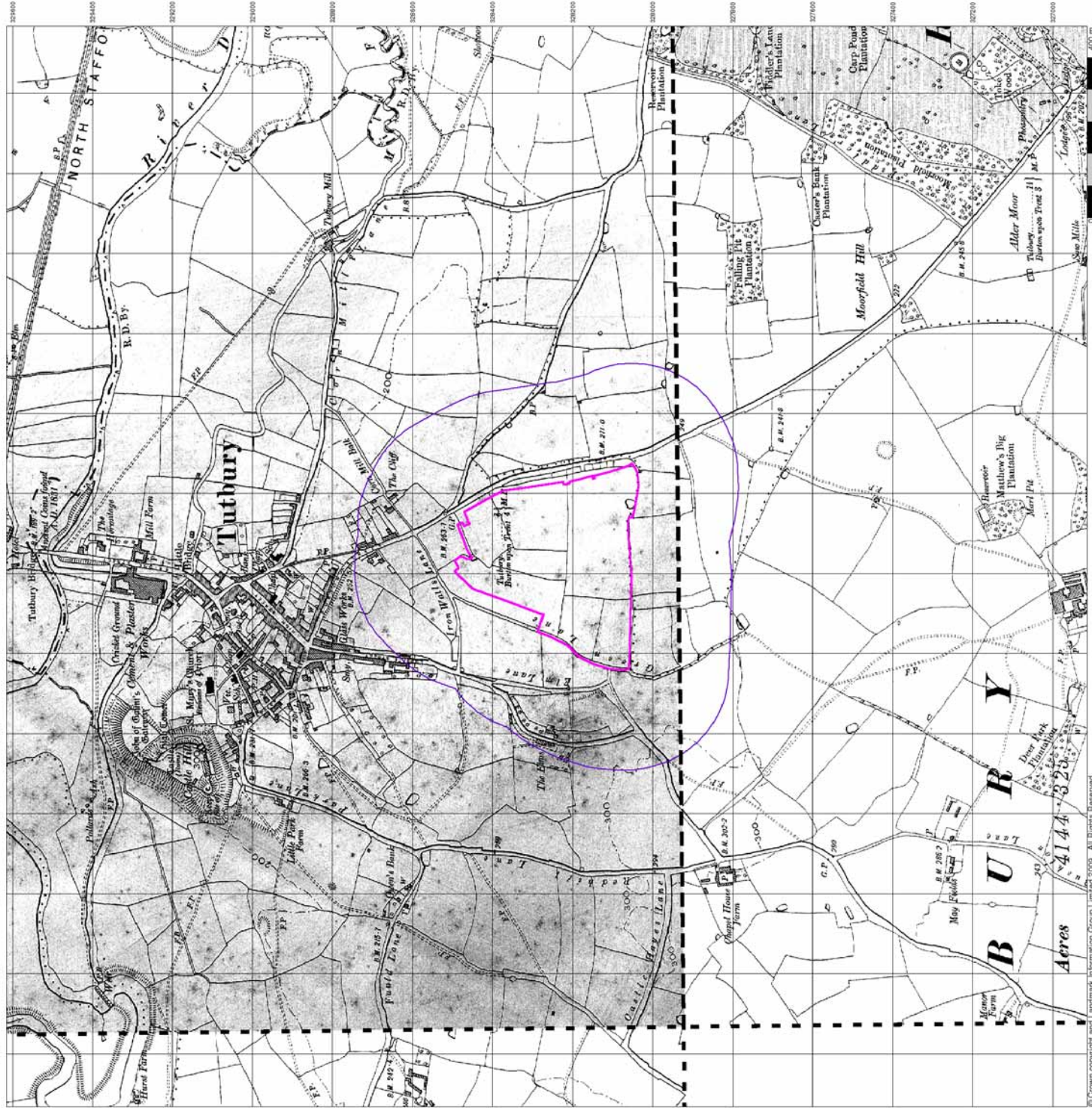


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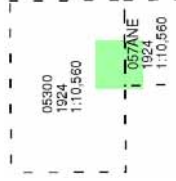
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 Customer Ref: 29197
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 Slice: A
 Site Area (Ha): 15.25
 Search Buffer (m): 250

Site Details

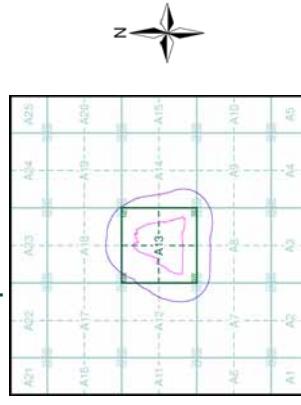
Tutbury, Staffordshire



Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Details

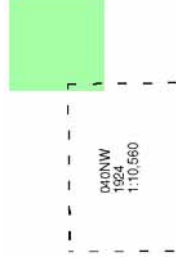
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Slice:	A
Site Area (Ha):	15.25
Search Buffer (m):	250

Site Details

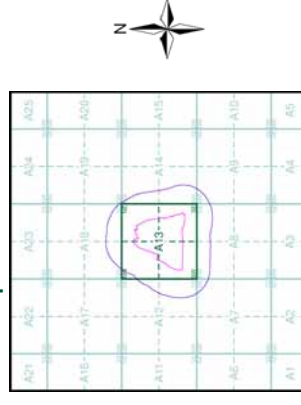
Site Details
Tutbury, Staffordshire

The historical maps shown were reproduced from maps predominantly held at the state department for England, Wales and Scotland in the 1840's, in 1854 at the 1:2,500 scale were adopted for mapping these areas. These maps were the first to be updated at 1:50,000 maps. The first edition of the OS was first issued some 15 years later than the previous editions. 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 Details

Order Number: 29275671_1_1
Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

Site Details

Site Details
Tutbury, Staffordshire



057ANE
1938
1.10.560

The figure shows a 10x10 grid of cells. The columns are labeled A1 through A10 at the bottom, and the rows are labeled A1 through A10 on the left. A green square highlights the central 4x4 area, with cells A41, A42, A43, A44 in the top row; A51, A52, A53, A54 in the second row; A61, A62, A63, A64 in the third row; and A71, A72, A73, A74 in the bottom row. A purple oval highlights a larger area, with cells A33, A34, A35, A36 in the top row; A43, A44, A45, A46 in the second row; A53, A54, A55, A56 in the third row; A63, A64, A65, A66 in the fourth row; A73, A74, A75, A76 in the fifth row; and A83, A84, A85, A86 in the bottom row.

Order Details

Order Number:	29275671_1_1
Customer Ref:	29197
National Grid Reference:	42 1430, 328220
Slice:	A
Site Area (Ha):	15.25
Search Buffer (m):	250

Site Details
Tutbury, Staffordshire

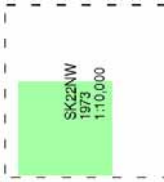
GeoDyne

Ordnance Survey Plan Published 1973

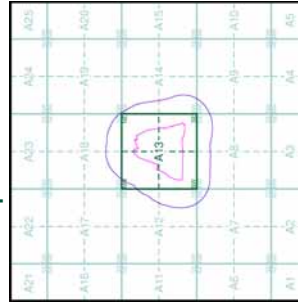
Source map scale - 1:10,000

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 1:10,000 scale maps. The publication of the 1:10,000 scale maps was discontinued in 1968. The 1:10,000 scale maps are 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

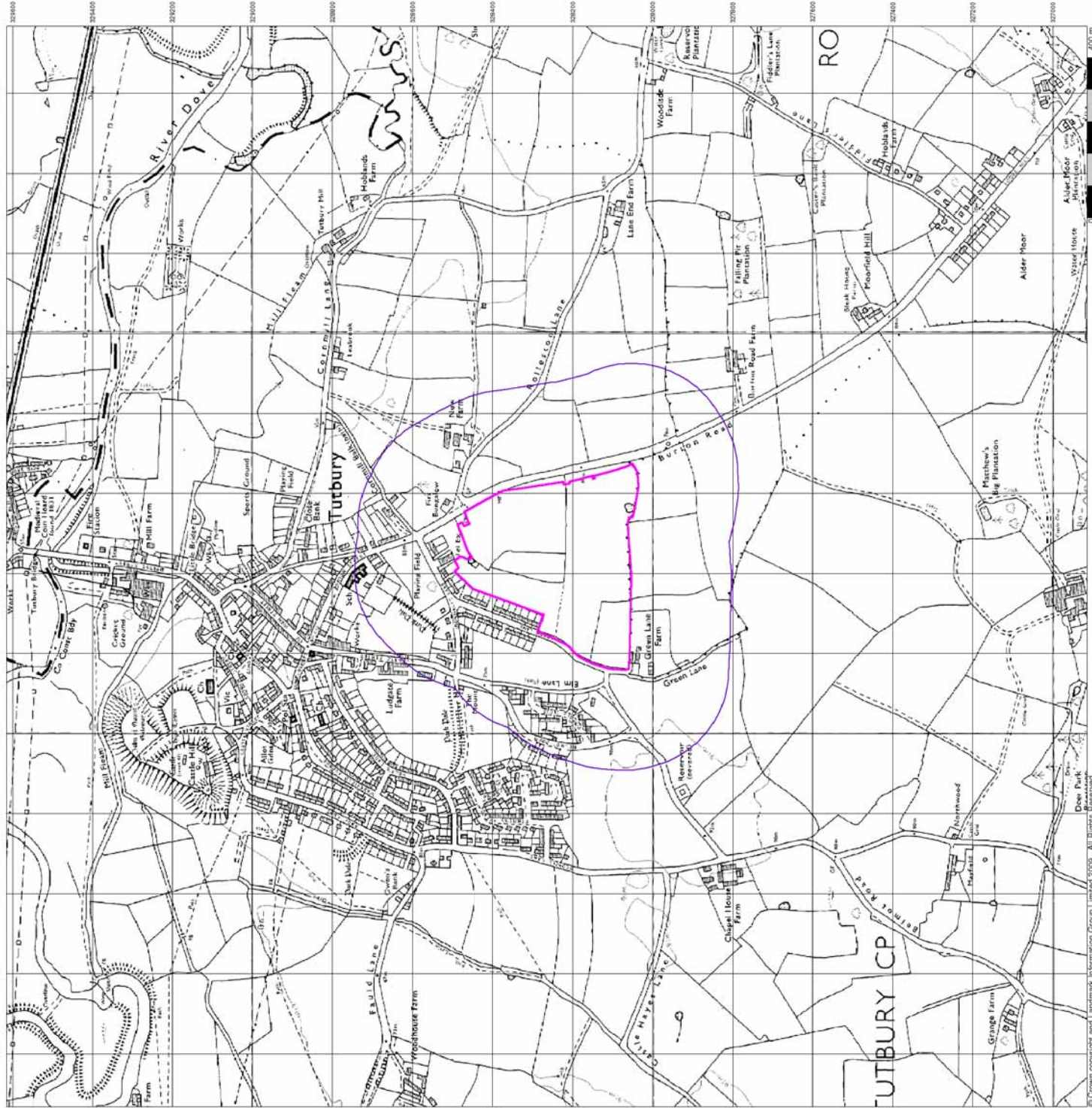
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Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

Site Details

Tutbury, Staffordshire



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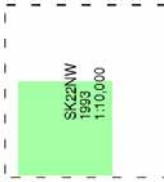
GeoDyne

Ordnance Survey Plan Published 1993

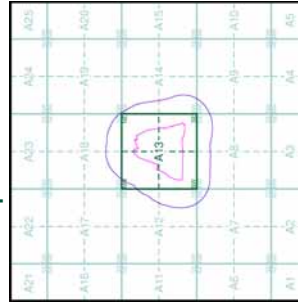
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas, these maps were offered to update the earlier 1:25,000 scale maps. The published maps are 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

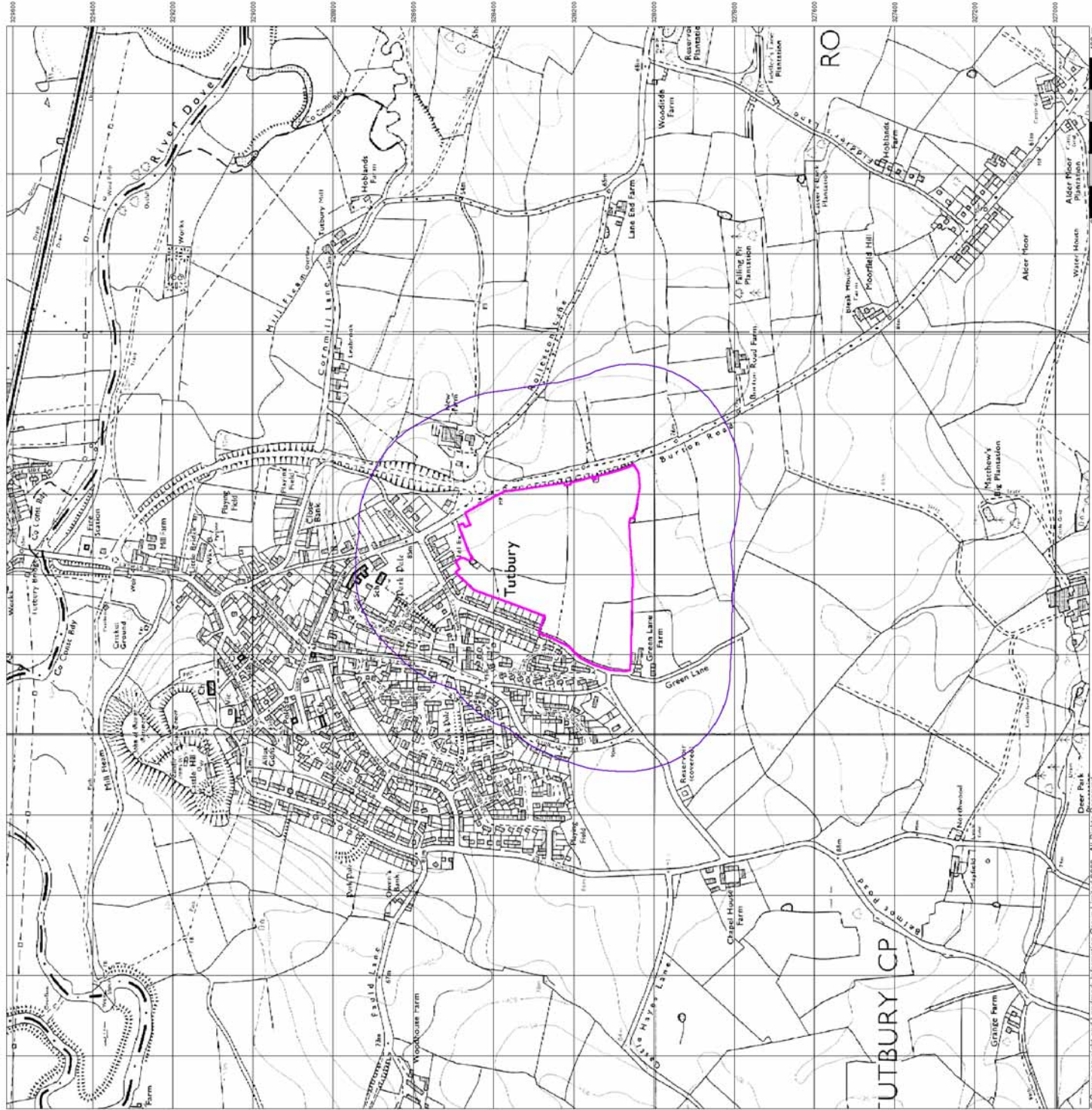
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Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
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Site Details

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GeoDyne

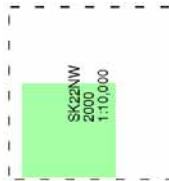
10k Raster Mapping

Published 2000

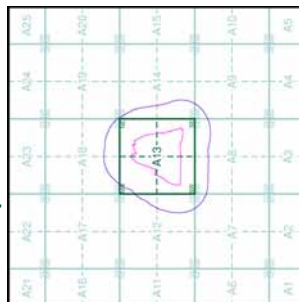
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from a map which replaced the old 1:10,000 maps originally published in 1970. The data is high resolution, showing buildings, fences and other features as well as the roads, tracks and other features. The maps are published together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

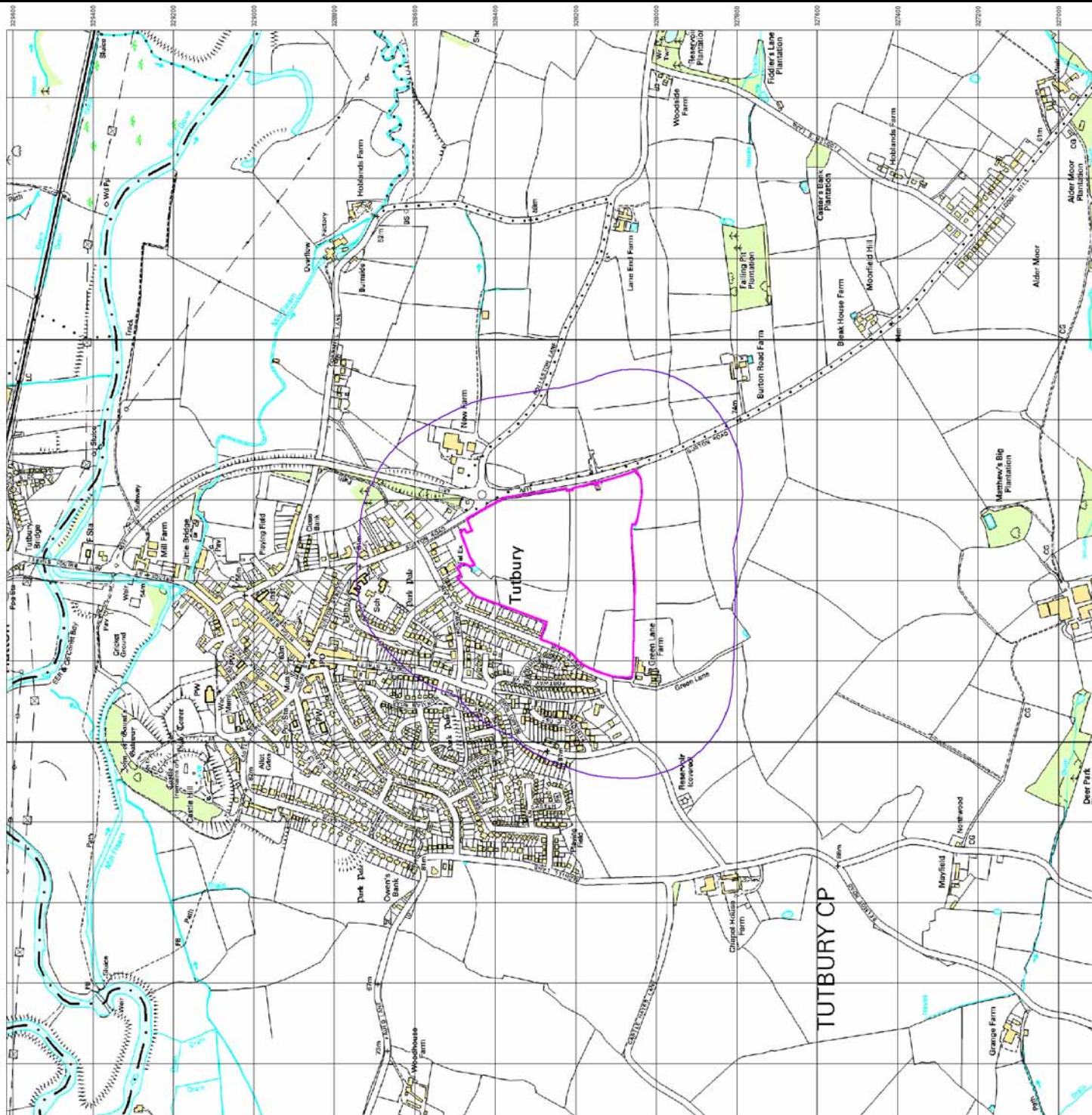
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 Customer Ref: 29197
 National Grid Reference: 421430, 328220
 Slice: A
 Site Area (Ha): 15.25
 Search Buffer (m): 250

Site Details

Tutbury, Staffordshire



Tel: 0844 844 9551
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GeoDyne

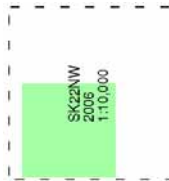
10k Raster Mapping

Published 2006

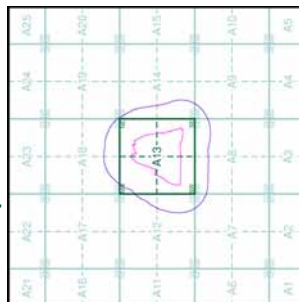
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

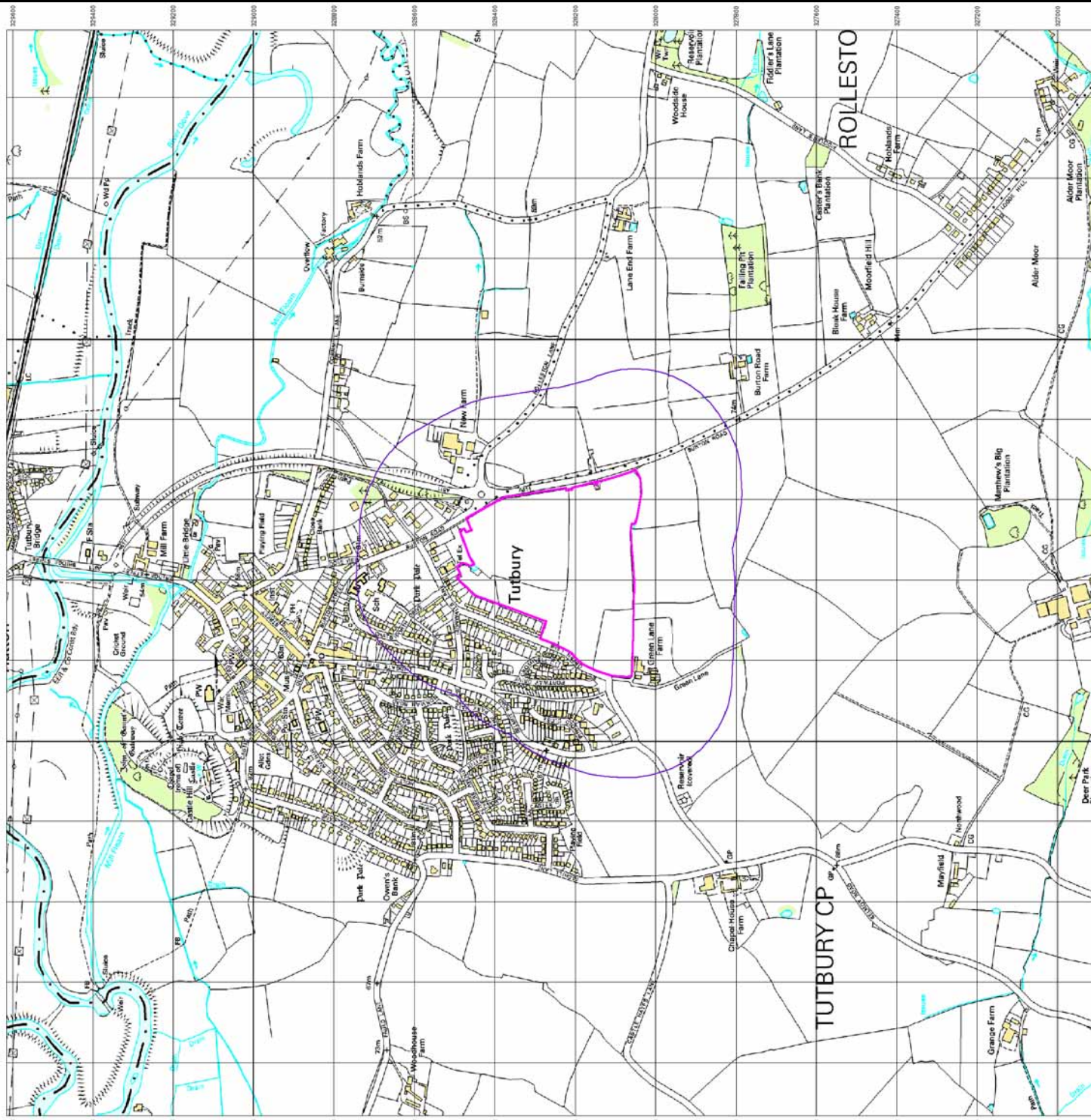
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 Customer Ref: 29197
 National Grid Reference: 421430, 328220
 Slice: A
 Site Area (Ha): 15.25
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Site Details

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Tel: 0844 844 9551
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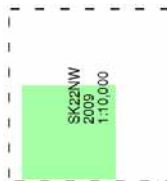
10k Raster Mapping

Published 2009

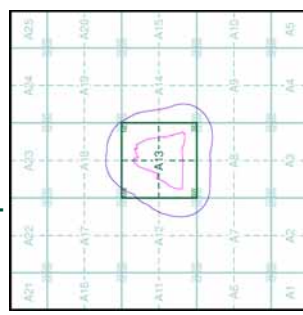
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

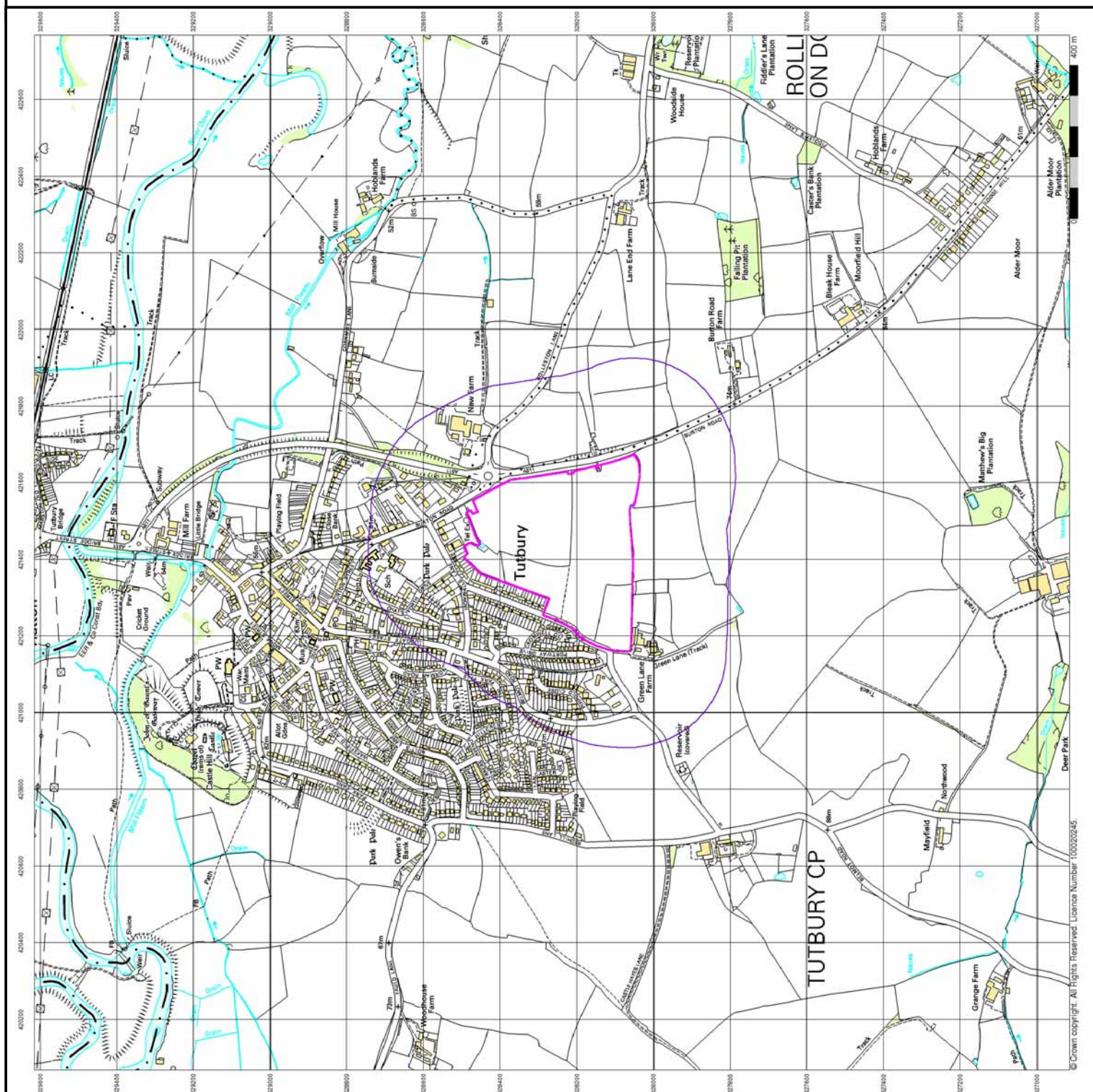
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Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

Site Details

Tutbury, Staffordshire



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Fax: 0844 844 9551
Web: www.envirocheck.co.uk



APPENDIX V

Landmark Envirocheck® Report

Envirocheck[®] Report: Datasheet

Order Details:

Order Number:

29275671_1_1

Customer Reference:

29197

National Grid Reference:

421430, 328220

Slice:

A

Site Area (Ha):

15.25

Search Buffer (m):

250

Site Details:

Tutbury

Staffordshire

Client Details:

Mr R Spencer

GeoDyne Ltd

The Granary

Church Lane

Thrumpton

NG11 0AX

Prepared For:

Peveril Homes Limited

Beech Lawn

Green Lane

Belper

DE56 1BY

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	2
Hazardous Substances	3
Geological	4
Industrial Land Use	5
Sensitive Land Use	6
Data Currency	7
Data Suppliers	11
Useful Contacts	12

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 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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Peter Brett Associates Copyright Notice

The cavity data presented has been extracted from the PBA enhanced version of the original DEFRA national cavity databases. PBA/DEFRA retain the copyright & intellectual property rights in the data. Whilst all reasonable efforts are made to check that the information contained in the cavity databases is accurate we do not warrant that the data is complete or error free. The information is based upon our own researches and those collated from a number of external sources and is continually being augmented and updated by PBA. In no event shall PBA/DEFRA or Landmark be liable for any loss or damage including, without limitation, indirect or consequential loss or damage arising from the use of this data.

Radon Potential dataset Copyright Notice

Information supplied from a joint dataset compiled by The British Geological Survey and the Health Protection Agency.

Report Version v42.0

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Agency & Hydrological			
Contaminated Land Register Entries and Notices			
Discharge Consents			
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			
Local Authority Pollution Prevention and Control Enforcements			
Nearest Surface Water Feature	pg 1	Yes	
Pollution Incidents to Controlled Waters			
Prosecutions Relating to Authorised Processes			
Prosecutions Relating to Controlled Waters			
Registered Radioactive Substances			
River Quality			
River Quality Biology Sampling Points			
River Quality Chemistry Sampling Points			
Substantiated Pollution Incident Register			
Water Abstractions			
Water Industry Act Referrals			
Groundwater Vulnerability	pg 1	Yes	n/a
Source Protection Zones			
Extreme Flooding from Rivers or Sea without Defences			
Flooding from Rivers or Sea without Defences			
Areas Benefiting from Flood Defences			
Flood Water Storage Areas			
Flood Defences			
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 Recorded Landfill Sites			
Registered Landfill Sites			
Registered Waste Transfer Sites			
Registered Waste Treatment or Disposal Sites			

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Hazardous Substances			
Control of Major Accident Hazards Sites (COMAH)	pg 3		1
Explosive Sites			
Notification of Installations Handling Hazardous Substances (NIHHS)			
Planning Hazardous Substance Consents			
Planning Hazardous Substance Enforcements			
Geological			
BGS Recorded Mineral Sites			
BGS 1:625,000 Solid Geology	pg 4	Yes	n/a
Brine Compensation Area			n/a
Coal Mining Affected Areas			n/a
Mining Instability			n/a
Natural and Mining Cavities			
Potential for Collapsible Ground Stability Hazards			
Potential for Compressible Ground Stability Hazards			
Potential for Ground Dissolution Stability Hazards			
Potential for Landslide Ground Stability Hazards	pg 4	Yes	Yes
Potential for Running Sand Ground Stability Hazards	pg 4	Yes	Yes
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 4	Yes	
Radon Potential - Radon Affected Areas			n/a
Radon Potential - Radon Protection Measures			n/a
Shallow Mining Hazards			
Industrial Land Use			
Contemporary Trade Directory Entries	pg 5		2
Fuel Station Entries			

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Sensitive Land Use			
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 6	1	
Ramsar Sites			
Sites of Special Scientific Interest			
Special Areas of Conservation			
Special Protection Areas			

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	Nearest Surface Water Feature	A13NE (N)	0	-	421435 328439
	Groundwater Vulnerability Geological Classification: Non Aquifer (Negligibly permeable) - Formations which are generally regarded as containing insignificant quantities of groundwater. However, groundwater flow through such rocks, although imperceptible, does take place and needs to be considered in assessing the risk associated with persistent pollutants Soil Classification: Not classified Map Sheet: Sheet 23 Leicestershire Scale: 1:100,000	A13SW (SW)	0	1	421112 327961
	Drift Deposits None				
	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				

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Staffordshire County Council - Has supplied landfill data		0	6	421699 329378
	Local Authority Landfill Coverage Name: East Staffordshire District Council - Has supplied landfill data		0	5	421699 329378

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
1	Control of Major Accident Hazards Sites (COMAH) Name: Major Storage Company Location: Tutbury, BURTON UPON TRENT, Staffordshire, DE14 Reference: Not Supplied Type: Upper Tier Status: Record Ceased To Be Supplied Under COMAH Regulations Positional Accuracy: Manually positioned within the geographical locality	A18SW (NW)	249	2	421181 328619

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Triassic mudstones (including Keuper Marl, Dolomitic Conglomerate and Rhaetic)	(SE)	0	3	426584 324651
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Potential for Collapsible Ground Stability Hazards No Hazard				
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A18SE (NE)	0	3	421750 328850
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	3	421225 328450
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	54	3	421225 328450
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	123	3	421750 328250
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A18SE (NE)	193	3	421625 328650
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	3	421425 328223
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	3	421425 328223
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	70	3	421150 327975
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	3	421425 328223
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (W)	0	3	421425 328223
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A7NE (SW)	192	3	421025 327925
	Radon Potential - Radon Affected Areas Affected Area: The property is not in a radon affected area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	3	420000 328223
	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	A11SW (W)	0	3	420000 328223
	Shallow Mining Hazards No Hazard				

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
2	Contemporary Trade Directory Entries Name: Md Fabrications Location: 29, Cromwell Close, Tutbury, Burton-on-Trent, Staffordshire, DE13 9HZ Classification: Trailers & Towing Equipment Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (W)	21	-	421208 328229
3	Contemporary Trade Directory Entries Name: G R P Consultants Location: 12, The Park Pale, Tutbury, BURTON-ON-TRENT, Staffordshire, DE13 9LB Classification: Glass Fibre Moulding, Materials & Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A12NE (NW)	247	-	421068 328447

Map ID	Details	Quadrant Reference (Compass)	Estimated Distance From Site	Contact	NGR
4	Nitrate Vulnerable Zones Name: Not Supplied Description: Surface Water - Designated 2006 Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A14SW (E)	0	4	421967 328223

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices South Derbyshire District Council - Environmental Health Department East Staffordshire Borough Council - Environmental Health Department	April 2009 May 2009	Annual Rolling Update Annual Rolling Update
Discharge Consents Environment Agency - Midlands Region	July 2009	Quarterly
Enforcement and Prohibition Notices Environment Agency - Midlands Region	October 2009	As notified
Integrated Pollution Controls Environment Agency - Midlands Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - Midlands Region	July 2009	Quarterly
Local Authority Integrated Pollution Prevention And Control East Staffordshire Borough Council - Environmental Health Department South Derbyshire District Council - Environmental Health Department	January 2009 June 2009	Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Controls East Staffordshire Borough Council - Environmental Health Department South Derbyshire District Council - Environmental Health Department	January 2009 June 2009	Annual Rolling Update Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements East Staffordshire Borough Council - Environmental Health Department South Derbyshire District Council - Environmental Health Department	January 2009 March 2007	Annual Rolling Update Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	May 2009	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - Midlands Region	December 1999	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Midlands Region	October 2009	As notified
Prosecutions Relating to Controlled Waters Environment Agency - Midlands Region	October 2009	As notified
Registered Radioactive Substances Environment Agency - Midlands Region	July 2009	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	January 2009	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	January 2009	Annually
Substantiated Pollution Incident Register Environment Agency - Midlands Region - Central Area Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	July 2009 July 2009 July 2009 July 2009	Quarterly Quarterly Quarterly Quarterly
Water Abstractions Environment Agency - Midlands Region	July 2009	Quarterly
Water Industry Act Referrals Environment Agency - Midlands Region	July 2009	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 1999	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Source Protection Zones Environment Agency - Head Office	May 2009	Variable

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	September 2009	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	September 2009	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	September 2009	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	September 2009	Quarterly
Flood Defences Environment Agency - Head Office	September 2009	Quarterly
Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency - Midlands Region - Central Area Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	April 2009 August 2009 August 2009	Quarterly Quarterly Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Midlands Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Midlands Region - Central Area Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	July 2009 July 2009 July 2009 July 2009	Quarterly Quarterly Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Midlands Region - Central Area Environment Agency - Midlands Region - East Area Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	July 2009 July 2009 July 2009 July 2009	Quarterly Quarterly Quarterly Quarterly
Local Authority Landfill Coverage Derbyshire County Council East Staffordshire Borough Council - Environmental Health Department South Derbyshire District Council Staffordshire County Council - Waste Management	May 2000 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites East Staffordshire Borough Council - Environmental Health Department Derbyshire County Council South Derbyshire District Council Staffordshire County Council - Waste Management	March 2004 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable
Registered Landfill Sites Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	March 2003 March 2003	Not Applicable Not Applicable
Registered Waste Transfer Sites Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	March 2003 March 2003	Not Applicable Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - Midlands Region - Lower Trent Area Environment Agency - Midlands Region - Upper Trent Area	March 2003 March 2003	Not Applicable Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	October 2009	Bi-Annually
Explosive Sites Health and Safety Executive	January 2009	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements Derbyshire County Council South Derbyshire District Council East Staffordshire Borough Council - Planning Department Staffordshire County Council	August 2009 December 2008 March 2009 March 2009	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Planning Hazardous Substance Consents Derbyshire County Council South Derbyshire District Council East Staffordshire Borough Council - Planning Department Staffordshire County Council	August 2009 December 2008 March 2009 March 2009	Annual Rolling Update Annual Rolling Update Annual Rolling Update Annual Rolling Update
Geological	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2009	Bi-Annually
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	November 2002	As notified
Coal Mining Affected Areas The Coal Authority - Mining Report Service	January 2006	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural and Mining Cavities Peter Brett Associates	April 2009	Variable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2009	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2009	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2009	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2009	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2009	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2009	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	May 2007	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	May 2007	As notified
Shallow Mining Hazards British Geological Survey - National Geoscience Information Service	August 2002	Not Applicable

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	September 2009	Quarterly
Fuel Station Entries Catalist Ltd - (Fuel Station Data)	August 2009	Quarterly
Sensitive Land Use	Version	Update Cycle
Areas of Adopted Green Belt East Staffordshire Borough Council South Derbyshire District Council	July 2006 May 1998	As notified As notified
Areas of Unadopted Green Belt East Staffordshire Borough Council South Derbyshire District Council	August 2004 January 2003	As notified As notified
Areas of Outstanding Natural Beauty Natural England	June 2009	Bi-Annually
Environmentally Sensitive Areas Natural England	June 2009	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	June 2009	Bi-Annually
Marine Nature Reserves Natural England	September 2009	Bi-Annually
National Nature Reserves Natural England	June 2009	Bi-Annually
National Parks Natural England	June 2009	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2003	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2009	Annually
Ramsar Sites Natural England	June 2009	Bi-Annually
Sites of Special Scientific Interest Natural England	June 2009	Bi-Annually
Special Areas of Conservation Natural England	June 2009	Bi-Annually
Special Protection Areas Natural England	June 2009	Bi-Annually

A selection of organisations who provide data within this report

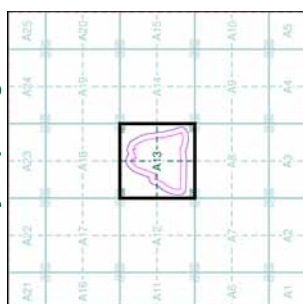
Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Countryside Council for Wales	 CYNGOR CEFN GWLAD CYMRU COUNTRYSIDE COUNCIL FOR WALES
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
1	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	Health and Safety Executive HSE Infoline, Caerphilly Business Park, Caerphilly, CF83 3GG	Telephone: 08701 545500 Fax: 02920 859260 Email: hseinformationservices@natbrit.com Website: www.hse.gov.uk
3	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
4	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
5	East Staffordshire Borough Council - Environmental Health Department Midland Grain Warehouse, Derby Street, Burton Upon Trent, Staffordshire, DE14 2JJ	Telephone: 01283 508848 Fax: 01283 508388 Website: www.eaststaffsbc.gov.uk
6	Staffordshire County Council - Waste Management Departmental Headquarters, Greenhall, Lichfield Road, Stafford, Staffordshire, ST17 4LA	Telephone: 01785 223121 Website: www.staffordshire.gov.uk
-	Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	Landmark Information Group Limited The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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

- General**
- Specified Site
 - Several of Type at Location
 - Overhead Transmission Line
 - Bearing Reference Point
 - Map ID
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice
 - Discharge Consent
 - Enforcement or Prohibition Notice
 - Integrated Pollution 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
- Waste**
- BOS Recorded Landfill Site (Location)
 - BOS Recorded Landfill Site
 - EA Historic Landfill (enhanced Part)
 - EA Historic Landfill (Rhyson)
 - Integrated Pollution Control Registered Landfill
 - Licensed Waste Management Facility (Landfill Boundary)
 - Licensed Waste Management Facility (Location)
 - Local Authority Recorded Landfill Site (Location)
 - Local Authority Recorded Landfill Site
 - Registered Landfill Site
 - Registered Landfill Site (Point Buffered to 100m)
 - Registered Landfill Site (Point Buffered to 200m)
 - 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
 - NHHS Site
 - Planning Hazardous Substance Consent
 - Planning Hazardous Substance Enforcement
- Geological**
- BOS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
 - Fuel Station Entry

Site Sensitivity Map - Segment A13

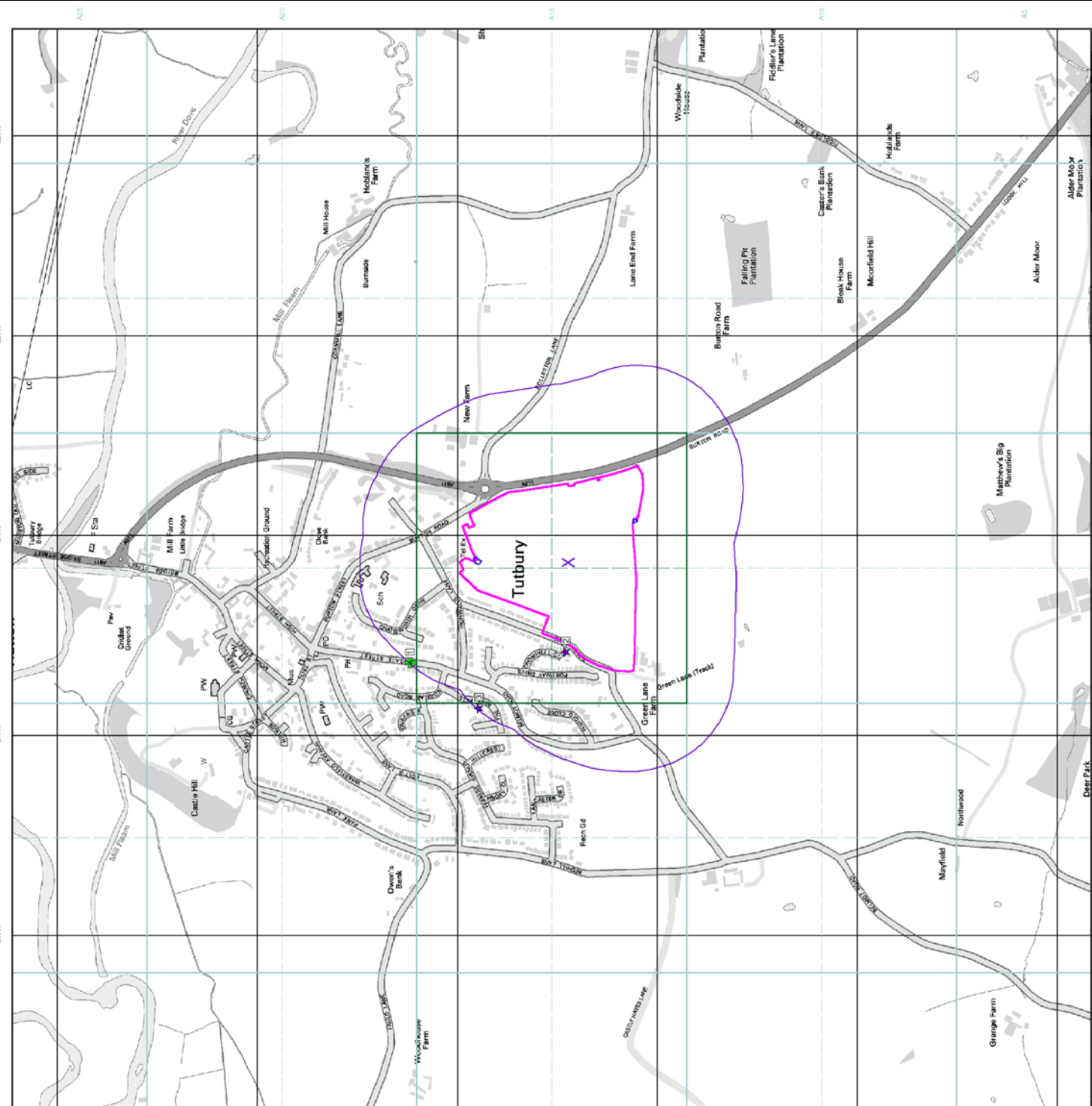


Order Details

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Site Area (Ha): 15.25
Plot Buffer (m): 50

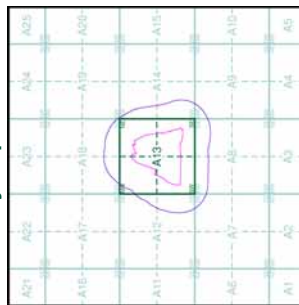
Site Details

Tutbury, Staffordshire



- [illegible]

Site Sensitivity Map - Slice A



Order Details

Order Details:

Order Number:	29275671_1_1
Customer Ref:	29197
National Grid Reference:	421430, 328220
A	
Site Area (Ha):	15.25
Search Buffer (m):	250






Site Details

Site Details

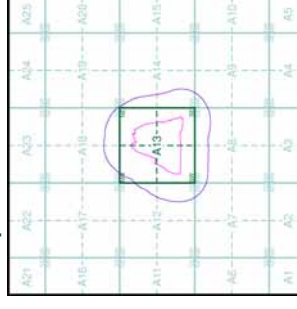
General

-  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

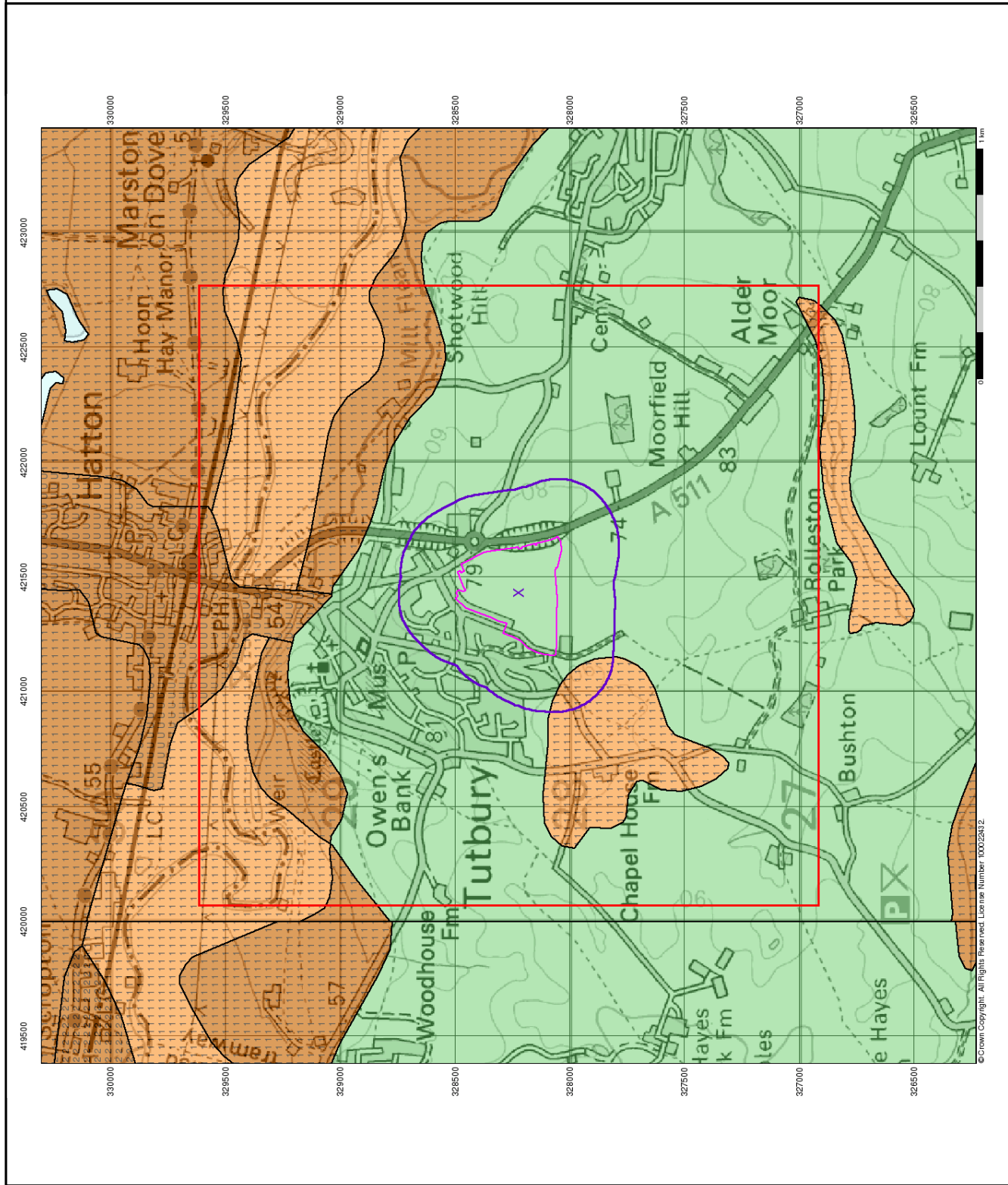
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Customer Ref:	29197
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Slice:	A
Site Area (Ha):	15.25
Search Buffer (m):	250

Site Details

Site Details

Tutbury, Staffordshire





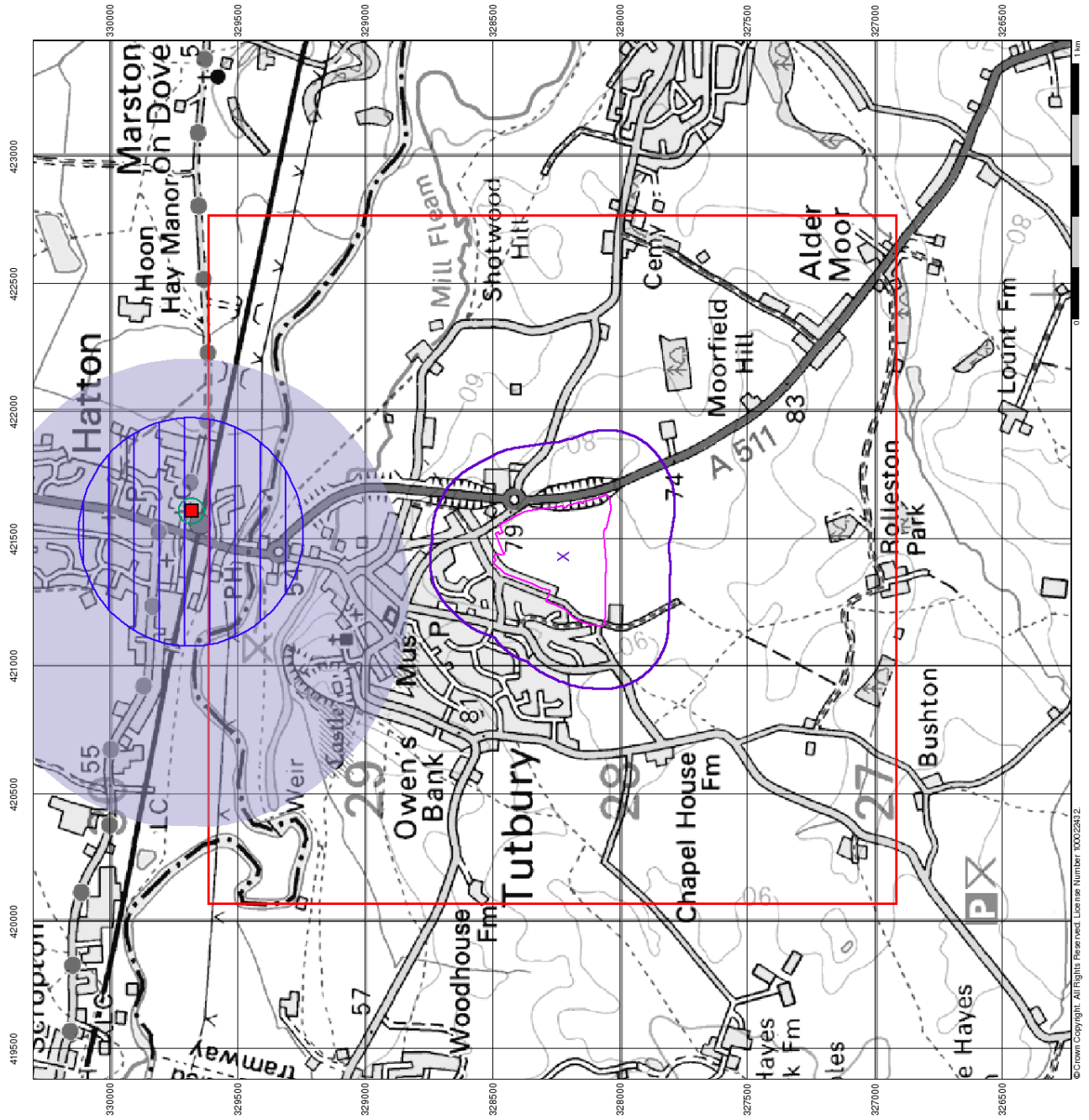
Source Protection Zones

General

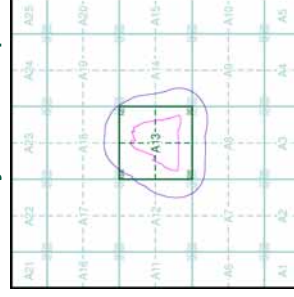
- Specified Site
- Specified Buffer(s)
- Map ID
- Bearing Reference Point

Agency and Hydrological

- Source Protection Zone I
- Source Protection Zone II
- Source Protection Zone III
- Zone of Special Interest
- Source Protection Zone Borehole



Site Sensitivity Context Map - Slice A



Order Details

Order Number: 29275671_1_1
Customer Ref: 29197
National Grid Reference: 421430, 328220
Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

Site Details

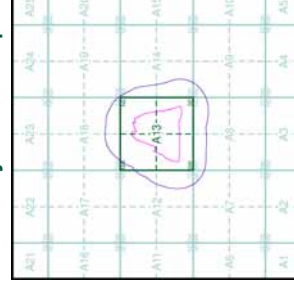
Tutbury, Staffordshire



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

- General**
- Specified Site
 - Specified Buffer(s)
 - Map ID
 - Bearing Reference Point
- Sensitive Land Uses**
- Area of Adopted Green Belt
 - Area of Unadopted Green Belt
 - Area of Outstanding Natural Beauty
 - Environmentally Sensitive Area
 - Forest Park
 - Local Nature Reserve
 - Marine Nature Reserve
 - National Nature Reserve
 - National Park
 - Nitrate Sensitive Area
 - Nitrate Vulnerable Zone
 - Ramsar Site
 - Site of Special Scientific Interest
 - Special Area of Conservation
 - Special Protection Area

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 29275671_1_1
 Customer Ref: 29197
 National Grid Reference: 421430, 328220
 Slice: A
 Site Area (Ha): 15.25
 Search Buffer (m): 250

Site Details

Tubury, Staffordshire

Envirocheck[®] Report:

BGS Boreholes Datasheet

Order Details:

Order Number:

29275671_1_1

Customer Reference:

29197

National Grid Reference:

421430, 328220

Slice:

A

Site Area (Ha):

15.25

Borehole Search Buffer (m):

250

Site Details:

Tutbury

Staffordshire

Client Details:

Mr R Spencer

GeoDyne Ltd

The Granary

Church Lane

Thrumpton

NG11 0AX

Prepared For:

Peveril Homes Limited

Beech Lawn

Green Lane

Belper

DE56 1BY

Data Type	Page Number	On Site	0 to 250m
BGS Boreholes	pg 1	None	2

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

Report Version v42.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	BGS Boreholes BGS Reference: Sk22nw36 Drilled Length (m): 16 Borehole Name: Tutbury-By-Pass Bh102	A13NE (NE)	85	3	421630 328510
5	BGS Boreholes BGS Reference: Sk22nw35 Drilled Length (m): 16 Borehole Name: Tutbury-By-Pass Bh101	A13NE (NE)	111	3	421660 328510

BGS Boreholes	Version	Update Cycle
BGS Boreholes British Geological Survey - National Geoscience Information Service	October 2009	Quarterly

Contact Details	Contact Logo
3 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	 British Geological Survey <small>NATURAL ENVIRONMENT RESEARCH COUNCIL</small>
- Landmark Information Group Limited The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk	

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

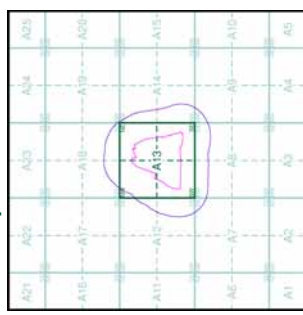
Agency and Hydrological (Boreholes)

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

For Borehole information please refer to the Borehole datasheet 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

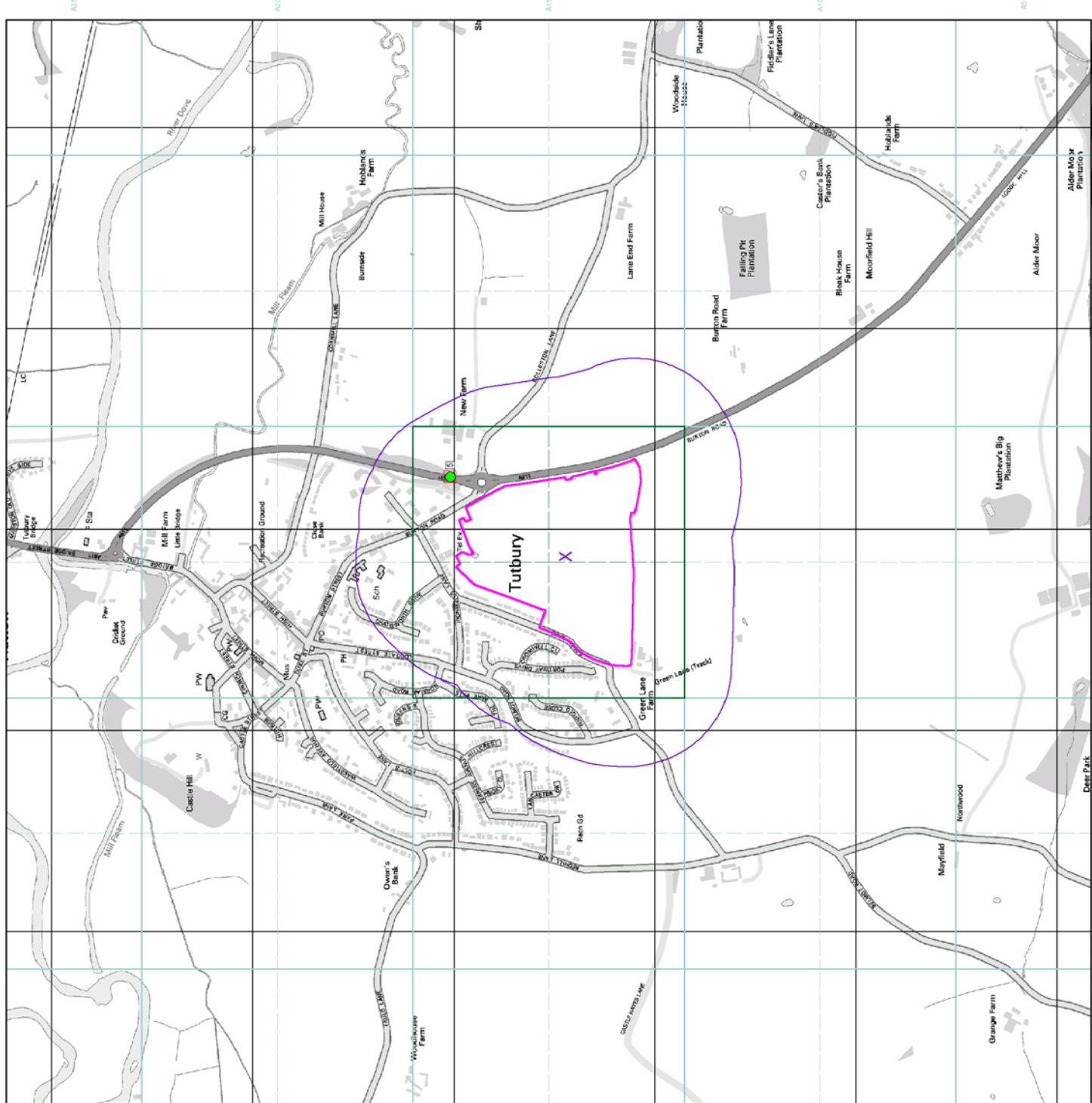


Order Details

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Slice: A
Site Area (Ha): 15.25
Search Buffer (m): 250

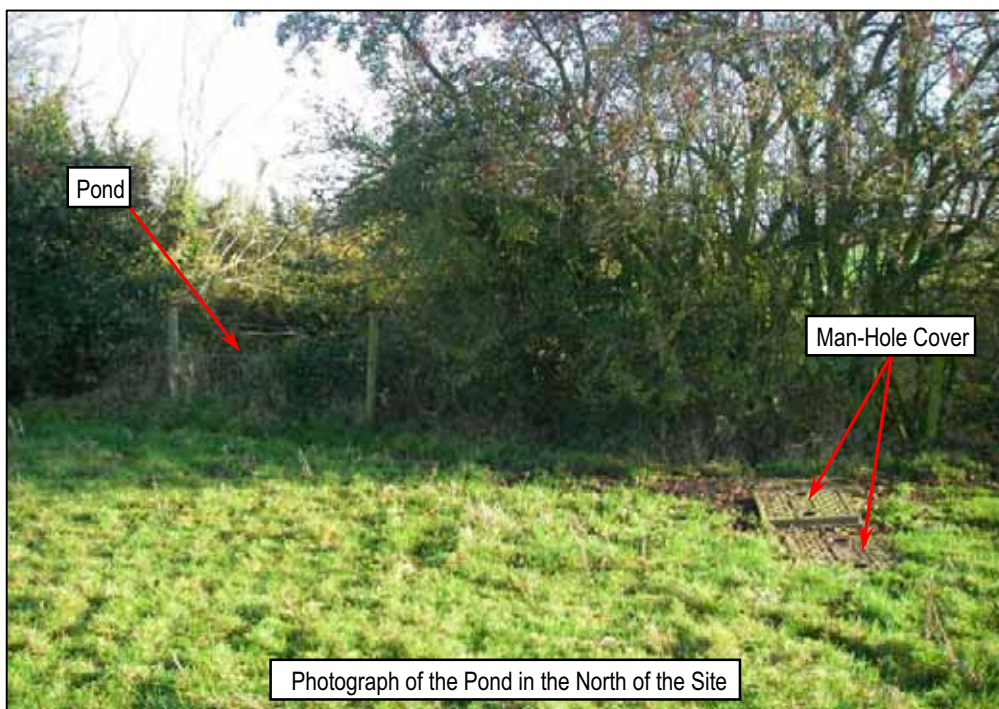
Site Details


Tutbury, Staffordshire



APPENDIX VI

Plates




Project No.	29197	Drawn	CH	
Client	Peveril Homes Ltd	Checked	<i>RS</i>	
		Approved	<i>RS</i>	
Project	Tutbury East Staffordshire	Scale	NTS	
		Date Drawn	13/11/2009	
Title	Photographs of the Pond in the North of the Site	Rev.		
		Plate 1		



Photograph of the Mature Tree in the Centre of the Site




Photograph, Facing North Along the Eastern Boundary, of the of the North-Eastern Crop Field

Project No.	29197	Drawn	CH	
Client	Peveril Homes Ltd	Checked	<i>RS</i>	
		Approved	<i>RS</i>	
Project	Tutbury East Staffordshire	Scale	NTS	
		Date Drawn	13/11/2009	
Title	Photographs of the North-Eastern Crop Field and the Mature Tree in the Centre of the Site	Rev.		
		Plate 2		

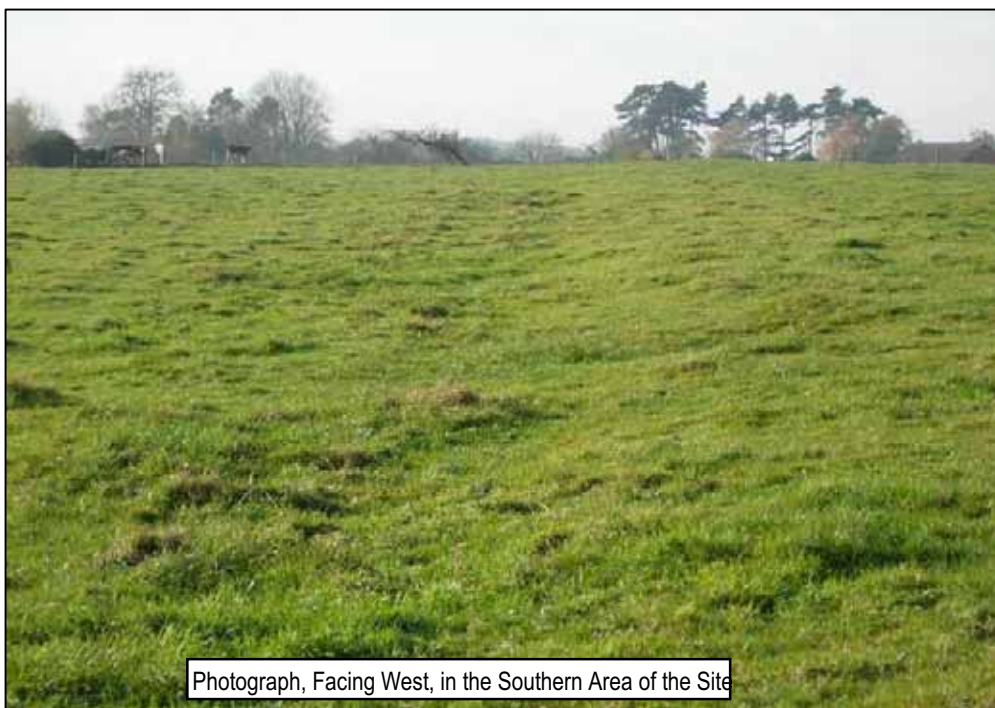
Photograph, Facing North-East, of the Electricity Sub-Station Compound




Project No.	29197	Drawn	CH	
Client	Peveril Homes Ltd	Checked	RS	
		Approved	RS	
Project	Tutbury East Staffordshire	Scale	NTS	
		Date Drawn	13/11/2009	
Title	Photographs of the Electricity Sub-Station Compound	Rev.		
		Plate 3		



Photograph, Facing South-East, of the Dried-Up Pond Immediately Beyond the South-East of Site



Photograph, Facing West, in the Southern Area of the Site

Project No.	29197	Drawn	CH	
Client	Peveril Homes Ltd	Checked	RS	
		Approved	RS	
Project	Tutbury East Staffordshire	Scale	NTS	
		Date Drawn	13/11/2009	
		Rev.		
Title	Photographs of the Dried-Up Pond Immediately Beyond the South-East of Site and the Facing West in the South of the Site	Plate 4		

APPENDIX VII

Conditions & Limitations

Conditions & Limitations

Phase I Desk Studies

1. Works undertaken to provide the basis of the Phase I Desk Study report comprise a review of information available from a number of sources/parties (potentially also including the Client) together with a walk over of the site (where applicable and included within the quotation). The opinions given in the Phase I Desk Study are based on the information available from third parties/sources that has been obtained within the available timeframe. GeoDyne Limited assumes all third party information to be true and correct and therefore cannot accept liability for the accuracy of such information supplied.
2. Should additional information become available that may affect the comments and opinions made within the Phase I Desk Study, GeoDyne Limited reserves the right to review such information and make modifications to comments/opinions as appropriate.
3. It should be borne in mind that a Phase I Desk Study collates available information to generate a conceptual model of the site. The actual geotechnical and environmental considerations can only be fully quantified by intrusive investigation works to confirm the accuracy of the conceptual site model.

Phase II Intrusive Investigations

1. Our quotation assumes that access to the site will be arranged by others at no cost to ourselves.
2. We have assumed that free access is available throughout to the entire site and that works can be undertaken during a single mobilisation. Where restricted access is encountered, or where additional unscheduled mobilisations are required, additional costs may be incurred to the client.
3. We have assumed that all available information relating to buried services will be supplied by the Client at no cost to ourselves. No responsibility will be accepted for damage to underground services that have not been brought to our prior attention by the Client.
4. All excavations/boreholes will be backfilled with compacted arisings upon completion, with any excess arisings left proud of ground levels. Excess arisings will not be removed from the site unless specifically requested by the Client. Where we are requested to remove excess arisings, all associated costs will be passed to the Client.
5. We will attempt to leave the site in a clean and tidy state, however, it must be understood that some disturbance of the site is unavoidable during intrusive works.
6. Exploratory holes are positioned approximately on site by GeoDyne Limited. Should the client require precise locations of all exploratory points, additional fees will be incurred. It must be borne in mind that backfilled trial pits can create 'soft spots', therefore, should the Client wish to designate 'no dig' zones, for example under the footprint of proposed structures, these must be brought to our attention prior to commencement of works.
7. Groundwater observations relate to conditions encountered at the time of investigation. It must be understood that groundwater levels may vary as a result of recent climatic conditions or seasonal variation.
8. Trial pits and boreholes examine only a small proportion of the total site area. No liability can be accepted for conditions not revealed in exploratory holes, particularly between positions. All extrapolations of available data are given in good faith.

Payment

1. Payment terms are strictly 28 days from the invoice date.
2. Prior to commencement of works, we require receipt of formal written instruction from the party accepting full financial responsibility for the work. In the absence of such an instruction, we would expect the instructing Consulting Engineers/Architects to accept full financial responsibility for the works.
3. Receipt of instruction to commence work shall be taken as acceptance and compliance of the foregoing conditions.

Liability

1. GeoDyne Limited offer £5,000,000.00 Professional Indemnity Insurance (in aggregate over the year). This shall be the limit of our liability for works undertaken. No individual liability shall be implied to, or accepted by, any employee for works undertaken for and on the behalf of GeoDyne Limited.