Phase 1 Desk Study

and

Phase 2a Preliminary Ground Investigation

Land off Woodbury Road, Sibford Ferris, Oxfordshire

Report: GCE01141/R1v2

December 2021

Report prepared for:	Blue Cedar Homes Limited 220 Park Avenue Aztec West Almondsbury Bristol BS32 4SY
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EXECUTIVE SUMMARY

Features	Summary
Site Location	Western edge of the village of Sibford Ferris, approximately 10.5km to the south-west of the town of Banbury.
Proposed Development	Residential development comprising six detached dwellings and associated private garden areas, public open spaces as well as road and services infrastructure.
Site Area	Roughly rectangular, circa 0.75ha, measuring circa 75m by 120m along its longest extents.
Topography	Gentle fall in elevation down towards the north-west.
Site Surfaces	Surface used for arable crop farming during investigation. Soil appears sandy at surface.
Existing Buildings/ Structures	None.
Utility Information	High voltage overhead cables crossing centre of site in roughly north-south orientation.
Trees/ Vegetation	Wheat crop present across majority of site with mixed grasses around field margins. Mixed bushes and occasional trees within field boundaries.
Boundary Conditions	Southern and western boundaries comprise mixed hedgerows with occasional trees. Northern and eastern boundaries comprise a mix of residential fence types with frequent and rare trees and bushes along the northern and eastern boundary, respectively.
Superficial Geology	None recorded.
Bedrock Geology	Jurassic Northampton Sand Formation, comprising sandstone, limestone and ironstone.
Hydrology	Bedrock geology comprises secondary aquifer. Limited risk of groundwater flooding.
On-Site History	Agricultural land use since first edition (1880s) mapping.
Mining	None recorded.
Unexploded Ordnance	None anticipated.
Ground Investigation	Nine trial pits with three large scale infiltration tests, TRL DCP probing and chemical and geotechnical laboratory testing.
Made Ground	None encountered.
Natural transported engineering soils	None encountered.
Natural In-situ engineering soils.	Mix of clay, silt and sand deposits underlain by a grading sequence of gravel and/ or cobbles and/ or boulders of limestone.
In-situ rock	Limestone bedrock of the Northampton Sand Formation was encountered in four locations.
Groundwater	None encountered.
Chemical results above screening levels	Five and three of the six soil samples tested recorded levels of arsenic which exceed the NBC and S4UL guidance values, respectively. However, the arsenic present at the site is considered to be naturally occurring and bioaccessibility testing and subsequent analysis using the CLEA Model (v1.07) has shown that the levels present are unlikely to be harmful to human health given the proposed development. No other exceedances of screening levels were recorded.
Pollutant Linkages	No pollutant linkages identified.

Features	Summary
Remediation Measures Required	None.
Geotechnical Index Testing	Near surface fine grained soils are of low volume change potential with high volume change potential soils at depth in the south-west of site.
Geotechnical Hazards	Potential for epikarstic/ karstic features within limestone bedrock. Volume change potential soils. Overbreak and/ or collapse of granular materials during excavation. Hard limestone bedrock near surface.
Foundation Options	Strip foundations where building outside influence of trees and/ or founding on granular soils. Trench fill foundations where building within influence of trees and founding on fine grained soils.
Floor Slabs	Suspended floor slabs.
Buried Concrete	Buried concrete can be designed in accordance with design sulphate class DS-1 ACEC class AC-1 of BRE Special Digest 1(2005), assuming mobile groundwater is present.
Road Design CBR	Preliminary 2.5% design CBR.
Infiltration Testing	Rapid rates of infiltration were encountered within two locations, anticipated to be as a result of water discharge into weathered limestone bedrock. Careful consideration should be given to the use and design of soakaway drainage within the weathered limestone at this site to ensure significant settlement does not occur. The local drainage authority should be contacted for advice/ guidance on the use of soakaway drainage at this site.

1.0 INTRODUCTION

1.1 Instruction

Geo Consulting Engineering Ltd (GCEL) was commissioned by Blue Cedar Homes Limited to undertake a Phase 1 Desk Study and Phase 2a Preliminary Ground Investigation at a site off Woodbury Road Sibford Ferris, Oxfordshire.

The works have been carried out in accordance with proposal ref: EGCE01759/P1; dated: 21st May 2021.

1.2 Background

The site, comprising a single arable field, is being considered for residential development with six detached dwellings and associated private garden areas, public open spaces as well as road and services infrastructure.

This version of the report (version 2) has been updated from GCEL's version 1 report (ref: GCE01141/R1, dated: December 2021) following receipt of arsenic bioaccessibility test results which were not available at the time of version 1's issue. This report provides additional analysis and discussion on the potential risk to human health posed by the levels of arsenic recorded at the site. The following sections have been updated since version 1:

- Executive Summary
- 7.1.1 Chemical Analysis – Soils
- 7.4 Pollutant Linkages
- 9.0 Conclusions
- Appendix H – Chemical Laboratory Test Results (Soils)

1.3 Objectives

A preliminary ground investigation is required to provide initial information on the ground and groundwater conditions at the site for a residential development.

1.4 Methodology

A phased investigation approach has been adopted, the first stage of which is the Phase 1 Desk Study and walkover survey for development of site characterisation, conceptual model, and sampling and analysis plan. Subsequently, a Phase 2a Preliminary Ground Investigation has been undertaken comprising: trial pitting with infiltration testing, and geotechnical and chemical laboratory testing.

Eurocode 7 EN 1997-1:2004 identifies the requirements of a ground investigation report, which shall form part of the Geotechnical Design Report. This document is not a Geotechnical Design Report.

1.5 Limitations

Exploratory hole locations were limited due to the presence of an overhead high voltage electricity cable which crosses the centre of the site in a roughly north-south orientation. All locations were sited away from this service.

The depth of a number of excavations was limited due to encountering limestone strata through which excavation was not possible.

Subsoils are inherently variable and by their very nature are hidden from view such that no investigation can be exhaustive to the extent that all soil conditions are revealed. Conditions may therefore be present beneath the site that were not apparent from the data available for review. Similarly, this assessment has been based in part on third

party data with particular respect to the Phase 1 information. This data has been taken at face value and has not been subjected to any external validation.

Groundwater levels are subject to seasonal variation and therefore may change from the levels recorded during this investigation.

Where areas of a site are overgrown/ inaccessible/ obscured by buildings or hardstanding, it may not be possible for a walkover inspection to identify features that may subsequently come to light when site clearance is carried out.

Assessment of asbestos in the ground is outside the scope of our report and expertise. The potential for asbestos or other hazardous or deleterious substances in structures and substructures should be assessed by a competent person.

Unless specifically noted to the contrary, it should be assumed that this report has not been submitted to any regulatory authorities for approval.

Recommendations made in this report in respect of land contamination are based on guidance values that are current at the time of writing. Should any extended period of time elapse between the date of this report and the commencement of construction it would be prudent to confirm that the screening values used are current.

2.0 SITE DATA

2.1 Site Location

The site is located on the western edge of the village of Sibford Ferris, approximately 10.5km to the south-west of the town of Banbury. Nearest post code is OX15 5RF and the National Grid Reference for the approximate centre of the site is 435390, 237180.

A site location plan is presented in Figure 1.

2.2 Site Description

A description of the site summarised in the table below. Observations are based on the site walkover carried out on the 21st July 2021.

Site Photographs are enclosed within Appendix A.

Features	Observations/ Descriptions
Area, Shape and Size	Roughly rectangular in shape, circa 0.75ha, measuring circa 75m by 120m along its longest extents.
Site Access	Open gateway off of Woodway Road to the west.
Topography	Gentle fall in elevation down towards the north-west.
Surface Water Features/ Springs/ Wet Ground	None observed/ recorded on site.
Site Surfaces/ Features	Surface used for arable crop farming during investigation. Soil appears sandy at surface.
Vegetation	Wheat crop present across majority of site with mixed grasses around field margins. Mixed bushes and occasional trees within field boundaries.
Site Boundaries	Southern and western boundaries comprise mixed hedgerows with occasional trees. Northern and eastern boundaries comprise a mix of residential fence types with frequent and rare trees and bushes along the northern and eastern boundary, respectively.
Buildings/ Structure/ Services	No buildings or structures observed. High voltage overhead electrical service crosses centre of site in roughly north-south orientation.
Unusual Features	Area of poor crop growth present in south-west of field.
Geotechnical Hazards	Construction within influence of existing vegetation.
Potential Sources of Contamination	None identified on, or adjacent to, site.

Neighbouring land uses are summarised in the table below:

Direction	Features
North	Detached residential properties with associated private gardens.
East	Detached residential properties with associated private gardens.
South	Former agricultural field currently undergoing topsoil strip for residential development.
West	Woodway Road before further arable farmland.

2.3 Geology

The following table summarises the strata likely to be encountered at the site location.

Strata	Type	Source of data
Bedrock Geology	Northampton Sand Formation (Sandstone, Limestone and Ironstone).	British Geological Survey (BGS).
Superficial/Drift Deposits (Soils Transported by Water/ Gravity)	None recorded.	British Geological Survey (BGS).
	Fine grained Head deposits are expected to mantle the solid geology across the site.	Previous experience.
Anthropogenic Soils (Made Ground/ Fill)	Significant deposits not anticipated.	British Geological Survey (BGS). Previous experience/ observations.

2.4 Hydrogeology

The following table summarises the available data regarding the hydrogeological classification of the soils, rock and Source Protection Zones.

Data	Description	Source of data
Groundwater Vulnerability	High vulnerability.	Envirocheck Report
Bedrock geology	Secondary aquifer.	Envirocheck Report
Superficial deposits	None recorded.	Envirocheck Report
Source Protection Zones	None recorded within 1,000m.	Envirocheck Report

2.5 Hydrology

The nearest surface water feature is recorded as being 174m to the north of the site and comprises an unnamed inland river which is a tributary of the River Stour. The River Stour is present circa 1km to the south of the site, within the wider Severn catchment.

Environment Agency flood risk information included in the Envirocheck report datasheet and mapping should be viewed for specific details. General conditions indicate

- 'Limited' risk of on-site groundwater flooding.
- No recorded flood events from rivers or sea.
- No recorded flood defences or water storage areas.

2.6 Site History

The following table sets out the site history as derived from the available historical Ordnance Survey mapping as well as publicly available aerial imagery. Copies of the historical maps are included in Appendix C.

Mapping/ Imagery Date (*scale*)	On-site	Off-site
1880s *1:2,500 & 1:10,560*	Part of a larger field with a footpath crossing the north-west of the site.	Surrounding land predominantly comprises farmland. Woodway Road (not currently labelled) is present to west of site. Sibford Ferris village present circa 100m to north-east, comprising residential properties and school.
1900s *1:2,500 & 1:10,560*	No significant changes from 1880s mapping.	No significant changes from 1880s mapping.
1920s *1:2,500 & 1:10,560*	Typically as 1900s mapping; however, the footpath is no longer shown.	No significant changes from 1900s mapping.
1940s *Aerial Imagery*	Typically as 1920s mapping, site shown to comprise part of larger arable field.	No significant changes from 1920s mapping.
1950s *1:10,000*	No significant changes from 1940s imagery.	Typically as 1940s imagery; however, larger field has been divided with eastern site boundary now shown in present day location.
1970s *1:2,500 & 1:10,000*	No significant changes from 1950s mapping.	Typically as 1950s mapping; however, northern site boundary now shown in present day location with residential properties now present adjacent to site's eastern and northern boundaries. Sewage works now present circa 250m to north-east of site.
1980s *1:2,500*	No significant changes from 1970s mapping.	No significant changes from 1970s mapping.

Mapping/ Imagery Date (*scale*)	On-site	Off-site
1990s *1:2,500, 1:10,000 & Aerial imagery*	Typically as 1880s mapping. Aerial imagery shows arable field with southern boundary now in present day location. Overhead power lines also now present.	No significant changes from 1980s mapping.
2000s *1:10,000 & Aerial Imagery*	Typically as 1990s mapping and imagery. Site is shown to comprise arable farmland throughout decade.	No significant changes from 1990s mapping and imagery.
2010s *Aerial Imagery*	No significant changes from 2000s mapping and imagery.	No significant changes from 2000s mapping and imagery.
2020s *1:10,000 & Aerial Imagery*	No significant changes from 2010s mapping and imagery.	No significant changes from 2010s mapping and imagery.

In summary, the site has comprised farmland since first edition (1880s) mapping until the present day. Surrounding land uses have predominantly comprised farmland, with the gradual expansion of Sibford Ferris village to the east of the site.

2.7 Environmental Database

An Envirocheck® report was generated on the 13th July 2021. The following table summarises the findings where more detail can be found within the Envirocheck report on the identified page numbers, see Appendix D:

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		5		1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2		Yes		
Pollution Incidents to Controlled Waters	pg 3				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 3				2 (*7)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 5	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 5	1	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 5	Yes	n/a	n/a	n/a

Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 6		3	4	36

Observations:

- Limited flooding potential.
- Five discharge consents within 250m; all associated with Severn Trent water treatment site circa 202m to north-west of site.
- No pollution incidents within 250m.
- No water abstractions within 250m.
- Significant risk of soluble rock on site.

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 11	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 11				1
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Observations:

- No recorded historical or active landfill sites or infilled land within 250m.
- No records of hazardous substances within 250m.

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 12	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 12	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites					
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 15	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 16	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 16		Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 16		Yes	n/a	n/a
Radon Potential - Radon Affected Areas	pg 16	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures	pg 16	Yes	n/a	n/a	n/a

Observations:

- No hazard of ground dissolution recorded. This contradicts information on page 5 of the desk study information which states there is a ‘significant’ risk of soluble rocks being present on site.
- All other stability risks considered ‘no hazard’ or ‘very low’.
- See section 2.8 of this report for discussion on radon requirements.

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 17		1		1
Fuel Station Entries					
Points of Interest - Commercial Services					
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 17		1	1	2
Points of Interest - Public Infrastructure	pg 17		2		
Points of Interest - Recreational and Environmental	pg 17		1		
Gas Pipelines					
Underground Electrical Cables					

Observations:

- One recorded contemporary trade entry within 250m of the site: King Horse Transport, located 182m to the east.
- One recorded 'works' within 250m of the site: 207m to the north-west. This is considered likely to comprise the sewage works previously identified on historical mapping. This record is duplicated within the public infrastructure section.

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 18	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Observations:

- Nitrate vulnerable zone on site.

The following table summarises the observations from the available Envirocheck data regarding potential sources of contamination:

Data	Description
Contaminated land entries	None recorded within 250m of the site.
Pollution Incidents	None recorded within 250m of the site.
Landfills	None recorded within 250m of the site.
Infilled land	None recorded within 250m of the site.
Fuel Stations	None recorded within 250m of the site.
Contemporary Trades	King Horse Transport – equine transportation services.
BGS Mineral Sites *(Potentially infilled land)*	None recorded within 250m of the site.

The following table summarises the observations from the available Envirocheck data regarding potential migration pathways:

Data	Description
Superficial Geology	None recorded.
Bedrock Geology	Northampton Sand Formation.
Aquifer Status	Secondary aquifer (bedrock geology).
Mining	None recorded or anticipated.
Water Courses	Closest recorded is 174m to north of site (inland river).
Dissolution Features	None recorded. Potential to be present given limestone bedrock geology.

The following table summarises the observations from the available Envirocheck data regarding potential receptors:

Data	Description
Source Protections Zones	None recorded within 250m.
Surface Water Features	Closest recorded is 174m to north of site (inland river).
Abstractions	None recorded within 250m.
Environmentally Sensitive Areas	None recorded within 250m.

The following table summarises the observations from the available Envirocheck data regarding potential geotechnical hazards:

Data	Description
Mineral sites	None recorded within 250m.
Ground Stability	Compressible ground – 'no hazard'. Landslide – 'very low' hazard.
Running Sand etc	'No hazard'
Volume change clays	'No hazard'
Landfills	None recorded within 250m.
Dissolution Features	None recorded. Potential to be present given limestone bedrock geology.
Mining	None recorded within 250m.

2.8 Radon

Building Regulations Approved Document C – "site preparation and resistance to contaminants and moisture", 2004 edition incorporating 2010 and 2013 amendments provides guidance on Radon.

Section 2.40 Guidance on whether an area is susceptible to radon, and appropriate protective measures can be obtained from BRE Report BR 211. The maps in BR 211 are based on the indicative atlas published by Public Health England (formerly Health Protection Agency) and the British Geological Survey.

BR 211 provides guidance on basic radon protective measures appropriate in areas where 3% to 10% of homes, and full radon protective measures in areas where more than 10% of homes are predicted to have radon at or above the Radon Action Level of 200Bq/m^3.

The British Geological Survey Open Report IR/11/044 User Guide for the HPA-BGS Joint Radon Potential Dataset for Great Britain provides Model Questions and Answers.

4.1 Radon Affected Area
Question:
Is the property in a radon affected area as defined by the Health Protection Agency (Now Public Health England PHE) and if so what percentage of homes are estimated to be above the Action Level?

Answer:

Radon Potential Class*	Is the property in a Radon Affected Area?	Additional Information
1	No	The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). The property is not in a radon affected area.
2	Yes	The property is in an Intermediate probability radon area (1 to 3% of homes are estimated to be at or above the Action Level). The property is in a radon affected area.
3	Yes	The property is in an Intermediate probability radon area (3 to 5% of homes are estimated to be at or above the Action Level). The property is in a radon affected area.
4	Yes	The property is in an Intermediate probability radon area (5 to 10% of homes are estimated to be at or above the Action Level). The property is in a radon affected area.
5	Yes	The property is in a Higher probability radon area (10 to 30% of homes are estimated to be at or above the Action Level). The property is in a radon affected area.
6	Yes	The property is in a Higher probability radon area (10 to 30% of homes are estimated to be at or above the Action Level). The property is in a radon affected area.

*The Radon Potential Class number should not be included in answers.

Radon affected areas are defined by Public Health England (PHE). PHE recommends a radon 'Action Level of 200 becquerels per cubic metre of air for the annual average of the radon gas concentration in a home. Where 1% or more of homes are estimated to exceed the Action Level (i.e. in an intermediate or Higher probability radon area) the area should be regarded as a Radon Affected Area. PHE advises that radon gas should be measured in all properties within radon Affected Areas and that homes with radon levels above the Action Level should be remediated.

The BGS geo-report typically advises the following: *If you are buying a new build property in a radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.*

4.2 Radon Protective Measures

Question:

England and Wales: Is the property in an area where radon protective measures are required for new buildings or extension to existing ones as described in publication BR211 (2015 edition)?

Answers:

*Radon Potential Class**	*What level of radon protective measures are required for new buildings in England and Wales?*
1	*None***
2	*None***
3	*Basic*
4	*Basic*
5	*Full*
6	*Full*

**The Radon Potential Class number should not be included in answers.*
***in 2008 HPA recommended that building regulations be amended to ensure that all new buildings, extension etc. include basic radon protective measures. At the time of writing, relevant UK authorities were considering this advice.*

Guidance:

When extensions are made to existing buildings in high radon areas or new buildings are constructed in these areas the Building Regulation for England, Wales and Scotland require that protective measures are taken against radon entering the building.

The reports will provide information on whether radon protective measures are required. Depending on the probability of buildings having high radon levels, the Regulations may require either:

1. *No protective measures*
2. *Basic protective measures*
3. *Full protective measures*

The Envirocheck Report includes source information from the British Geological Survey, National Geoscience Information Service for Radon Potential as copied in the following two tables:

“Requirement for radon protective measures” and “is the property in a radon affected area?”

Envirocheck Report Reference Order Number 281861625_1_1 13th July 2021.

Are Radon protection measures considered necessary in the construction of new dwellings and extensions?	The estimated probability of the property being above the Action Level for radon is:	Percentage (%)	Distance from site (m)
Yes	Intermediate	5-10	0

The BGS determination follows advice in BR211 Radon: Guidance on protective measures for new buildings (2015 edition), which also provides guidance on what to do if the result indicates that protective measures are required. BR 211 Section 5 Protective measures: technical approach.

5.1 Basic radon protection

National Building Regulations require protection against moisture from the ground. In some ground floor constructions this protection comprises a barrier laid within the floor or solum construction, which is linked to a damp-proof course (DPC) within the walls of the building. To provide protection from radon, the DPC to a cavity wall should be in the form of a cavity tray to prevent radon entering the building though the cavity. Sealing of joints in the barrier and sealing around service penetrations are also required. It is important that attention is paid to detailing and workmanship in joint of the barrier.

If good standards of design and workmanship are applied to the provision of a 1200 gauge damp-proof barrier to the floor sealed to a DPC/ cavity tray through the walls, adequate protection from radon will be provided along with the general function of excluding moisture. However, in areas with higher levels of radon, the additional measures described in Section 5.2 (BR 211) ' Full radon protection, will be required.

2.9 Utility Service Providers

The following table provides details on utility information provided by the client. It should be noted that other service providers and/ or private infrastructure may be present and not included within the table below.

Type	Provider	Description
Telecoms	BT Openreach	None recorded on site.
Water supply / foul drainage	Severn Trent Water	None recorded on site.
	Unknown	None recorded on site.
Electricity	Western Power Distribution	High voltage overhead cables present crossing the centre of the site in roughly north-south orientation.
	Unknown	None recorded on site.
Gas	SGN	None recorded on site.

Data returns from the companies consulted are included in Appendix E. It should be noted that services data is liable to change and consequently the information obtained provides a snapshot of the records at the time of enquiry.

2.10 Unexploded Ordnance (UXO)

The potential for buried unexploded ordnance (UXO) on any given site presents uncertainty. The site history and location may provide an indication of the degree of risk. A separate UXO desk study would provide an expert view on this area of uncertainty. This would provide pre-construction information necessary under CDM.

Site Specific Risk Perception	Yes/ No
From our knowledge of the underlying geology, historical mapping and site history the ground investigation methods proposed indicate a commonly acceptable level of risk. For example: head deposits over rock in an agricultural setting or where housing or buildings were present prior to 1940s and continue largely unchanged on post-war mapping	Yes
From our knowledge of the underlying geology, historic mapping and site history the level of risk indicates the requirement for specialist assessment prior to intrusive ground investigation For example: alluvial soils in proximity to potential wartime targets such as railways, factories, military establishments or densely populated areas or, where changes in pre versus post-war mapping are apparent	No

The above table is based on the knowledge available at the time of the ground investigation and is a judgement based on our perception of the conditions.

2.11 Mining

The potential for mining features on any given site presents uncertainty. The site history and location may provide an indication of the degree of risk. A separate archive mining desk study would provide an expert view on this area of uncertainty. This would provide pre-construction information necessary under CDM.

Site Specific Risk Perception	Yes/ No
From our knowledge of the underlying geology, historical mapping and site history the ground investigation methods proposed indicate a commonly acceptable level of risk.	Yes
From our knowledge of the underlying geology, historic mapping and site history the level of risk indicates the requirement for specialist assessment prior to intrusive ground investigation	No

The above table is based on the knowledge available at the time of the ground investigation and is a judgement based on our perception of the conditions.

3.0 PRELIMINARY CONCEPTUAL MODEL

3.1 Introduction

The site characterisation attempts to identify potential previous and existing site sources of contamination. The conceptual model links the identified sources likely to cause significant possibility of significant harm via pathways to identified critical receptors. The conceptual model is therefore based on a number of identified source-pathway-receptor scenarios. For land to be classified as contaminated a significant pollutant linkage will need to be identified which will include each component of the conceptual model. The absence or removal of a source or interception of a pathway will 'break' the pollutant linkage.

The conceptual model is characterised by identification of the following:

- On-site sources which may impact on-site receptors via plausible pathways
- On-site source which may impact off-site receptors via plausible pathways
- Off-site sources which may impact on-site receptors via plausible pathways

Potential change of land use will require assessment of the new site development layout within the context of introducing new exposure pathways. The planning regime may require assessment of the site to ensure the new development will not be classed as contaminated land under the definition provided by the Part 2A of the Environment Act 1990 as defined in the Environment Protection Act 1995.

Guidance issued in April 2012 provides four categories of land. New development will aim to be within Category Four where the potential risk of land contamination is assessed to be low or to not exist.

Normal Presence of Contaminants

The revised Statutory Guidance for Part 2A of the Environmental Protection Act 1990 came into force in April 2012. This provides the following:

3.21 The Part 2A regime was introduced to help identify and deal with land which poses an unacceptable level of risk. It is not intended to apply to land with levels of contaminants in soil that are commonplace and widespread throughout England or parts of it, and for which in the very large majority of cases there is no reason to consider that there is an unacceptable risk.

3.22 Normal levels of contaminants in soil should not be considered to cause land to qualify as contaminated land, unless there is particular reason to consider otherwise. Therefore, if it is established that land is at or close to normal levels of particular contaminants, it should usually not be considered further in relation to the Part 2A regime and the local authority should have regard to paragraphs 5.2 and 5.4 of this Guidance.

3.23 For the purpose of this Guidance, 'normal' levels of contaminants in soil may result from:

a) The natural presence of contaminants (e.g. caused by soil formation processes and underlying geology) at levels that might reasonably be considered typical on a given area and have not been shown to pose an unacceptable risk to health or the environment.

b) The presence of contaminants caused by low level diffuse pollution, and common human activity other than specific industrial processes. For example, this would include diffuse pollution caused by historic use of leaded petrol and the presence of benzo(a)pyrene from vehicle exhausts, and the spreading of domestic ash in garden at levels that might reasonably be considered typical.

The Use of Generic Assessment Criteria

The revised Statutory Guidance for Part 2A of the Environmental Protection Act 1990 that came into force in April 2012 further provides:

3.27. It is common practice in contaminated land risk assessment to use generic assessment criteria (Soil Guideline Values SGV) (GACs) as screening tools in generic quantitative risk assessment to help assessors decide when land can be excluded from the need for further inspection and assessment, or when further work may be warranted.

3.29. GACs relating to human health risk assessment represent cautious estimates of levels of contaminants in soil at which there is considered to be no risk or, at most, a minimal risk to health. With regard to such GACs:

a) They may be used to indicate when land is very unlikely to pose a significant possibility of significant harm to human health. This is on the basis that they are designed to estimate levels of contamination at which risks are likely to be negligible or minimal and far from posing a significant possibility of significant harm.

b) They should not be used as direct indicators of whether a significant possibility of significant harm to health may exist. Also, the local authority should not view the degree by which the GACs are exceeded (in itself) as being particularly relevant to this consideration, given that the degree of risk posed by land would normally depend on many factors other than simply the amount of contaminants in soil.

c) They should not be seen as screening levels which describe the boundary between Categories 3 and 4 in terms of Section 4 (i.e. the two Categories in which land would not be contaminated land on grounds of risks to human health). In the very large majority of cases, these SGVs/GACs describe levels of contamination from which risks should be considered to be comfortably within Category 4.

d) They should not be viewed as indicators of levels of contamination above which detailed risk assessment would automatically be required under Part 2A.

e) They should not be used as generic remediation targets under the Part 2A regime. Nor should they be used in this way under the planning system, for example in relation

to ensuring that land affected by contamination does not meet the Part 2A definition of contaminated land after it has been developed.

Categories of Contaminated Land

There are four categories of contaminated Land. The NHBC summarise these as follows:

Category 1 – Land where it is clear that there is a significant possibility of significant harm to human health, and intervention under Part 2A is required.

Category 2 – Land where there is a considerable concern that there may be a significant possibility of significant harm to human health and there is a strong case for a precautionary action or intervention being taken under Part 2A.

Category 3 – Land where there may be a possibility of harm to human health but this is not significant, and regulatory intervention under Part 2A is not warranted, but those affected could consider civil action.

Category 4 – Land which should not pose a measurable risk to human health.

New screening values will be required to determine the boundary of Category 4 land. These are likely to be higher than current screening SGV/GAC values.

The same categories apply to potential pollution of controlled waters.

Source

The sources are divided into primary and secondary. The primary source is defined as the generic land use and the secondary source is the likely constituents of concern relating to the primary source, which may be affecting the soil, groundwater or soil gas.

Pathways

Migration pathways requiring consideration may include:

- Wind-blown dust
- Vapour phase/ground gas migration through the unsaturated zone
- Dissolved phase migration within groundwater
- Light non-aqueous phase migration on surface of groundwater
- Dense non-aqueous phase migration

Exposure pathways requiring consideration may include:

- Soil and indoor dust ingestion
- Home-grown vegetable consumption
- Indoor and Outdoor inhalation of dust
- Indoor and Outdoor inhalation of vapours
- Indoor and Outdoor dermal contact
- Leaching of mobile contaminants to groundwater/freshwater
- Permeation through water supply pipes

Receptors

The potential receptors are identified as follows:

- Human beings (construction workers, future site users)
- Groundwater (Controlled Waters)
- Eco-systems
- Building fabric

3.2 On-site to On-site

The historical data review indicates that the site has been in agricultural use since first edition (1880s) mapping until the present day.

The agricultural land use is likely to have resulted in ploughing the fields. This may have included the additional of soil improvers such as ash and lime. It is normal to find occasional anthropogenic materials within the ploughed soils. Stubble burning may have resulted in ash with low levels of metals and PAHs.

Minor localised spills from farm machinery are possible and field tracks may have been improved with imported materials of unknown provenance, particularly at field gates. Localised burial of farm waste is sometimes encountered. The localised nature of these possible activities is difficult to target and rule out until the end of the construction process.

The disturbed upper layers of ploughed soil may contain anthropogenic materials and may have been subject to stubble burning and therefore the process of investigation is required to confirm that the site is acceptable for the proposed change of use. The following generic soil analysis is recommended to confirm the anticipated acceptability of the soils:

- Metals/ metalloids
- Sulphates and pH
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Petroleum Hydrocarbons
- Total Organic Carbon
- Asbestos
- Herbicides and pesticides

3.3 On-site to Off-site

The potential on-site sources are identified in Section 3.2.

On-site to off-site Risk Perception	Yes/ No
From our knowledge of the underlying geology, historical mapping and site history the likelihood of on-site potential contaminants impacting off-site potential receptors is low and does not warrant further investigation.	Yes
From our knowledge of the underlying geology, historic mapping and site history the likelihood of on-site potential contaminants impacting off-site potential receptors exists and therefore further investigation is required.	No

3.4 Off-site to On-site

The dominant industry surrounding the site is agriculture which poses little risk of off-site to on-site pollutant migration. In addition, no off-site land uses, pollution incidents or other activity or process which is considered likely to pose a significant risk of contamination to the site and/ or proposed development have been identified as part of this desk study.

Therefore, no significant off-site sources of contamination which may affect the site are currently considered to exist.

4.0 GEOTECHNICAL HAZARD IDENTIFICATION

The following potential geotechnical hazards have been identified from the preliminary sources reviewed:

Hazard	Consequence	Location
Sub-surface water	Requirement for land drainage, risk of localised running sand.	Site wide.
Shallow groundwater	Excavation instability, low bearing capacity due to reduced effective stress.	Site wide.
Weathered sandstone deposits	Potential of water ingress running sand and cut slope instability.	Site wide should sandstone bedrock be present.
Head/ weathered bedrock deposits of fine-grained soils	Plastic soils with volume change potential resulting in seasonal shrink and swell.	Site wide.
Bedrock at shallow depth	Hard breakout of bedrock for foundation trenches, drainage trenches and service trenches.	Site wide.
Karstic features within bedrock	Instability of ground surface following collapse of karstic feature/ outwash of fine material.	Site wide.
Existing and Proposed Trees	Water demand may result in volume change of fine-grained low permeability soils.	Site wide.
Existing buildings and infrastructure	Overhead power services, may limit access for investigation and may impact on development layout unless relocated..	Centre of site.
Sulphatic deposits in underlying natural geology	Aggressive conditions for buried concrete.	Site wide.

5.0 INTRUSIVE INVESTIGATION

The following table summarises the ground investigation methods:

Method	Detail	Remarks
Exploratory Hole Locations	Approximate 50m spacing.	See Figures 3 and 4.
Trial Pitting	19th October 2021 – one day. Nine trial pits undertaken to depths of between 1.90mBGL and 2.90mBGL.	See Appendix F – Trial Pit Logs.
Large Scale Infiltration Testing	19th October 2021 – one day. Infiltration tests undertaken within three of the trial pits (TPs 01 to 03).	See Appendix G – Infiltration Test Results.
Chemical analysis (soil)	Chemical testing on soil samples comprised: - 6 No. Metals/ Metalloids - 6 No. pH soil - 6 No. Total Organic Carbon - 6 No. Speciated Polycyclic Aromatic Hydrocarbons (PAHs) - 6 No. Banded Total Petroleum Hydrocarbons (TPHs) - 6 No. Asbestos Identification - 1 No. Pesticide & Herbicide Indicators	See Appendix H – Chemical Laboratory Test Results.
Geotechnical testing	Geotechnical testing on soil samples comprised: - 19 No. Moisture content - 4 No. Liquid and Plastic Limits - 2 No. BRE SD1 suite	See Appendix I – Geotechnical Laboratory Test Results.

6.0 INVESTIGATION FINDINGS

6.1 Ground Conditions

The following tables summarise the ground conditions encountered within the exploratory holes:

Stratum	Depth (mbgl)								
	TP01	TP02	TP03	TP04	TP05	TP06	TP07	TP08	TP09
Topsoil/ Subsoil	GL – 0.30	GL – 0.30	GL – 0.20	GL – 0.30	GL – 0.30	GL – 0.30	GL – 0.30	GL – 0.30	GL – 0.35
Very clayey/ silty SAND	0.30 – 1.10	0.30 – 0.50	0.20 – 0.85	-	-	0.30 – 0.90	-	0.30 – 0.95	-
Very stiff very sandy SILT	-	-	-	0.30 – 0.85	-	-	-	-	0.35 – 0.95
Stiff/ very stiff CLAY	1.10 – 2.10	-	-	0.85 – 2.85	0.30 – 1.10	-	-	-	-
Limestone GRAVEL and/ or COBBLES and/ or BOULDERS	-	0.50 – 2.05+	0.85 – 2.00+	-	1.10 – 2.00	0.90 – 2.00	0.30 – 2.00+	0.95 – 2.10+	0.95 – 1.90+
LIMESTONE	2.10 – 2.20+	-	-	2.85 – 2.90+	2.00 – 2.05+	2.00 – 2.05+	-	-	-

Topsoil/ Subsoil

Typically encountered as *"brown clayey sandy silt"*.

These materials are likely disturbed by agricultural ploughing, stubble burning and may contain localised anthropogenic materials.

Clay/ Silt/ Sand

Encountered within all but one of the exploratory hole locations, these deposits were encountered beneath the topsoil and varied in composition, occasionally trending from one predominant grainsize to another within the same unit. For example, ground conditions in TP04 were described as *"…clayey sandy occasionally very sandy SILT rarely very clayey/ silty SAND",* underlain by *"very stiff slightly sandy silty CLAY rarely clayey SILT".*

In addition, these deposits were typically recorded as having inclusions (pockets/ lenses) of another grainsize within. For example, ground conditions encountered within TP01 were described as *"very clayey/ silty SAND with occasional cobble-size pockets of… CLAY"* underlain by *"… slightly gravelly silty CLAY with occasional pockets/ lenses of clayey/ silty SAND"*.

The one exception to the above was encountered within TP04, undertaken in the south-west of the site, where *"stiff to very stiff… slightly gravely silty CLAY"* was encountered above the limestone bedrock.

It is considered that these deposits comprise the weathered product of sandstone/ siltstone/ mudstone strata within the Northampton Sand Formation.

Gravel/ Cobbles/ Boulders

Encountered within all but two of the locations (TP01 and TP04), these deposits typically graded from *"gravel"* to *"gravel and cobbles"* to *"cobbles and boulders"* and are considered to comprise the weathered product of the underlying limestone bedrock. Granular material comprised subangular/ blocky/ tabular limestone.

Limestone Bedrock

Encountered in the base of four of the trial pits, these deposits were described as *"medium strong… LIMESTONE"*. These deposits were typically recovered as gravels and/ or cobbles.

All trial pits were terminated, either within the cobbles and boulders or on limestone bedrock due to difficult excavation.

Exploratory hole records are attached in Appendix F.

See Figure 3 and 4 for Exploratory Hole Locations.

6.2 Groundwater

No groundwater was encountered within any of the exploratory holes during the investigation.

7.0 POTENTIALLY CONTAMINATED LAND ASSESSMENT

The assessment of potentially contaminated land is based on source-pathway-receptor pollutant linkages. The following source characterisation, based on the chemical analysis, provides a basis for assessing the significance of potential pollutant linkages.

7.1 Source Characterisation

7.1.1 Chemical Analysis – Soils

The Normal Background Concentrations (NBC) based on the principal domain and the LQM/CIEH Suitable for use levels (S4UL) values have been used to provide comparative screening values for residential development with home-grown produce. This provides a stringent first tier screening assessment. Results that exceed these levels require further assessment in relation to the site-specific conditions prior to determining whether a potential pollutant linkage exists.

The LQM/CIEH S4ULs are subject to 'Copyright Land Quality Management Limited reproduced with permission' Publication Number S4UL3432.

Six soil samples were tested as follows.

Location	TP01	TP05	TP06	TP07	TP08	TP09
Depth (mBGL)	0.10	0.40	0.35	0.20	0.40	0.40
Soil	Topsoil	Sand	Sand	Gravel	Sand	Silt

Metals

Six soil samples collected from across the site were analysed for a generic suite of metals/ metalloids. The results of the testing are summarised in the table below:

Determinand	Number of samples >LOD	Minimum mg/kg	Maximum mg/kg	Max>NBC?	Max>S4UL/ C4SL?
Arsenic	6	30	50	Yes	Yes
Cadmium	1	0.11	0.11	No	No
Chromium	6	34	49	NA	No
Copper	6	6.1	15	No	No
Mercury	1	0.16	0.16	No	No
Nickel	6	17	26	No	No
Lead	6	13	24	No	No
Selenium	4	0.22	0.38	NA	No
Zinc	6	43	75	NA	No

With the exception of arsenic, all metals/ metalloids tested fell below both their respective NBC and S4UL/ C4SL screening values.

However, five of the six levels of arsenic recorded exceeded the NBC guidance value of 32mg/kg and three of the samples also exceeded the S4UL guidance value of 37mg/kg.

Based on the Phase 1 desk study, no significant anthropogenic source of arsenic contamination has been identified either on or within influencing distance of the site.

Information provided by the British Geological Survey (BGS) GeoIndex service indicates the natural background concentration (NBC) value for arsenic in the area of the site is between 33.4mg/kg and 74.4mg/kg. The above results (between 30mg/kg and 50mg/kg) all fall within this anticipated range.

Based on the above, it is considered likely that the arsenic encountered is naturally occurring.

The S4UL guidance value for arsenic assumes 100% of the compound is bioaccessable, i.e. is absorbed by the intestine. Naturally occurring arsenic typically has a lower bioaccessibility than man made arsenic. As a result, the S4UL guidance value is typically considered over conservative when relating to naturally occurring arsenic concentrations.

Arsenic bioaccessibility (BARGE) testing has been undertaken on the two soil samples which recorded the highest arsenic concentrations during the first round of testing (TP01 @ 0.10m and TP09 @ 0.40m). The below table sets out the results of this additional testing:

Sample	Arsenic Concentration (mg/kg)		Bioaccessible Fraction (%)
	First Testing Round	Second Testing Round	
TP01 @ 1.10m	50	62	2.7
TP09 @ 0.40m	48	66	1.5

The results of 1.5% and 2.7% indicate very low bio-accessibility. This indicates the use of an Oral Relative Bio-availability (RBA) of 20% would provide an acceptable concentration for a Category 4 site.

The latest CLEA model (v1.07) has been used to provide a site-specific acceptance criteria (SSAC) value for arsenic at this site.

The CLEA 1.07 software provides the basis for calculation of the Category 4 Screening Levels (C4SL). This indicates a naturally occurring source of arsenic with a very low bio-accessibility and an assumed RBA of 20% indicates at site specific C4SL of 142mg/kg.

The sample mean concentration is 46mg/kg, the US95 for the arsenic is 55mg/kg and the peak concentration is 66mg/kg. The arsenic measured concentrations are significantly lower the calculated site specific C4SL of 142mg/kg for a natural soil containing arsenic above the NBC of 32mg/kg.

Banded Total Petroleum Hydrocarbons (TPH)

Six soil samples were analysed for banded TPH. With the exception of the sample obtained from TP09, all TPH chain lengths were below the laboratory's Limit of Detection (LoD) and therefore are of no further concern.

TP09 recorded a detection of petroleum hydrocabons:C16-C21 of 23mg/kg and C21-C35 of 92mg/kg. This indicates a TPH C5-35 of 115mg/kg. The inert waste threshold is 500mg/kg and their respective screening values C16-21 of 260mg/kg and C21-35 of 1,100mg/kg. This indicates the measured petroleum hydrocarbon detections are likely to be considered insignificant.

Polycyclic Aromatic Hydrocarbons (PAHs)

Six samples were analysed for a suite of Polycyclic Aromatic Hydrocarbons. All determinands were below the laboratory's Limit of Detection (LoD) and therefore are of no further concern.

Asbestos

Six soil samples were tested for the presence of asbestos and no asbestos was detected.

Pesticides/Herbicides

One sample was analysed for a suite of pesticides and herbicides. No detections were measured.

7.2 Pathways

The proposed residential end use will provide the following exposure pathways that are considered in the CLEA model for residential development with home-grown vegetable consumption and used to calculate the S4UL values.

- Soil and indoor dust ingestion
- Home-grown vegetable consumption
- Indoor and Outdoor inhalation of dust
- Indoor and Outdoor inhalation of vapours
- Indoor and Outdoor dermal contact

Additional pathways not included in the CLEA model include:

- Permeation through potable water supply pipes.
- Ingress of ground gas into confined spaces and buildings.
- Leaching of mobile contaminants to groundwater/ surface water

7.3 Receptors

The following receptors require consideration:

- Construction workers/ future site users/ off-site land users
- Property
- Controlled Waters and associated eco-systems

7.4 Pollutant Linkages

The site has been in agricultural use throughout the available mapping with no significant off-site sources of contamination identified.

Detectable levels of petroleum hydrocarbon chains C16-C21 and C21-C35 were recorded within one of the six soil samples obtained from within natural strata encountered across the site. These levels fall below the screening values for the proposed end use and are therefore not considered likely to pose a risk to human health. However, they may be present as a result of a historical oil/ lubricant spillage and careful observation should be maintained during the construction phase to ensure more significant, currently unidentified, contamination is not present.

No significant pollutant linkages have been identified by the ground investigation, after chemical analysis of soils.

Unexpected Made Ground if encountered during the construction should be assessed separately.

7.5 Waste Assessment

The measured soil concentrations from the exploratory holes are classed as non-hazardous. Waste code EWC 17 05 04 may be assigned to waste soils arising from the site that are representative of the strata observed and tested for a generic soil suite. If any soils are to be taken to a landfill site the test results should be forwarded to the landfill site such that they can assess if they can accept the soils.

Topsoil by definition is not inert and as such should be re-used and is not suitable for disposal at an inert landfill site.

If any anomalous Made Ground, or visual or olfactory evidence of hydrocarbon contamination, is encountered during the construction phase this should be assessed separately.

8.0 GEOTECHNICAL ASSESSMENT AND RECOMMENDATIONS

8.1 Introduction

The British Geological Survey mapping indicates the site is underlain by the Jurassic Northampton Sands Formation, which is recorded to comprise sandstone, limestone and ironstone. No superficial deposits are recorded within the desk study information to be present.

Ground conditions encountered within the exploratory holes typically comprised a covering of topsoil underlain by weathered Northampton Sand Formation, comprising a mix of clay, silt and sand deposits underlain by a grading sequence of gravel and/ or cobbles and/ or boulders of limestone. Beneath the weathered deposits in four locations limestone bedrock of the Northampton Sand Formation was encountered.

No groundwater was encountered during the investigation.

8.2 Geotechnical Test Results

Plasticity Index

Four soil samples were tested for Plasticity Index (PI). The table below also provides the Liquid Limit (LL), Plastic Limit (PL), modified Plasticity Index, equivalent moisture content (We), and Consistency Index (CI):

Location	Depth (mBGL)	Stratum[1]	Wn%	LL%	PL%	PI	%pass 0.425	PI mod	We%	CI
TP04	0.60	Sandy/ Very Sandy SILT	16	28	8	20	90	18	18	0.51
TP04	1.50	Silty CLAY/ Clayey SILT	21	34	20	14	90	13	23	0.76
TP04	2.60	Silty CLAY	36	68	28	40	100	40	36	0.80
TP09	0.90	Very sandy SILT	31	36	24	12	100	12	31	0.42

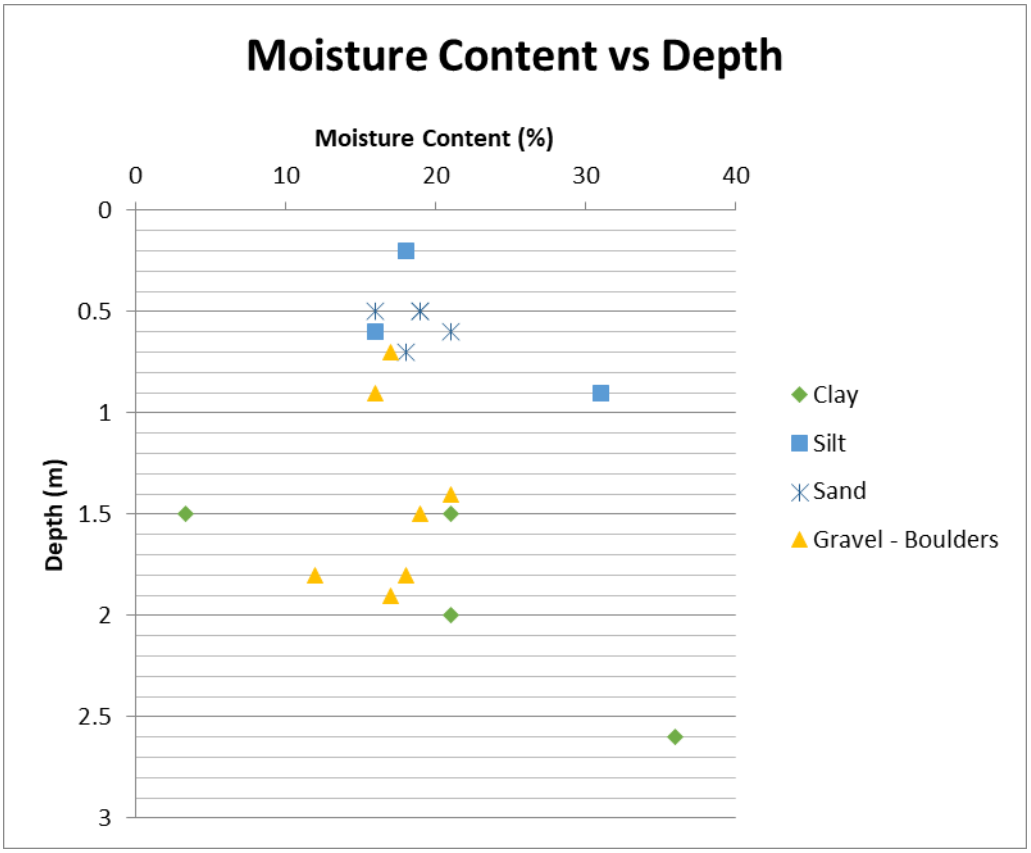
[1] Simplified description based on field log.

The modified Plasticity Index indicates the shallower strata to be of low volume change potential, with the silty CLAY strata obtained from a depth of 2.60m within TP04 being of high volume change potential.

The Liquid Limit of the samples is variable, the lower values indicate potentially highly moisture sensitive soils, where the consistency may alter and significantly reduce on wetting.

Moisture Content

Nineteen soil samples were tested to determine their moisture content (Wn). The moisture content results are shown in the plot below which shows depth versus moisture content by stratum:



The above plot shows moisture content percentages ranged from 3.3% to 36%.

No significant correlation between moisture content and depth or stratum type was observed.

BRE SD1 Suite

Six samples were selected for BRE SD1 suite testing, the table below shows the results:

Sample location	Depth (mbgl)	Stratum	pH	Acid Soluble Sulphate (%SO4)	Water Soluble Sulphate (g/lSO4)	Total Sulphur (%S)	Total Potential Sulphate (%SO4)	Oxidisable Sulphides (%SO4)
TP01	0.70	Sand	6.3	0.03	10	0.01	0.03	0
TP07	1.50	Gravel	7.6	0.05	10	0.02	0.06	0.01

The pH and Sulphate results indicate that buried concrete can be designed in accordance with design sulphate class DS-1 ACEC class AC1 of BRE Special Digest 1(2005), assuming mobile groundwater is present.

8.3 Geotechnical Risk Assessment

The following table summarises the risk categorisation.

Degree of risk (R) = Likelihood (L) x Severity (S)

Likelihood (L)	Description	Probability	Severity (S)	Description	Increase in cost and time
5	Almost certain	>70%			
4	Probable	50-70%	4	Very high	>10%
3	Likely	30-50%	3	High	4-10%
2	Unlikely	10-30%	2	Low	1-4%
1	Negligible	>10%	1	Very low	<1%
Risk (R)	**Risk Level**	**Action**			
1-5	Trivial	None			
6-10	Significant	Undertake appropriate mitigation measures to reduce the risk level by appropriate on-site practice at little additional cost.			
>10	Substantial	Designers should take such risks into account and avoid or reduce risk level to acceptable levels. Additional resources required.			

Risk ID	Hazard	Consequence	L	S	R	Mitigation	L	S	Residual risk
1	Kastic features within limestone bedrock.	Settlement of near-surface strata due to collapse of karstic feature and/ or washout of fine material.	3	4	12	Drainage to be designed to avoid concentrated discharge of surface water. Careful consideration given to the use/ design of soakaway drainage. Visual inspection of foundation excavations to identify features present. Consider amendment to foundation type should features be suspected.	2	2	4
2	Volume Change Potential.	Seasonal shrink-swell of near-surface soils on proposed shallow foundations and floor slabs. Heave and swelling pressures can result in uplift and lateral thrust.	3	3	9	Increase depth of foundations, suspended floor slabs and void dimensions will be dictated by NHBC Chapter 4.2.	2	2	4
3	Existing or Proposed Trees.	Heave influenced by volume change potential of clay; tree water demand, tree height and distance from building can result in swelling of the ground and damage to the structure.	2	3	6	Increase depth of foundations, suspended floor slabs and void dimensions subject to NHBC Chapter 4.2 for low/ medium volume change potential. Excavation of root ball and replacement with engineering fill.	1	3	3
4	Gravel/ Cobbles/ Boulders at founding depth.	Overbreak and/ or collapse of foundation excavations.	2	3	6	Allowance for over-pour of concrete in areas of significant overbreak. Provision of trench support where man-entry is required.	1	2	2
5	Hard limestone bedrock.	Difficult excavation with overbreak, side instability and slow excavation rates.	2	3	6	Provision for large excavator/ breaker for foundation excavation. Allowance for reduced productivity/ higher cost of excavation.	2	1	2

8.4 Excavations and Groundwater

The following table summarises the ground related hazards associated with excavation:

Excavation depth	Ground condition	Ground Hazard	Groundwater depth range	Likely/ Possible/ Unlikely	Mitigation
above GW	Unsaturated clay with fissures	Small localised failure possible with need to re-dig.	>2.5	Possible	Consider benched excavation, trench fill or temporary shoring with trench box or similar if not backfilled quickly or if entry required.
above GW	Unsaturated sands/ gravels with pockets of perched sub-surface water	Small localised failure probable with need to re-dig.	>2.5	Possible	Consider benched excavation, trench fill or temporary shoring with trench box or similar if not backfilled quickly or if entry required.
below GW	Saturated clay with fissures.	Large failure and sidewall collapse possible.	>2.5	Unlikely	Trench box required with sump pumping to control sub-surface water.
below GW	Unsaturated clay with fissures overlying water bearing sands or gravels	Large failure and sidewall collapse possible. Base heave, boiling or piping.	>2.5	Unlikely	Re-design invert levels and foundation levels or use of pile foundations. Consider cut-off drainage and groundwater monitoring prior to excavations. Water pumping may result in loss of fines and subsidence. Trench box required with filter sump pumping to limit loss of fines. Base heave, boiling or piping requires consideration.
below GW	Water bearing sands or gravels	Large failure and sidewall collapse possible. Base heave, boiling or piping.	>2.5	Unlikely	Re-design invert levels and foundation levels or use of pile foundations. Consider cut-off drainage and groundwater monitoring prior to excavations. Water pumping may result in loss of fines and subsidence. Trench box required with filter sump pumping to limit loss of fines. Base heave, boiling or piping requires consideration.

Moderate to significant overbreak was typically encountered within granular soils during the investigation.

Groundwater was not encountered within any of the excavations during the investigation.

8.5 Foundations

The application of an increased load through foundations of a structure results in deformation of the ground and settlement. Foundation design should ensure that foundation movements are within limits that can be tolerated by the structure without impairing its function. Foundation movements occur from the application and removal of load and ground movement independent of load. The following conditions may result in movements resulting from the application or removal of load:

- Shear deformation and failure (EC7 Ultimate Limit State condition)
- Settlement (EC7 Serviceability Limit State condition)

Shear deformation and failure may be guarded against using the traditional methods by determining the ultimate bearing capacity and application of a factor of safety of between 2 and 3 to limit deformation.

Settlement may result from immediate elastic settlement and primary consolidation settlement and in some cases secondary settlement of fine grained low permeability strata, subject to the stress history. Differential settlement may result from non-uniform soil conditions, made ground or fill, peaty and organic soils and non-level sites. The magnitude of tolerable settlement defines the allowable bearing pressure and is therefore the value provided within the report.

Eurocode 7: Geotechnical design Part 1: General Rules (BS EN 1997-1:2004) provides the following:

- Principle rules (P) are general statement and definitions for which there is no alterative; requirements and analytical models for which no alternative is permitted unless specifically stated.
- Application rules are examples of generally recognised rules, which follow the principles and satisfy their requirements.
- EC7 design requirements: P for each geotechnical design situation it shall be verified that no relevant limit state, as defined by EN 1990:2002, is exceeded.
- EC7 design situations: P Both short-term and long-term design situation shall be considered.
- EC7 Durability: P At the geotechnical design stage, the significance of environmental conditions shall be assessed in relation to durability and to enable provisions to be made for the protection or adequate resistance of materials.
- Geotechnical design by calculation: (1)P design by calculation shall be in accordance with the fundamental requirements of EN 1990:2002 and with the particular rules of the standard. (2) It should be considered that knowledge of the ground conditions depends on the extent and quality of the geotechnical investigations. Such knowledge and the control of workmanship are usually more significant to fulfilling the fundamental requirements than is precision in the calculation method.
- EC7 Actions: (1) P The definition of actions shall be taken from EN 1990:2002. The values of actions shall be taken from EN1991, where relevant. (2) P The values of geotechnical actions to be used shall be selected, since they are known before a calculation is performed; they may change during that calculation. (3) Any interaction between the structure and the ground shall be taken into account when determining the actions to be adopted in the design.
- EC7 Ground properties: (1) P Properties of soil and rock masses, as quantified for design calculation by geotechnical parameters, shall be obtained from test results, either directly or through correlation, theory or empiricism, and from other relevant data. (2) P Values obtained from test results and other data shall be interpreted appropriately for the limit state considered. (3) Account shall be

taken of the possible differences between the ground properties and the geotechnical parameters obtained from the test results and those governing the behaviour of the geotechnical structure. (6) Calibration factors shall be applied where necessary to convert laboratory or field test results according to EN 1997-2 into values that represent the behaviour of the soil and rock in the ground, for the actual limit state, or to take account of correlations used to obtain derived values from test results.

- EC7 Geometrical data: P The level and slope of the ground surface, water levels, levels of interfaces between strata, excavation levels and the dimensions of the geotechnical structure shall be treated as geometrical data.
- EC7 Characteristic Values of actions: (1) P Characteristic and representative values of actions shall be derived in accordance with EN 1990:2002 and the various parts of EN 1991.
- EC7 Characteristic values of geotechnical parameters: (1) P The selection of characteristic values for geotechnical parameters shall be based on results and derived values from laboratory and field tests, complemented by well established experience. (2) P The characteristic value of geotechnical parameter shall be selected as a cautious estimate of the value affecting the occurrence of the limit state. (12) When using standard tables of characteristic values related to soil investigation parameters, the characteristic value shall be selected as a very cautious estimate.

The following conditions influencing foundation design are independent of load:

Condition	Yes/ No	Requirements
Seasonal volume change	Yes	Low volume change potential within near-surface requiring a minimum founding depth of 0.75m where outside the influence of trees or bushes.
Building near trees	Yes	NHBC Chapter 4.2 Guidance should be followed. Selected and controlled planting would require minimum depth of 1.00m where founding on fine grained soils, deeper for adjacent medium to high water demand trees.
Frost Heave	Yes	Minimum construction depth 0.45m
Application of artificial heat or cold to supporting ground	No	
Changes in groundwater level.	Unlikely	Groundwater was not encountered within any of the excavations during the investigation.
Loss of ground due to erosion (internal erosion) or solution by percolating water or pumping.	Yes	Infiltration rates are considered potentially suitable for the use of soakaway drainage. However, careful consideration should be given to placing soakaways within soluble rocks such as limestone to ensure the washing out of existing karstic features and/ or the introduction of new features does not occur.
Changes in state of stress due to adjacent structures, dredging, scour or erosion by streams or floods (loss of support) or due to erection of adjacent structures.	Yes	Foundations to be placed below adjacent service pipes, taking account of adjacent foundation stress zones.
Continuing settlement of natural deposits or fill	Unlikely	Place foundations beneath any superficial soft strata encountered. Careful consideration should be given to the use/ design of soakaway drainage.
Soil creep or landslides, ground sloping >1v:10h	No	
Movement of ground resulting from sink or swallow holes or underground workings (including mining and tunnelling)	Unlikely	No karstic features recorded on or close to site. However, careful consideration should be given to placing soakaways within soluble rocks such as limestone to ensure the washing out of existing karstic features and/ or the introduction of new features does not occur.
Vibration including seismic disturbances	No	
Deterioration of Made Ground or fill	Unlikely	No Made Ground was encountered during the investigation and significant depths are not anticipated to be present.
Deterioration of the structure	Unlikely	BRE Special Digest 1 testing undertaken for buried concrete design. Mix design to be in accordance with SD1 recommendations where the ground has not been disturbed.
Alteration of the properties of the ground due to natural or artificial processes	Possible	Careful consideration should be given to placing soakaways within soluble rocks such as limestone to ensure the washing out of existing karstic features and/ or the introduction of new features does not occur.
Coast erosion	No	
Existing foundations	No	

Foundation Options

The following table identifies typical foundation types and limitations:

Foundation Type	Typical depth to bearing stratum (m)	Application	Limitations	Use at this site
Raft and Box	<1	Limits applied stress to prevent excessive settlement. Shallow groundwater prevents deep excavation.	Construction time and costs increase due to detail for edge thickening, removal and replacement of volume change potential soils. May require ground improvement.	Unlikely to be required.
Shallow strip	**<1**	**Shallow competent ground of granular soils or weathered rock without volume change potential or on low volume change potential soils without trees.**	**Shallow groundwater, weak unstable or fissured ground resulting in collapse of excavation.**	**Suitable across the site outside the influence of trees.**
Trench fill	**1-2.5**	**Competent soils/ strata within 2.5m of construction depth, where excavation stand-up time allows excavation and inspection/ approval prior to pouring concrete.**	**Shallow groundwater, weak unstable or fissured ground resulting in collapse of excavation. Installation of heave precautions.**	**Required for construction within the influence zone of trees.**
Pile and beam	>2.5m	Weak/ loose/ soft and unstable ground combined with high groundwater near surface with little realistic potential for trench excavation/inspection/ approval of soils within upper 2.5m or where competent strata is >2.5m below the construction surface.	Pile construction method requires consideration of the actual ground conditions identified by boreholes	Unlikely to be required.

The following limitations are normally applied to the depth and selection of foundations:

- Foundation stratum should be continuous across the footprint of the building to minimise differential settlement.
- Foundation depth should be below adjacent service trenches for utilities and drainage.
- Foundation depth will be subject to volume change potential of soils combined with proximity of trees.

The site-specific ground conditions indicate the foundation types are limited to the following:

- Strip foundations are likely to be suitable across the site.
- Trench fill foundations are likely to be required for construction within the influence of trees and where founding on fine grained soils.

Consideration should be given to the reinforcement or alteration of foundations should karstic features be suspected.

Bearing Stratum and Allowable Bearing Capacity

The following table summarises the typical strata, characteristics and allowable bearing capacity:

Strata	Example	Characteristics	Use as bearing stratum	Foundation construction requirements	Allowable Bearing Capacity	Site specific
Made Ground	Anthropogenic soils	Variable, unpredictable	Not recommended.	Excavation trench support, potential for contamination, unacceptable waste arisings. If deep consider pile foundations.	Not recommended.	Not encountered during the investigation.
Very soft, soft and soft to firm clay/silts	Alluvium/ Valley Head deposits	Very low (<10kPa); low strength 20-40kPa); soft-firm (40-50kPa) moderate to high compressibility, highly variable. May be overlain by unsaturated firm clays creating a risk of punching shear or consolidation settlement.	Not recommended without ground improvement. Raft or box foundation with ground improvement or no net load.	Excavation trench support, potential for shallow groundwater. If deep consider pile foundations.	Not recommended. Not encountered on site.	Not encountered during the investigation.
Loose sands/silts/gravels	Alluvium/ Valley Head	Variable may contain soft clay/silt layers, running sand potential in combination with shallow or perched groundwater.	Technically feasible for shallow foundations above shallow groundwater where the absence of soft clay/silt or VCP soils can be verified.	Excavation trench support, potential for shallow groundwater. If deep consider pile foundations.	Not recommended. Subject to plot specific ground conditions and construction proposals.	Not encountered during the investigation.

Strata	Example	Characteristics	Use as bearing stratum	Foundation construction requirements	Allowable Bearing Capacity	Site specific
Firm clays	Head deposits Localised firm to stiff completely weathered mudstone.	Firm silty clays and slightly gravelly to gravelly clays exhibiting volume change potential, with minimum undrained shear strength of 50kPa. Potential for localised soft spots. May be underlain by soft compressible strata.	Depth subject to VCP and proximity and type of trees.	VCP and building near trees will determine foundation depth. Step detail required for localised soft spots. If underlain by soft compressible clays consider pile or raft.	Typical ABP = 100kPa*. This may be reduced to 60kPa for wider foundations <2m with layers of soft to firm clay. Plot specific detail for raft foundations	Not encountered during the investigation.
Stiff and very stiff clays/ silts	**Head deposits/ completely weathered mudstone.**	**Stiff slightly gravelly/gravelly clays or silty clays. Stiff clays have a minimum undrained shear strength of clays 75kPa to maximum 150kPa. Very stiff clays 150-300kPa.**	**Depth subject to VCP and proximity and type of trees.**	**VCP and building near trees will determine foundation depth. Step detail required for localised soft spots.**	**Typical ABP = 125 to 150kPa*. Plot specific detail for raft foundations.**	**ABP of 100kPa. Encountered site wide. ABP reduced due to potential for seasonal desiccation during investigation.**
Medium dense sands and gravels	**Granular Head/ River Terrace Gravels**	**Low compressibility, potential for excavation side collapse in combination with shallow groundwater creating running sand.**	**Favourable above shallow groundwater where the absence of soft clay/silt or VCP soils can be verified.**	**Excavation trench support, potential for shallow groundwater.**	**ABP**=125kPa to 150kPa**	**ABP of 100kPa. Encountered across majority of site. ABP reduced in the absence of in-situ strength testing.**

Strata	Example	Characteristics	Use as bearing stratum	Foundation construction requirements	Allowable Bearing Capacity	Site specific
Dense sand and gravel	**As above**	**Low compressibility, potential for excavation side collapse in combination with shallow groundwater creating running sand.**	**Favourable above shallow groundwater where the absence of soft clay/silt or VCP soils can be verified.**	**Excavation trench support, potential for shallow groundwater.**	**ABP=150kPa to 250kPa**	**ABP of 100kPa. Encountered across majority of site. ABP reduced in the absence of in-situ strength testing.**
Weathered rock	Mudstone, shale	Argillaceous rock may weather to stiff clays exhibiting VCP.	Foundation stratum depth potentially variable due to differential weathering.	Differential weathering with variable depth and VCP soils. Localised hard spots may require breakout.	ABP*** range of 100kPa-250kPa, may increase in competent rock.	Not encountered during the investigation.
Weathered rock	**Slates/ meta-sandstones**	**Hard rock with little potential for volume change.**	**If shallow consider strip foundations, if deep may require pile with rock socket.**	**Variable depth due to differential weathering. Localised hard spots may require breakout.**	**ABP*** range of 250kPa – 300kPa, may increase in competent rock.**	**ABP = 250kPa Encountered in east & north of site.**

* Subject to undrained shear strength, compressibility and foundation dimensions, Strip or trench 0.6m wide, 1m deep.
** Strip or trench fill foundations 1m deep <1m width, Allowable bearing pressure subject to relative density and effective stress.
*** Allowable bearing pressure subject to fracture frequency and degree of weathering.

Depth of Foundations

NHBC Chapter 4.2 building near trees provides the following guidance regarding fine grained soils that exhibit volume change potential:

Volume change potential	Modified Plasticity Index	Minimum foundation depth no trees	Minimum foundation depth with selected planting	Building near trees
High	**>40%**	**1**	**1.5**	**NHBC Chapter 4.2**
Medium	20-40%	0.9	1.25	NHBC Chapter 4.2
Low	**10-<20%**	**0.75**	**1.0**	**NHBC Chapter 4.2**

Modified Plasticity Indexes of between 12% and 18% indicates a low volume change potential within near-surface fine grained deposits. The modified Plasticity Index of 40%, obtained from a depth of 2.60m in TP04, indicates strata at depth to be of high volume change potential in the south-west of the site.

Given the ground conditions encountered, the location and depth from which the outlying sample was obtained as well as assuming site levels are to remain similar to those encountered at the time of investigation, it is considered that low volume change potential should be adopted for design purposes with a site-wide minimum founding depth of 0.75m, deepened accordingly in the vicinity of trees.

However, should site levels be proposed to be reduced, the adoption of high volume change potential may be required and/ or additional sampling and laboratory testing may be required to provide further information for detailed foundation design.

EC7 requirements include a Geotechnical Design Report, which should include the identification of supervision and monitoring.

8.6 Floor Slabs

The selection of ground bearing or suspended floor slabs will be subject to the proposed floor level of the particular plot relative to the original ground level. The requirements of the building regulations and NHBC should be satisfied in the selection of the ground floor slab.

The use of ground bearing floor slabs is possible in the following conditions:

- In-fill less than 600mm, this includes the backfilling of the foundation trench.
- Effect of sloping ground on the depth of in-fill is less than 600mm.
- Uniform non-shrinkable soils across entire area of floor slab.
- Non-frost susceptible soils within the upper 450mm.
- Topsoil and organic soils removed, including root penetrated sub-soils.
- Localised soft-spots and hard-spots removed to prevent differential settlement.
- No contaminated ground, water-logged ground or sulphates.
- Ground is unlikely to settle under the design floor loading.
- No radon protection measures required.
- No ground gas protection measures required.
- Where existing land-drains are captured and diverted to a suitable outfall.

The use of suspended floor slabs is recommended in the following conditions:

- Depth of in-fill, including backfilled foundation trench is equal to or more than 600mm.
- Relatively level site without the need for stepped floor construction.
- Soils exhibit Modified Plasticity of 10% or greater, requiring the adoption of the NHBC heave protection measures.
- Where frost susceptible soils exist.
- Where variable ground exists or potential for soft spots and/or hard spots creating either hogging or sagging ground.
- Where root penetration into the sub-soils is possible.

- Where shallow sub-surface water and/or groundwater is or could be present.
- Where contaminants and/or sulphates create potential for heave or expansive reactions.
- Where radon protection measures are required in combination with passive ventilation.
- Where ground gas protection measures require passive ventilation.
- Where moisture protection measures are required with passive ventilation.
- Where the design loading conditions indicate potential for ground movement and settlement of the bearing stratum.
- Where first time inundation of the placed and compacted fill could result in collapse settlement.

Suspended floor slabs are recommended due to the potential for volume change in the near surface clay soils.

The following table provides the NHBC recommended void dimensions for potential ground movement based on volume change potential of the fine-grained soils:

Volume change potential	Against side of foundation/ ground beam (mm)	Underground beam and suspended in-situ concrete ground floor (mm)	Pre-cast concrete and suspended timber floors (mm)	Drainage construction minimum allowance for potential movement (mm)
High	35	150	300	150
Medium	25	100	250	100
Low	**0**	**50**	**200**	**50**

The modified Plasticity Index indicates the near surface soils are characterised as low volume change potential.

It is recommended, for planning and budgeting purposes, to assume suspended floor slabs.

8.7 Buried Concrete

The pH and Sulphate results indicate that buried concrete can be designed in accordance with design sulphate class DS-1 ACEC class AC-1 of BRE Special Digest 1(2005), assuming mobile groundwater is present.

8.8 Infiltration Testing

Large-scale infiltration testing was carried out in TP01, TP02 and TP03. The following table summarises the results of the testing undertaken within TP01 and TP03:

Location	Test Range (mBGL)	Infiltration Rate (ms^{-1})		
		Test 1	Test 2	Test 3
TP01	1.00 – 2.16	$1.29x10^{-5}$	-(1)	-(1)
TP03	1.50 – 1.89	$3.05x10^{-3}$	$1.87x10^{-3}$	$3.31x10^{-3}$

(1) Trial not undertaken.

Due to the rates of infiltration encountered, only one trial was undertaken within TP01 during the course of the investigation. This is not in accordance with BRE 365 guidance.

Rapid rates of infiltration encountered within TP03 resulted in a maximum head of only 0.39m being achieved within the excavation.

Rapid rates of infiltration encountered within TP02 resulted in no head being able to be achieved, i.e. water drained within the excavation as quickly as it was introduced, and therefore 'standard' calculation of infiltration rate is not possible.

A full water bowser of size 2,600 gallons was emptied into the excavation over a period of 7 minutes and 16 seconds, indicating an outflow rate of at least $0.27m^3$/second. The base dimensions of the pit have been taken to produce an infiltration test area of $1.61m^2$. The outflow rate combined with the hypothetical test area has produced an approximate infiltration rate of $1.68x10^{-1}$m/s.

It is noted that the speed of infiltration is attributed to water discharging within the cobbles and boulders and/ or underlying weathered limestone bedrock.

The concentration of water discharge into weathered limestone bedrock has the potential to wash out fines which previously filled fractures/ voids as well as creating new dissolution features within the bedrock. Both of these instances could lead to potentially significant settlement/ collapse within the near-surface.

As a result, careful consideration should be given to the use and design of soakaway drainage within the weathered limestone at this site.

In the absence of specific industry guidance on the placement of soakaway drainage within weathered limestone, as a minimum it is considered that guidance provided within CIRIA C574, Engineering in Chalk, should be followed. This guidance states that:

'In designing shallow foundations for structures, concentrations of rainwater percolating into the ground should be avoided by careful detailing of the structure. Soakaways should be avoided if at all possible. If unavoidable, they should be sited at least 5-10m away from and structure, depending on the chalk density.'

Based on the above, a precautionary approach of siting soakaways 10m from any existing or proposed structures should be adopted as a minimum if soakaway drainage is to be used.

It is also recommended that flexible drainage runs are used within the drainage construction to limit the potential for settlement damage which may lead to additional erosion and therefore increased settlement.

The local drainage authority should be contacted for further guidance on their acceptance of soakaway drainage within weathered limestone geology.

8.9 Road Pavement Design

The sub-grade CBR is normally used to select the minimum capping thickness for road foundation construction. Testing is confined to the near surface soils and the preliminary sub-grade CBR is based on the soils below the topsoil, organic rich layers, soft spots or Made Ground. It is assumed that the topsoil, organic rich layers, soft spots and Made Ground will be removed. The removal of this may increase the thickness of capping required to make up the finished road level, which is not known at the time of this investigation.

The Specification for Highway Works provides guidance on the methods normally adopted for road construction. Useful details may be found in, but not limited to, Series 200 Site Clearance details the requirements for clearance of the site and removal of existing trees, hedges and bushes; Series 500 Drainage and Service Ducts provides details for drainage excavation, backfilling and land drains; Series 600 Earthworks identifies unacceptable materials and provides details for sub-formation capping materials and prohibits the use of the sub-formation and formation for construction traffic without appropriate protection in addition to weather protection.

Road construction in cutting or embankment would require additional consideration outside the scope of this report.

The sub-grade CBR will be a function of soil type and moisture sensitivity. The effectiveness of sub-surface water drainage and the surface water conditions during construction can also affect the actual sub-grade strength and stiffness at the time of construction. TRRL 1132 Appendix C Table C1 provides equilibrium suction index CBR values based on the Plasticity Index of soil, road construction thickness and the depth to groundwater. It is recommended that in-situ test results are calibrated with the site conditions when selecting a design CBR value.

The DCP probe tests indicate minimum CBR values of between 5% and 15% beneath the surface covering of topsoil. The modified Plasticity Index within the near surface range from 12% to 18%. The moisture contents within the near-surface ranged from 16% to 31%. TRRL 1132 Appendix C Table C1 provides equilibrium suction index CBR values based on the Plasticity Index of soil, road construction thickness and the depth to groundwater.

A CBR of 2.5% for low groundwater table is considered to be most appropriate given the results of this investigation. Higher values may be present in favourable construction conditions.

The need to remove Made Ground or weak, organic rich soils or disturbed ground is often a requirement of the local authority or the management company assuming the road is built to an adoptable standard.

A typical minimum non-frost susceptible construction thickness of 450mm is assumed, this may be relaxed by the local highway authority or management company.

The surface soils will be subject to exposure and deterioration during wet weather and therefore protection layers and early placement of capping layers is essential.

For preliminary budgeting purposes a CBR of 2% may be assumed, whilst recognising the need to remove localised soft spots/ disturbed or Made Ground, should these be present.

The removal of old hedge lines or trees will often require the removal of large roots and organics to the approval of the adopting authority. This can result in greater excavation depth to an acceptable sub-grade layer.

The local authority may require undertaking their own investigation for the highway if it is to be adopted.

The use of a geotextile separator and geogrid reinforcement may be required in addition provision for a starter layer is suggested below earthworks or capping construction for the roads.

The DCP test results are given in Appendix J.

9.0 CONCLUSIONS

The historical data review indicates that the site has been in agricultural use since first edition (1880s) mapping until the present day.

The British Geological Survey mapping indicates the site is underlain by Jurassic Northampton Sand Formation, which is generally described as sandstone, limestone and ironstone. No superficial deposits are mapped to be present.

The intrusive investigation comprised: trial pitting, large scale infiltration testing, DCP CBR testing and chemical and geotechnical analysis of soils.

The ground investigation has identified the site to have a cover of topsoil/ subsoil over weathered Northampton Sand Formation, comprising a mix of clay, silt and sand deposits underlain by a grading sequence of gravel and/ or cobbles and/ or boulders of limestone. Beneath the weathered deposits, limestone bedrock of the Northampton Sand Formation was encountered in four locations.

No groundwater was encountered during the investigation.

Chemical analysis of the soils has been compared with Normal Background Concentrations (NBC) and Soil Screening values (S4UL). The arsenic concentrations mean value and US95 were above the NBC of 32mg/kg and the SU4L of 37mg/kg.

Arsenic Bio-accessibility (BARGE) testing was undertaken on two of the highest concentration samples returning results of 1.5% and 2.7%. This indicates very low bio-accessibility. The CLEA model version 1.07 was used to calculate a site-specific Category 4 screening level (C4SL). This was based on an oral relative bioavailability of 20% and provided a site-specific C4SL of 142mg/kg. The arsenic US95 is

55mg/kg, confirming the measured concentrations would be considered acceptable for the proposed change of land-use.

Information provided by the British Geological Survey (BGS) GeoIndex service indicates the natural background concentration (NBC) value for arsenic in the area of the site is between 33.4mg/kg and 74.4mg/kg. The above results (between 30mg/kg and 50mg/kg) all fall within this anticipated range. Based on the above, it is considered likely that the arsenic encountered is naturally occurring.

Detectable levels of petroleum hydrocarbon chains C16-C21 and C21-C35 were recorded within one of the six soil samples obtained from within natural strata encountered across the site.

TP09 recorded a detection of petroleum hydrocabons:C16-C21 of 23mg/kg and C21-C35 of 92mg/kg. This indicates a TPH C5-35 of 115mg/kg. The inert waste threshold is 500mg/kg and their respective screening values C16-21 of 260mg/kg and C21-35 of 1,100mg/kg. This indicates the measured petroleum hydrocarbon detections are likely to be considered insignificant.

Geotechnical analysis has identified the near-surface fine-grained soils to be of low volume change potential with high volume change potential soils present at depth.

The Envirocheck report indicates basic radon protection measures are required for new developments.

Assuming site levels are to remain similar to those present at the time of investigation, strip foundations can be adopted where building outside the influence of trees and/ or where founding on granular strata. Trench fill foundations may need to be adopted where building within the influence of trees and founding on fine-grained soils.

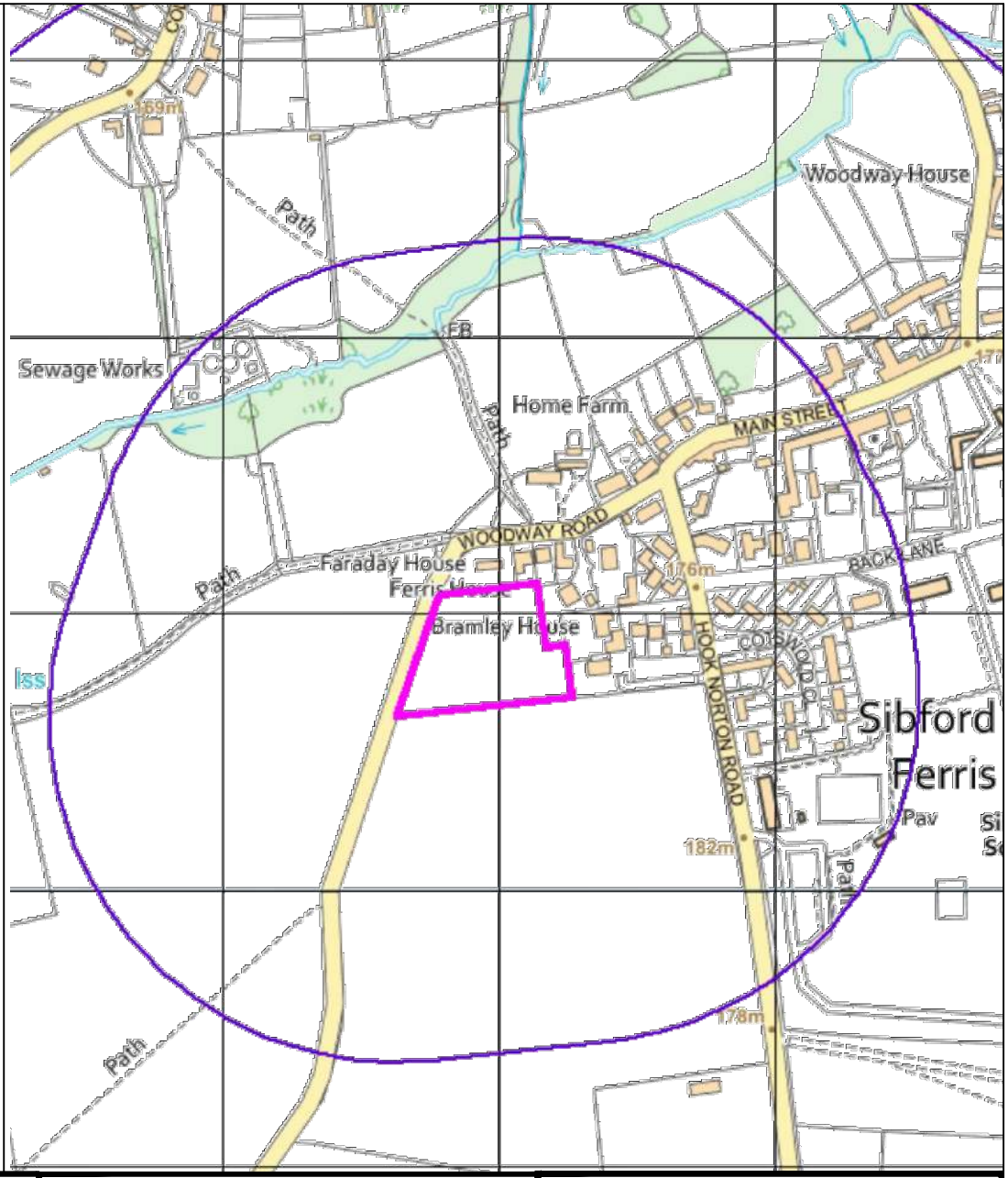
Suspended ground floor slabs are likely to be required.

Large scale infiltration testing has been carried out in three locations. Rapid rates of infiltration were encountered within two locations, anticipated to be as a result of water discharge into weathered limestone bedrock. Careful consideration should be given to the use and design of soakaway drainage within the weathered limestone at this site to ensure significant settlement does not occur. The local drainage authority should be contacted for advice/ guidance on the use of soakaway drainage at this site.

Buried concrete can be designed in accordance with design sulphate class DS-1 ACEC class AC-1 of BRE Special Digest 1(2005), assuming mobile groundwater is present.

It is suggested that the proposed access drives and parking areas be designed on a preliminary 2.5% CBR. The sub-grade should be assumed to be frost susceptible where the Plasticity Index is <20%. A minimum construction thickness of 450mm should be adopted. Further investigation may be required once sub formation levels and road layouts are known where highways are to be adopted.

FIGURES



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Client:
Blue Cedar Homes Ltd

Drawing Status
For Information

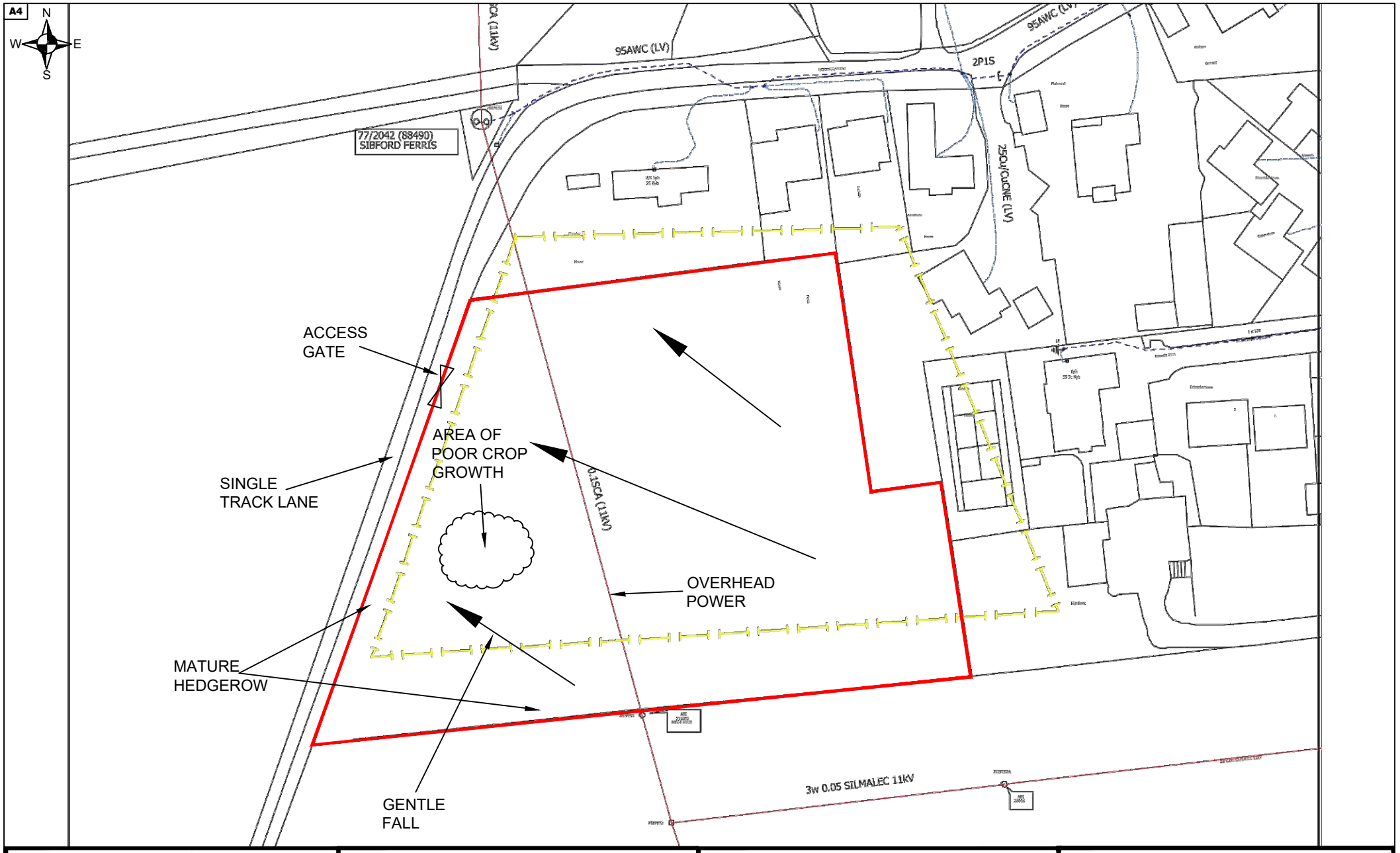
Job Title:
Woodway Road
Sibford Ferris

Dwg Title:
Site
Location Plan

Scale 1:25000/1:5000 @ A4 Drawn DLJ

Date August 2021 Checked DLJ

Drawing no: **GCE01141/Fig1** Rev



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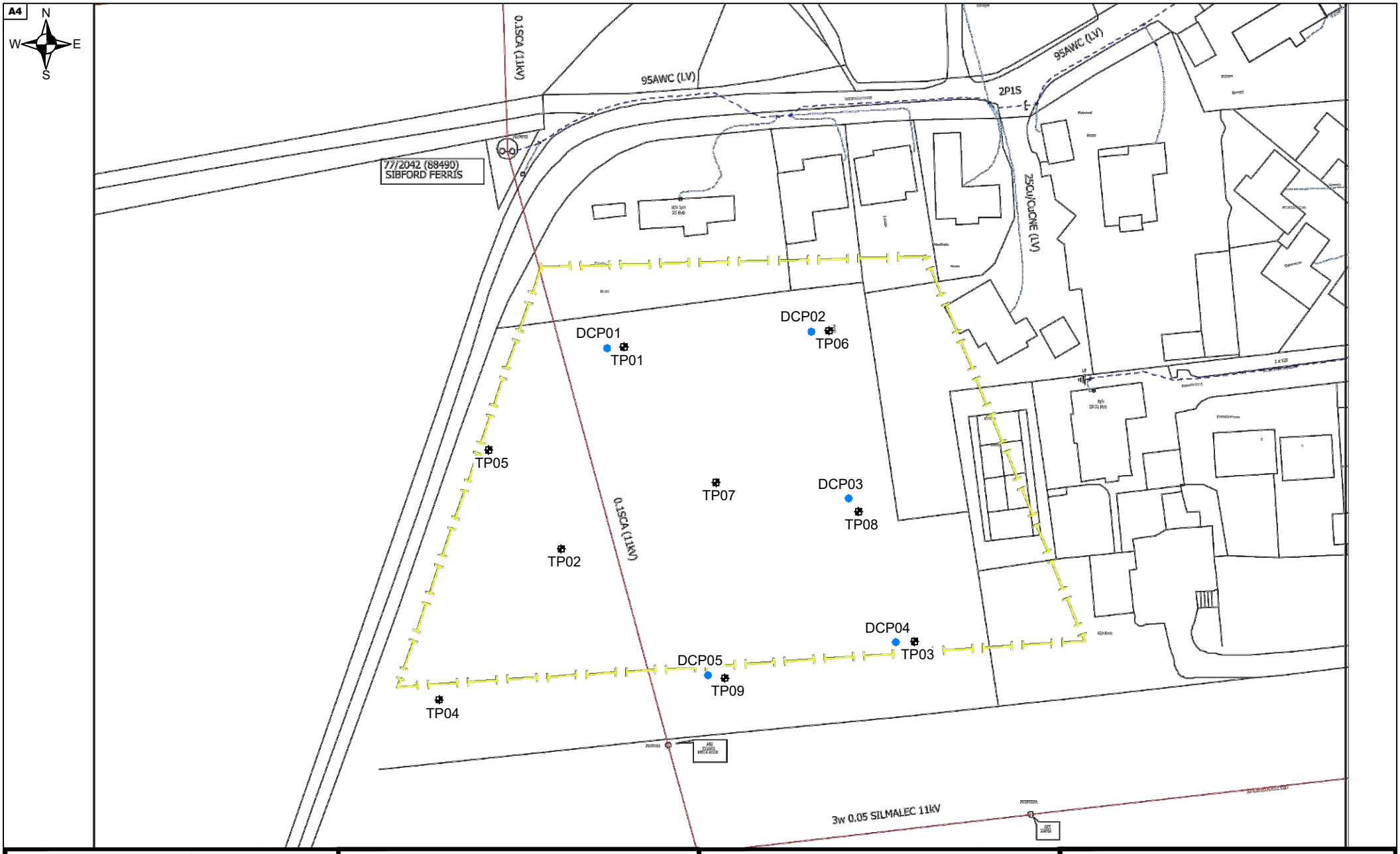
	Job Title: **Woodway Road Sibford Ferris**	Dwg Title: **Walkover Survey Plan**	Scale 1:1000 @ A4 Drawn DLJ Date August 2021 Checked DLJ Drawing no: **GCE01141/Fig2** Rev



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Drawing Status
For Information

Job Title:
Woodway Road
Sibford Ferris

Dwg Title:
Exporatory Hole Location Plan (Existing Layout)

Scale 1:1000 @ A4 Drawn TB

Date October 2021 Checked DLJ

Drawing no: **GCE01141/Fig3** Rev

A4

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	Job Title: **Woodway Road Sibford Ferris**	Dwg Title: **Exporatory Hole Location Plan (Proposed Layout)**	Scale 1:1000 @ A4 Drawn TB Date October 2021 Checked DLJ Drawing no: **GCE01141/Fig4** Rev

APPENDICES

Appendix A – Site Photographs

Appendix B – Investigation Methods

Appendix C – Historical Mapping

Appendix D – Envirocheck Report

Appendix E – Utility Search Results

Appendix F – Trial Pit Logs

Appendix G – Infiltration Test Results

Appendix H – Chemical Laboratory Test Results (Soils)

Appendix I – Geotechnical Laboratory Test Results

Appendix J – DCP Probe Test Results

Appendix A – Site Photographs

Photo 1: General view eastwards along southern boundary of site from south-west corner.

Photo 2: General view northwards along western boundary of site from south-west corner.

Photo 3: General view north-eastwards across site from south-west corner.

Photo 4: General view southward from north-west corner; note sparse crop growth.

Photo 5: General view south-eastwards across site from north-west corner; note overhead cables.

Photo 6: General view eastwards across site from north-west corner.

Photo 7: General view southwards along lane to west of site; entrance close to pick-up on verge.

Photo 8: General view northwards on lane to west of site leading into village.

Appendix B – Investigation Methods

Investigation Methods

The following brief of Ground Investigation techniques summarises their methodology.

Soils and bedrock have been described in accordance with BS5930 2015. Prior to undertaking exploratory holes on site service plans are checked and locations are CAT scanned.

Ground conditions should be monitored during the construction of the works by groundworkers and the recommendations of the report re-evaluated as necessary.

Trial Pits

Trial pits provide an effective method of assessing ground conditions at shallow depth on site and advantages include a rapid check of ground conditions. Trial pits are normally excavated with a wheeled back acting excavator to up to 4m depth, to provide information on ground conditions. Where information is required for existing foundation details or services hand excavated trial pits are normally excavated to up to 1.20m depth. The strata within each trial pit are logged on site by an experienced Engineering Geologist and soil samples are collected for subsequent laboratory testing. The trial pits are entered at shallow depth where safe to do so to allow logging, in-situ testing and sampling. On completion the trial pits are backfilled with arisings.

The excavator will be operated by a trained driver with appropriate experience of the particular machine and suitable certification. A brief explanation of the works and site specific hazards will be provided at the beginning of the working day and reviewed as the work progresses. A bucket width of 0.6m will normally be selected, other widths may be used depending on particular conditions, and a trial pit length of 2m to 3m will be excavated in order to reach the maximum depth of the excavator boom. The arisings will be placed a safe distance from the pit sides in order to prevent overloading of the ground and collapse of the pit sides. Excavation in the upper layers will be undertaken

carefully in thin layers in order to reveal any warning tape indicating buried services. If the trial pit becomes unstable excavation will be stopped.

Large Scale Infiltration Testing

Infiltration testing is undertaken in general accordance with the BRE365 methodology.

Infiltration testing will involve the safe delivery of water into the trial pit via a pipe from a tractor towed bowser. Measurements of water depth will be recorded against time, together with pit dimensions, to allow calculation of an infiltration factor in accordance with BRE365.

Dynamic Drive (Window) Sampling

Dynamic Drive Sampling is used where access is restricted and/or where gas and groundwater installations are required or where hard surfacing is present. Depths of between 3-6m are normally achieved in suitable ground.

The Sampling rig is track mounted, with dimensions of 2.7m long, 0.75m wide and 2.4m high when in operation and 1.3m high when being tracked to position. A four stroke diesel engine is used to operate a chain lifted weight of 63.5kg, which is dropped a distance of 0.76m onto a hardened steel anvil, which is turn drives the steel sampling tubes vertically into the ground. The sample tubes are typically 1m long and 100mm to 75mm in diameter and contain a plastic liner. The samples tubes are retrieved using integral hydraulic rams. Additional driving rods are attached and tubes of gradually reducing diameter used to reach the required depth. Standard Penetration Testing and U100 sampling may be undertaken. Samples are collected from the soil samples recovered. The resulting hole may be completed as a monitoring well or backfilled with arisings. The rig will be operated by trained and experienced crew. Concrete coring is normally undertaken prior to window sampling where concrete surfacing is present, this is normally undertaken with the Archway rig with a coring attachment.

In areas where there is very limited access Dynamic Sampling is undertaking using a hand held jack hammer and separate power pack to drive the sample tubes into the ground. The diameter of the sample tubes are reduced as drilling proceeds. The sample tubes are jacked out of the ground using hydraulic jacks and the power pack. The soils are logged and samples are collected from the tubes.

Supervision of the works will be undertaken by competent Engineering Geologist/ Geotechnical Engineer.

Dynamic Probing

This technique measures the number of blows of a standard weight falling over a standard height. The weight is dropped onto an anvil delivering a set energy onto a hardened steel probe, which is driven into the ground. The number of blows per set 100mm increment is recorded. Dynamic Probing is normally undertaken with a track mounted Archway rig. Where access is limited a portable mechanically driven dynamic probe is used. Depths of up to 10m are typically achieved in suitable ground conditions. The normal weight used is 63.5kg (DPSH). Where access is very limited hand held dynamic probing can be undertaken, which uses a 10kg weight (DPL) with a separate power pack. The rods are jacked out of the ground using a hand held jack. No samples are collected with this method.

Dynamic Cone Penetrometer (DCP)

The hand driven DCP probing device has been calibrated by TRL to provide a profile of CBR values, normally to 0.85m depth.

Cable Percussion Boreholes

The technique can determine ground conditions to depths of in excess of 30m in suitable ground conditions. The method is used in ground conditions other than rock. Soil samples are recovered for logging purposes. Samples are normally collected at 1.00m

intervals or at a change of strata. Standard Penetration Testing and U100/UT100 sampling may be undertaken. Insitu testing is normally undertaken at 1m intervals to 5m depth and thereafter at 1.50m intervals. Steel casing is normally used to prevent hole collapse.

The following description is taken from British Standard BS5930 2015.

Cable percussion boring is an adaptation of standard well-boring methods, and normally uses a mobile rig specially designed for ground investigation work. For most investigations, the rig has a winch of 1 tonne to 2 tonne capacity, which is driven by a diesel engine and a derrick of about 6 m in height. With many types of rig, the legs of the derrick fold down to form a simple trailer that can be towed by a light vehicle. The drill tools, which are worked on a wire rope using the clutch of the winch for the percussive action, consist of the clay cutter for dry cohesive soils, the shell or bailer for granular soils and the chisel for breaking up rock and other hard layers.

The sizes of borehole casings and tools are usually 150 mm and 200 mm. For special projects 250 mm and 300 mm are available. This gives a maximum borehole depth of about 60m in suitable strata. The clay cutter should be used in cohesive soil in a damp or dry borehole. Where the borehole contains water, it might be necessary to use a combination of the clay cutter and the shell in cohesive soil. The shell should be used in granular soils and there should be sufficient water in the bottom of the borehole to cover the shell (about 2.5 m); it is, therefore, necessary to add water to a borehole in order to bore through dry granular strata that require the use of the shell. When the boring advances below the water table in granular strata, water should be added to the borehole to sufficient maintain water in the hole at a level above that of the surrounding groundwater. This reduces, but might not eliminate, the tendency for loosening the ground below the base of the hole by ′blowing′. The shell should be withdrawn slowly and, if necessary, an undersized shell should be used.

Cable percussion boring may be used for soil and weaker rocks. The clay cutter and shell bring up disturbed material which is usually sufficiently representative to permit identification of the strata.

Rotary Drilling

The technique can determine ground conditions to depths of in excess of 30m in suitable ground conditions. The method is used for drilling in soil and rock. The drilling is undertaken using a rotary drilling rig. The boreholes are initially drilled by dynamic sampling methods from ground level and stopped when effective refusal for this technique is reached as defined by a Standard Penetration Test (SPT) N value >50.

Soils samples are recovered for logging purposes. Samples are normally collected at 1.00m intervals or at a change of strata. Standard Penetration Testing and U100/UT100 sampling may be undertaken. Insitu testing is normally undertaken at 1m intervals to 5m depth and thereafter at 1.50m intervals. The boreholes are then ODEX cased and continued by rotary coring. The coring is normally undertaken using a 1.50m long T6-116 core barrel, giving a core diameter of 92mm. A combined air and water flush is used to assist coring and maximise the core recovery. The rotary coring technique includes a plastic core liner within the metal barrel; the liner is removed after sampling and placed into a wooden core box. The rock cores are logged, sampled and photographed by an Engineering Geologist. Examination of the cores allows detailed rock description and generally enables angled discontinuity surfaces to be observed.

The following description is taken from British Standard BS5930 2015.

Rotary drilling methods, in which the drill bit is rotated on the bottom of the borehole, are used to drill rocks and soils for investigation purposes. The drilling fluid, which is passed from the surface through hollow drill rods to the face of the bit, cools and lubricates the bit, transports drill cuttings to the ground surface and, when using particular types of drilling fluids, stabilizes the borehole. Common drilling fluids include clean water, air or a mixture of both. Mud, polymers or foam are also frequently used to maintain or assist

borehole stability, aid the transport of drill cuttings to the surface and maximize core recovery, particularly in soils and weaker rock formations.

There are two basic types of rotary drilling: open hole (or full hole) drilling, where the drill bit cuts all the material within the diameter of the borehole; and core drilling, where an annular bit, fixed to the bottom of the outer rotating tube of a core barrel, cuts a core, which is recovered within the innermost tube of the core barrel assembly and brought to the surface for examination and testing. Rotary drilling for ground investigation is usually core drilling.

When open hole drilling or coring, temporary casing is normally used to support unstable ground or to seal off fissures or voids, which cause excessive loss of drilling fluid. Drilling fluid additives or cement grouting can sometimes be satisfactory alternatives.

The rotary drilling rig should be well maintained and should be capable both of controlling rotational speed and providing axial load and torque to suit the nature and hardness of the material penetrated, the diameter of the core barrel and drill string, drilling fluid and flushing system, weight of drill string and installation of temporary casing(s). When recirculating, the drill fluid should be cleaned as an integral part of the process so that it is suitable for continuing reuse.

Open Hole Drilling

The technique is normally used for installing groundwater and gas monitoring wells or for determining the presence or otherwise of voids in bedrock to depths of in excess of 30m in suitable ground conditions. The drilling is undertaken using a rotary drilling rig. The boreholes are normally drilled by open hole methods with air flush. The boreholes are logged from arisings and rates of penetration by an Engineering Geologist.

The following description is taken from British Standard BS5930 2015.

Open hole drilling is sometimes used in soils and weaker rocks as a rapid and economical means of making holes in the ground for the purpose of advancing the hole to a sampling depth, progressing a hole to a specified depth or material type, for carrying out in-situ tests, for installing instruments, etc. The technique can also be used to probe for voids such as mine workings, solution cavities, etc. Systems are available whereby casings are driven simultaneously with the open hole bit. While drilling, only drill cuttings are returned in the drill fluid.

The rate of progress of drilling and observations of the flushing medium and the cuttings should be recorded. These records may be made by the lead driller or a separate logger. The cuttings constitute very low quality samples and it is usually difficult to detect a change in strata, unless there is a good contrast in properties such as colour, mineral content or hardness. Where such contrast prevails, open hole drilling can be used as a probing technique.

NOTE The use of suitable instrumentation, termed “drilling parameter recording” (DPR) or “measurements while drilling” (MWD), in order to record the progress of the drilling rig can considerably enhance the results obtained (see BS EN ISO 22476-15).

Static Cone Penetration Test (SCPT)

Static cone penetration testing uses a hydraulic drive system to push a cone into the ground at a constant velocity from ground level on hollow extension rods each 1m long, which have a readout cable running though the hollow centre. Internal load sensing devices measure the axial thrust on the cone and the frictional force on the sleeve; an inclinometer checks vertical alignment and drift. The electrical signals are transmitted by the umbilical cable to the recorders at ground level as the tip is pushed into the ground at a constant rate of penetration of 20 mm/second.

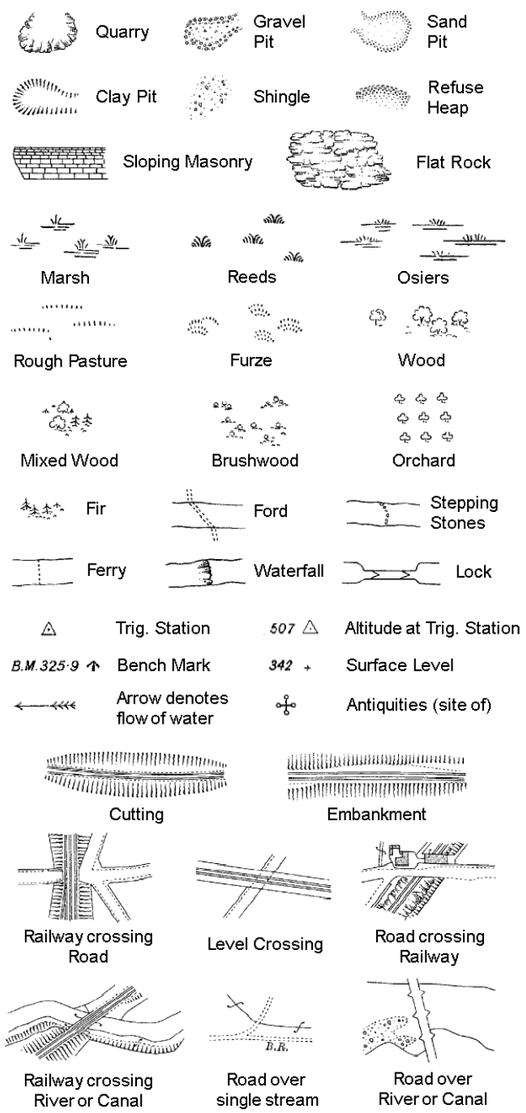
The cone is 35.7mm in diameter, so that its projected area is 10cm², and the friction sleeve area is 150cm². The cone and sleeve resistances are automatically recorded in MPa.

A piezometric sensor and filter can be incorporated in the penetrometer to record equilibrium pore water pressures at intervals and excess pore water pressures during penetration.

Appendix C – Historical Mapping

Historical Mapping Legends

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



County Boundary (Geographical)

County & Civil Parish Boundary

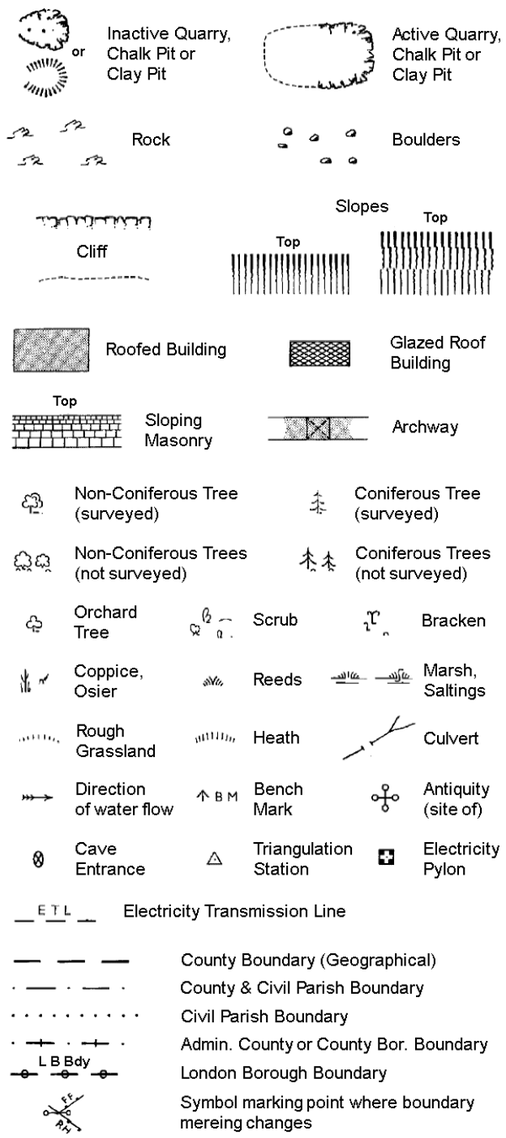
Administrative County & Civil Parish Boundary

Co. Boro. Bdy. County Borough Boundary (England)

Co. Burgh Bdy. County Burgh Boundary (Scotland)

B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



County Boundary (Geographical)

County & Civil Parish Boundary

Civil Parish Boundary

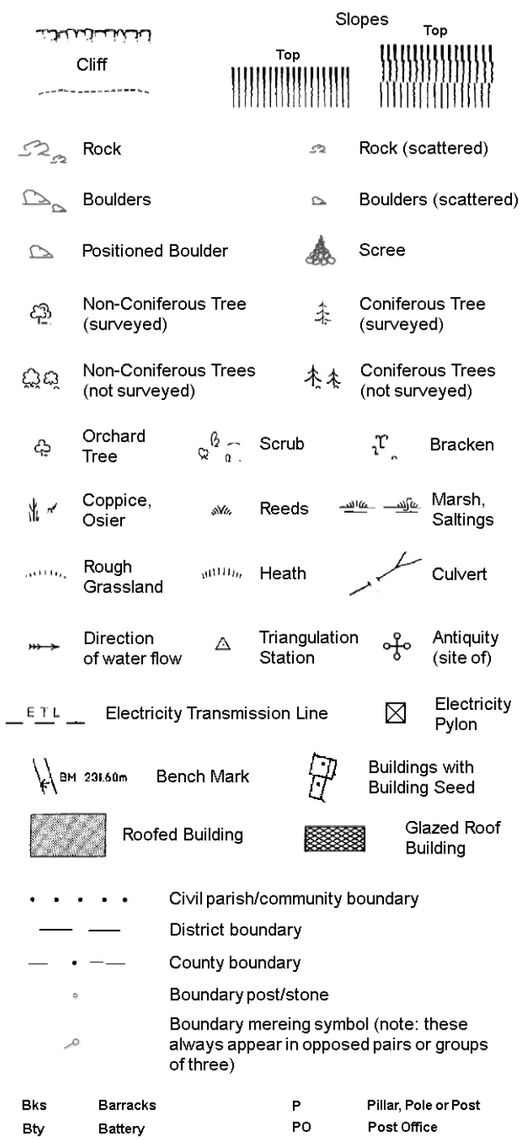
Admin. County or County Bor. Boundary

L B Bdy London Borough Boundary

Symbol marking point where boundary mereing changes

BH	Beer House	P	Pillar, Pole or Post
BP, BS	Boundary Post or Stone	PO	Post Office
Cn, C	Capstan, Crane	PC	Public Convenience
Chy	Chimney	PH	Public House
D Fn	Drinking Fountain	Pp	Pump
El P	Electricity Pillar or Post	SB, S Br	Signal Box or Bridge
FAP	Fire Alarm Pillar	SP, SL	Signal Post or Light
FB	Foot Bridge	Spr	Spring
GP	Guide Post	Tk	Tank or Track
H	Hydrant or Hydraulic	TCB	Telephone Call Box
LC	Level Crossing	TCP	Telephone Call Post
MH	Manhole	Tr	Trough
MP	Mile Post or Mooring Post	Wr Pt, Wr T	Water Point, Water Tap
MS	Mile Stone	W	Well
NTL	Normal Tidal Limit	Wd Pp	Wind Pump

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



Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

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

Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filter Bed	Spr	Spring
Fn / D Fn	Fountain / Drinking Ftn.	Tk	Tank or Track
Gas Gov	Gas Valve Compound	Tr	Trough
GVC	Gas Governer	Wd Pp	Wind Pump
GP	Guide Post	Wr Pt, Wr T	Water Point, Water Tap
MH	Manhole	Wks	Works (building or area)
MP, MS	Mile Post or Mile Stone	W	Well

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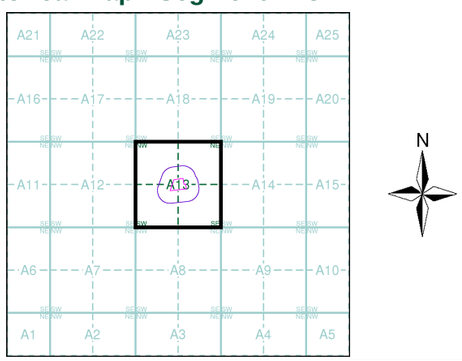
Historical Mapping & Photography included:

Historical Map - Segment A13



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Customer Ref:	GCE01141
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Site Details

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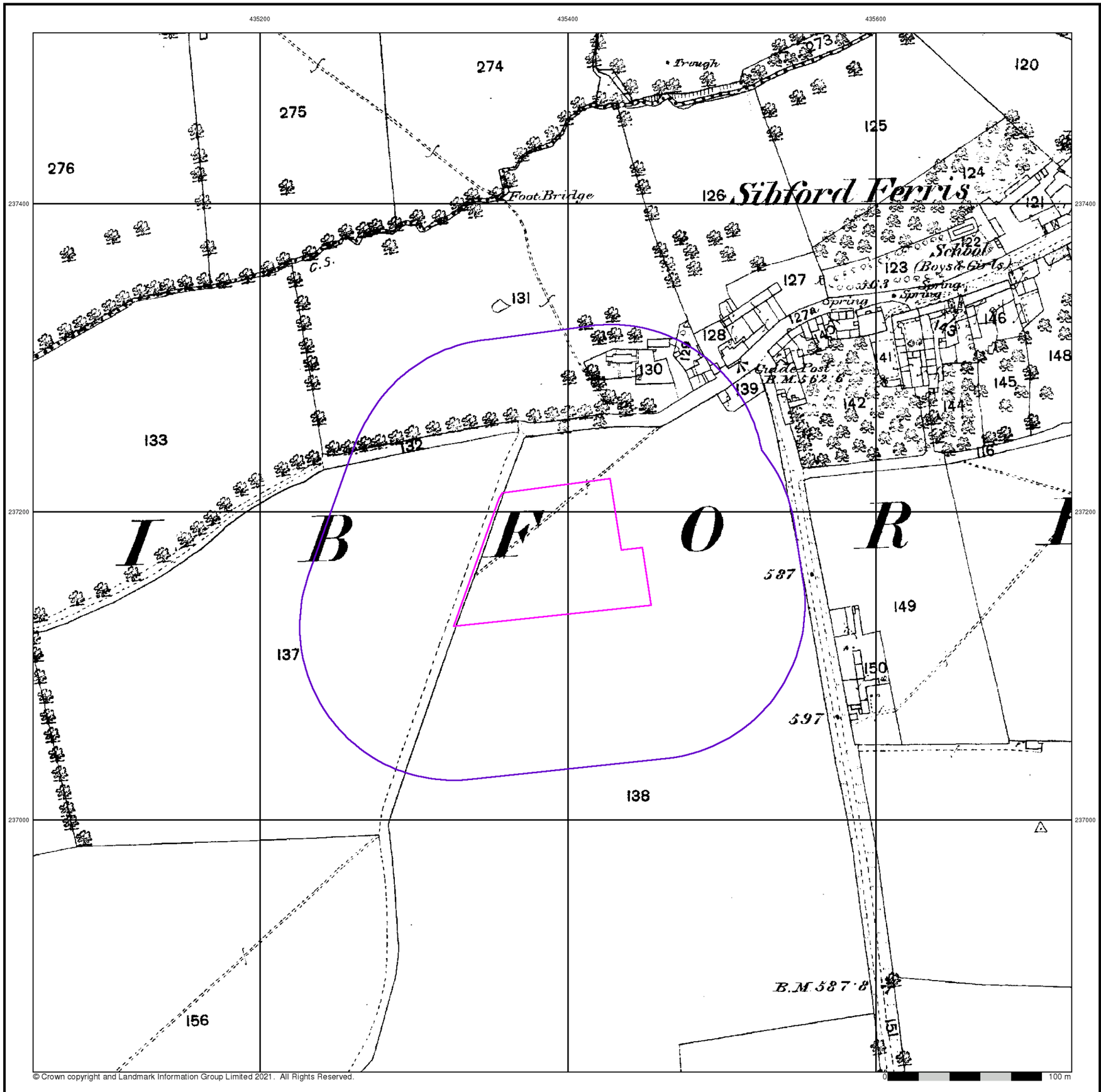

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Oxfordshire

Published 1882

Source map scale - 1:2,500

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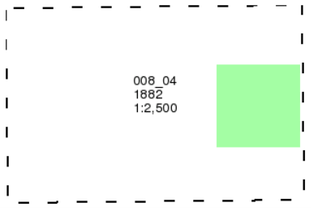

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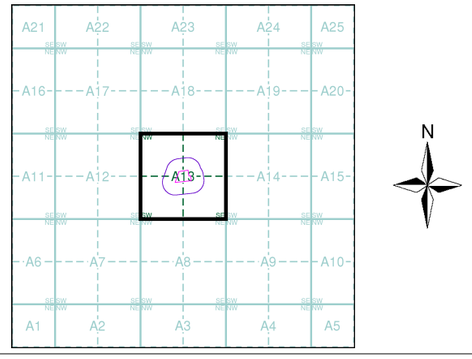

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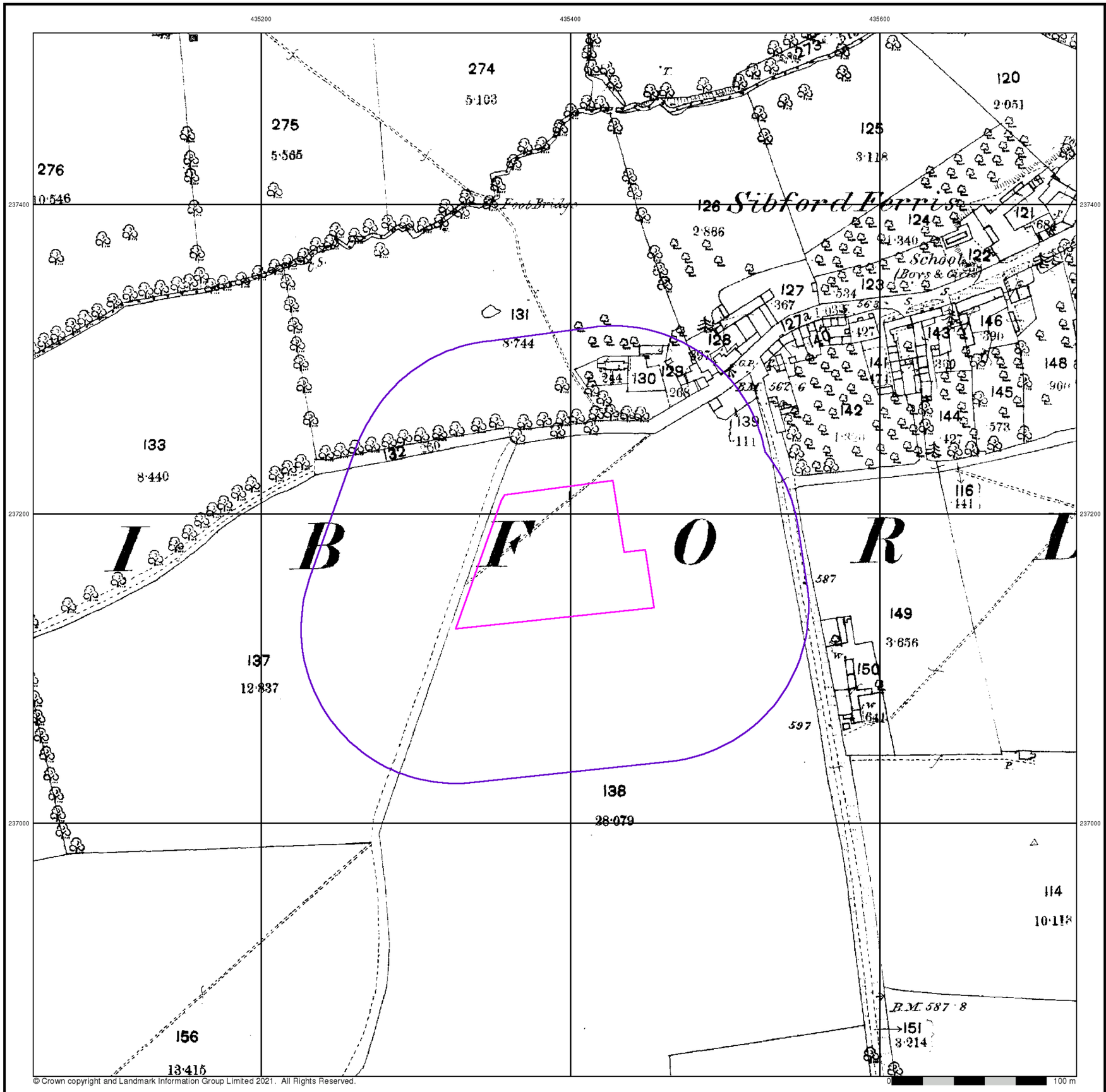

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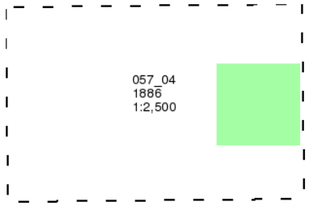

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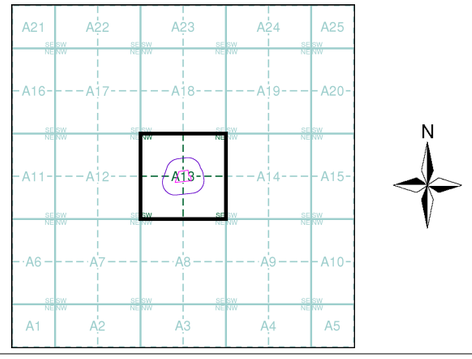

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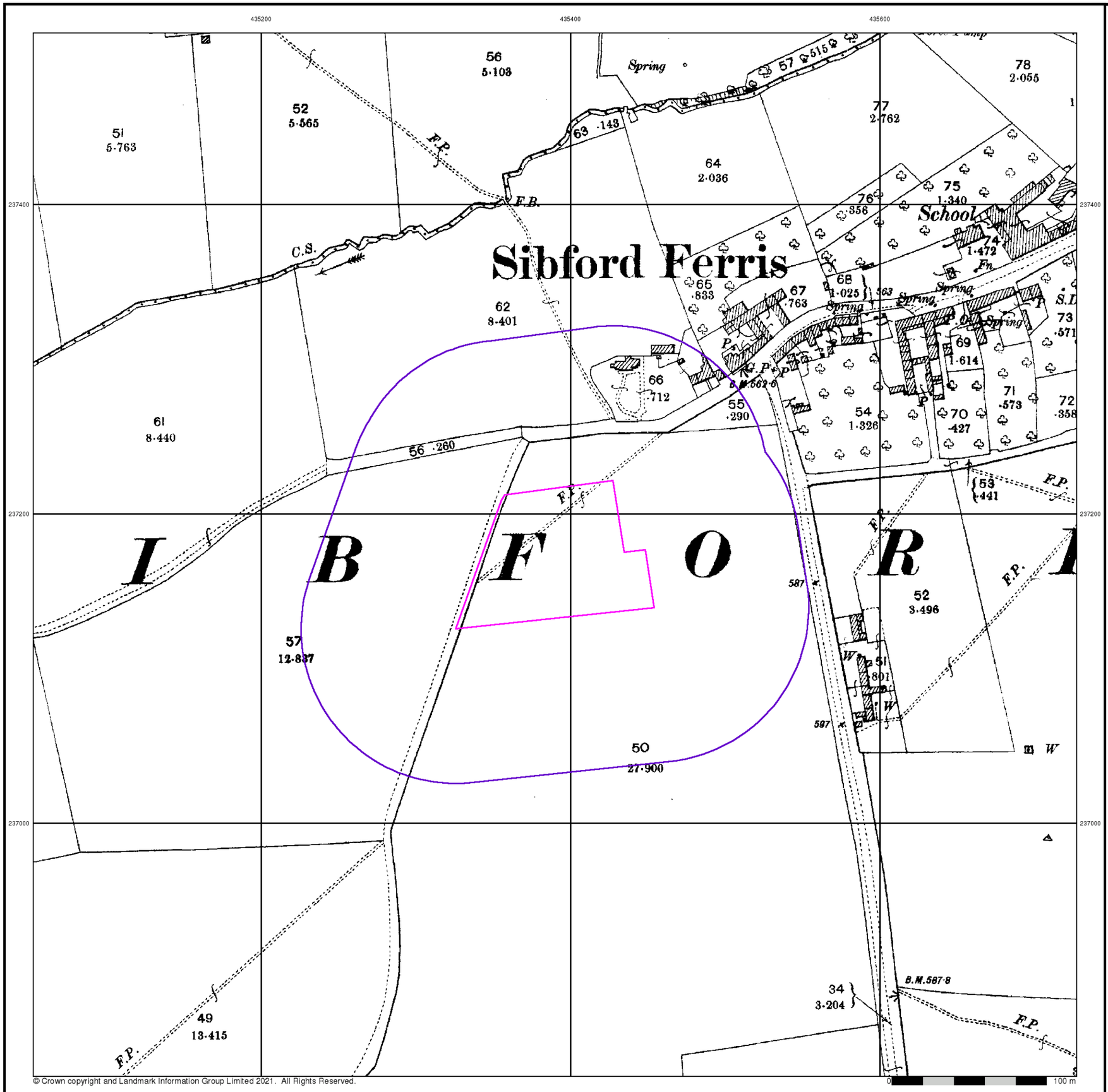

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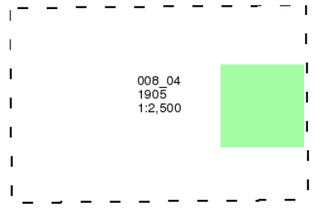

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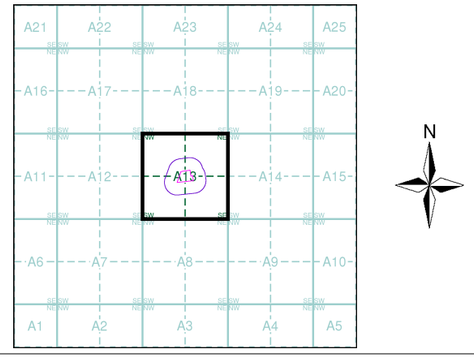

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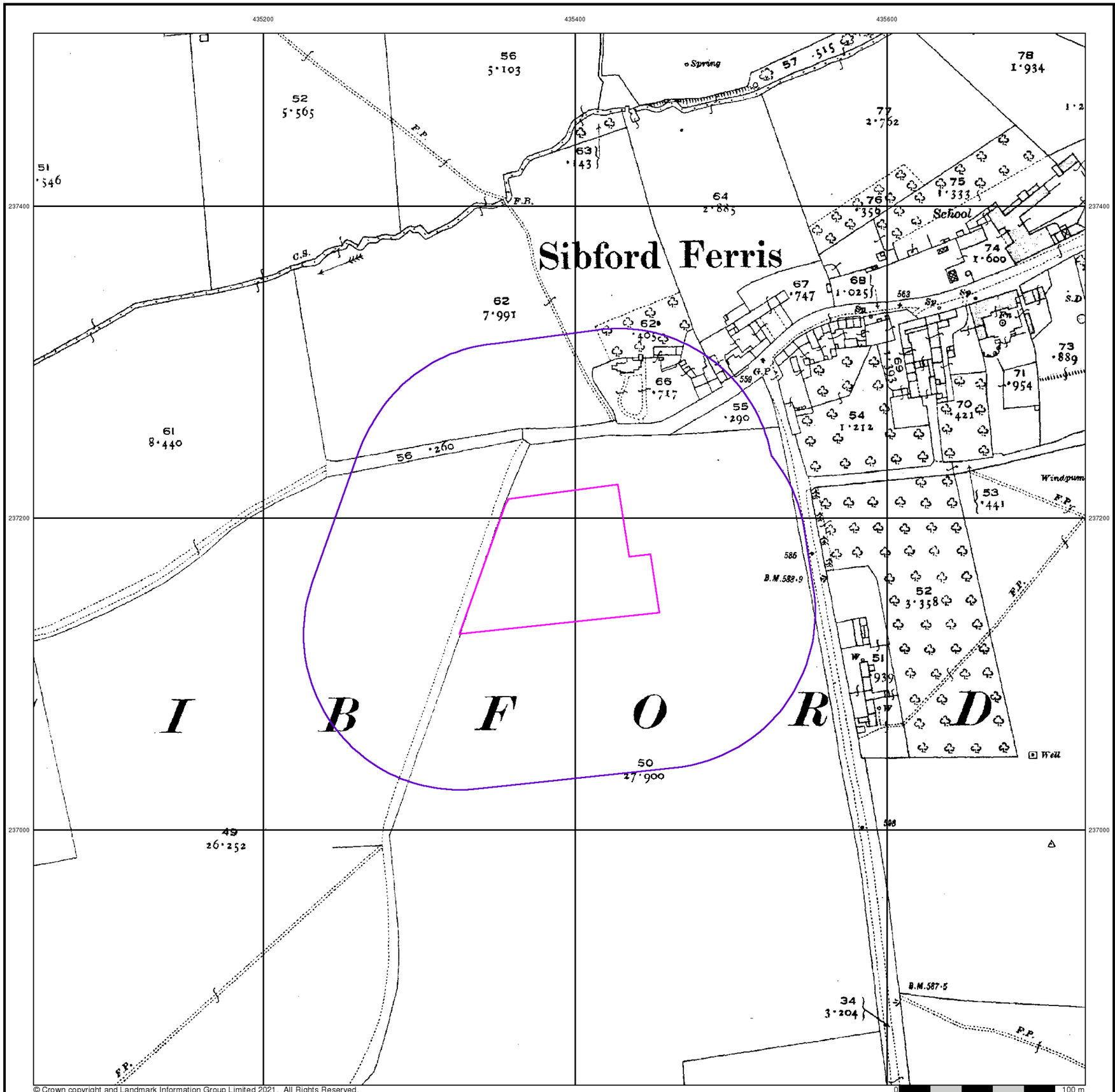

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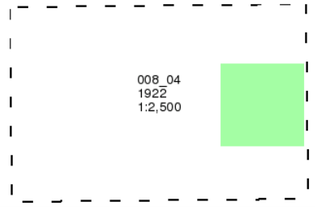

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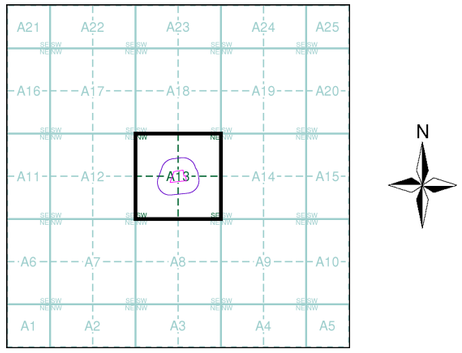

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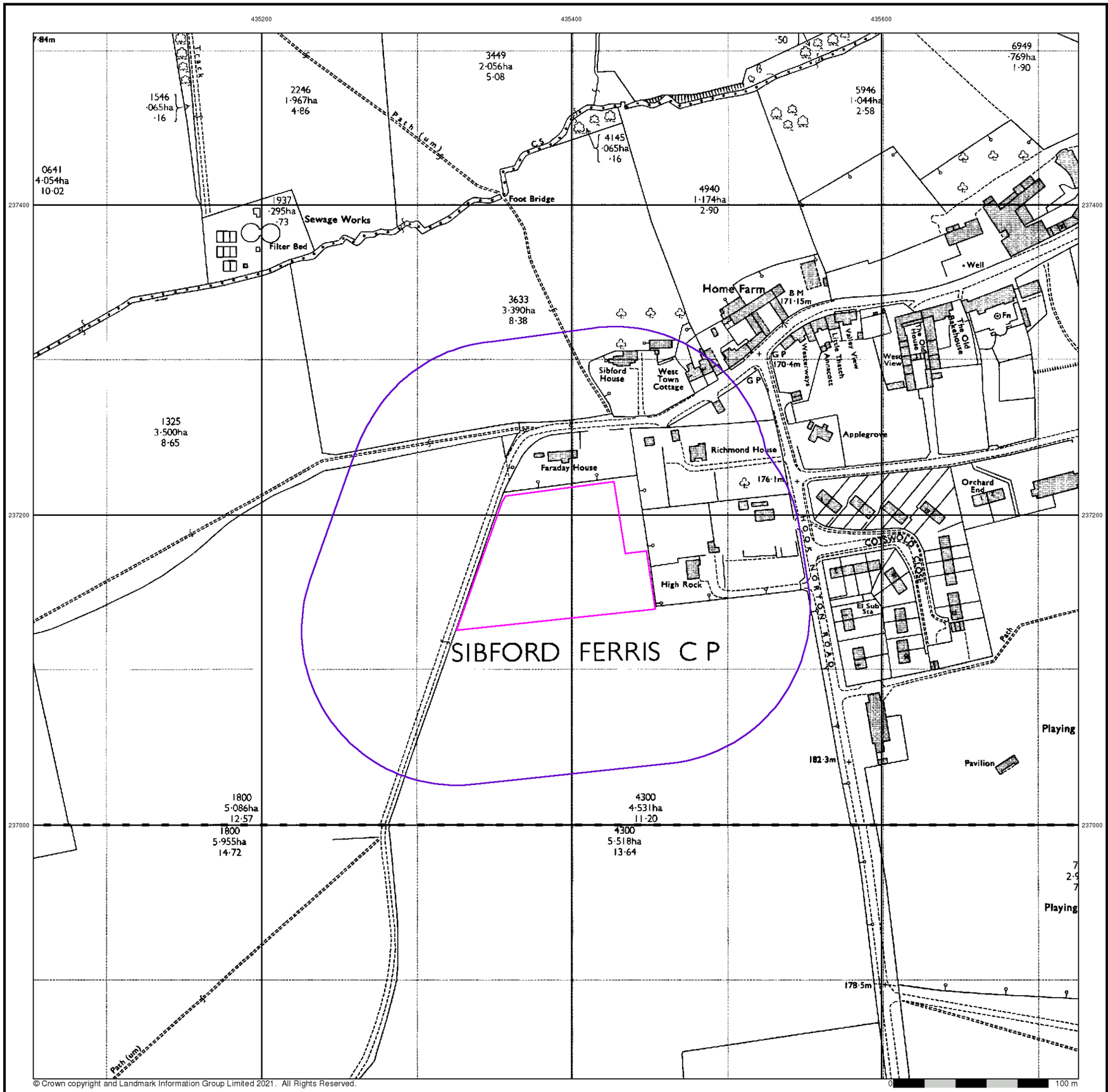

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Ordnance Survey Plan

Published 1974

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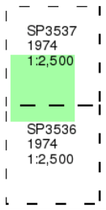

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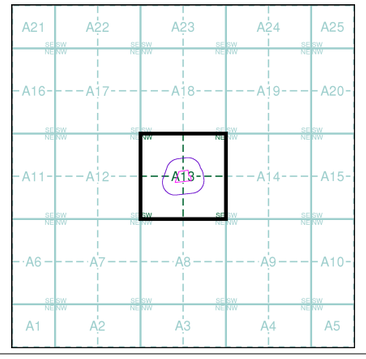

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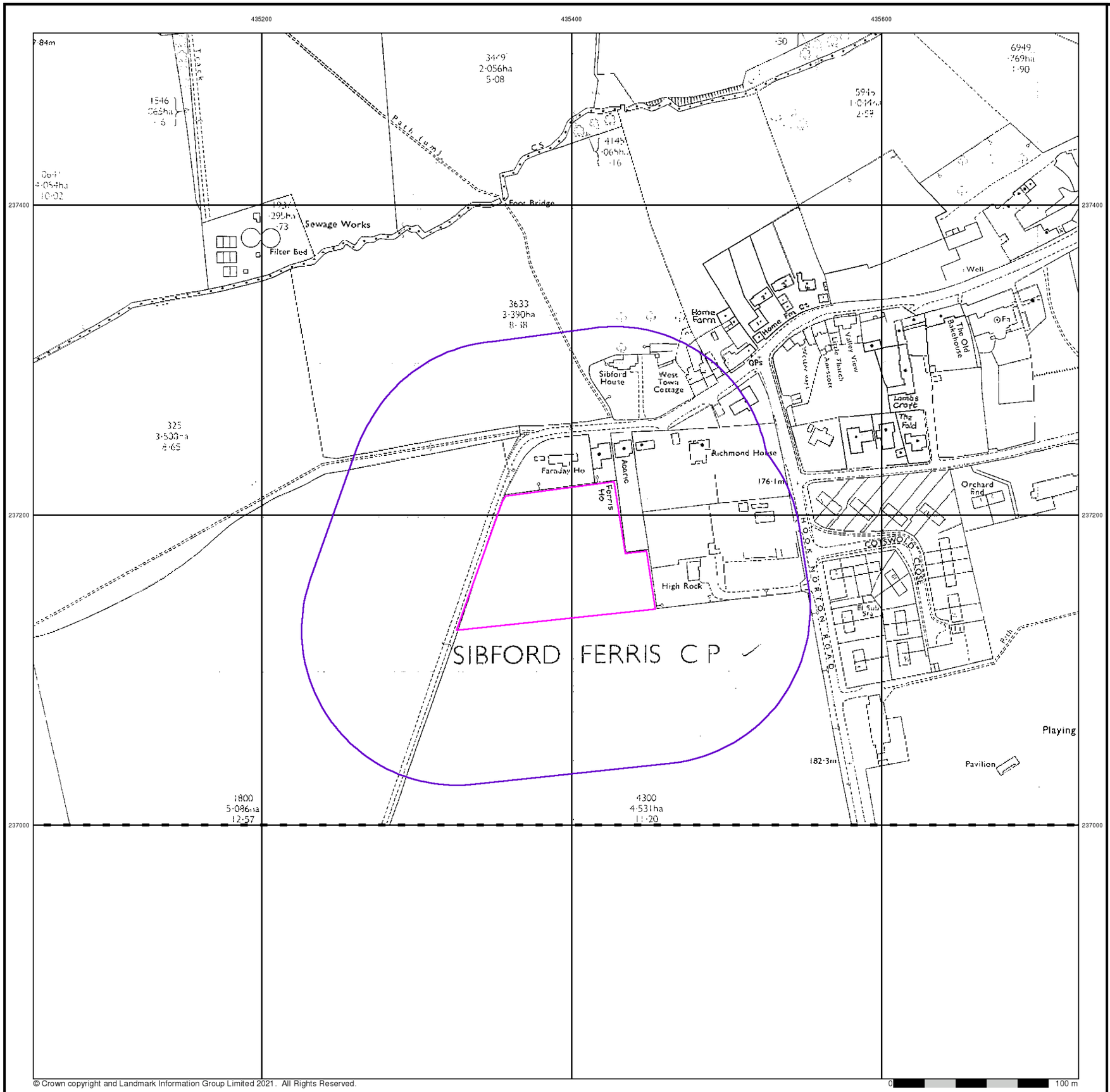

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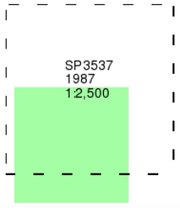
Additional SIMs

Published 1987

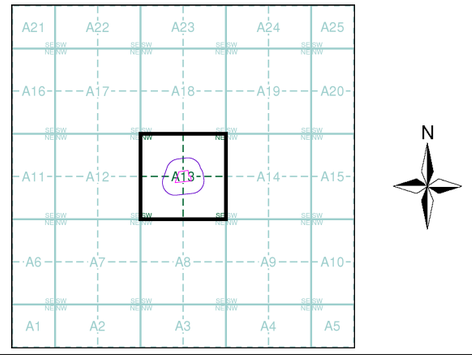
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	100

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

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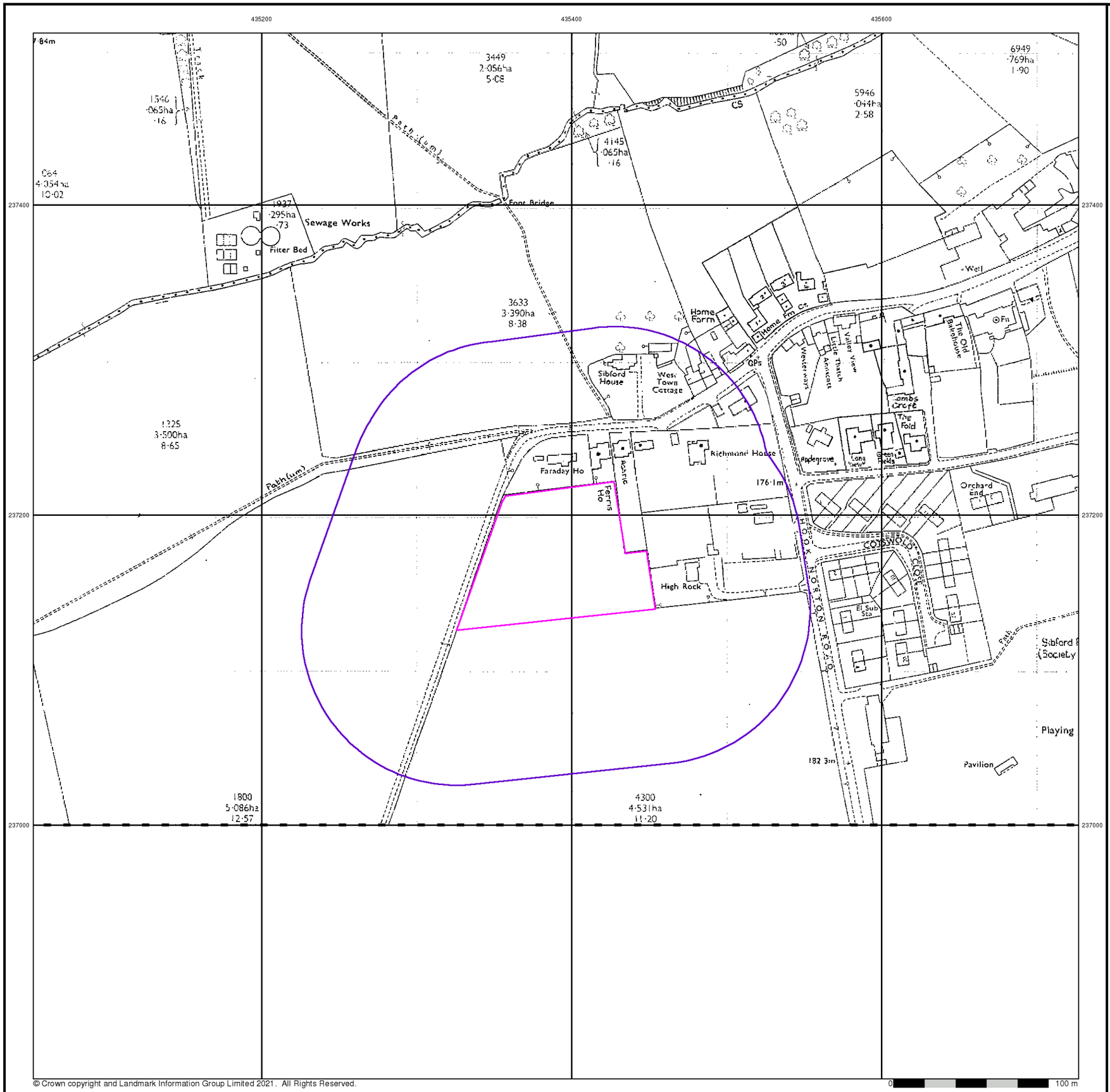

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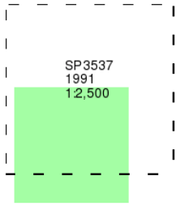
Additional SIMs

Published 1991

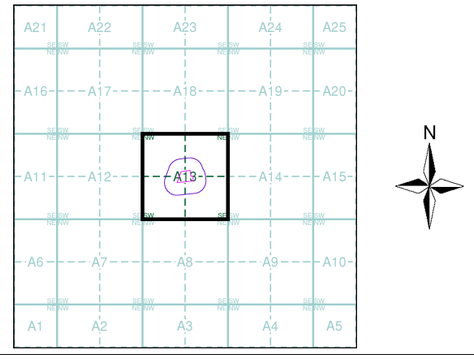
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Large-Scale National Grid Data

Published 1993

Source map scale - 1:2,500

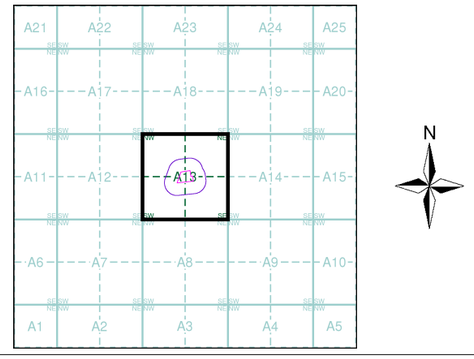
'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

Map Name(s) and Date(s)

SP3537
1993
1:2,500

SP3536
1993
1:2,500

Historical Map - Segment A13



Order Details

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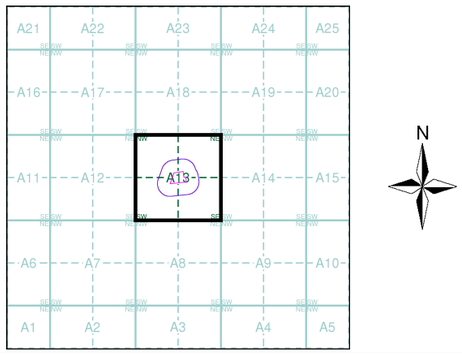
Historical Aerial Photography

Published 1999

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

Historical Aerial Photography - Segment A13



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Site Details

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

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

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Electricity Transmission Line
Pole
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

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

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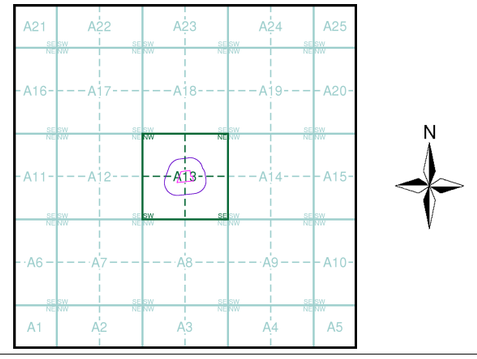
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Oxfordshire	1:10,560	1884 - 1887	2
Warwickshire	1:10,560	1885 - 1886	3
Oxfordshire	1:10,560	1900	4
Oxfordshire	1:10,560	1905 - 1906	5
Gloucestershire	1:10,560	1923	6
Oxfordshire	1:10,560	1923	7
Historical Aerial Photography	1:10,560	1948	8
Oxfordshire	1:10,560	1951	9
Ordnance Survey Plan	1:10,000	1955	10
Ordnance Survey Plan	1:10,000	1977	11
10K Raster Mapping	1:10,000	1999	12
10K Raster Mapping	1:10,000	2006	13
VectorMap Local	1:10,000	2021	14

Historical Map - Slice A



Order Details

Order Number: 281861625_1_1
Customer Ref: GCE01141
National Grid Reference: 435390, 237170
Slice: A
Site Area (Ha): 0.84
Search Buffer (m): 1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

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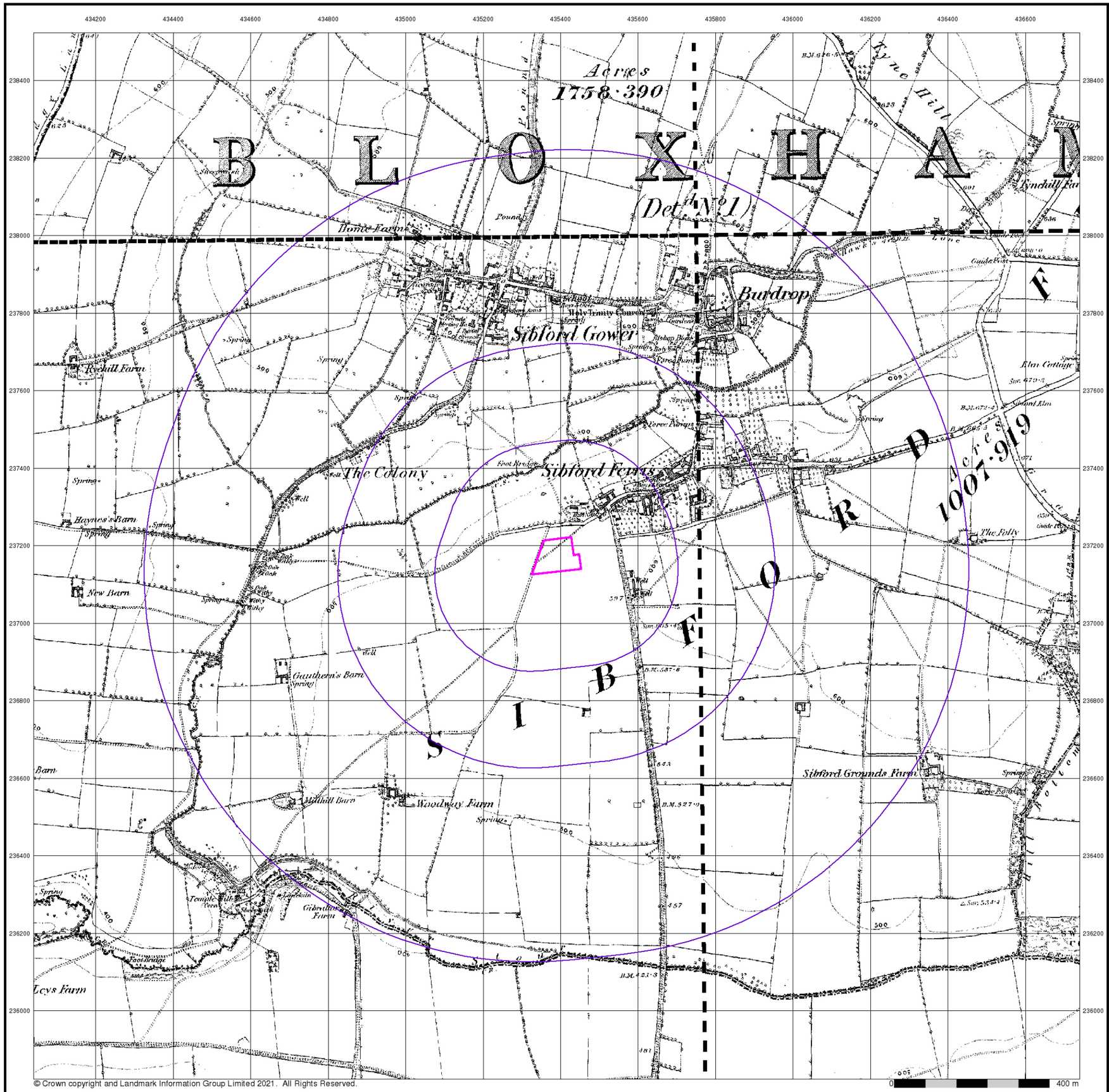

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Oxfordshire

Published 1884 - 1887

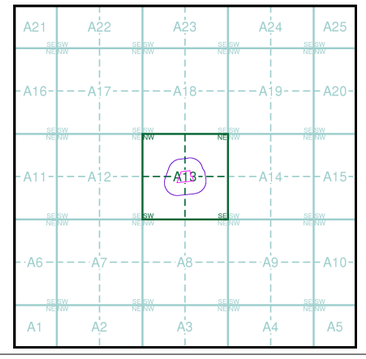
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

00400 1885 1:10,560	00500 1887 1:10,560
00800 1884 1:10,560	00900 1885 1:10,560

Historical Map - Slice A



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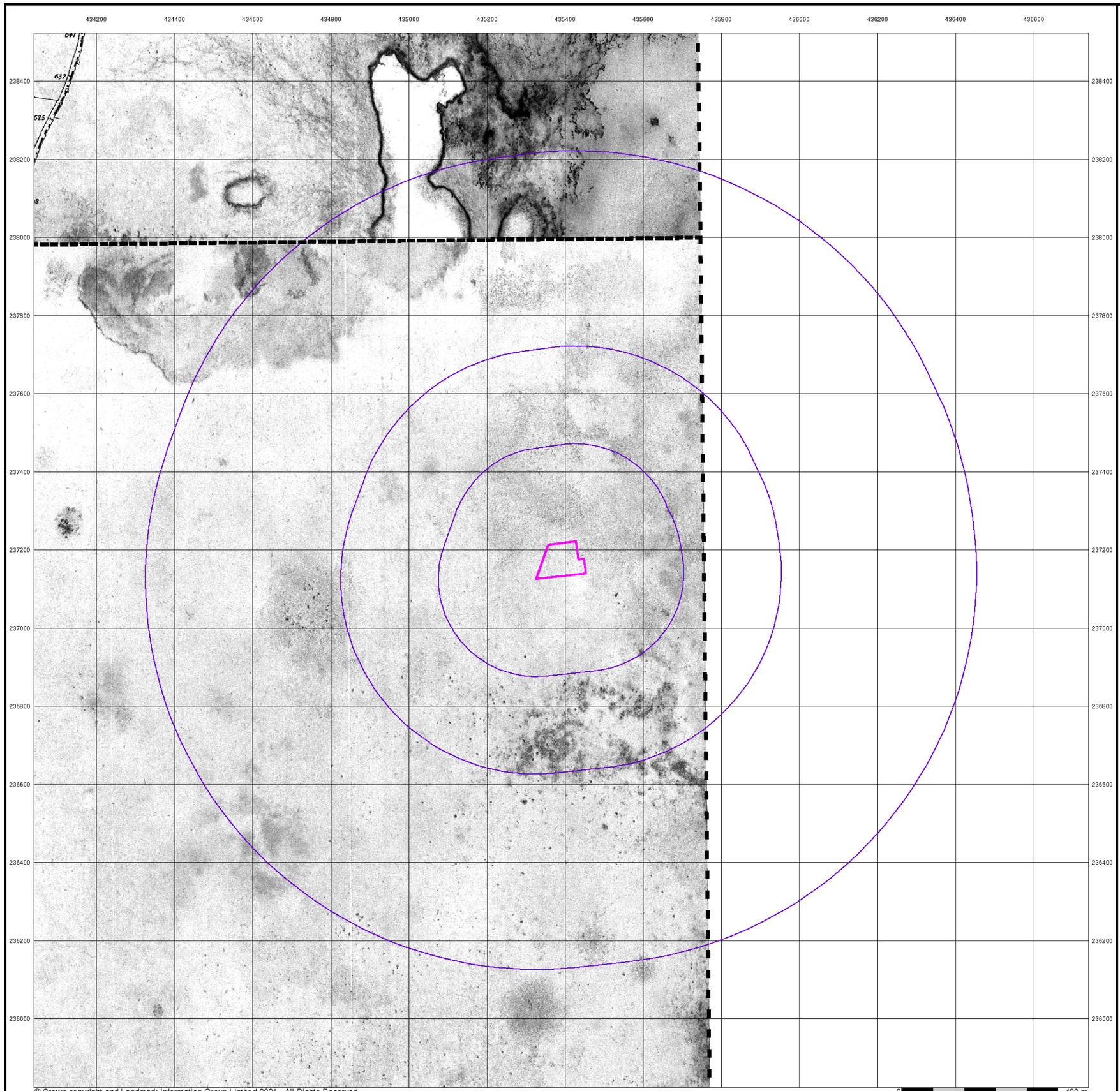

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LANDMARK INFORMATION GROUP®

Warwickshire

Published 1885 - 1886

Source map scale - 1:10,560

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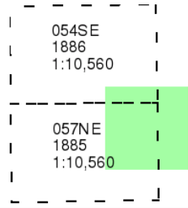
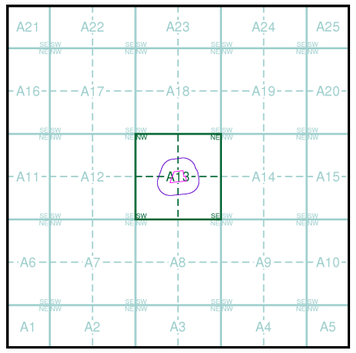
Map Name(s) and Date(s)



Historical Map - Slice A



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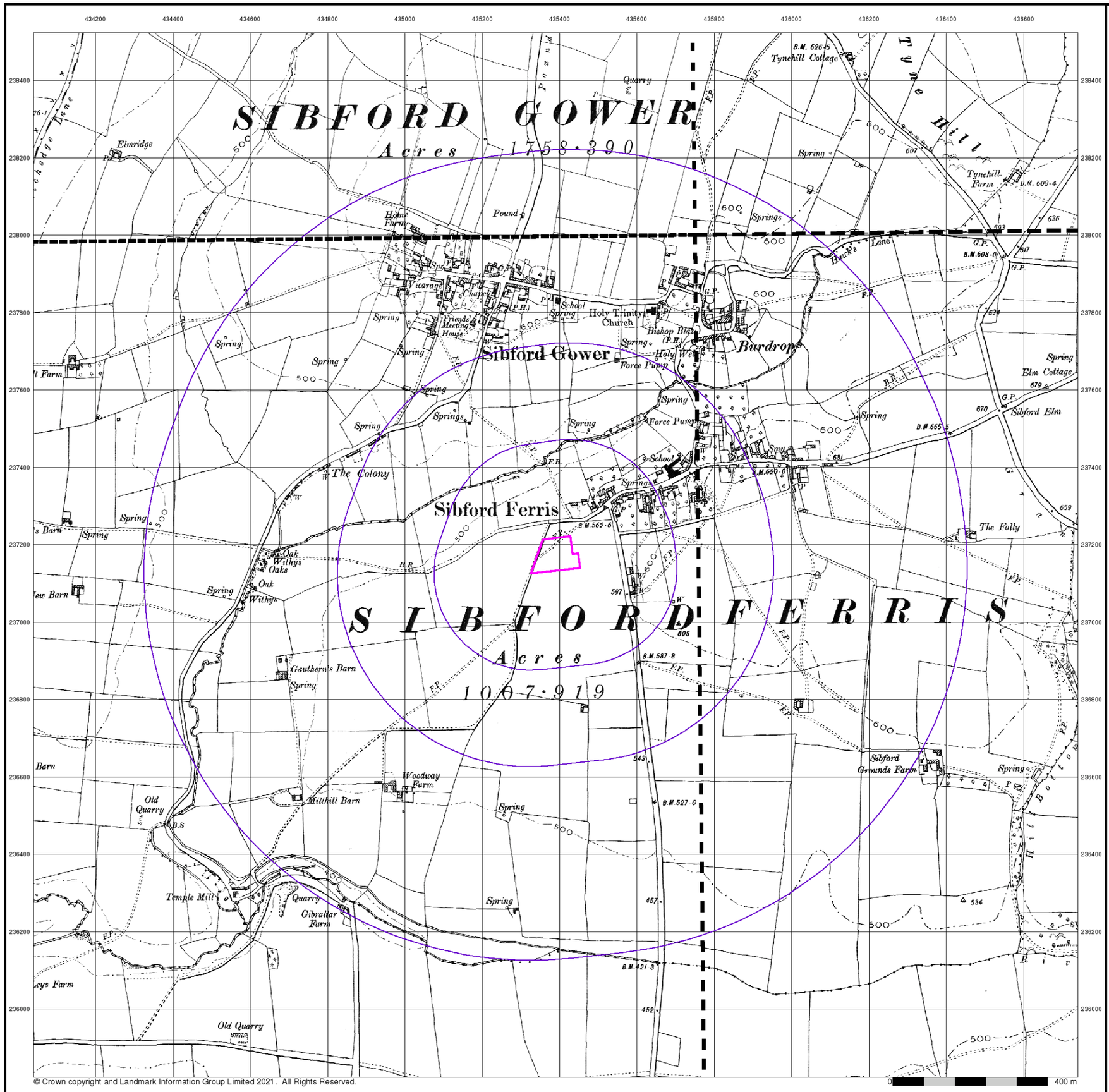

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Oxfordshire

Published 1900

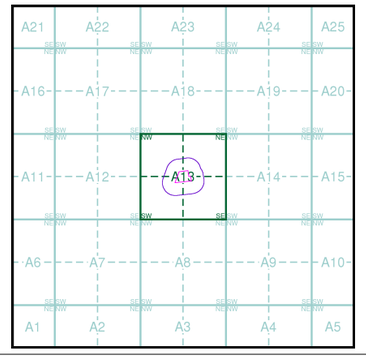
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

004SE 1900 1:10,560	005SW 1900 1:10,560
008NE 1900 1:10,560	009NW 1900 1:10,560

Historical Map - Slice A



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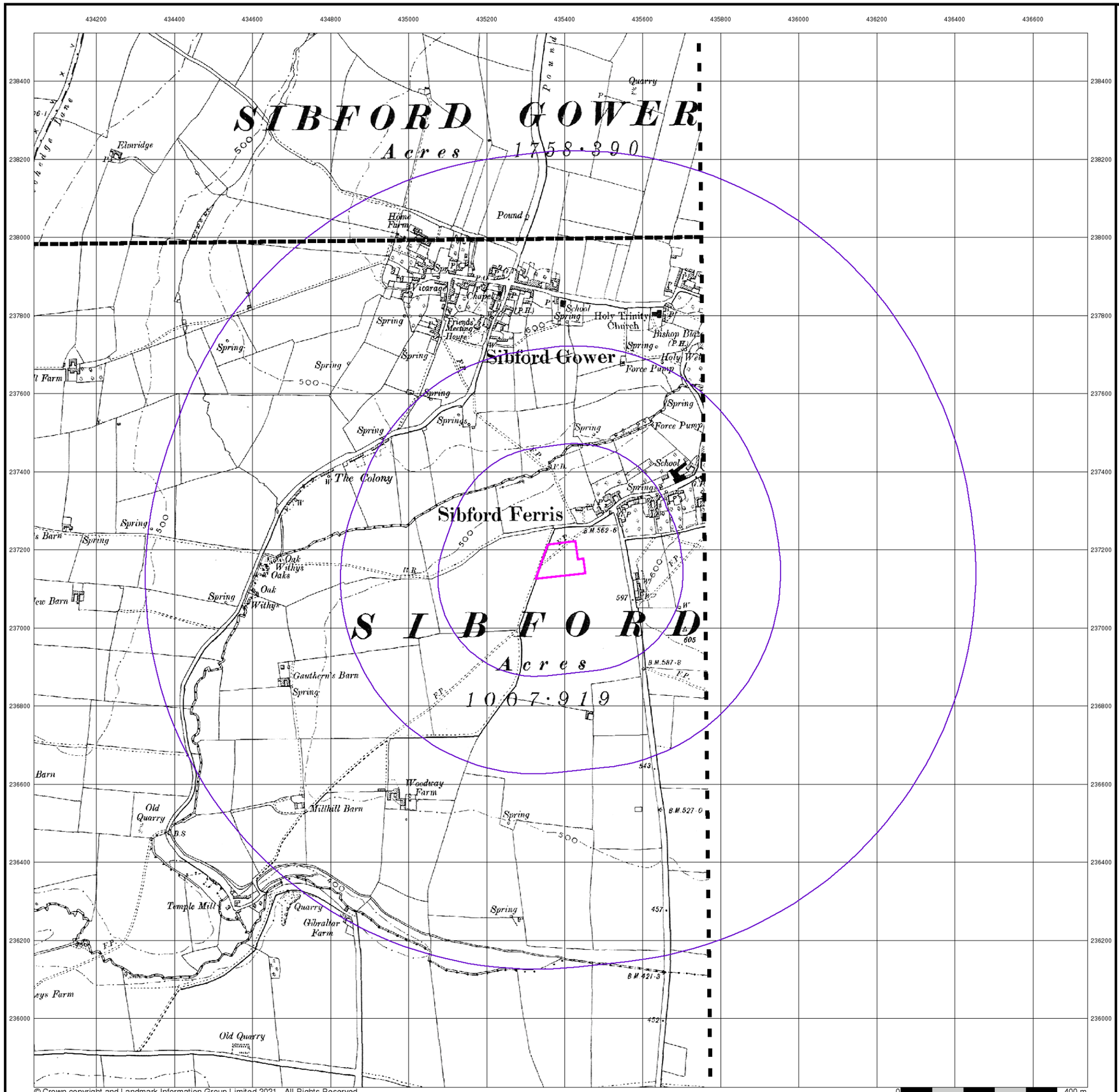

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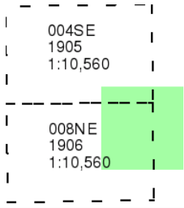
Oxfordshire

Published 1905 - 1906

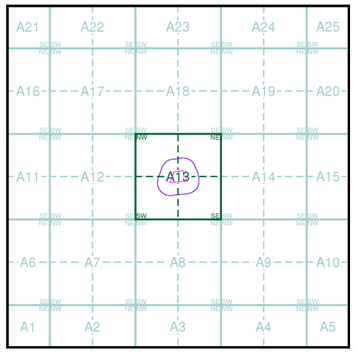
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



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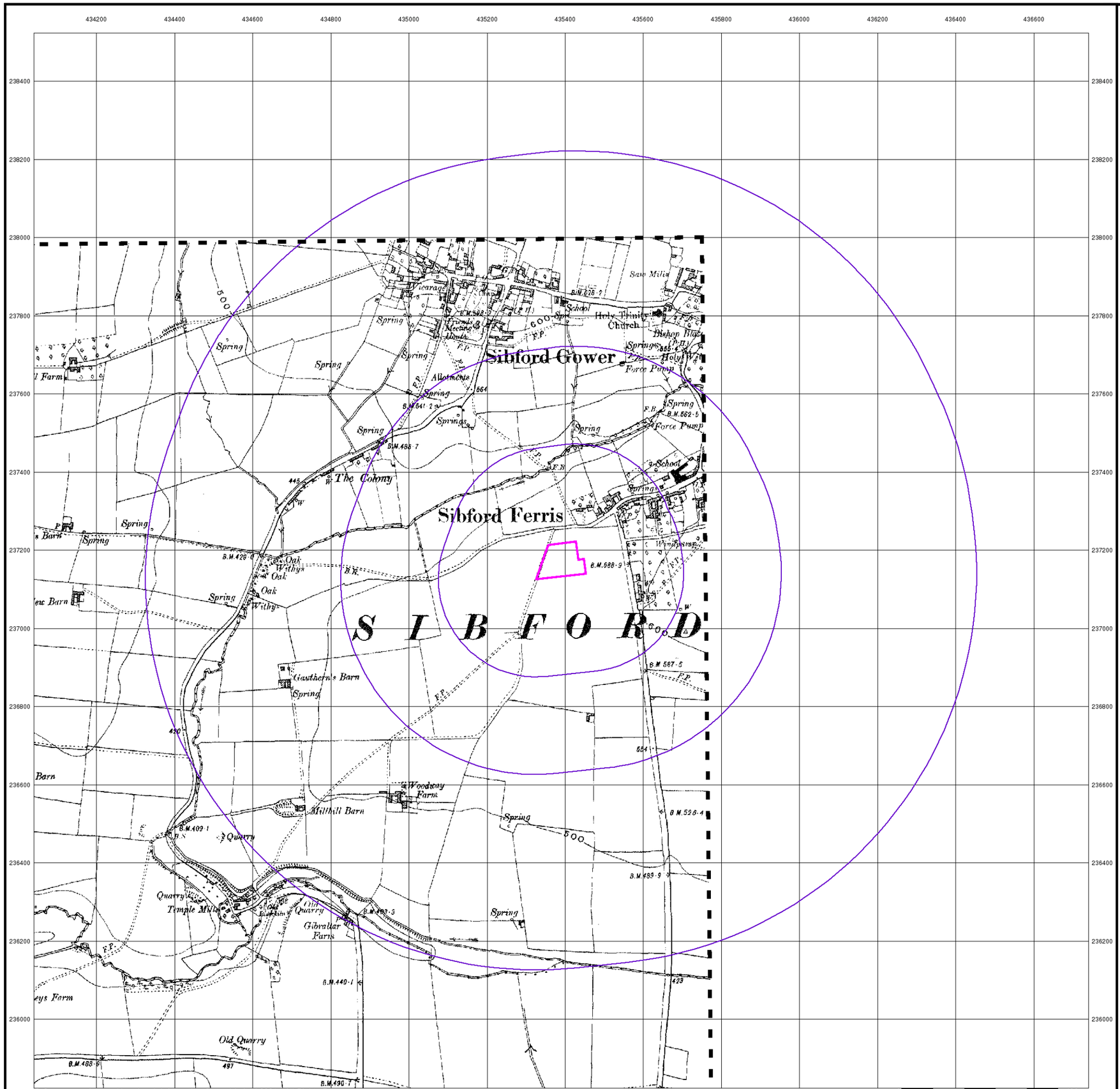

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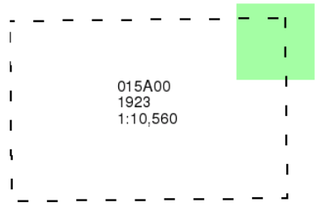
Gloucestershire

Published 1923

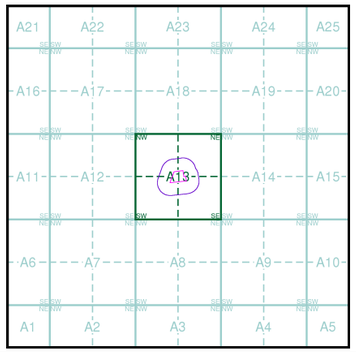
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



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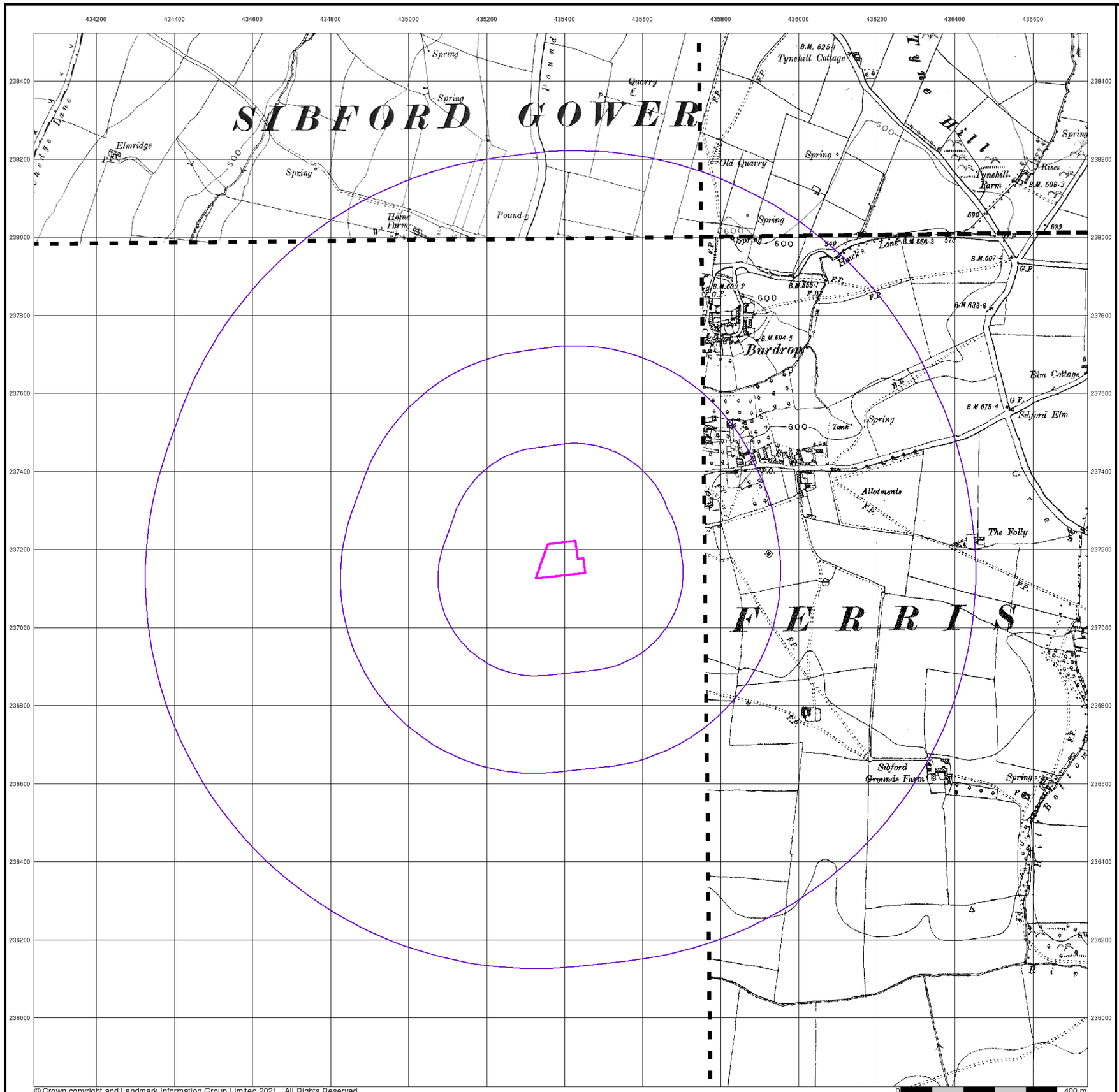

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Oxfordshire

Published 1923

Source map scale - 1:10,560

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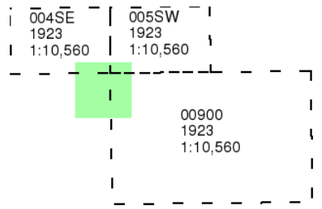
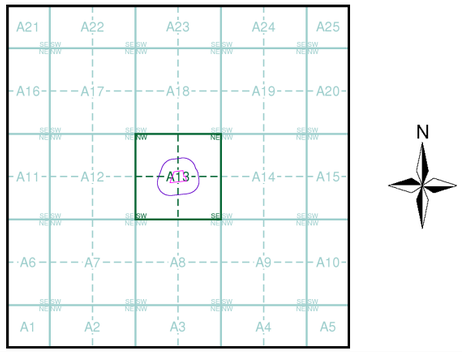
Map Name(s) and Date(s)



Historical Map - Slice A



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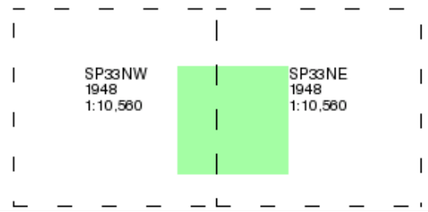
Historical Aerial Photography

Published 1948

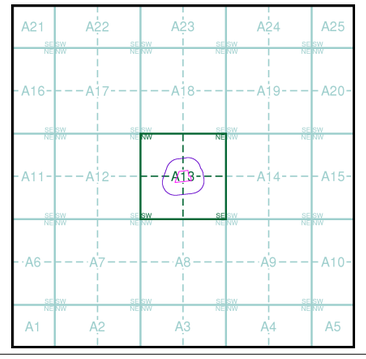
Source map scale - 1:10,560

The Historical Aerial Photos were produced by the Ordnance Survey at a scale of 1:1,250 and 1:10,560 from Air Force photography. They were produced between 1944 and 1951 as an interim measure, pending preparation of conventional mapping, due to post war resource shortages. New security measures in the 1950's meant that every photograph was re-checked for potentially unsafe information with security sites replaced by fake fields or clouds. The original editions were withdrawn and only later made available after a period of fifty years although due to the accuracy of the editing, without viewing both revisions it is not easy to spot the edits. Where available Landmark have included both revisions.

Map Name(s) and Date(s)



Historical Aerial Photography - Slice A



Order Details

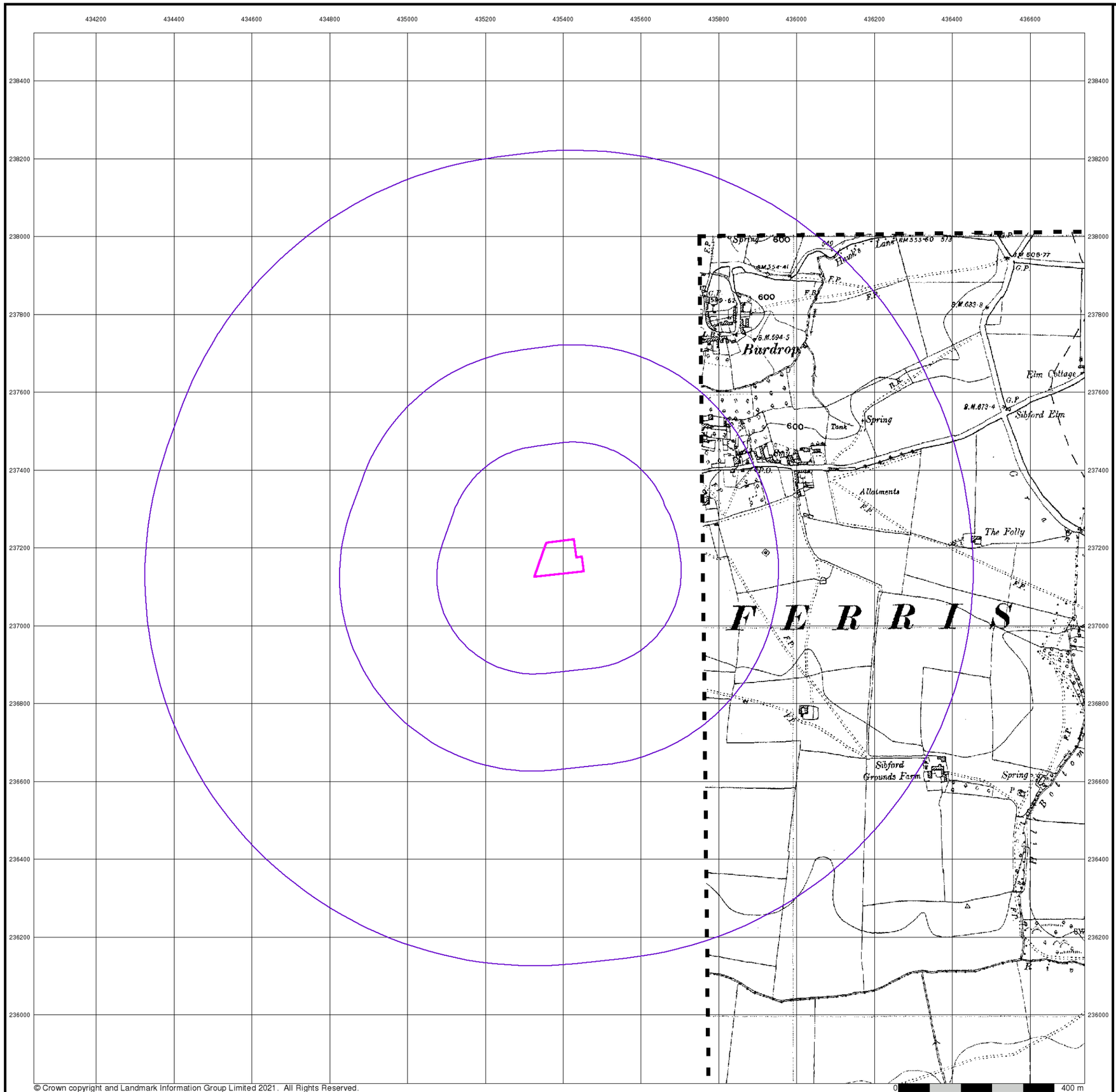
Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

Landmark® INFORMATION GROUP

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



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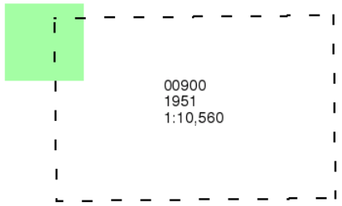
Oxfordshire

Published 1951

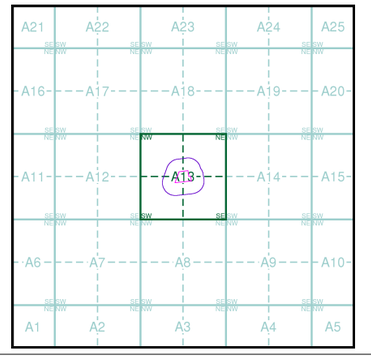
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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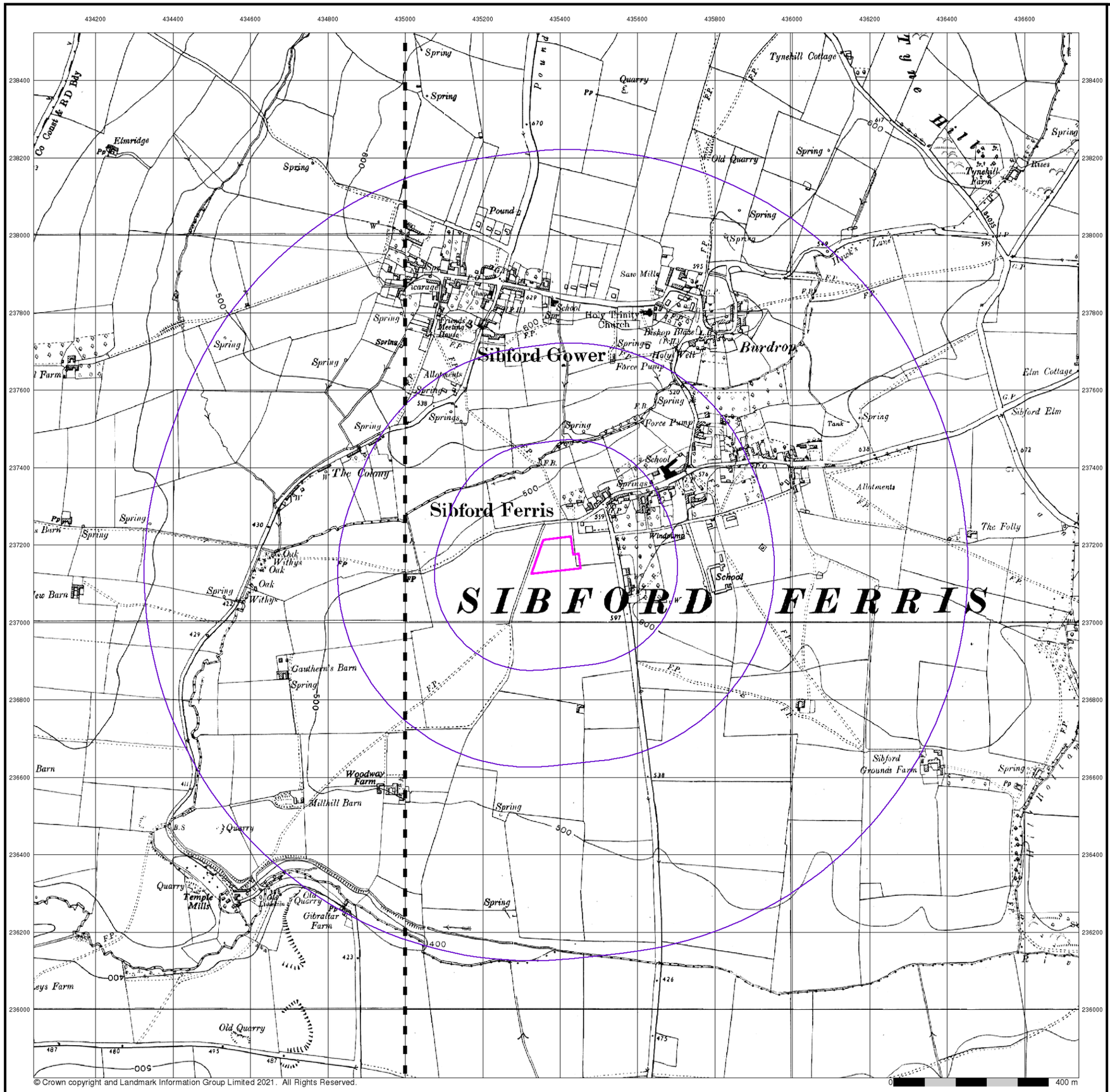

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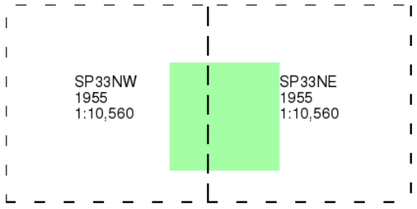
Ordnance Survey Plan

Published 1955

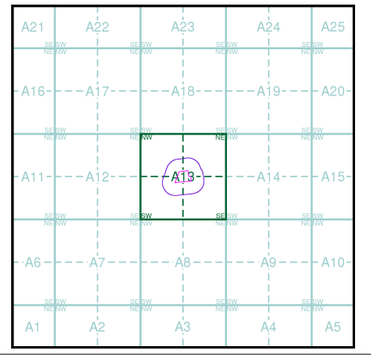
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



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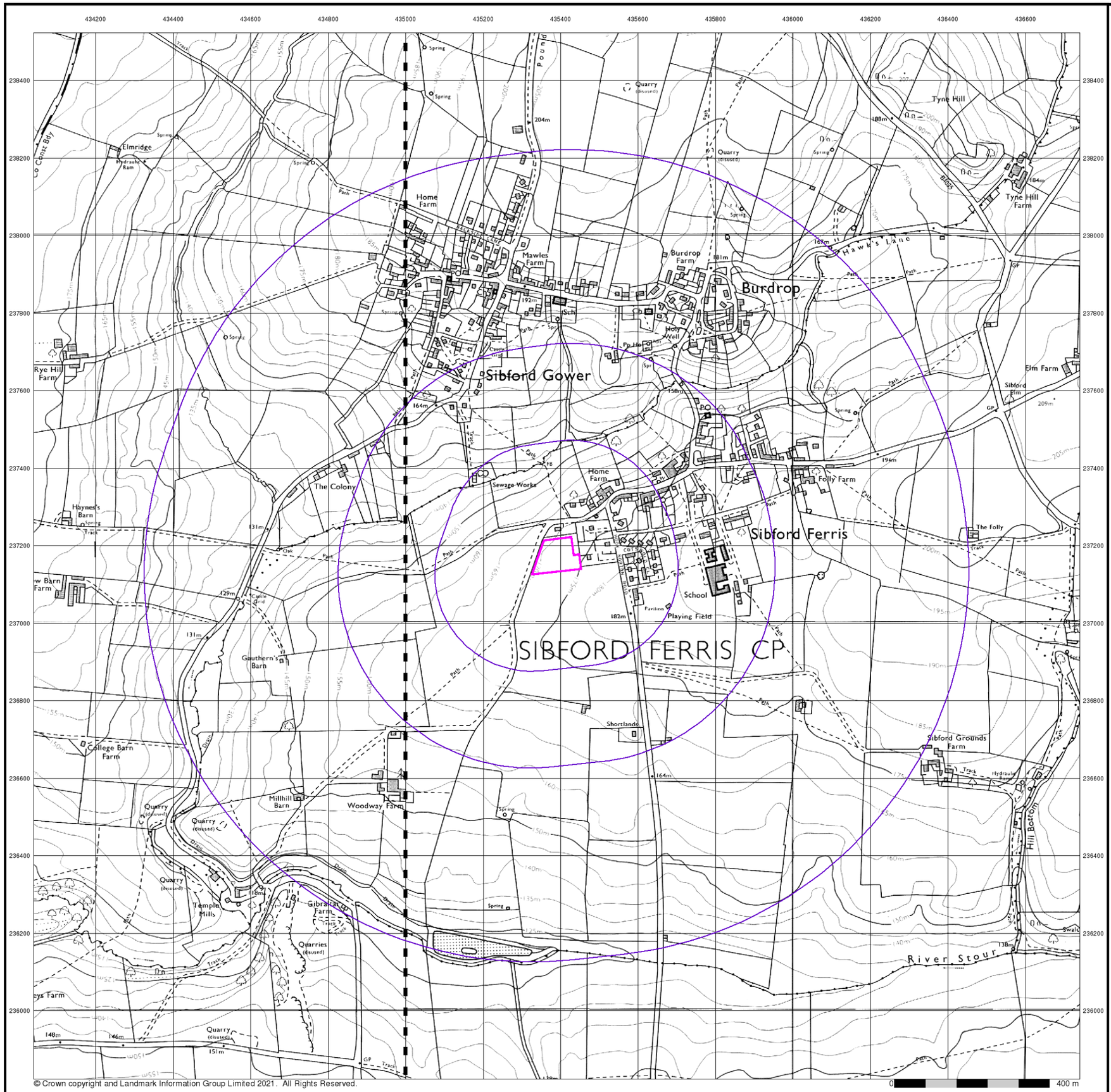

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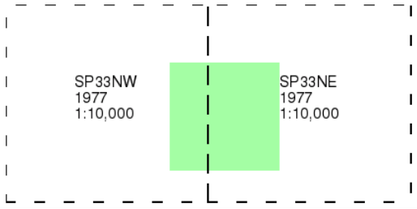
Ordnance Survey Plan

Published 1977

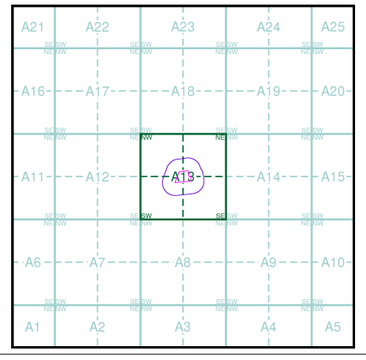
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



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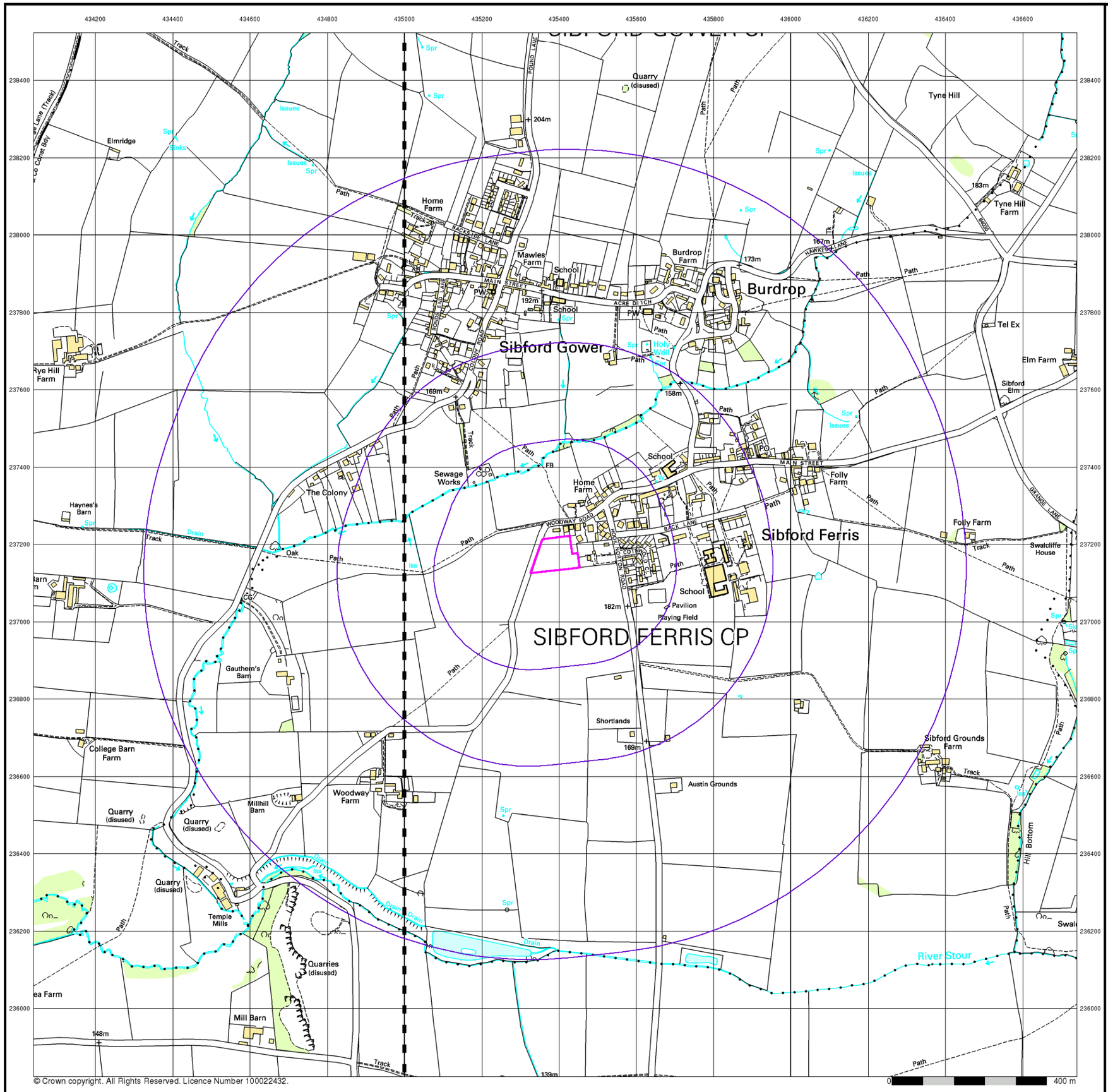

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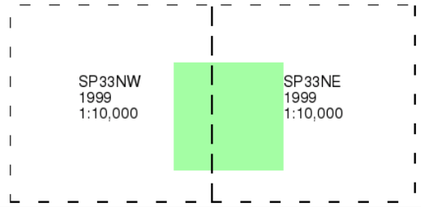
10k Raster Mapping

Published 1999

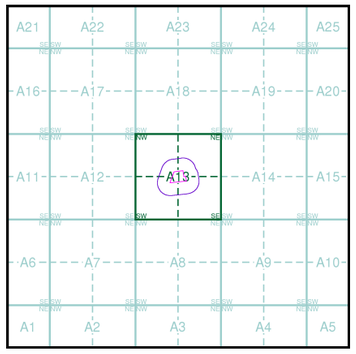
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

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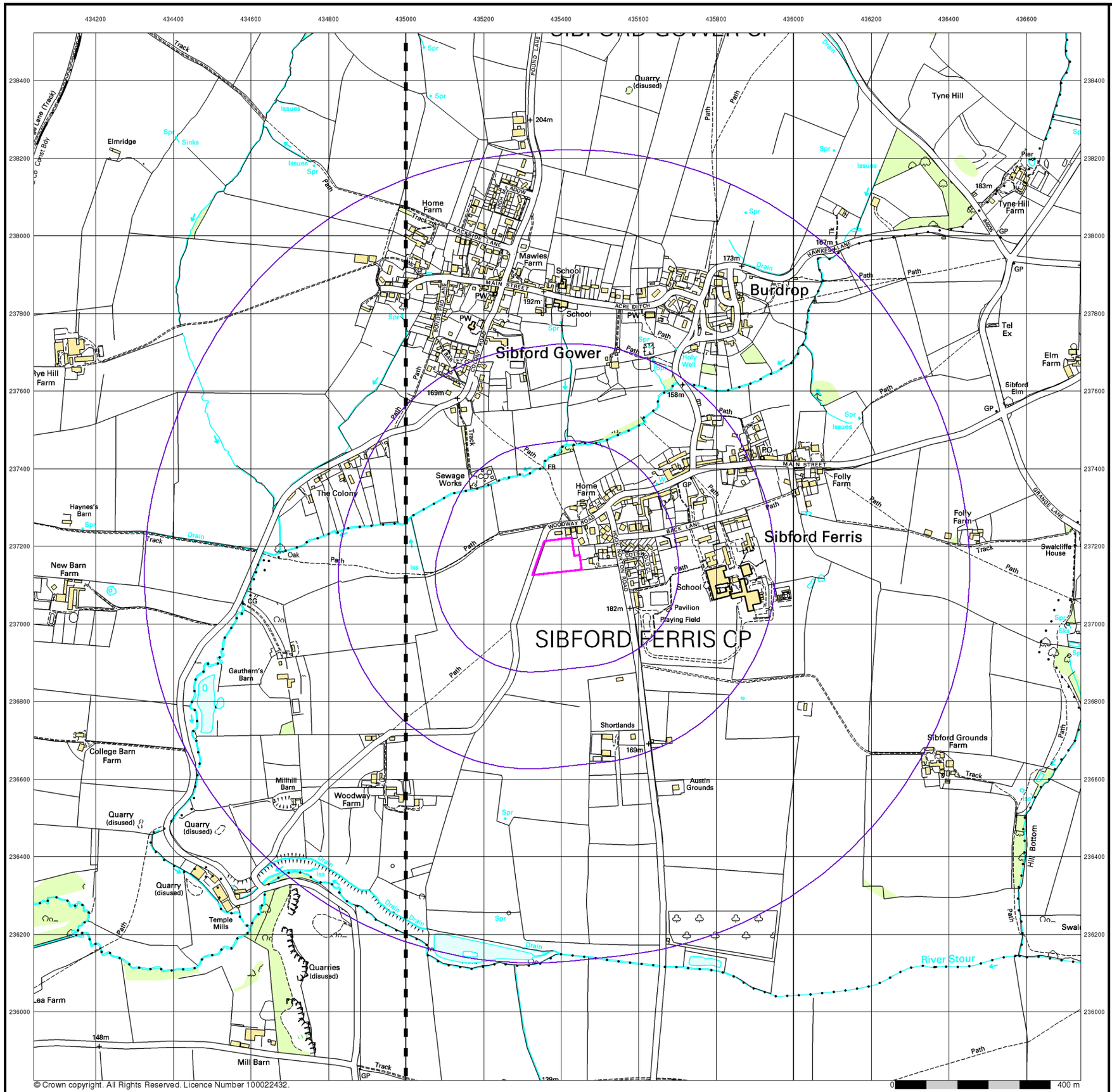

0 400 m

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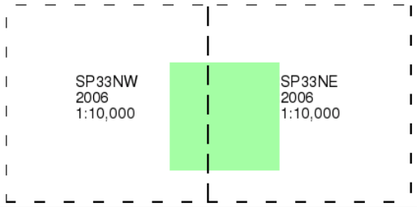
10k Raster Mapping

Published 2006

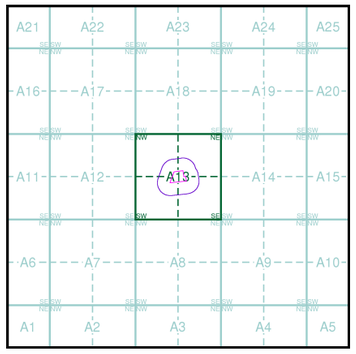
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



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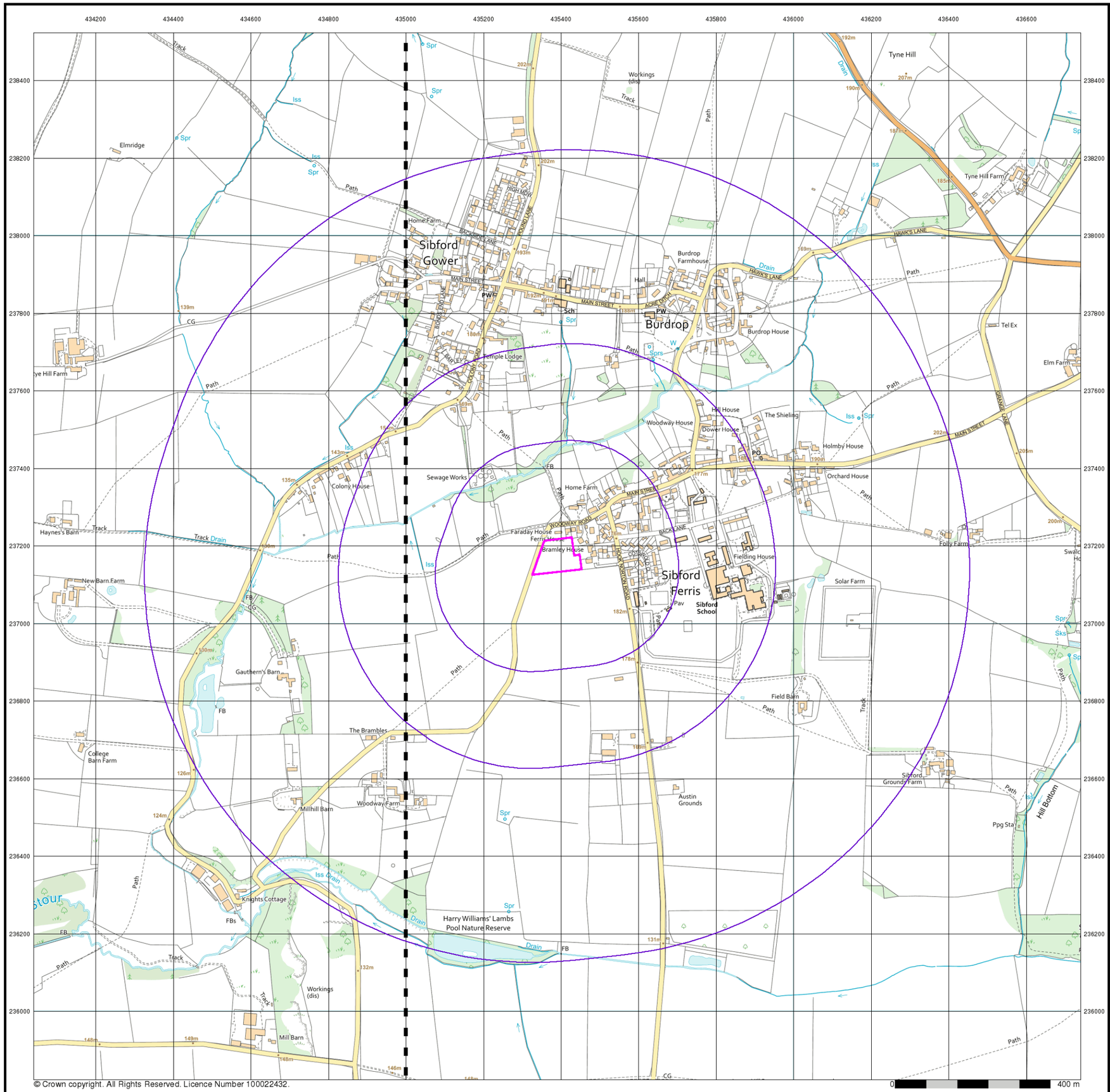

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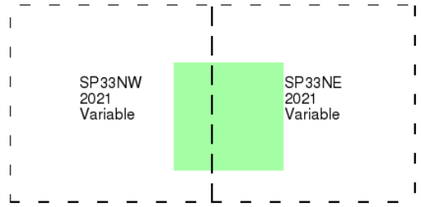
VectorMap Local

Published 2021

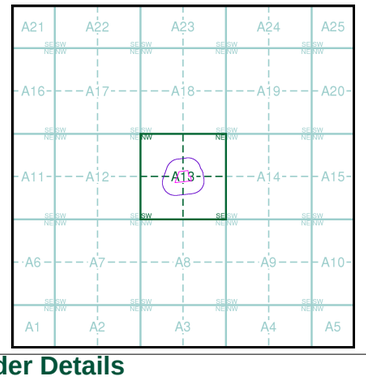
Source map scale - 1:10,000

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

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Appendix D – Envirocheck Report

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
281861625_1_1

Customer Reference:
GCE01141

National Grid Reference:
435390, 237170

Slice:
A

Site Area (Ha):
0.84

Search Buffer (m):
1000

Site Details:

Woodway Road
Sibford Ferris
Banbury
OX15 5RF

Client Details:

Mr D Jackson
Geo Consulting Engineering Ltd
The Studio
Woodmanton Barns
Woodbury
Exeter
EX5 1HQ

Envirocheck®
LANDMARK INFORMATION GROUP®

Contents

Introduction

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

Scottish Natural Heritage Copyright

Ove Arup Copyright Notice

Stantec Copyright Notice

Radon Potential dataset Copyright Notice

Natural Resources Wales Copyright Notice

Report Version v53.0

Envirocheck®
LANDMARK INFORMATION GROUP®

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		5		1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 2		Yes		
Pollution Incidents to Controlled Waters	pg 3				1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 3				2 (*7)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 5	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 5	1	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 5	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 6		3	4	36

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Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 11	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 11				1
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

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Summary

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

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 18	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (NW)	0	1	435390 237166
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	175	1	435250 237350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	178	1	435150 237166
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	181	1	435390 237400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	292	1	435100 237350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	326	1	435000 237150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	349	1	435000 237250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	355	1	435250 237550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	366	1	435000 237300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A8NE (S)	476	1	435400 236650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	492	1	434850 237250
1	**Discharge Consents** Operator: Severn Trent Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Sibford Ferris Stw, Sibford Ferris, Sibford Ferris, Oxfordshire Authority: Environment Agency, Midlands Region Catchment Area: Stour Catchment (Warwickshire) Reference: S/14/20062/R Permit Version: 1 Effective Date: 31st October 1989 Issued Date: 31st October 1989 Revocation Date: 24th October 2002 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of River Stour **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	202	2	435210 237350
1	**Discharge Consents** Operator: Severn Trent Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Sibford Ferris Stw, Sibford Gower, Oxfordshire, Oxfordshire Authority: Environment Agency, Midlands Region Catchment Area: Stour Catchment (Warwickshire) Reference: S/14/26023/R Permit Version: 4 Effective Date: 31st March 2010 Issued Date: 31st March 2010 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib River Stour **Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	217	2	435190 237350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Severn Trent Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Sibford Ferris Stw, Sibford Gower, Oxfordshire, Oxfordshire Authority: Environment Agency, Midlands Region Catchment Area: Stour Catchment (Warwickshire) Reference: S/14/26023/R Permit Version: 3 Effective Date: 1st January 2010 Issued Date: 24th September 2009 Revocation Date: 30th March 2010 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib River Stour **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	217	2	435190 237350
1	**Discharge Consents** Operator: Severn Trent Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Sibford Ferris Stw, Sibford Gower, Oxfordshire, Oxfordshire Authority: Environment Agency, Midlands Region Catchment Area: Stour Catchment (Warwickshire) Reference: S/14/26023/R Permit Version: 1 Effective Date: 25th October 2002 Issued Date: 25th October 2002 Revocation Date: 3rd April 2006 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib River Stour **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	217	2	435190 237350
1	**Discharge Consents** Operator: Severn Trent Water Limited Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Sibford Ferris Stw, Sibford Gower, Oxfordshire, Oxfordshire Authority: Environment Agency, Midlands Region Catchment Area: Stour Catchment (Warwickshire) Reference: S/14/26023/R Permit Version: 2 Effective Date: 4th April 2006 Issued Date: 25th October 2002 Revocation Date: 31st December 2009 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib River Stour **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	217	2	435190 237350
2	**Discharge Consents** Operator: Mr David Smith Property Type: DOMESTIC PROPERTY (SINGLE) (INCL FARM HOUSE) Location: 5 The Colony Sibford Gower, Banbury, Oxfordshire, Oxfordshire, Ox15 5ry Authority: Environment Agency, Midlands Region Catchment Area: Stour Catchment (Warwickshire) Reference: Npswqd000863 Permit Version: 1 Effective Date: 3rd March 2008 Issued Date: 3rd March 2008 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Groundwaters Via Soakaway **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A12NE (W)	544	2	434831 237356
	Nearest Surface Water Feature	A13NW (N)	174	-	435304 237378

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: SIBFORD FERRIS Authority: Environment Agency, Thames Region Pollutant: Oils - Unknown Note: Confirmed As A Pollution Incident Incident Date: 2nd March 1992 Incident Reference: W1920097 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14NW (E)	550	2	436000 237200
4	**Water Abstractions** Operator: Mr K F Bishop Licence Number: 18/54/14/0113 Permit Version: 100 Location: Land At Sibford Ferris - Well Authority: Environment Agency, Midlands Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Land At Sibford Ferris Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 16th February 1967 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14NE (E)	949	2	436400 237200
5	**Water Abstractions** Operator: Frederick Arnold Lamb Licence Number: 18/54/14/01261 Permit Version: Not Supplied Location: Grounds Farm, Mill Stream, SIBFORD FERRIS Authority: Environment Agency, Midlands Region Abstraction: Impounding Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Stour Catchment (Warwickshire) Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A8SW (S)	958	2	435100 236195
	Water Abstractions Operator: William J Wealsby Licence Number: 18/54/14/01411 Permit Version: Not Supplied Location: Tributary Of River Stour, Ryehill Farm, SIBFORD GOWER Authority: Environment Agency, Midlands Region Abstraction: Impounding Abstraction Type: Not Supplied Source: Surface Daily Rate (m3): 0 Yearly Rate (m3): 0 Details: Stour Catchment (Warwickshire) Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A17SW (NW)	1031	2	434400 237595

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr J C L Taylor Licence Number: 28/39/14/0290 Permit Version: 100 Location: Tynehill Farm, Sibford Ferris, Oxon Authority: Environment Agency, Thames Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 9 Yearly Rate (m3): 2527 Details: Additional Purpose(s) - Private Water Supply (745). Inferior Oolite Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 29th July 1980 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A25SW (NE)	1606	2	436700 238200
	Water Abstractions Operator: Mr J C L Taylor Licence Number: 28/39/14/0290 Permit Version: 100 Location: Tynehill Farm, Sibford Ferris, Oxon Authority: Environment Agency, Thames Region Abstraction: Household Private Water Undertaking: Drinking; Cooking; Sanitary; Washing; (Small Garden) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Tynehill Farm, Sibford Ferris, Oxon Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 29th July 1980 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A25SW (NE)	1606	2	436700 238200
	Water Abstractions Operator: Litany Holdings Ltd Licence Number: 28/39/14/0083 Permit Version: 101 Location: Grange Farm, Swalcliffe (Catchpit) Authority: Environment Agency, Thames Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 21st May 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1684	2	437100 237500
	Water Abstractions Operator: Litany Holdings Ltd Licence Number: 28/39/14/0083 Permit Version: 101 Location: Grange Farm, Swalcliffe (Catchpit) Authority: Environment Agency, Thames Region Abstraction: Private Water Supply: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Grange Farm, Swalcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 21st May 2001 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1684	2	437100 237500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Litany Holdings Ltd Licence Number: 28/39/14/0083 Permit Version: 100 Location: Grange Farm, Swalcliffe (Catchpit - A) Authority: Environment Agency, Thames Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 22 Yearly Rate (m3): 7137 Details: Additional Purpose(s) - Private Water Supply (681). Inferior Oolite Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 24th October 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	(E)	1684	2	437100 237500
	Water Abstractions Operator: Litany Holdings Ltd Licence Number: 28/39/14/0083 Permit Version: 100 Location: Grange Farm, Swalcliffe (Catchpit - A) Authority: Environment Agency, Thames Region Abstraction: Private Water Supply: General Use (Medium Loss) Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Grange Farm, Swalcliffe Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 24th October 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(E)	1684	2	437100 237500
	Groundwater Vulnerability Map Combined Classification: Secondary Bedrock Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: <90% Superficial Thickness: <3m Superficial Recharge: No Data	A13SE (NW)	0	3	435390 237166
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A13SE (NW)	0	3	435390 237166
	Bedrock Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SE (NW)	0	3	435390 237166
	Superficial Aquifer Designations No Data Available				
	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 Direction)	Estimated Distance From Site	Contact	NGR
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 464.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A13NW (N)	177	4	435307 237381
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 322.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A13NE (N)	239	4	435414 237460
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 324.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A13NE (N)	239	4	435414 237460
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 140.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12SE (W)	282	4	435044 237139
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 368.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NE (W)	345	4	435013 237275
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 338.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A18SE (NE)	449	4	435672 237597
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 93.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A18SE (NE)	449	4	435670 237598
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NE (NW)	549	4	434857 237440
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 431.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NE (NW)	560	4	434853 237457

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 233.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NE (NW)	561	4	434844 237439
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	654	4	434676 237194
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 41.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	657	4	434671 237182
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	676	4	434669 237282
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	682	4	434664 237290
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 559.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	689	4	434659 237300
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 310.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	697	4	434632 237186
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 139.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12NW (W)	697	4	434632 237186
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 76.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19SW (NE)	710	4	435982 237664

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 272.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19SW (NE)	724	4	436049 237593
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 530.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12SW (W)	750	4	434582 237038
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12SW (W)	750	4	434580 237057
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12SW (W)	752	4	434578 237051
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A12SW (W)	754	4	434576 237048
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 177.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19SW (NE)	779	4	436025 237721
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 134.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19NW (NE)	831	4	435869 237925
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19NW (NE)	833	4	435870 237926
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.0 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19NW (NE)	845	4	435873 237939

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 88.1 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19NW (NE)	890	4	435992 237909
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 328.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A7SE (SW)	916	4	434906 236312
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A7SE (SW)	916	4	434906 236312
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 179.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A7SE (SW)	917	4	434909 236309
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 189.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A19NE (NE)	926	4	436076 237882
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 156.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A7SE (SW)	938	4	434772 236368
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 239.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A8SW (S)	948	4	435196 236185
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 268.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Stour Catchment Name: Severn Primacy: 1	A7SE (SW)	949	4	434827 236319
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 82.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A8SW (S)	960	4	435290 236167

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 484.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Stour Catchment Name: Severn Primacy: 1	A7SE (SW)	964	4	434884 236269
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 28.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A3NW (S)	972	4	435383 236155
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A3NW (S)	973	4	435370 236154
45	**OS Water Network Lines** Watercourse Form: Lake Watercourse Length: 145.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 2	A3NW (S)	978	4	435263 236148
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 122.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Stour Catchment Name: Severn Primacy: 1	A3NE (S)	980	4	435397 236149
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Stour Catchment Name: Severn Primacy: 1	A3NE (S)	980	4	435397 236149
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Severn Primacy: 1	A7NW (SW)	993	4	434467 236628

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Cherwell District Council - Has supplied landfill data		0	5	435390 237166
	Local Authority Landfill Coverage Name: Oxfordshire County Council - Has supplied landfill data		0	6	435390 237166
49	**Potentially Infilled Land (Non-Water)** Bearing Ref: SW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1977	A7NW (SW)	871	-	434685 236537

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Inferior Oolite Group	A13SE (NW)	0	1	435390 237166
	BGS 1:625,000 Solid Geology Description: Lias Group	A13NW (N)	0	1	435383 237195
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (NW)	0	1	435390 237166
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 45 - 60 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NW (N)	56	1	435368 237271
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 60 - 120 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: >180mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 60 - 80 mg/kg	A13NW (NW)	185	1	435292 237385
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (W)	189	1	435147 237187
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 45 - 60 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SE (S)	287	1	435420 236848

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (NW)	374	1	435208 237555
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NW (E)	576	1	436012 237290
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 45 - 60 mg/kg	A12NE (W)	596	1	434739 237229
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NW (SE)	646	1	435755 236568
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SW (NE)	660	1	436000 237550
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SW (SW)	690	1	435064 236488

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SE (SE)	762	1	435711 236423
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A7NE (SW)	766	1	434867 236513
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NE (N)	773	1	435545 237985
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NE (SW)	787	1	434794 236546
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: <15 mg/kg	A18NE (N)	822	1	435481 238042
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 45 - 60 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8SW (S)	853	1	435279 236274

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 45 - 60 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 45 - 60 mg/kg	A19NW (NE)	856	1	435783 238000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18NE (N)	940	1	435556 238152
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7SE (SW)	944	1	434797 236344
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SW (SW)	945	1	434696 236421
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 35 - 45 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19NW (NE)	967	1	436000 238000
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	56	1	435368 237271
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	167	1	435341 237378
	Potential for Landslide Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	199	1	435514 237401
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	189	1	435147 237187
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (N)	56	1	435368 237271
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	185	1	435292 237385
	Radon Potential - Radon Affected Areas Affected Area: The property is in an Intermediate probability radon area (5 to 10% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166
	Radon Potential - Radon Protection Measures Protection Measure: Basic radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (NW)	0	1	435390 237166

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
50	**Contemporary Trade Directory Entries** Name: King Horse Transport Location: 13, Cotswold Close, Sibford Ferris, Banbury, OX15 5QP Classification: Horse Boxes & Transporting **Status: Active** Positional Accuracy: Automatically positioned to the address	A13NE (E)	182	-	435628 237200
51	**Contemporary Trade Directory Entries** Name: The English Furniture Workshop Location: Fairview, Sibford Gower, Banbury, Oxfordshire, OX15 5RW Classification: Antiques - Repairing & Restoring **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NW (N)	648	-	435362 237866
52	**Points of Interest - Manufacturing and Production** Name: Works Location: OX15 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	207	7	435233 237377
53	**Points of Interest - Manufacturing and Production** Name: Tank Location: OX15 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A14SW (E)	453	7	435905 237109
54	**Points of Interest - Manufacturing and Production** Name: North of Field Barn - Solar Photovoltaics (DECC) Location: Hook Norton Road, Sibford Ferris, Banbury, OX15 5QR Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to an adjacent address or location	A14SE (E)	693	7	436126 236972
55	**Points of Interest - Manufacturing and Production** Name: Solar Panels Location: OX15 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to an adjacent address or location	A7NW (SW)	897	7	434672 236512
56	**Points of Interest - Public Infrastructure** Name: Sewage Works Location: OX15 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to an adjacent address or location	A13NW (NW)	213	7	435233 237384
56	**Points of Interest - Public Infrastructure** Name: Sewage Works Location: OX15 Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A13NW (NW)	229	7	435181 237357
57	**Points of Interest - Recreational and Environmental** Name: Play Area Location: OX15 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13SE (E)	208	7	435660 237113

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
58	**Nitrate Vulnerable Zones** Name: River Avon (To Confluence With River Severn) Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SE (NW)	0	3	435390 237166

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
Stratford-on-Avon District Council - Environmental Services	October 2017	Annual Rolling Update
West Oxfordshire District Council - Environmental Health Department	October 2017	Annual Rolling Update
Cherwell District Council - Environmental Health Department	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Midlands Region	April 2021	Quarterly
Environment Agency - Thames Region	April 2021	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Midlands Region	March 2013	
Environment Agency - Thames Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Midlands Region	January 2009	
Environment Agency - Thames Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - Midlands Region	April 2021	Quarterly
Environment Agency - South East Region - West Thames Area	April 2021	Quarterly
Environment Agency - Thames Region	April 2021	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Stratford-on-Avon District Council - Environmental Health Department	August 2014	Variable
West Oxfordshire District Council - Environmental Health Department	June 2014	Variable
Cherwell District Council - Environmental Health Department	October 2014	Variable
Local Authority Pollution Prevention and Controls		
Stratford-on-Avon District Council - Environmental Health Department	August 2014	Annual Rolling Update
West Oxfordshire District Council - Environmental Health Department	June 2014	Annual Rolling Update
Cherwell District Council - Environmental Health Department	October 2014	Not Applicable
Local Authority Pollution Prevention and Control Enforcements		
Stratford-on-Avon District Council - Environmental Health Department	August 2014	Variable
West Oxfordshire District Council - Environmental Health Department	June 2014	Variable
Cherwell District Council - Environmental Health Department	October 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	April 2021	
Pollution Incidents to Controlled Waters		
Environment Agency - Midlands Region	December 1999	
Environment Agency - Thames Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Midlands Region	July 2015	
Environment Agency - Thames Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Midlands Region	March 2013	
Environment Agency - Thames Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Midlands Region	June 2016	Annually
Environment Agency - Thames Region	June 2016	Annually
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	Annually

Agency & Hydrological	Version	Update Cycle
Substantiated Pollution Incident Register		
Environment Agency - Midlands Region - Central Area	April 2021	Quarterly
Environment Agency - Midlands Region - Lower Severn Area	April 2021	Quarterly
Environment Agency - South East Region - West Thames Area	April 2021	Quarterly
Environment Agency - Thames Region - West Area	April 2021	Quarterly
Water Abstractions		
Environment Agency - Midlands Region	April 2021	Quarterly
Environment Agency - Thames Region	April 2021	Quarterly
Water Industry Act Referrals		
Environment Agency - Midlands Region	October 2017	Quarterly
Environment Agency - Thames Region	October 2017	Quarterly
Groundwater Vulnerability Map		
Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk		
Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations		
Environment Agency - Head Office	January 2018	Annually
Superficial Aquifer Designations		
Environment Agency - Head Office	January 2018	Annually
Source Protection Zones		
Environment Agency - Head Office	May 2021	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	March 2021	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	March 2021	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	March 2021	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	March 2021	Quarterly
Flood Defences		
Environment Agency - Head Office	March 2021	Quarterly
OS Water Network Lines		
Ordnance Survey	June 2021	Quarterly
Surface Water 1 in 30 year Flood Extent		
Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent		
Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent		
Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability		
Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	Not Applicable
Historical Landfill Sites		
Environment Agency - Head Office	May 2021	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Midlands Region	January 2009	Not Applicable
Environment Agency - Thames Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Midlands Region - Central Area	April 2021	Quarterly
Environment Agency - Midlands Region - Lower Severn Area	April 2021	Quarterly
Environment Agency - South East Region - West Thames Area	April 2021	Quarterly
Environment Agency - Thames Region - West Area	April 2021	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Midlands Region - Central Area	April 2021	Quarterly
Environment Agency - Midlands Region - Lower Severn Area	April 2021	Quarterly
Environment Agency - South East Region - West Thames Area	April 2021	Quarterly
Environment Agency - Thames Region - West Area	April 2021	Quarterly
Local Authority Landfill Coverage		
Cherwell District Council - Environmental Health Department	February 2003	Not Applicable
Oxfordshire County Council	February 2003	Not Applicable
Stratford-on-Avon District Council	February 2003	Not Applicable
Warwickshire County Council	February 2003	Not Applicable
West Oxfordshire District Council - Technical Services Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Cherwell District Council - Environmental Health Department	October 2018	
Oxfordshire County Council	October 2018	
Stratford-on-Avon District Council	October 2018	
Warwickshire County Council	October 2018	
West Oxfordshire District Council - Technical Services Department	October 2018	
Potentially Infilled Land (Non-Water)		
Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water)		
Landmark Information Group Limited	December 1999	
Registered Landfill Sites		
Environment Agency - Midlands Region - Central Area	March 2006	Not Applicable
Environment Agency - Midlands Region - Lower Severn Area	March 2006	Not Applicable
Environment Agency - Thames Region - West Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Midlands Region - Central Area	April 2018	
Environment Agency - Midlands Region - Lower Severn Area	April 2018	
Environment Agency - Thames Region - West Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Midlands Region - Central Area	June 2015	
Environment Agency - Midlands Region - Lower Severn Area	June 2015	
Environment Agency - Thames Region - West Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Cherwell District Council	February 2016	Variable
Oxfordshire County Council	February 2016	Variable
Stratford-on-Avon District Council	February 2016	Variable
West Oxfordshire District Council	February 2016	Variable
Warwickshire County Council	July 2007	Annual Rolling Update
Planning Hazardous Substance Consents		
Cherwell District Council	February 2016	Variable
Oxfordshire County Council	February 2016	Variable
Stratford-on-Avon District Council	February 2016	Variable
West Oxfordshire District Council	February 2016	Variable
Warwickshire County Council	July 2007	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	December 2015	Annually
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	May 2021	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	Annually

Data Currency

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	April 2021	Quarterly
Fuel Station Entries Catalist Ltd - Experian	June 2021	Quarterly
Gas Pipelines National Grid	May 2021	Annually
Points of Interest - Commercial Services PointX	June 2021	Quarterly
Points of Interest - Education and Health PointX	June 2021	Quarterly
Points of Interest - Manufacturing and Production PointX	June 2021	Quarterly
Points of Interest - Public Infrastructure PointX	June 2021	Quarterly
Points of Interest - Recreational and Environmental PointX	June 2021	Quarterly
Underground Electrical Cables National Grid	May 2021	Annually

Sensitive Land Use	Version	Update Cycle
Ancient Woodland		
Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt		
Cherwell District Council	October 2020	Quarterly
Stratford-on-Avon District Council	October 2020	Quarterly
West Oxfordshire District Council	October 2020	Quarterly
Areas of Unadopted Green Belt		
Cherwell District Council	October 2020	Quarterly
Stratford-on-Avon District Council	October 2020	Quarterly
West Oxfordshire District Council	October 2020	Quarterly
Areas of Outstanding Natural Beauty		
Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas		
Natural England	January 2017	
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	February 2021	Bi-Annually
Marine Nature Reserves		
Natural England	July 2019	Bi-Annually
National Nature Reserves		
Natural England	January 2021	Bi-Annually
National Parks		
Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas		
Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	April 2016	
Environment Agency - Head Office	June 2017	Bi-Annually
Ramsar Sites		
Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest		
Natural England	February 2021	Bi-Annually
Special Areas of Conservation		
Natural England	July 2020	Bi-Annually
Special Protection Areas		
Natural England	February 2021	Bi-Annually

Data Suppliers

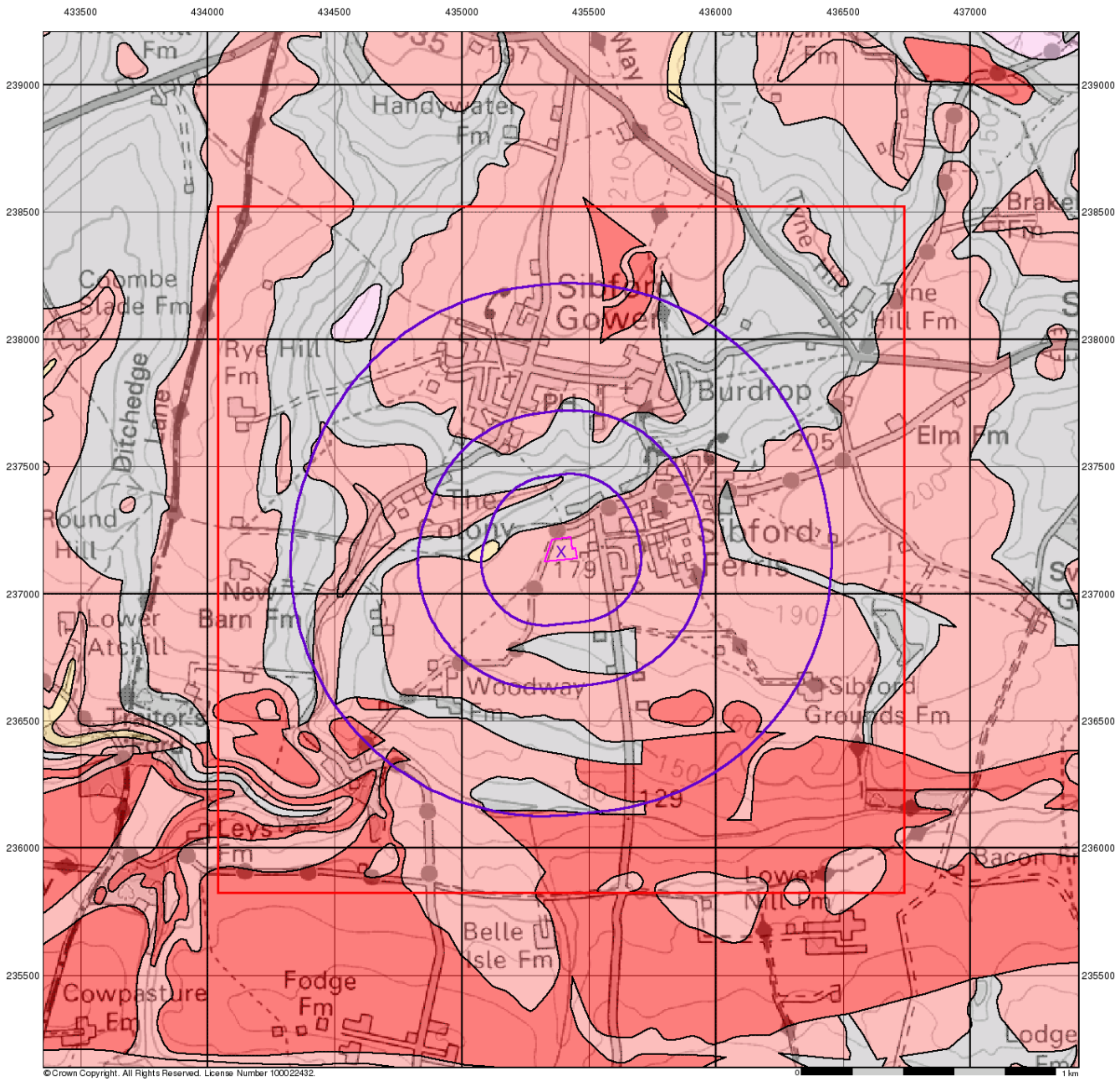
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Cherwell District Council - Environmental Health Department** Bodicote House, Bodicote, Banbury, Oxfordshire, OX15 4AA	Telephone: 01295 252535 extn 4511 Fax: 01295 270028 Website: www.cherwell-dc.gov.uk
6	**Oxfordshire County Council** County Hall, New Road, Oxford, Oxfordshire, OX1 1ND	Telephone: 01865 792422 Fax: 01865 810106 Email: environmental.services@oxfordshire.gov.uk Website: www.oxfordshire.gov.uk
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	**Natural England** County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



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Groundwater Vulnerability

General

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

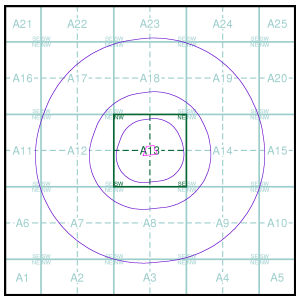
Agency and Hydrological

Bedrock Aquifers	Superficial Aquifers
High Vulnerability, Principal Aquifer	High Vulnerability, Principal Aquifer
High Vulnerability, Secondary Aquifer	High Vulnerability, Secondary Aquifer
Medium Vulnerability, Principal Aquifer	Medium Vulnerability, Principal Aquifer
Medium Vulnerability, Secondary Aquifer	Medium Vulnerability, Secondary Aquifer
Low Vulnerability, Principal Aquifer	Low Vulnerability, Principal Aquifer
Low Vulnerability, Secondary Aquifer	Low Vulnerability, Secondary Aquifer

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



Order Details

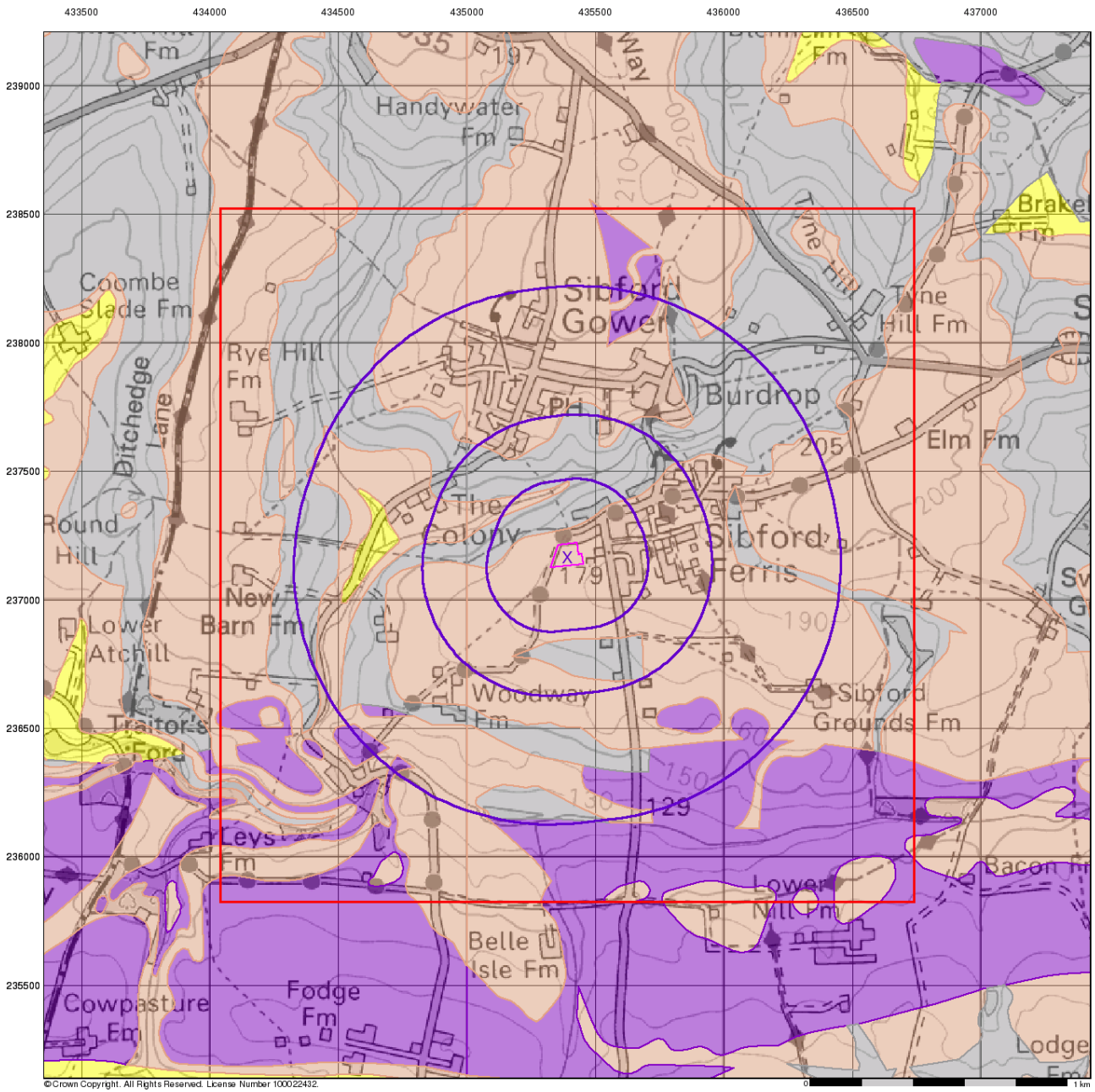
Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

Landmark® INFORMATION GROUP

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



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Bedrock Aquifer Designation

General

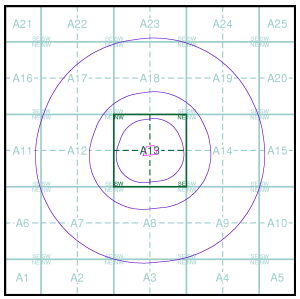
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

Landmark® INFORMATION GROUP

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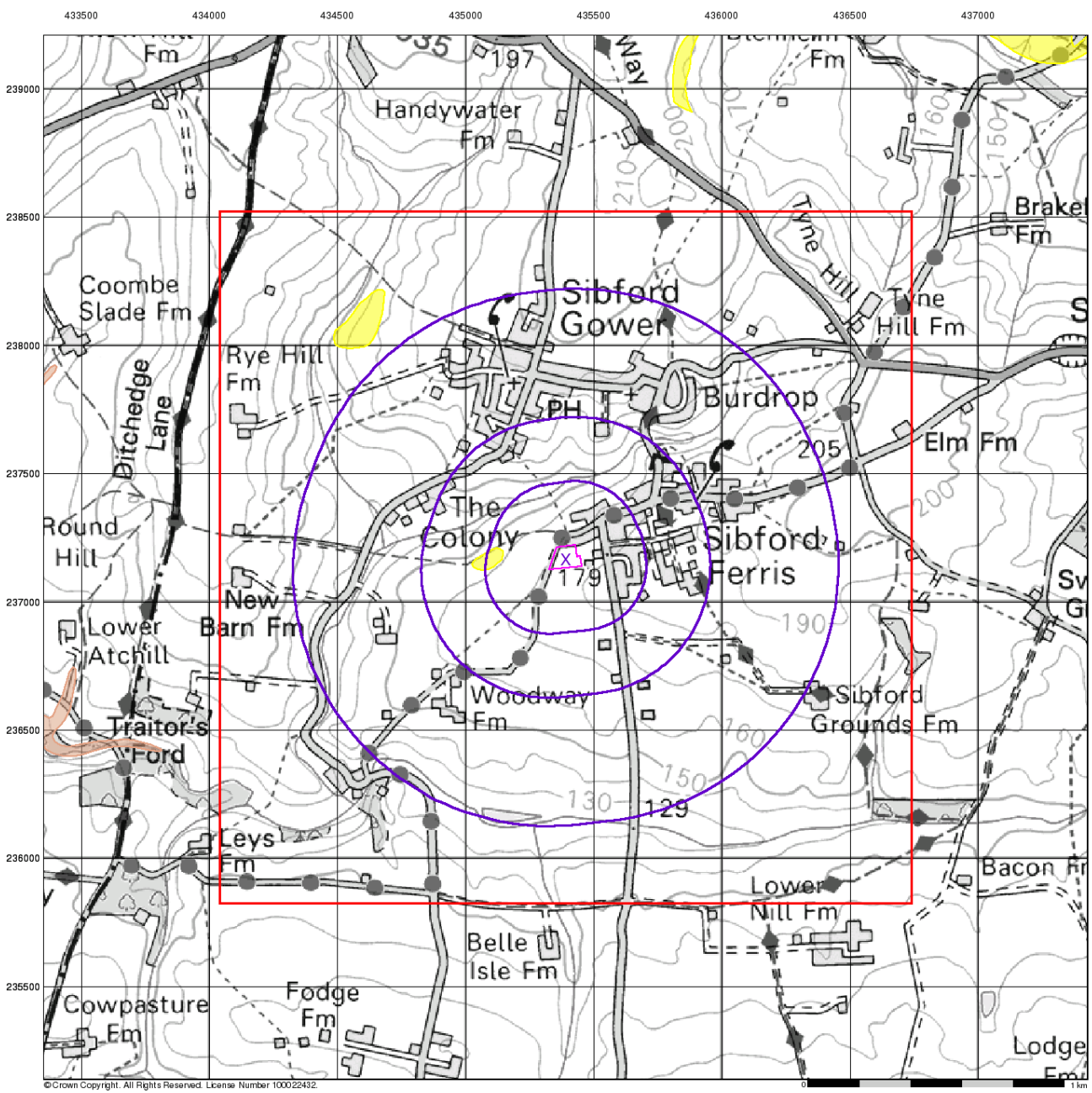

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LANDMARK INFORMATION GROUP®

Superficial Aquifer Designation

General

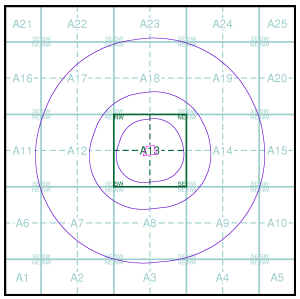
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

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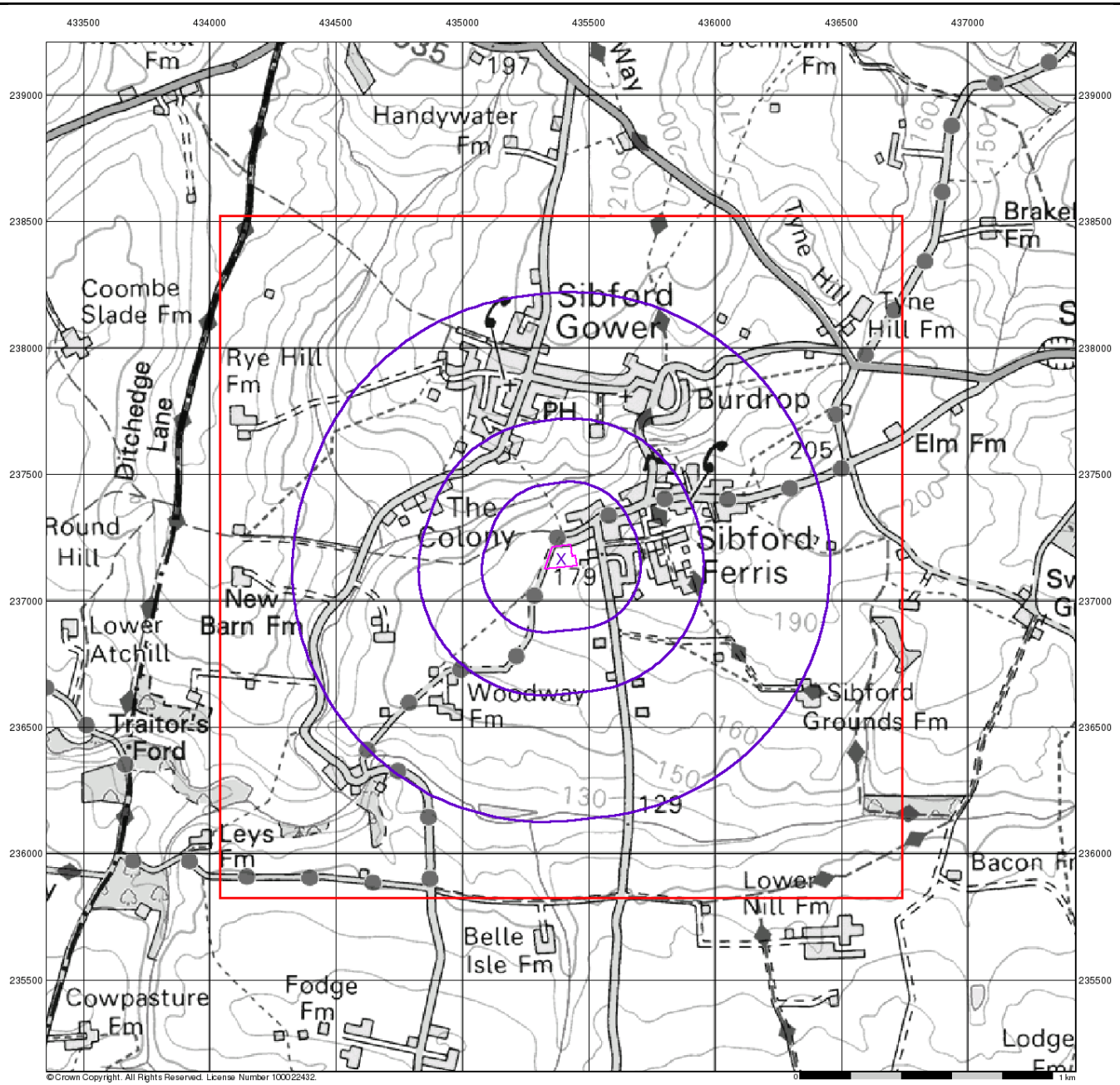
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



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Source Protection Zones

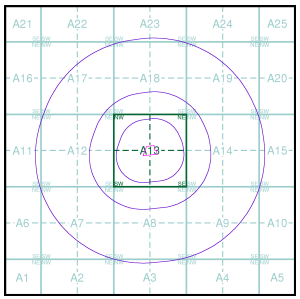
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Search Buffer (m):	1000

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

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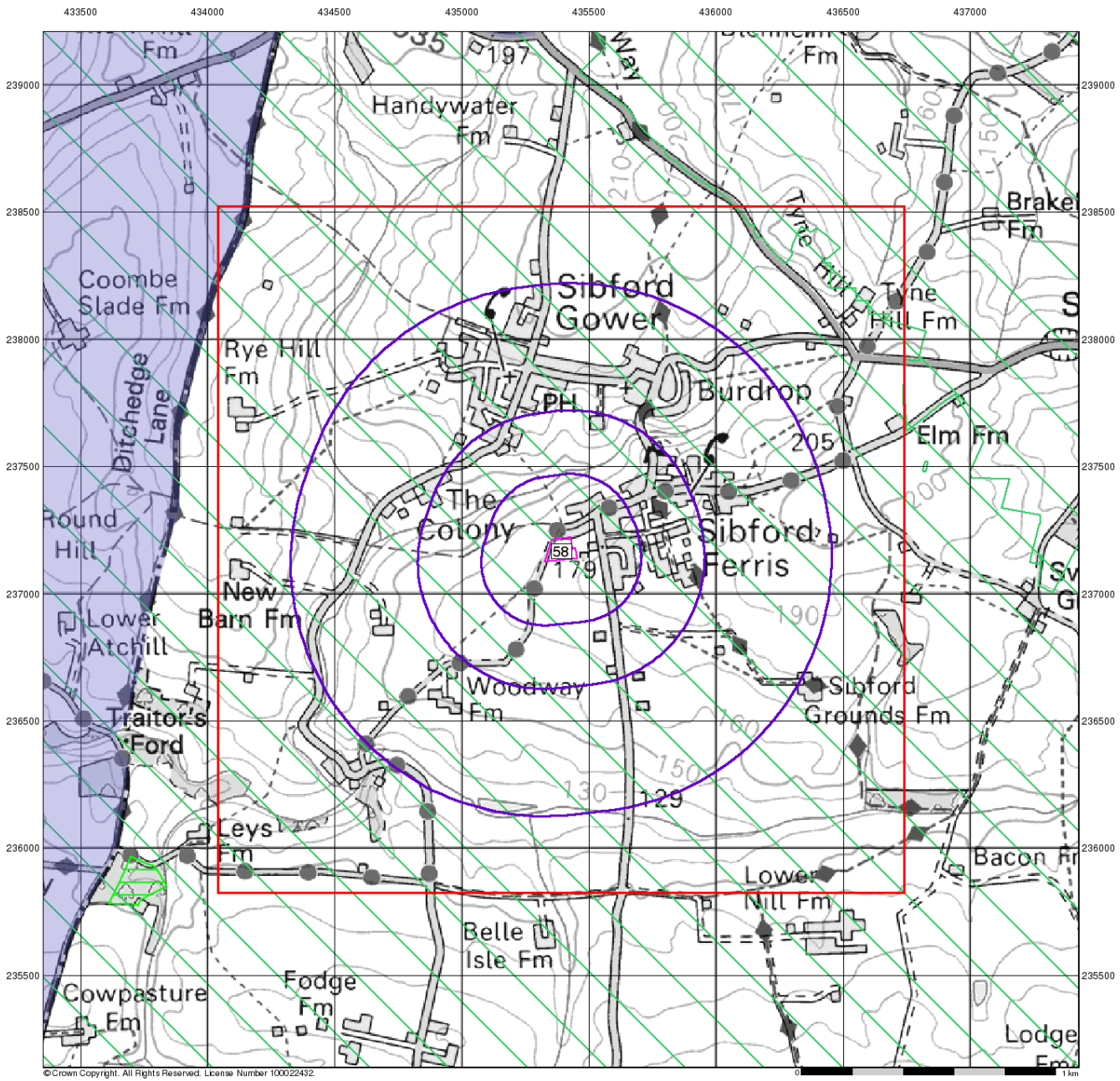

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Sensitive Land Uses

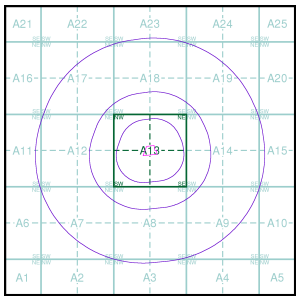
General

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

Sensitive Land Uses

- Ancient Woodland
- 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
- World Heritage Sites

Site Sensitivity Context Map - Slice A



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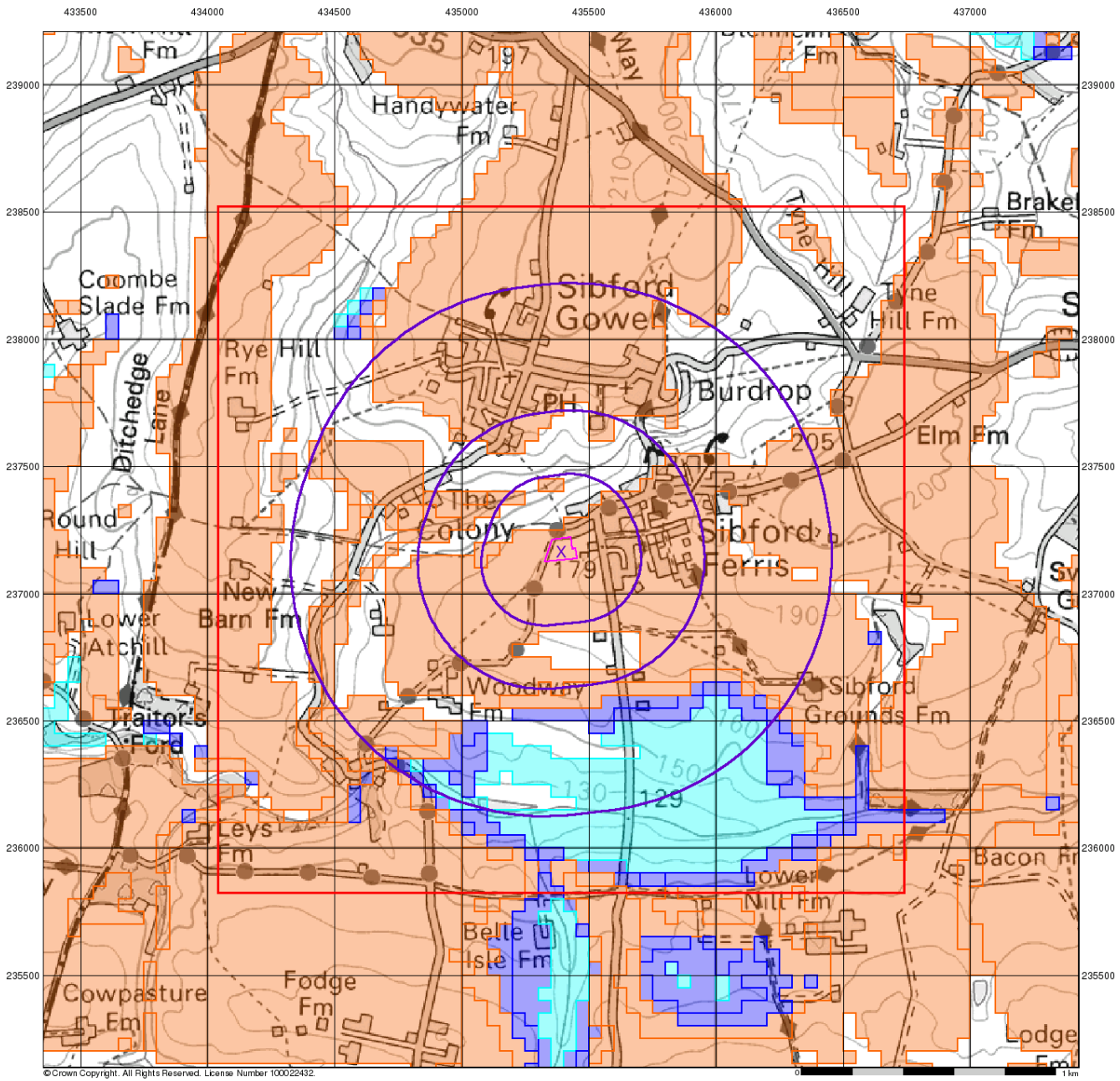

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BGS Flood GFS Data

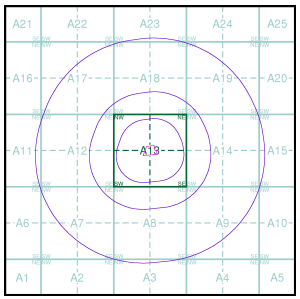
General

Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A



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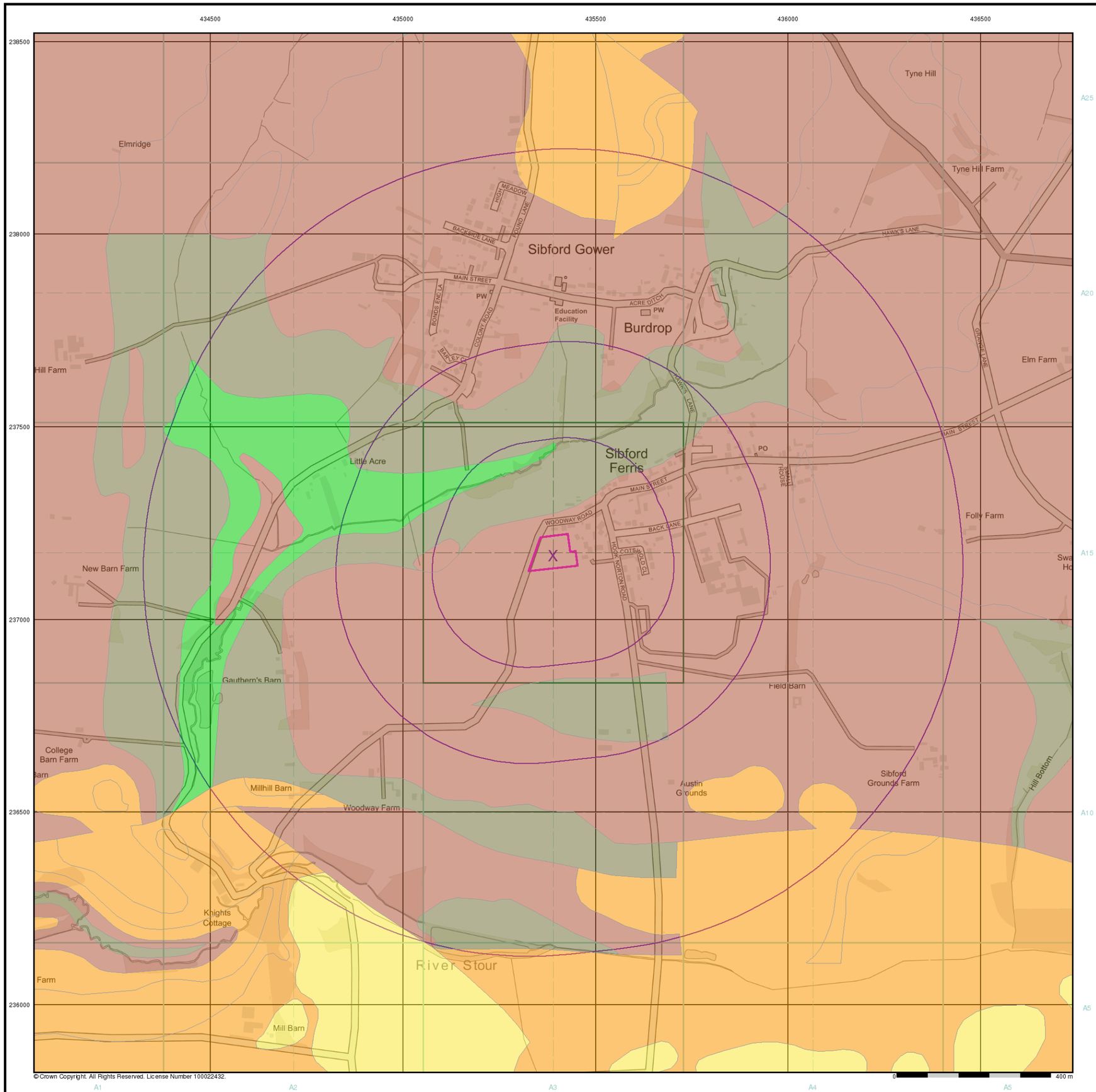

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LANDMARK INFORMATION GROUP®

General

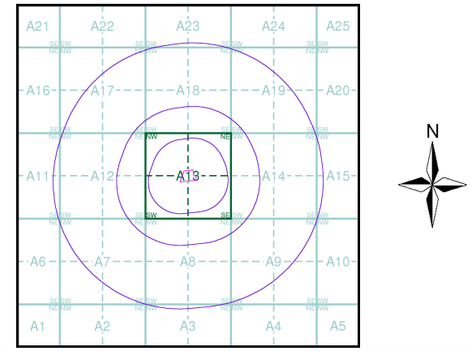
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg

- < 15
- 15 - 25
- 25 - 35
- 35 - 45
- 45 - 60
- 60 - 120
- > 120

Estimated Soil Chemistry Arsenic - Slice A



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General

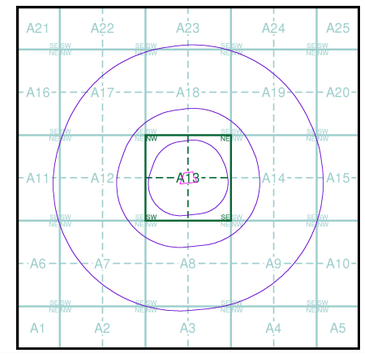
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

- < 1.8
- 1.8 - 2.2
- 2.2 - 3.0
- > 3.0

Estimated Soil Chemistry Cadmium - Slice A



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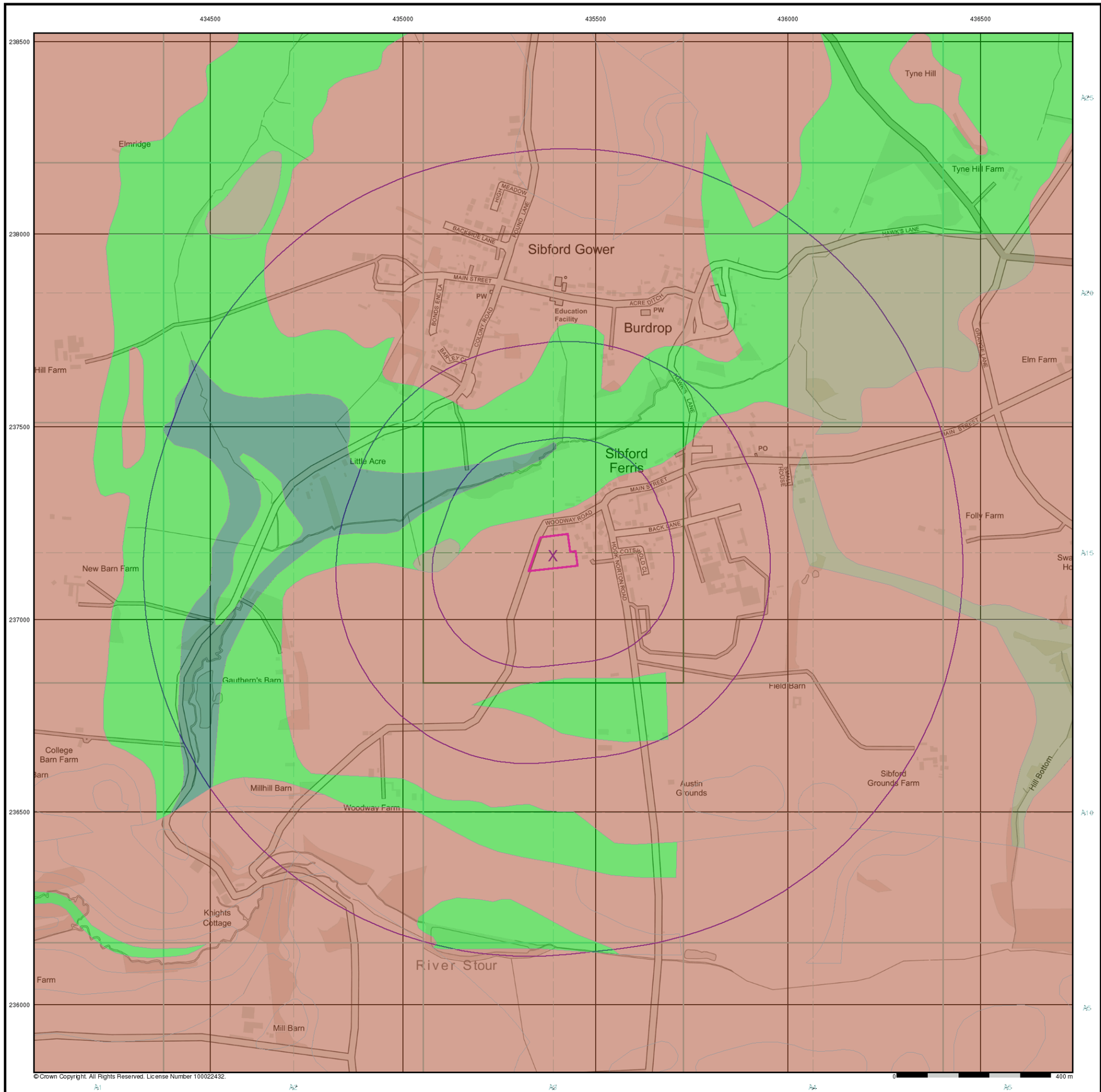

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LANDMARK INFORMATION GROUP®

General

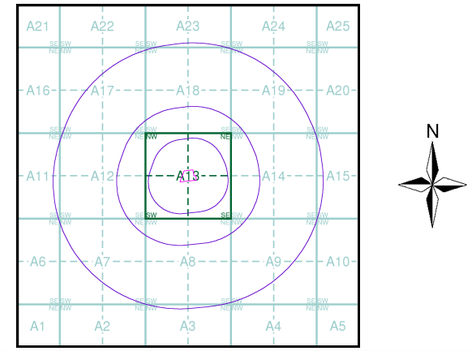
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg

- < 20
- 20 - 40
- 40 - 60
- 60 - 90
- 90 - 120
- 120 - 180
- > 180

Estimated Soil Chemistry Chromium - Slice A



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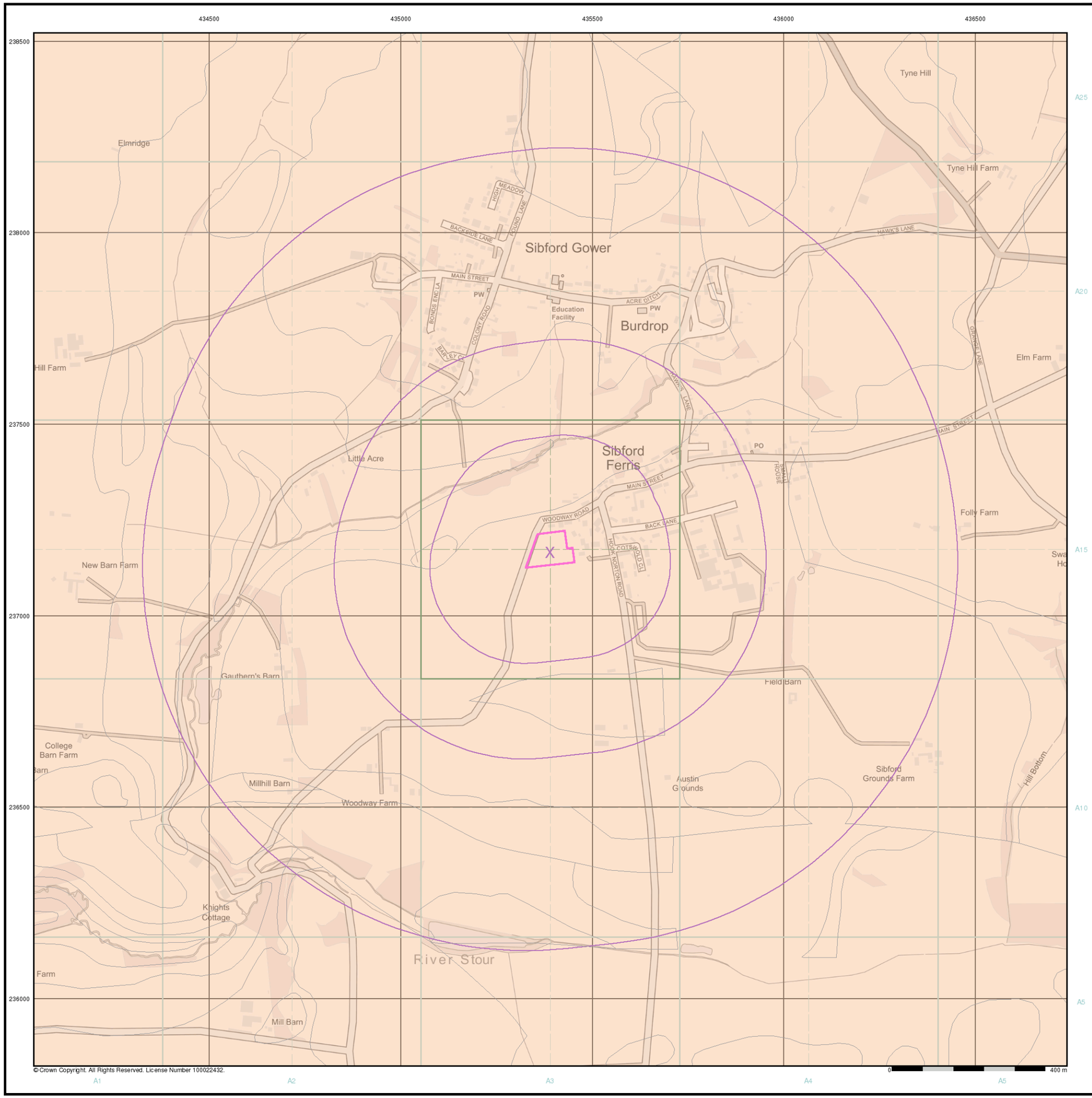

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LANDMARK INFORMATION GROUP®

General

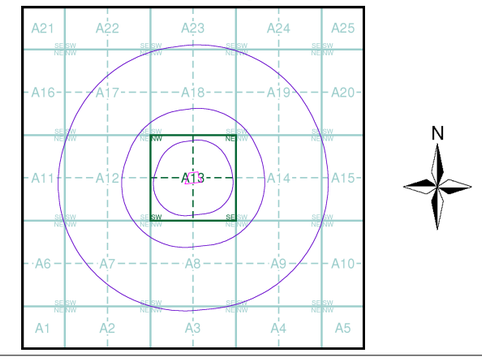
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- <100 mg/kg
- 100 - 200
- 200 - 300
- 300 - 600
- 600 - 1200
- >1200

Estimated Soil Chemistry Lead - Slice A



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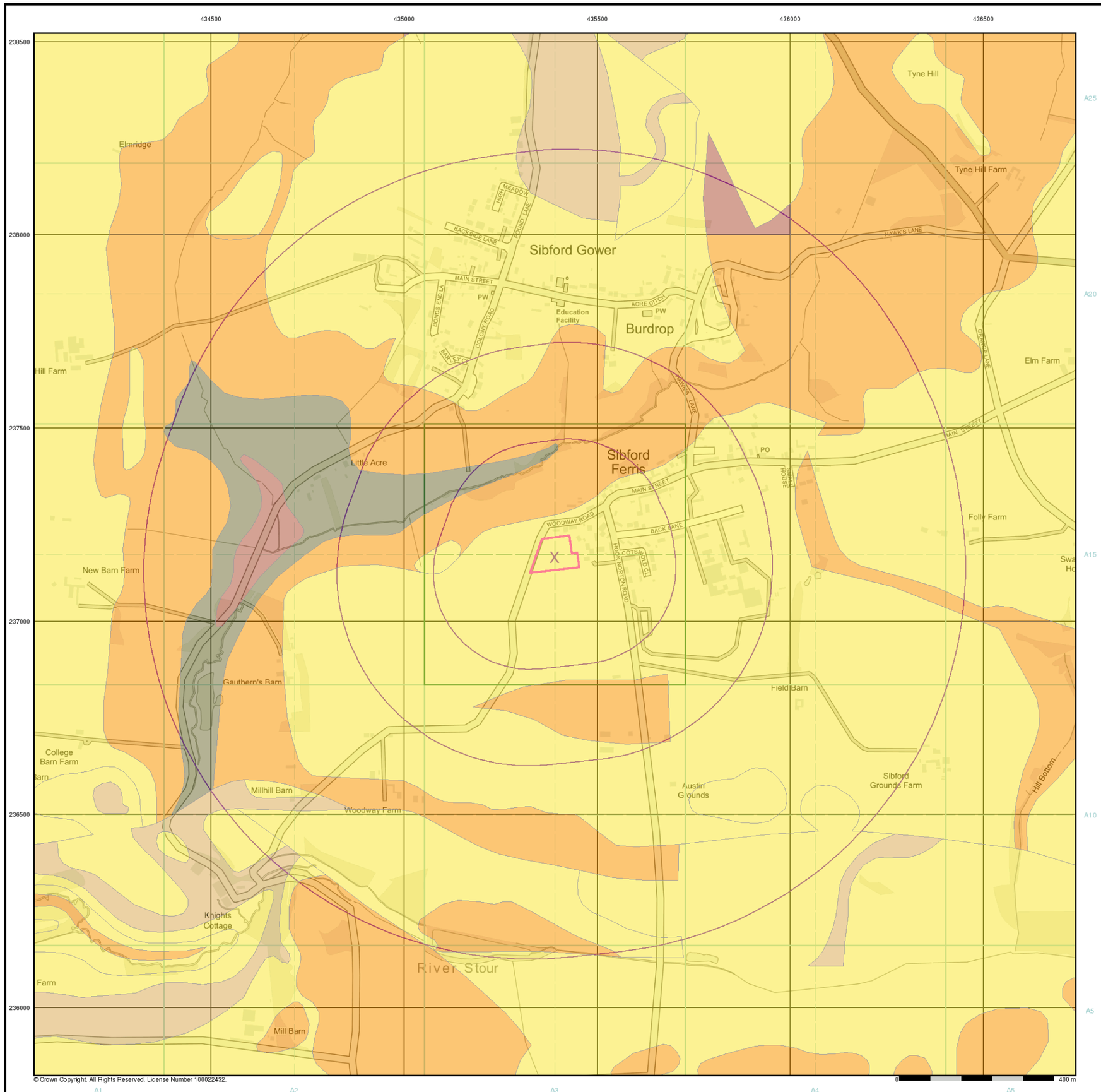

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LANDMARK INFORMATION GROUP®

General

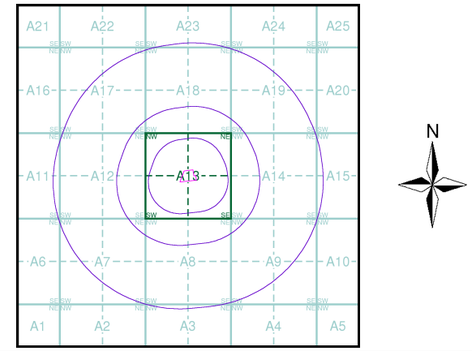
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

- < 15
- 15 - 30
- 30 - 45
- 45 - 60
- 60 - 80
- 80 - 100
- > 100

Estimated Soil Chemistry Nickel - Slice A



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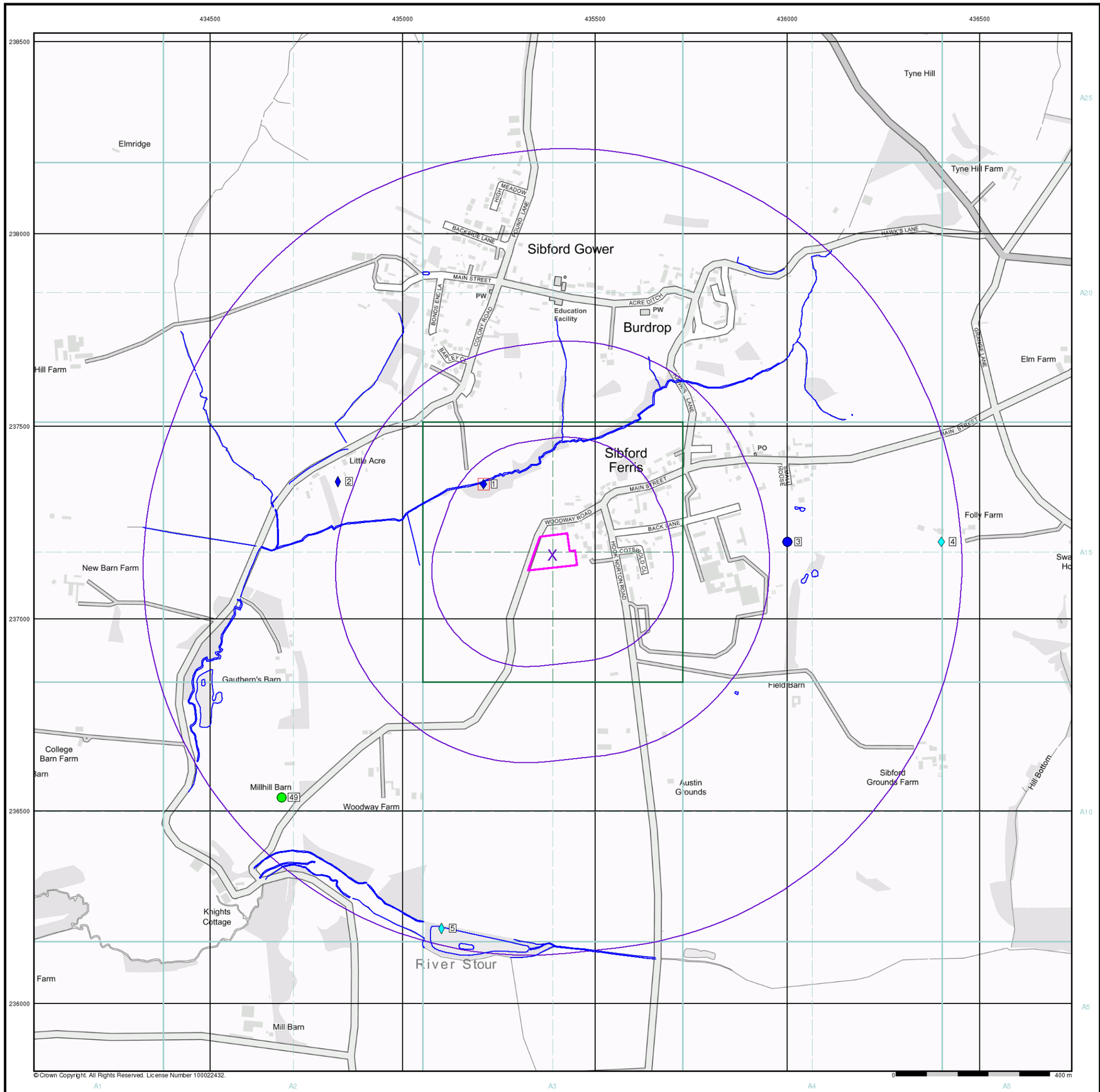

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General

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

Agency and Hydrological

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

Hazardous Substances

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

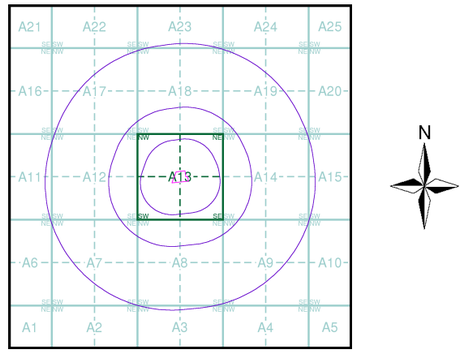
Geological

- BGS Recorded Mineral Site

Waste

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

Site Sensitivity Map - Slice A



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Order Number:	281861625_1_1
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National Grid Reference:	435390, 237170
Slice:	A
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Search Buffer (m):	1000

Site Details

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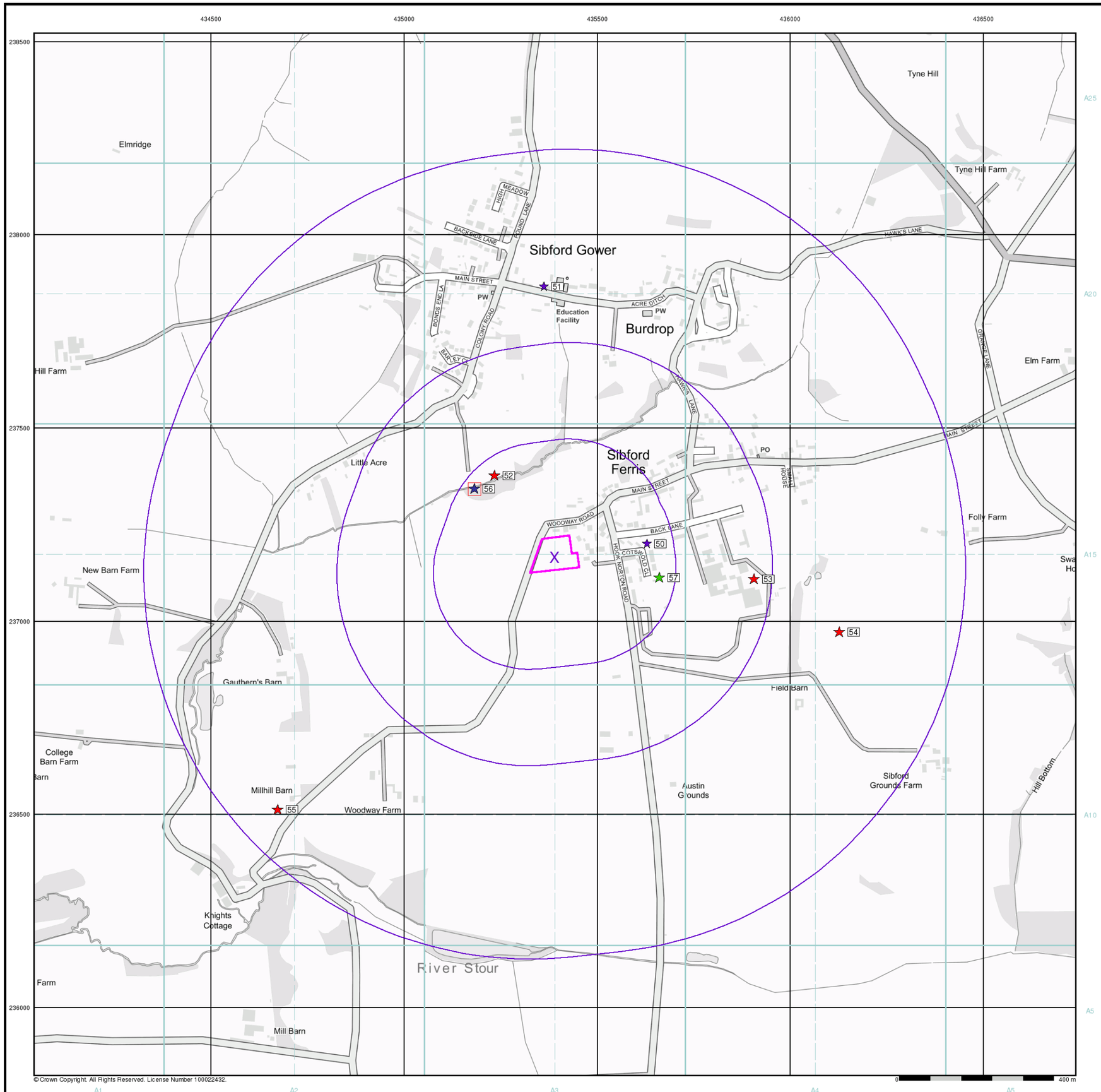

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Industrial Land Use Map

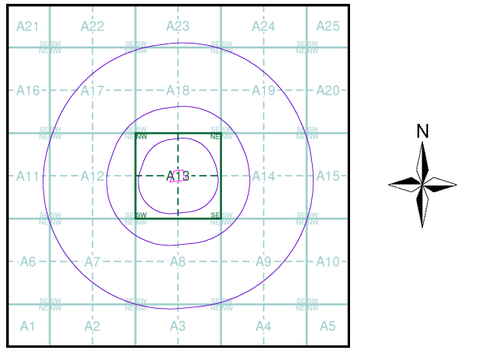
General

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

Industrial Land Use

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

Industrial Land Use Map - Slice A



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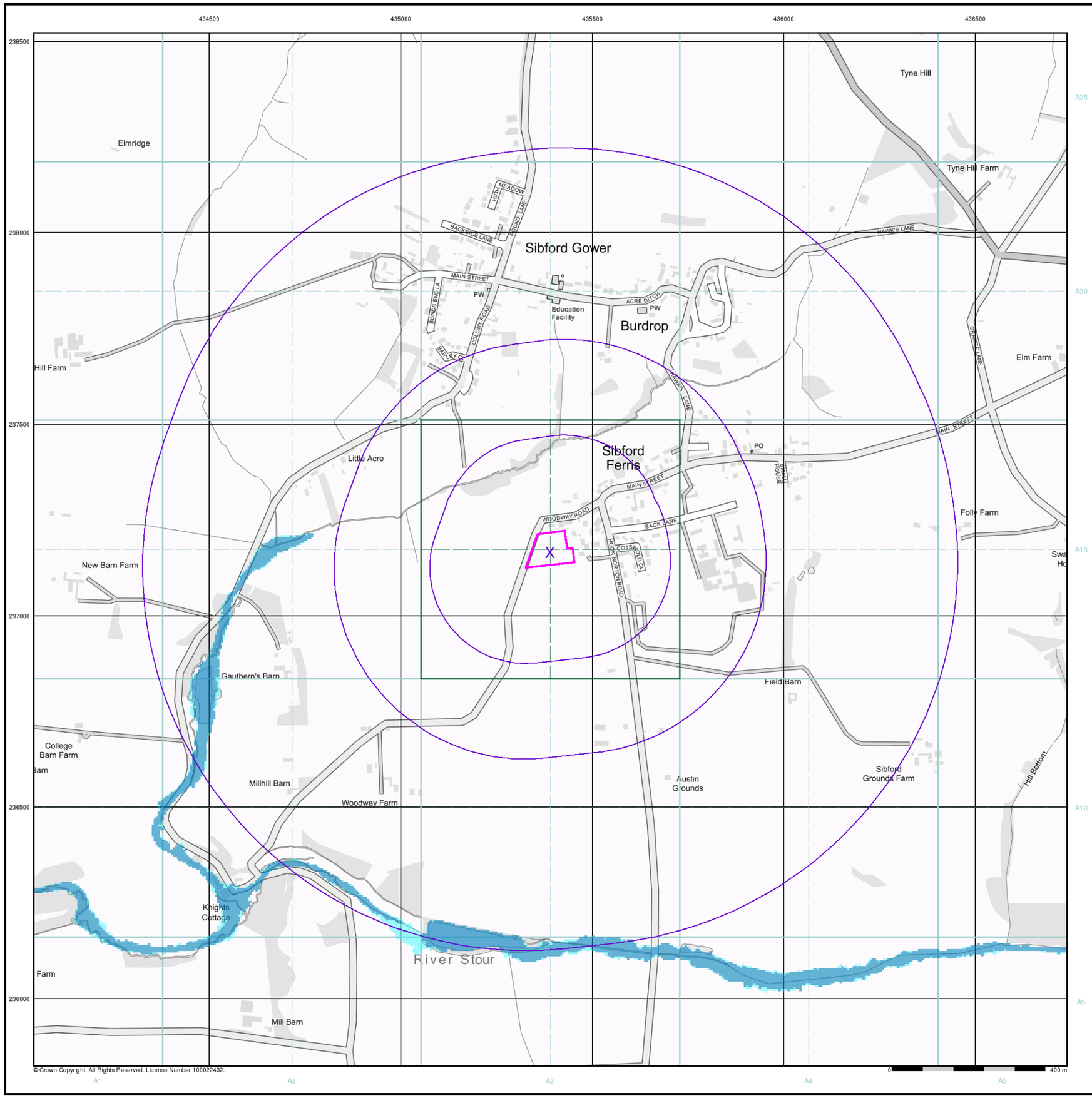

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LANDMARK INFORMATION GROUP®

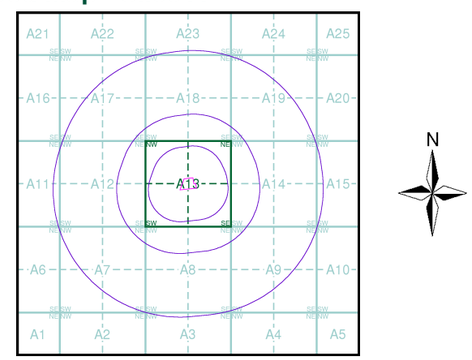
General

- 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



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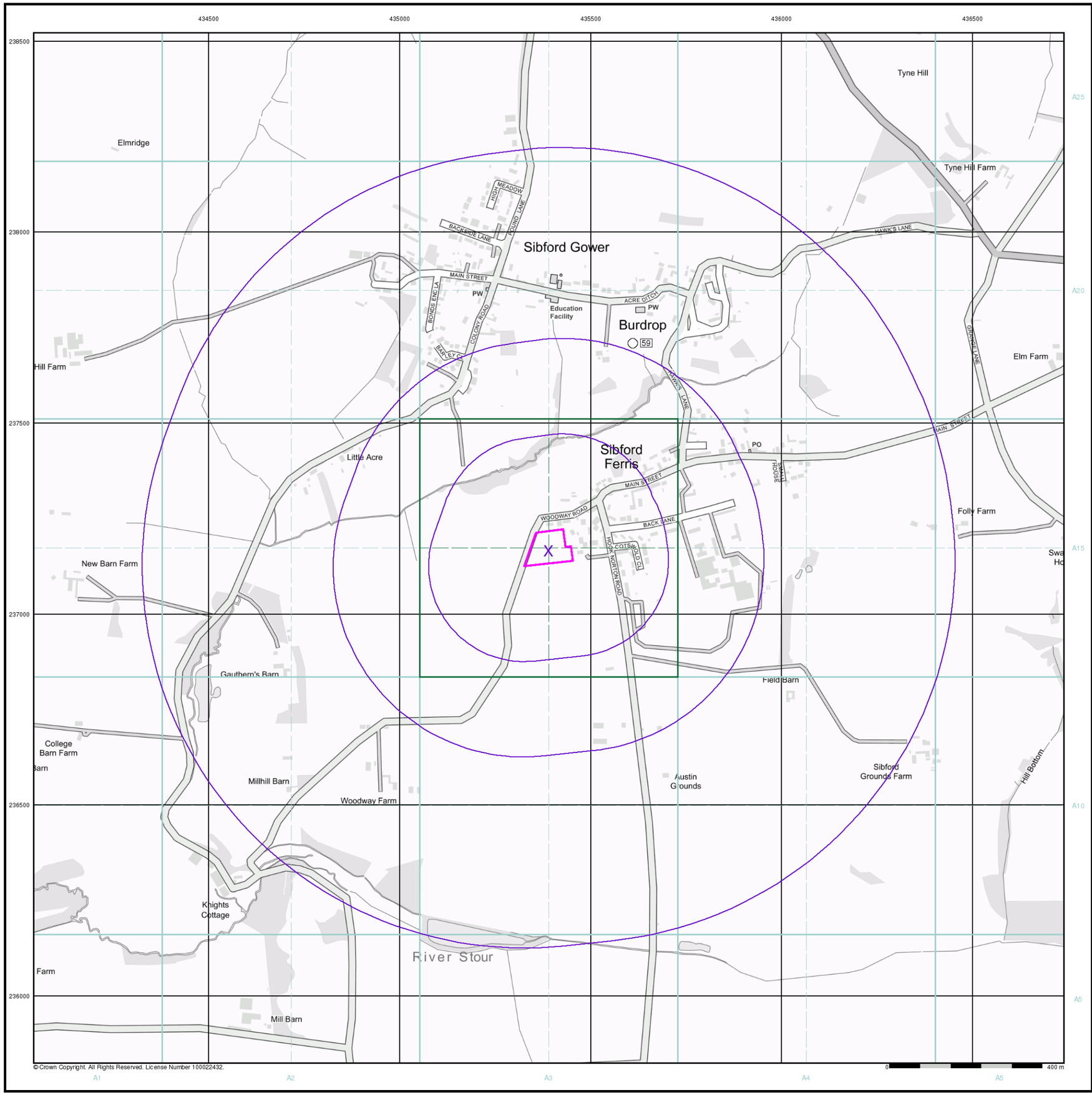

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General

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

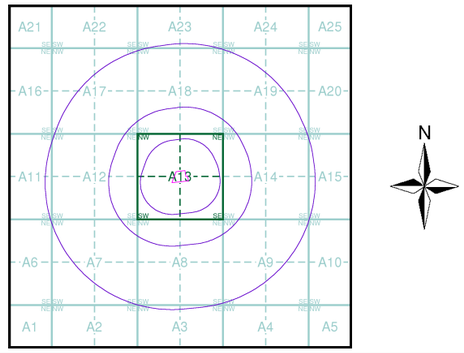
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A



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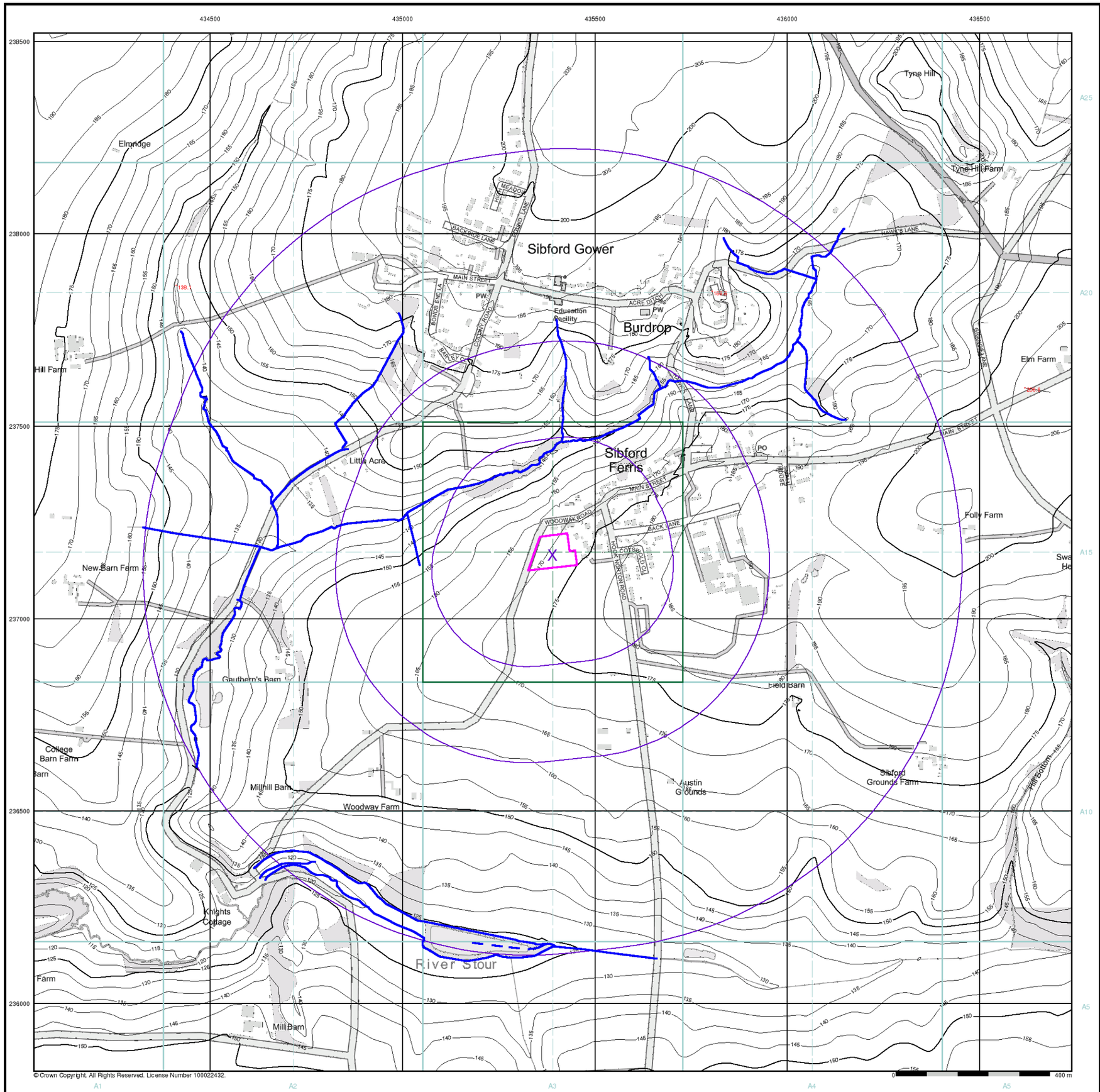

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LANDMARK INFORMATION GROUP®

General

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

OS Water Network Data

- Canal
- Reservoir
- Foreshore
- Marsh
- Tidal River
- Inland River
- Drain
- Other
- Lake
- Transfer
- Lock Or Flight Of Locks
- Sea

Contours (height in meters)

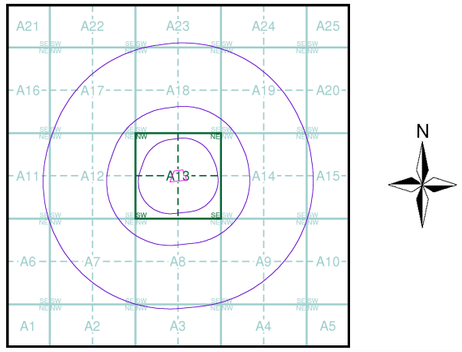
Standard Contour 105 100 95

Master Contour

Spot Height 167.3

- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



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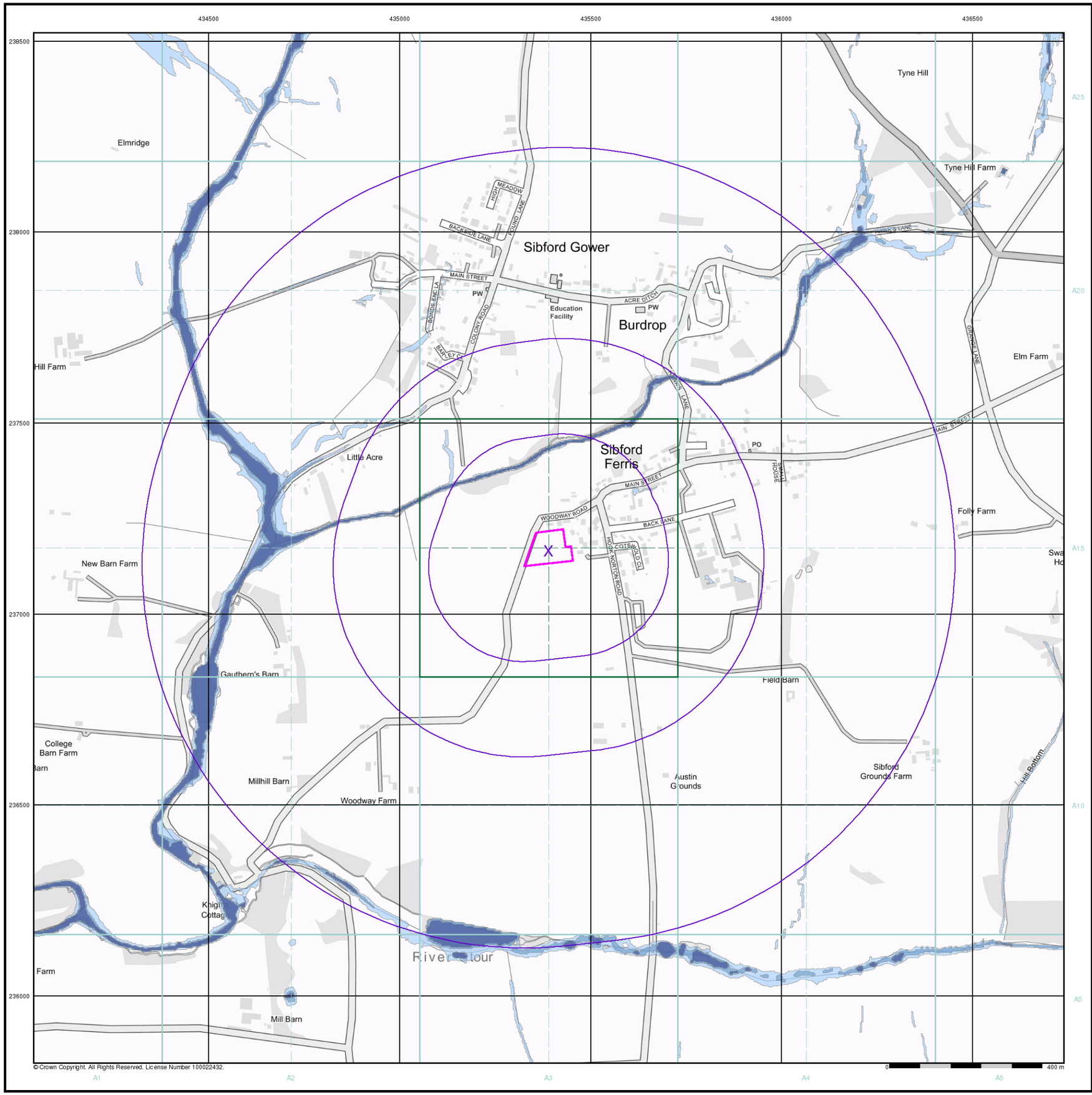

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LANDMARK INFORMATION GROUP®

General

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

Risk of Flooding from Surface Water

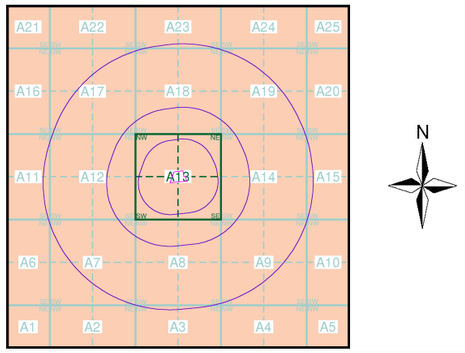
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

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

EA/NRW Suitability Map - Slice A



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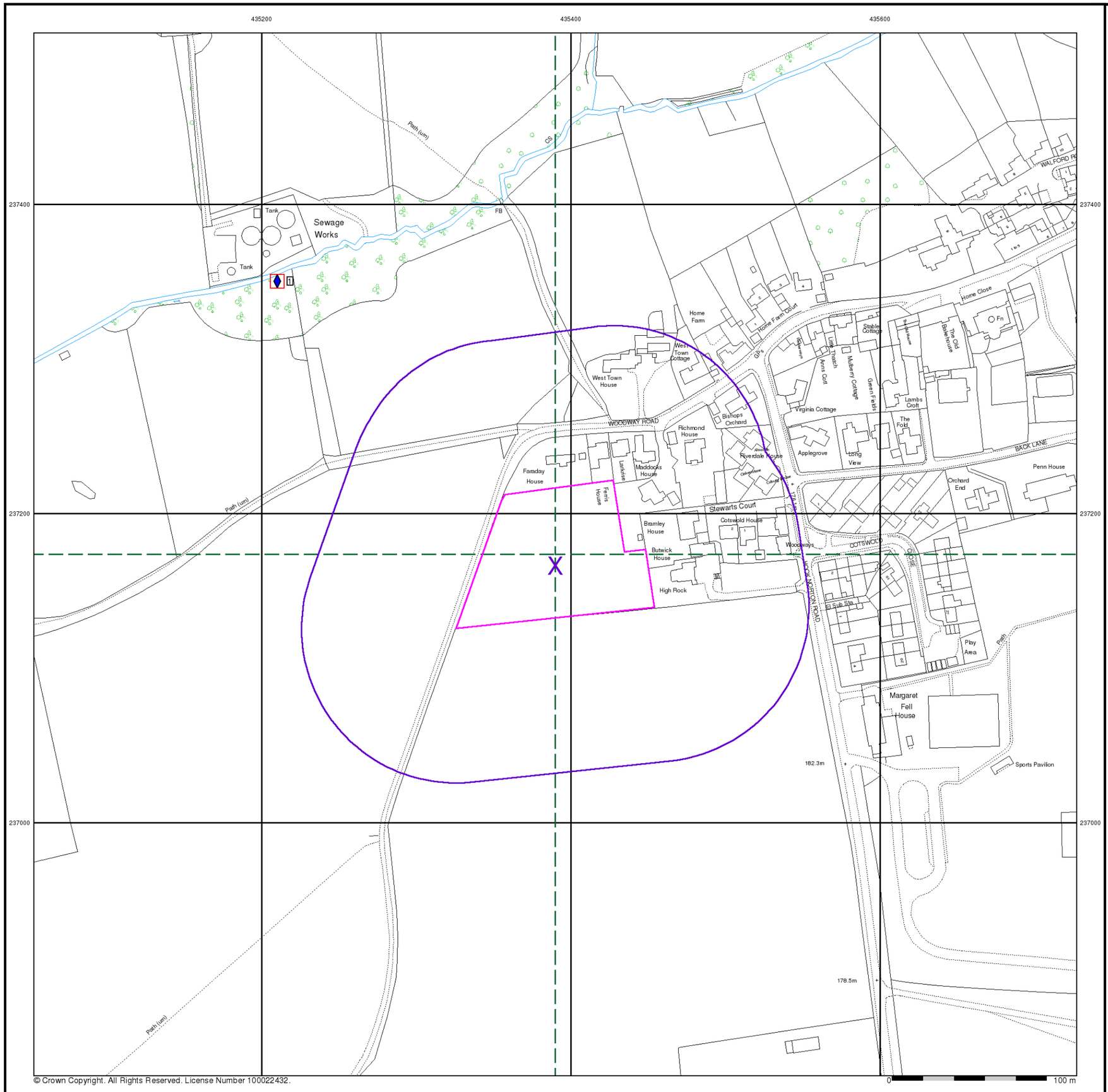

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LANDMARK INFORMATION GROUP®

General

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

Agency and Hydrological

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

Waste

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

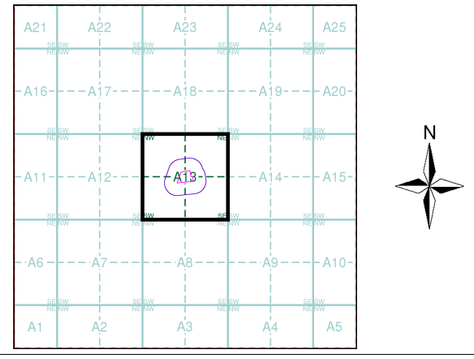
Hazardous Substances

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

Geological

- BGS Recorded Mineral Site

Site Sensitivity Map - Segment A13



Order Details

Order Number:	281861625_1_1
Customer Ref:	GCE01141
National Grid Reference:	435390, 237170
Slice:	A
Site Area (Ha):	0.84
Plot Buffer (m):	100

Site Details

Woodway Road, Sibford Ferris, Banbury, OX15 5RF

Landmark INFORMATION GROUP

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

Appendix E – Utility Search Results

TECHNICAL NOTE

john newton & partners
jnpgroup
Consulting Engineers

Job name:	Land at Hook Norton Road, Sibford Ferris
Job No:	C85855
Note No:	TN001
Date:	30/07/2018
Prepared by:	Jacob Cronin
Subject:	Utilities

1. Introduction

1.1 **jnpgroup** were commissioned by Land & Partners Limited to obtain asset location plans for utilities companies in the local area of the proposed development at land west of Hook Norton Road, Sibford Ferris.

1.2 The total site area is approximately 3.7ha and the proposed development includes the construction of 25 new domestic dwellings in the northern end of the site, whilst the southern side of the site will be used as open space with woodland and SuDS measures

2. Utilities

2.1 Asset location plans were obtained for all utility companies known to operate in the area. The companies found to operate in the area have been grouped below by the type of utility they provided.

Telecoms

2.2 It was found that BT and CityFibre operate in the area of the site, however, asset location plans from both companies show that only BT have infrastructure in the vicinity of the site. The relevant location plans are provided in Appendix A.

Lighting

2.3 There is a single street light to the front of the site and an asset location plan showing the location of the column is provided in Appendix B.

Sewers (Foul and Surface Water) and Potable Water

2.4 Sever Trent and Thames Water own the public sewers in the area, however, the potable water supply in the area is supplied by Thames Water. Asset Location plans for the site and surrounding area for both of these companies is provided in Appendix C.

Gas

2.5 Southern Gas Network is the local gas supplier in the area and no assets are located on or near the site, the letter from Southern Gas Network is provided in Appendix D. From online information it would appear that Sibford Ferris is not a gas supplied area.

Electric

2.6 Western Power Distribution is the local supplier of electric in the area of the site and an asset location plan showing infrastructure on and near the site for this company is provided in Appendix E.

Document Issue Record

Technical Note No	Rev	Date	Prepared	Reviewed	Approved
First Issue	N/A	07/2018	JC	MV	MV

List of Appendices

Appendix A	*Telecoms Companies Asset Location Plans*
Appendix B	*Lighting Company Asset Location Plan*
Appendix C	*Sewers and Potable Water Companies Asset Location Plans*
Appendix D	*Gas Company Asset Location Plan*
Appendix E	*Electric Company Asset Location Plan*

Appendix A

Telecoms Companies Asset Location Plans

openreach
a BT Group business

Our Ref: Ref shown on map

email: nnhc@openreach.co.uk

Date of issue shown on map

Dear Customer,

NR & SW ACT 1991 – PROPOSED WORKS AT: Hook Norton Rd, Sibford Ferris

Prior to commencement of work: for free onsite guidance and accurate up to date location of BT plant please contact our Plant Protection Service by the following methods
Email Dial before you dig CBYD@openreach.co.uk
Visit the website www.openreach.co.uk/cbyd

Thank you for your request of **EQ/EWDMY887** describing the above proposals.

Enclosed are copies of our drawing marked up to show the approximate locations of BT apparatus which is present in the immediate vicinity of your works. It is intended for general guidance only. No guarantee is given of its accuracy.

It should not be relied upon in the event of excavations or other works made near to British Telecommunications plc apparatus which may exist at various depths and may deviate from the marked route.

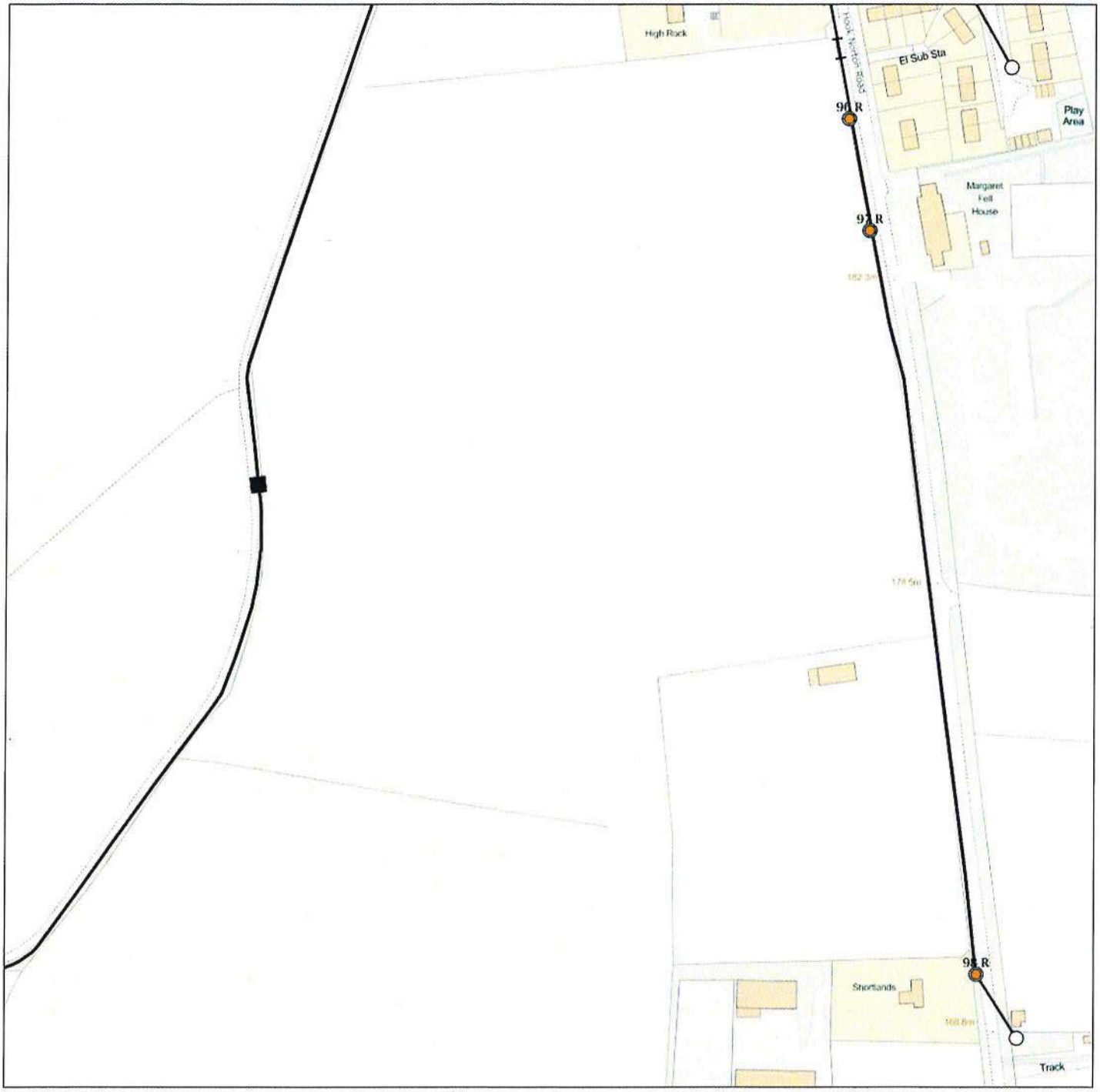
To avoid damage it is recommended that mechanical excavators or borers are not used within 600mm of British Telecommunications plc plant. If scaffolding is erected, please ensure that our equipment is not enclosed, blocked, covered or otherwise obstructed by the scaffolding.

In the event of BT apparatus being in the area of works we recommend that your plant/vehicle crossing is either resited, or apply for a budget estimate by submitting detailed plans to the above address, these will be forwarded to the appropriate department for their comments.

Please ensure you quote our reference on any future correspondence.

Yours faithfully,

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

- DP
- Planned DP
- PCP
- Planned PCP
- Built
- Planned
- Inferred
- Duct
- Building
- Kiosk
- Hatchings
- Pole
- Planned Pole
- Joint Box
- Change Of State
- Split Coupling
- Duct Tee
- Planned Box
- Manhole
- Planned Manhole
- Cabinet
- Planned Cabinet

Other proposed plant is shown using dashed lines.
BT Symbols not listed above maybe disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation

BT Ref : FCC09419Z
Map Reference : (centre) SP3542136915
Easting/Northing : (centre) 435421,236915
Issued : 03/07/2018 09:42:03

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT

CityFibre

LEGEND

- EXISTING PLANT
- EXISTING PLANT

Select a bitmap

Head Office
CityFibre Holdings Ltd
15 Bedford Street,
London,
WC2E 9HE

Tel: 0845 293 0774
Web: www.cityfibre.com

Asset Office
CityFibre Holdings Ltd,
Rutherford House,
Birchwood,
Warrington,
WA3 6ZH

Email: asset.team@cityfibre.com

Project

Plant Enquiry

Drawing

Existing Plant

Drawn by:

smallworld

Date: 03/07/2018

Drawing No.

CFH_EP_000001

Revision

001

Scale: 1:1250

A4

N

john newton & partners
jnpgroup
Consulting Engineers

Appendix B

Lighting Company Asset Location Plan

Oxford lighting.

john newton & partners
jnpgroup
Consulting Engineers

Appendix C

Sewers and Potable Water Companies Asset Location Plans

EQ/EWDM14887

SEVERN TRENT WATER Ltd
Asset Data Management
GISmapping Team
PO Box 5344
Coventry
CV3 9FT
Tel 0345 601 6616
Fax 02477 715862
Contact
Our Ref 16162

17 July 2018

Apparatus Location Enquiry

Further to your enquiry re: Hook Norton Road, Sibford Ferris, Cherwell OX15 5WQ
Enclosed is a copy of the plans showing the approximate positions of the **sewer mains** situated within the vicinity of the land/property which is the subject of your enquiry.

Asset Data Management can only provide plans of the location of the Company's underground assets. Therefore service pipes and drains are the responsibility of the property owner and should be anticipated during any excavation.

However, we wish to inform you that although most private lateral drains and sewers were transferred to Severn Trent Water's ownership on 1st October 2011, the Company does not possess complete records of these assets and therefore they may not be shown on these maps.

Please also find enclosed a copy of Severn Trent Water's General Conditions and Precautions for your information.

VAT and card payment receipts (where appropriate) are attached herewith together with your enquiry documentation. Please forward VAT receipt to your finance department.

Kind Regards

[redacted]

GISmapping Team

Enquiry received
GISmapping:
17 July 2018

SEVERN TRENT WATER

GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your Contractor on site. If any damage is caused to STW apparatus, the person, Contractor or Subcontractor responsible must inform STW immediately on:

0800 783 4444 (24 hours)

These general conditions and precautions apply to the public sewerage, water distribution and telemetry systems. The conditions include sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the Agreement for the self construction of water mains. Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.

On request, STW will issue a copy of the plan showing the approximate locations of STW apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan is furnished as a general guide only and no warranty as to its accuracy is given or implied. The plan must not be relied upon in the event of excavations or other works in the vicinity of STW apparatus. No person or Company shall be relieved from liability for damage caused by reason of the actual position and/or depths of STW apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any apparatus the following should be observed:

1. All STW apparatus should be located by hand digging prior to the use of mechanical excavators.

2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to our apparatus. You or your contractor must ensure the safety of our equipment and will be responsible for the cost of repairing any damage caused.

3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.

4. During construction work, where heavy plant will cross the line of STW apparatus, specific crossing points must be agreed with the Company and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW apparatus at other locations must be prevented.

5. Where it is proposed to carry out piling or boring within 20 metres of any STW apparatus, STW should be consulted to enable any affected STW apparatus to be surveyed prior to the works commencing.

6. Where excavation of trenches adjacent to any STW apparatus affects its support, the STW apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.

7. Where a trench is excavated crossing or parallel to the line of any STW apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause

damage to the STW apparatus. In special cases, it may be necessary to provide permanent support to STW apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW apparatus.

8. No apparatus should be laid along the line of STW apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW apparatus.

9. A minimum radial clearance of 300 millimetres should be allowed between any plant being installed and existing STW apparatus. - We reserve the right to increase this distance where strategic assets are affected.

10. Where any STW apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged.

11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such apparatus in order to determine any necessary alterations in advance of the works.

12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.

13. You are advised that Severn Trent Water Limited will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,

14. No explosives are to be used in the vicinity of any STW apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW apparatus.

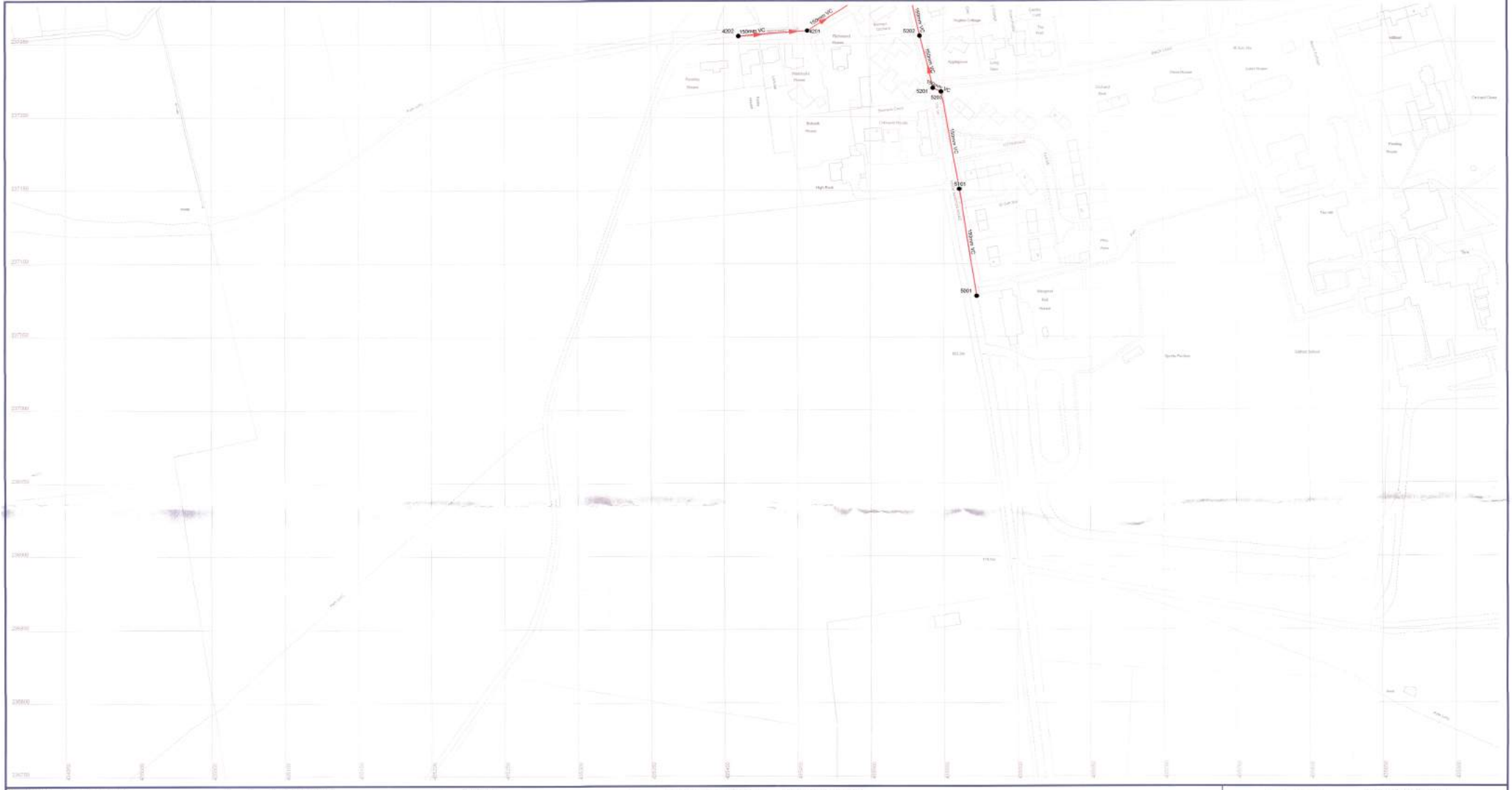
15. Please ensure that, in relation to STW apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.

16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW apparatus.

17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear.

18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW apparatus.

19. In certain circumstances, both the Company and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.



- Abandoned Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lamphole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Culverted Watercourse
- Pre-1937 Properties

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
HD	- HIGHWAY DRAIN
S104	- SECTION 104

All Private Sewers are shown in magenta
All section 104 sewers are shown in green
All Sewers that have been transferred to Severn Trent Water after the 1st October 2011, but have not been surveyed and confirmed by Severn Trent Water are shown in orange

N
W E
S

SEVERN TRENT WATER

Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0845 601 5616

SEWER RECORD

O/S Map scale: 1:250
Date of issue: 17.07.18

This map is centred upon:
O / S Grid reference:
x : 435421
y : 237012

Sewer Node / Sewer Pipe Data

REFERENCE	COVER LEVEL	INV LEVEL UPSTR	INV LEVEL DOWNSTR	PURP	MATL	SHAPE	MAX SIZE	MIN SIZE	GRADIENT	YEAR LAID
SP35374201	170.74	167.93	167.69	C	VC	C	150	nil	211.54	nill
SP35374202	169.18	168.39	167.93	C	VC	C	150	nil	104.72	nill
SP35374301	162.72	161.45	156.52	C	VC	C	150	nil	6.67	nill
SP35374302	168.06	166.80	161.45	C	VC	C	150	nil	9.48	nill
SP35375001	181.71	180.64	178.52	C	VC	C	150	nil	34.82	nill
SP35375101	179.68	178.48	174.75	C	VC	C	150	nil	18.25	nill
SP35375201	176.09	174.50	172.12	C	VC	C	150	nil	15.59	nill
SP35375202	173.66	172.08	168.50	C	VC	C	150	nil	13.82	nill
SP35375203	176.14	174.63	174.56	C	VC	C	150	nil	90.29	nill
SP35375205	170.03	167.64	166.82	C	VC	C	150	nil	44.18	nill
SP35375301	170.22	168.85	168.45	C	VC	C	150	nil	61.90	nill
SP35375302	170.48	169.07	168.89	C	VC	C	150	nil	104.39	nill
SP35375303	170.23	168.44	167.99	C	VC	C	150	nil	63.18	nill
SP35376301	174.33	172.96	171.46	C	VC	C	150	nil	29.96	nill
SP35376302	172.70	171.41	169.10	C	VC	C	150	nil	37.79	nill
nil	nil	nil	nil	S	VC	nil	nil	nil	0.00	nill

MATERIALS

-	- NONE
AC	- ASBESTOS CEMENT
BR	- BRICK
CC	- CONCRETE BOX CULVERT
CI	- CAST IRON
CO	- CONCRETE
CSB	- CONCRETE SEGMENTS (BOLTED)
CSU	- CONCRETE SEGMENTS (UNBOLTED)
DI	- DUCTILE IRON
GRC	- GLASS REINFORCED CONCRETE
RP	- GLASS REINFORCED PLASTIC
MAC	- MASONRY IN REGULAR COURSES
MAR	- MASONRY RANDOMLY COURSED
PE	- POLYETHLENE
PF	- PITCH
PP	- POLYPROPYLENE
PSC	- PLASTIC STEEL COMPOSITE
PVC	- POLYVINYL CHLORIDE
RPM	- REINFORCED PLASTIC MATRIX
SI	- SPUN (GREY) IRON
ST	- STEEL
U	- UNKNOWN
VC	- VITRIFIED CLAY
XXX	- OTHER

SHAPE

C	- CIRCULAR
E	- EGG SHAPED
O	- OTHER
R	- RECTANGLE
S	- SQUARE
T	- TRAPEZOIDAL
U	- UNKNOWN

PURPOSE

C	- COMBINED
E	- FINAL EFFLUENT
F	- FOUL
L	- SLUDGE
S	- SURFACE WATER

TABULAR KEY

A Sewer pipe data refers to downstream sewer pipe.

B Where the node bifurcates (splits) X and Y indicates downstream sewer pipe.

[illegible]

SEVERN TRENT WATER

Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone 0845 601 6616

SEWER RECORD DATA TABLE

O/S Map scale:	1:3500	**This map is centred upon: O / S Grid reference:**	
Date of issue:	17.07.18	**x:**	435421
Sheet No.	2 of 2	**y:**	237012

Asset location search

Property Searches

Search address supplied: Hook Norton Road, Sibford Ferris, Banbury, OX15 5QW

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This searchprovides maps showing the position, size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0845 070 9148, or use the address below:

Thames Water Utilities Ltd
Property Searches
PO Box 3189
Slough
SL1 4WW

Email: searches@thameswater.co.uk
Web: www.thameswater-propertysearches.co.uk

Asset location search

Property Searches

Waste Water Services

Please provide a copy extract from the public sewer map.

Following examination of our statutory maps, Thames Water has been unable to find any record of public sewerage within this area. However, there may be other sewerage pipework within the area that is not owned by the company. You may be able to obtain records of such pipework from the building control department of your local authority, from property deeds or from neighbouring landowners.

The following quartiles have not been printed as they are out of Thames' sewer catchment area. For details of the assets requested please contact the water company indicated below:

SP3537SW	Severn Trent
SP3537SE	Severn Trent
SP3536NW	Severn Trent
SP3536NE	Severn Trent

Following examination of our statutory maps, Thames Water has been unable to find any record of public sewerage within this area. However, there may be other sewerage pipework within the area that is not owned by the company. You may be able to obtain records of such pipework from the building control department of your local authority, from property deeds or from neighbouring landowners.

Severn Trent Water Ltd
2297 Coventry Road
Birmingham
B26 3PU

Tel: 0121 722 4000
Fax: 0121 722 4800

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

Asset location search

Property Searches

The following quartiles have been printed as they fall within Thames' water area:

SP3537SW
SP3537SE
SP3536NE

Enclosed is a map showing the approximate positions of our water mains and associated apparatus. Please note that records are not kept of the positions of individual domestic supplies.

For your information, there will be a pressure of at least 10m head at the outside stop valve. If you would like to know the static pressure, please contact our Customer Centre on 0800 316 9800. The Customer Centre can also arrange for a full flow and pressure test to be carried out for a fee.

The following quartiles have not been printed as they contain no assets:

SP3536NW

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Payment for this Search

A charge will be added to your suppliers account.

Asset location search

Property Searches

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. For further information please contact our Customer Centre on Tel: 0845 920 0800. Alternatively, a survey can be arranged, for a fee, through our Customer Centre on the above number.

If you have any questions regarding sewer connections, budget estimates, diversions, building over issues or any other questions regarding operational issues please direct them to our service desk. Which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

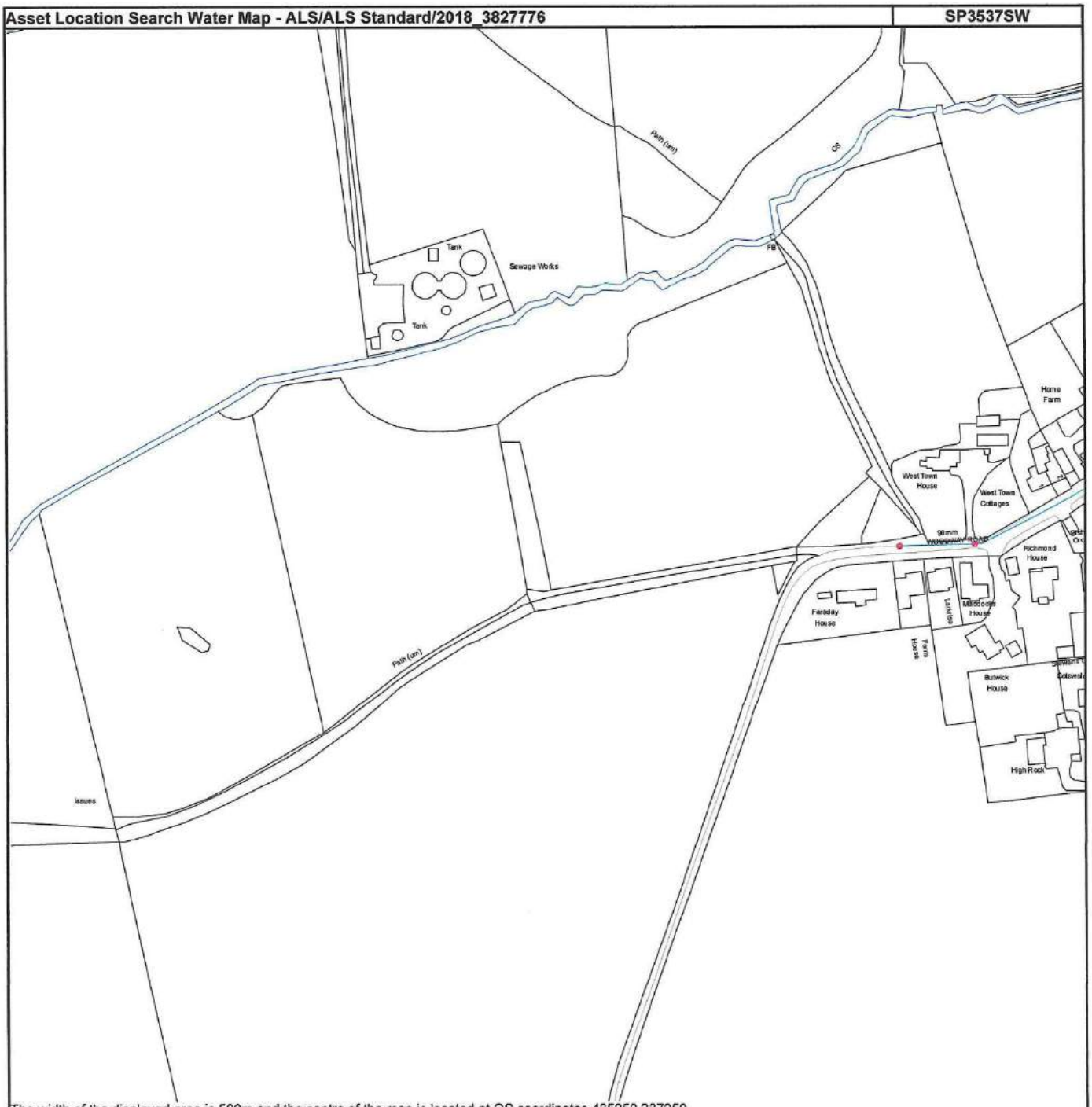
Clean Water queries

Should you require any advice concerning clean water operational issues or clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Asset Location Search Water Map - ALS/ALS Standard/2018_3827776 | **SP3537SW**



The width of the displayed area is 500m and the centre of the map is located at OS coordinates 435250,237250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

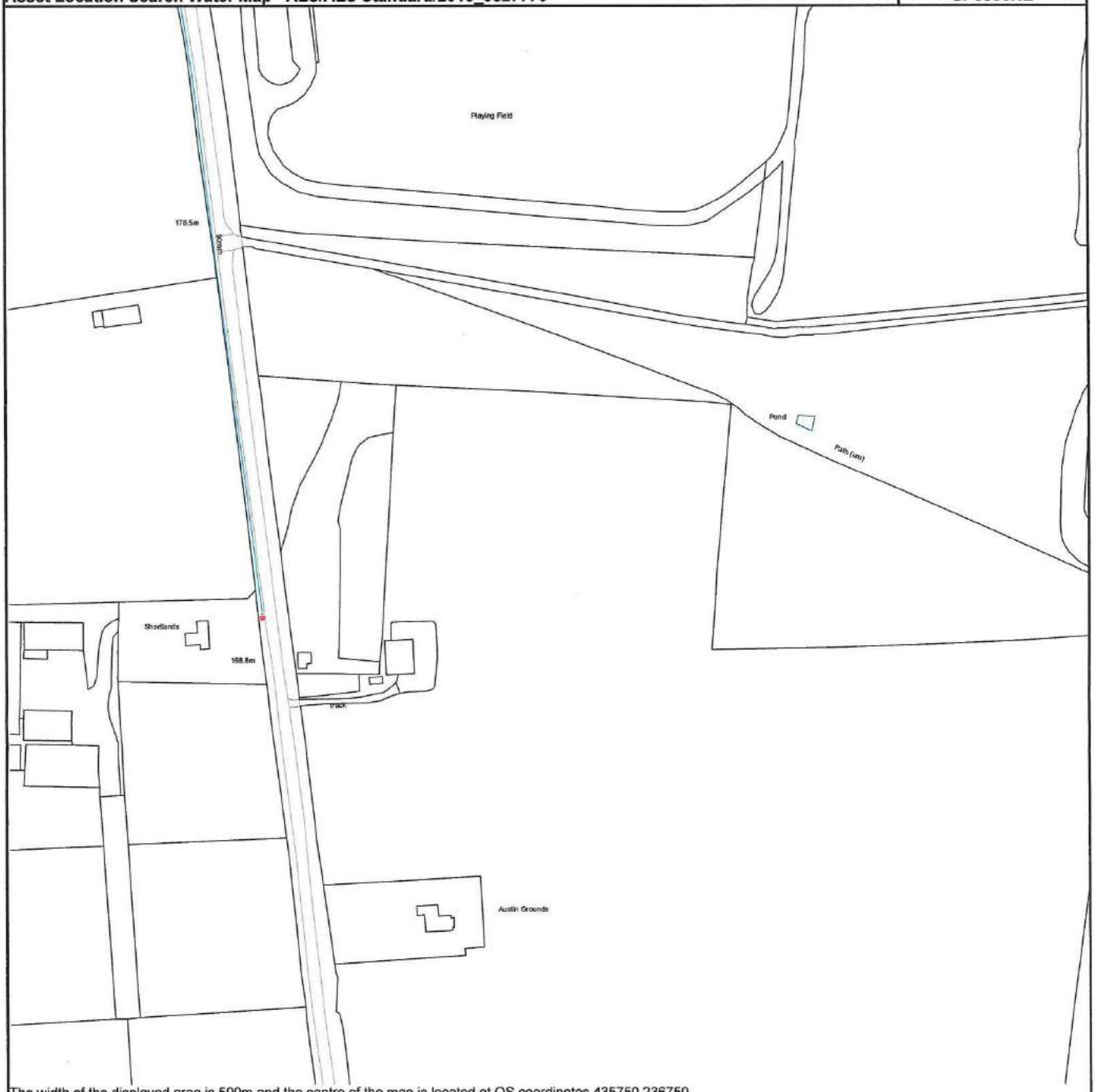
Asset Location Search Water Map - ALS/ALS Standard/2018_3827776 | **SP3537SE**

The width of the displayed area is 500m and the centre of the map is located at OS coordinates 435750,237250

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

Asset Location Search Water Map - ALS/ALS Standard/2018_3827776	SP3536NE

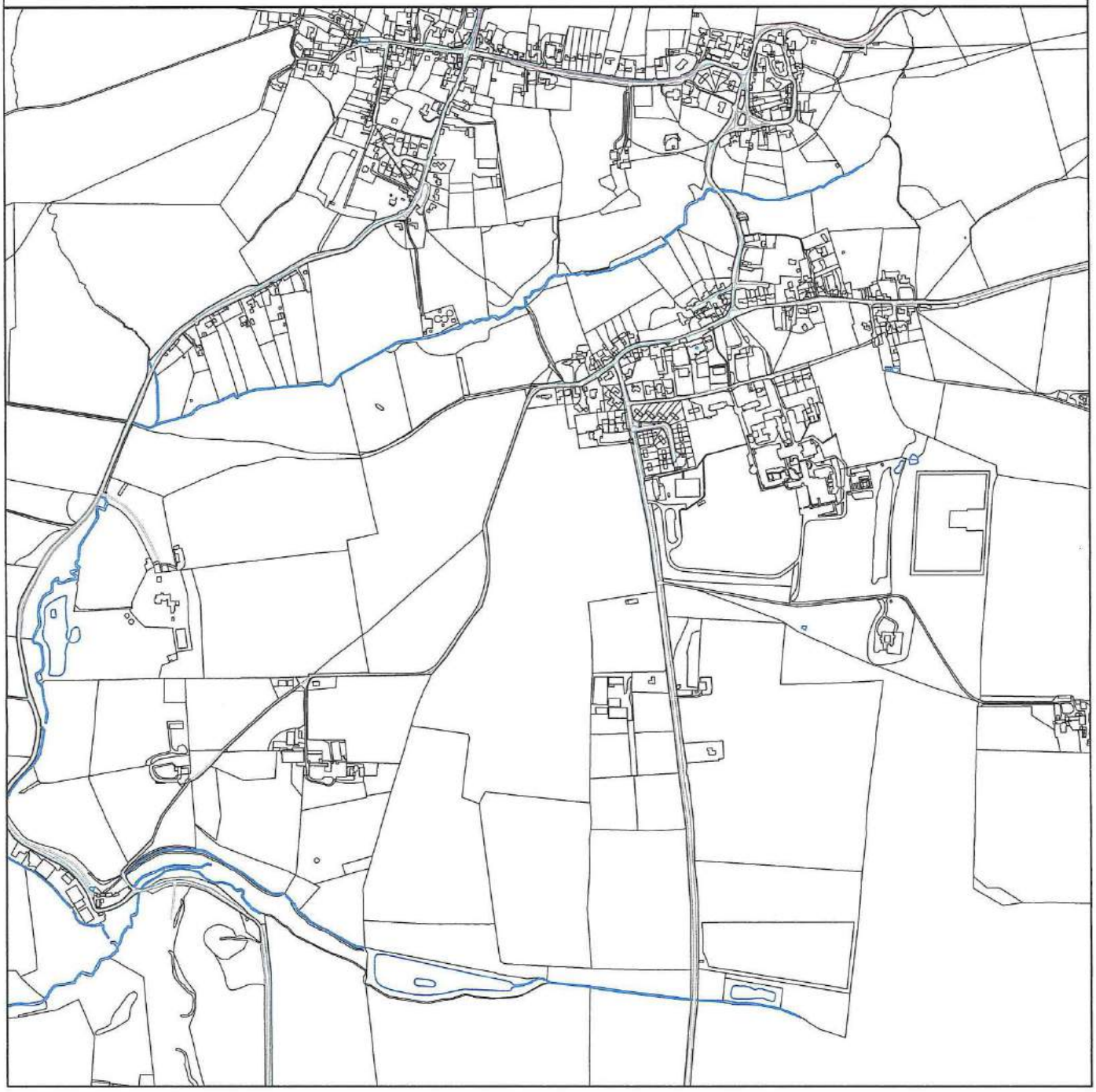


The width of the displayed area is 500m and the centre of the map is located at OS coordinates 435750,236750

The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

ALS/ALS Standard/2018_3827776



0 45 90 180 270 360
Meters

Scale:	1:7165
Width:	2001m
Printed By:	dshivaji
Print Date:	03/07/2018
Map Centre:	435396,236957
Grid Reference:	SP3536NW

Comments:

ALS Water Map Key

Water Pipes (Operated & Maintained by Thames Water)

Distribution Main: The most common pipe shown on water maps. With few exceptions, domestic connections are only made to distribution mains.

Trunk Main: A main carrying water from a source of supply to a treatment plant or reservoir, or from one treatment plant or reservoir to another. Also a main transferring water in bulk to smaller water mains used for supplying individual customers.

Supply Main: A supply main indicates that the water main is used as a supply for a single property or group of properties.

Fire Main: Where a pipe is used as a fire supply, the word FIRE will be displayed along the pipe.

Metered Pipe: A metered main indicates that the pipe in question supplies water for a single property or group of properties and that quantity of water passing through the pipe is metered even though there may be no meter symbol shown.

Transmission Tunnel: A very large diameter water pipe. Most tunnels are buried very deep underground. These pipes are not expected to affect the structural integrity of buildings shown on the map provided.

Proposed Main: A main that is still in the planning stages or in the process of being laid. More details of the proposed main and its reference number are generally included near the main.

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger

Other Water Pipes (Not Operated or Maintained by Thames Water)

Other Water Company Main: Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.

Private Main: Indiates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment 14 days from due date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service, or will be held to be invalid.
4. Thames Water does not accept post-dated cheques-any cheques received will be processed for payment on date of receipt.
5. In case of dispute TWUL`s terms and conditions shall apply.
6. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
7. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
8. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 316 9800

If you are unhappy with our service you can speak to your original goods or customer service provider. If you are not satisfied with the response, your complaint will be reviewed by the Customer Services Director. You can write to her at: Thames Water Utilities Ltd. PO Box 492, Swindon, SN38 8TU.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0121 345 1000 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	**BACS Payment**	**Telephone Banking**	**Cheque**
Call **0845 070 9148** quoting your invoice number starting CBA or ADS / OSS	Account number **90478703** Sort code **60-00-01** A remittance advice must be sent to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW.** or email **ps.billing@thameswater.co.uk**	By calling your bank and quoting: Account number **90478703** Sort code **60-00-01** and your invoice number	Made payable to '**Thames Water Utilities Ltd**' Write your Thames Water account number on the back. Send to: **Thames Water Utilities Ltd., PO Box 3189, Slough SL1 4WW** or by DX to **151280 Slough 13**

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.

Search Code

IMPORTANT CONSUMER PROTECTION INFORMATION

This search has been produced by Thames Water Property Searches, Clearwater Court, Vastern Road, Reading RG1 8DB, which is registered with the Property Codes Compliance Board (PCCB) as a subscriber to the Search Code. The PCCB independently monitors how registered search firms maintain compliance with the Code.

The Search Code:

- provides protection for homebuyers, sellers, estate agents, conveyancers and mortgage lenders who rely on the information included in property search reports undertaken by subscribers on residential and commercial property within the United Kingdom
- sets out minimum standards which firms compiling and selling search reports have to meet
- promotes the best practise and quality standards within the industry for the benefit of consumers and property professionals
- enables consumers and property professionals to have confidence in firms which subscribe to the code, their products and services.

By giving you this information, the search firm is confirming that they keep to the principles of the Code. This provides important protection for you.

The Code's core principles

Firms which subscribe to the Search Code will:

- display the Search Code logo prominently on their search reports
- act with integrity and carry out work with due skill, care and diligence
- at all times maintain adequate and appropriate insurance to protect consumers
- conduct business in an honest, fair and professional manner
- handle complaints speedily and fairly
- ensure that products and services comply with industry registration rules and standards and relevant laws
- monitor their compliance with the Code

Complaints

If you have a query or complaint about your search, you should raise it directly with the search firm, and if appropriate ask for any complaint to be considered under their formal internal complaints procedure. If you remain dissatisfied with the firm's final response, after your complaint has been formally considered, or if the firm has exceeded the response timescales, you may refer your complaint for consideration under The Property Ombudsman scheme (TPOs). The Ombudsman can award compensation of up to £5,000 to you if he finds that you have suffered actual loss as a result of your search provider failing to keep to the Code.

Please note that all queries or complaints regarding your search should be directed to your search provider in the first instance, not to TPOs or to the PCCB.

TPOs Contact Details

The Property Ombudsman scheme
Milford House
43-55 Milford Street
Salisbury
Wiltshire SP1 2BP
Tel: 01722 333306
Fax: 01722 332296
Email: admin@tpos.co.uk

You can get more information about the PCCB from www.propertycodes.org.uk

PLEASE ASK YOUR SEARCH PROVIDER IF YOU WOULD LIKE A COPY OF THE SEARCH CODE

TECHNICAL NOTE

john newton & partners
jnpgroup
Consulting Engineers

Job name:	Land at Hook Norton Road, Sibford Ferris
Job No:	C85855
Note No:	TN001
Date:	30/07/2018
Prepared by:	Jacob Cronin
Subject:	Utilities

1. Introduction

1.1 **jnpgroup** were commissioned by Land & Partners Limited to obtain asset location plans for utilities companies in the local area of the proposed development at land west of Hook Norton Road, Sibford Ferris.

1.2 The total site area is approximately 3.7ha and the proposed development includes the construction of 25 new domestic dwellings in the northern end of the site, whilst the southern side of the site will be used as open space with woodland and SuDS measures

2. Utilities

2.1 Asset location plans were obtained for all utility companies known to operate in the area. The companies found to operate in the area have been grouped below by the type of utility they provided.

Telecoms

2.2 It was found that BT and CityFibre operate in the area of the site, however, asset location plans from both companies show that only BT have infrastructure in the vicinity of the site. The relevant location plans are provided in Appendix A.

Lighting

2.3 There is a single street light to the front of the site and an asset location plan showing the location of the column is provided in Appendix B.

Sewers (Foul and Surface Water) and Potable Water

2.4 Sever Trent and Thames Water own the public sewers in the area, however, the potable water supply in the area is supplied by Thames Water. Asset Location plans for the site and surrounding area for both of these companies is provided in Appendix C.

Gas

2.5 Southern Gas Network is the local gas supplier in the area and no assets are located on or near the site, the letter from Southern Gas Network is provided in Appendix D. From online information it would appear that Sibford Ferris is not a gas supplied area.

Electric

2.6 Western Power Distribution is the local supplier of electric in the area of the site and an asset location plan showing infrastructure on and near the site for this company is provided in Appendix E.

Document Issue Record

Technical Note No	Rev	Date	Prepared	Reviewed	Approved
First Issue	N/A	07/2018	JC	MV	MV

List of Appendices

Appendix A	*Telecoms Companies Asset Location Plans*
Appendix B	*Lighting Company Asset Location Plan*
Appendix C	*Sewers and Potable Water Companies Asset Location Plans*
Appendix D	*Gas Company Asset Location Plan*
Appendix E	*Electric Company Asset Location Plan*

Appendix A

Telecoms Companies Asset Location Plans

openreach
a BT Group business

Our Ref: Ref shown on map

email: nnhc@openreach.co.uk

Date of issue shown on map

Dear Customer,

NR & SW ACT 1991 – PROPOSED WORKS AT: Hook Norton Rd, Sibford Ferris

Prior to commencement of work: for free onsite guidance and accurate up to date location of BT plant please contact our Plant Protection Service by the following methods
Email Dial before you dig CBYD@openreach.co.uk
Visit the website www.openreach.co.uk/cbyd

Thank you for your request of **EQ/EWDMY887** describing the above proposals.

Enclosed are copies of our drawing marked up to show the approximate locations of BT apparatus which is present in the immediate vicinity of your works. It is intended for general guidance only. No guarantee is given of its accuracy.

It should not be relied upon in the event of excavations or other works made near to British Telecommunications plc apparatus which may exist at various depths and may deviate from the marked route.

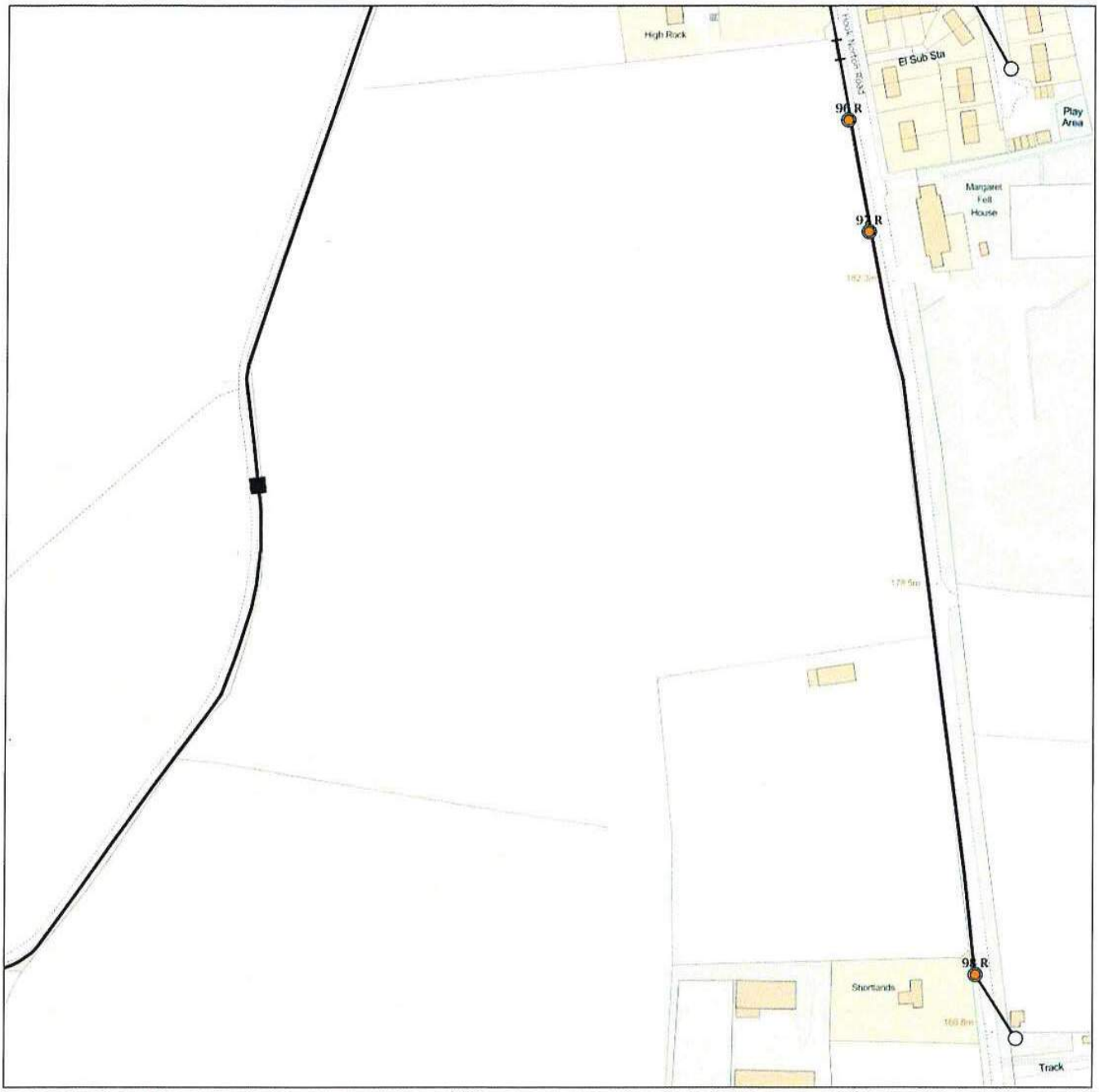
To avoid damage it is recommended that mechanical excavators or borers are not used within 600mm of British Telecommunications plc plant. If scaffolding is erected, please ensure that our equipment is not enclosed, blocked, covered or otherwise obstructed by the scaffolding.

In the event of BT apparatus being in the area of works we recommend that your plant/vehicle crossing is either resited, or apply for a budget estimate by submitting detailed plans to the above address, these will be forwarded to the appropriate department for their comments.

Please ensure you quote our reference on any future correspondence.

Yours faithfully,

Maps by email Plant Information Reply



IMPORTANT WARNING

Information regarding the location of BT apparatus is given for your assistance and is intended for general guidance only. No guarantee is given of its accuracy. It should not be relied upon in the event of excavations or other works being made near to BT apparatus which may exist at various depths and may deviate from the marked route.

openreach

CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

KEY TO BT SYMBOLS

DP		Pole	
Planned DP		Planned Pole	
PCP		Joint Box	
Planned PCP		Change Of State	+
Built		Split Coupling	×
Planned		Duct Tee	▲
Inferred		Planned Box	
Duct		Manhole	
Building		Planned Manhole	
Kiosk	K	Cabinet	
Hatchings		Planned Cabinet	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above maybe disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation

BT Ref : FCC09419Z
Map Reference : (centre) SP3542136915
Easting/Northing : (centre) 435421,236915
Issued : 03/07/2018 09:42:03

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT

CityFibre

LEGEND

- EXISTING PLANT
- EXISTING PLANT

Select a bitmap

Head Office
CityFibre Holdings Ltd
15 Bedford Street,
London,
WC2E 9HE

Tel: 0845 293 0774
Web: www.cityfibre.com

Asset Office
CityFibre Holdings Ltd,
Rutherford House,
Birchwood,
Warrington,
WA3 6ZH

Email: asset.team@cityfibre.com

Disclaimer:

Information shown on this plan is for general guidance only. No warranty is made as to its accuracy.
This plan must not be solely relied upon in the event of excavation or other works being carried out in the vicinity of Cityfibre plant.
No liability of any kind is accepted by Cityfibre, its agents or servants for any error, omission, discrepancy or deviation. This information is valid for the date printed.

Project

Plant Enquiry

Drawing

Existing Plant

Drawn by:

smallworld

Date: 03/07/2018

Drawing No.

CFH_EP_000001

Revision

001

Scale: 1:1250

A4

N

Appendix B

Lighting Company Asset Location Plan

Oxford lighting.

john newton & partners jnpgroup Consulting Engineers

Appendix C

Sewers and Potable Water Companies Asset Location Plans

EQ/EWDM4887

SEVERN TRENT WATER Ltd
Asset Data Management
GISmapping Team
PO Box 5344
Coventry
CV3 9FT
Tel 0345 601 6616
Fax 02477 715862
Contact
Our Ref 16162

17 July 2018

Apparatus Location Enquiry

Further to your enquiry re: Hook Norton Road, Sibford Ferris, Cherwell OX15 5WQ
Enclosed is a copy of the plans showing the approximate positions of the **sewer mains** situated within the vicinity of the land/property which is the subject of your enquiry.

Asset Data Management can only provide plans of the location of the Company's underground assets. Therefore service pipes and drains are the responsibility of the property owner and should be anticipated during any excavation.

However, we wish to inform you that although most private lateral drains and sewers were transferred to Severn Trent Water's ownership on 1st October 2011, the Company does not possess complete records of these assets and therefore they may not be shown on these maps.

Please also find enclosed a copy of Severn Trent Water's General Conditions and Precautions for your information.

VAT and card payment receipts (where appropriate) are attached herewith together with your enquiry documentation. Please forward VAT receipt to your finance department.

Kind Regards

[redacted]

GISmapping Team

Enquiry received
GISmapping:
17 July 2018

SEVERN TRENT WATER

GENERAL CONDITIONS AND PRECAUTIONS TO BE TAKEN WHEN CARRYING OUT WORK ADJACENT TO SEVERN TRENT WATER'S APPARATUS

Please ensure that a copy of these conditions is passed to your representative and/or your Contractor on site. If any damage is caused to STW apparatus, the person, Contractor or Subcontractor responsible must inform STW immediately on:

0800 783 4444 (24 hours)

These general conditions and precautions apply to the public sewerage, water distribution and telemetry systems. The conditions include sewers which are the subject of an Agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the Agreement for the self construction of water mains. Please be aware that due to The Private Sewers Transfer Regulations June 2011, the number of public sewers has increased, but many of these are not shown on the public sewer record. However, some idea of their positions may be obtained from the position of inspection covers and their existence must be anticipated.

On request, STW will issue a copy of the plan showing the approximate locations of STW apparatus although in certain instances a charge will be made. The position of private drains, private sewers and water service pipes to properties are not normally shown but their presence must be anticipated. This plan is furnished as a general guide only and no warranty as to its accuracy is given or implied. The plan must not be relied upon in the event of excavations or other works in the vicinity of STW apparatus. No person or Company shall be relieved from liability for damage caused by reason of the actual position and/or depths of STW apparatus being different from those shown on the plan.

In order to achieve safe working conditions adjacent to any apparatus the following should be observed:

1. All STW apparatus should be located by hand digging prior to the use of mechanical excavators.

2. All information set out in any plans received from us, or given by our staff at the site of the works, about the position and depth of the mains, is approximate. Every possible precaution should be taken to avoid damage to our apparatus. You or your contractor must ensure the safety of our equipment and will be responsible for the cost of repairing any damage caused.

3. Water mains are normally laid at a depth of 900mm. No records are kept of customer service pipes which are normally laid at a depth of 750mm; but some idea of their positions may be obtained from the position of stop tap covers and their existence must be anticipated.

4. During construction work, where heavy plant will cross the line of STW apparatus, specific crossing points must be agreed with the Company and suitably reinforced where required. These crossing points should be clearly marked and crossing of the line of STW apparatus at other locations must be prevented.

5. Where it is proposed to carry out piling or boring within 20 metres of any STW apparatus, STW should be consulted to enable any affected STW apparatus to be surveyed prior to the works commencing.

6. Where excavation of trenches adjacent to any STW apparatus affects its support, the STW apparatus must be supported to the satisfaction of STW. Water mains and some sewers are pressurised and can fail if excavation removes support to thrust blocks to bends and other fittings.

7. Where a trench is excavated crossing or parallel to the line of any STW apparatus, the backfill should be adequately compacted to prevent any settlement which could subsequently cause

damage to the STW apparatus. In special cases, it may be necessary to provide permanent support to STW apparatus which has been exposed over a length of the excavation before backfilling and reinstatement is carried out. There should be no concrete backfill in contact with the STW apparatus.

8. No apparatus should be laid along the line of STW apparatus irrespective of clearance. Above ground apparatus must not be located within a minimum of 3 metres either side of the centre line of STW apparatus for smaller sized pipes and 6 metres either side for larger sized pipes without prior approval. No manhole or chamber shall be built over or around any STW apparatus.

9. A minimum radial clearance of 300 millimetres should be allowed between any plant being installed and existing STW apparatus. - We reserve the right to increase this distance where strategic assets are affected.

10. Where any STW apparatus coated with a special wrapping is damaged, even to a minor extent, STW must be notified and the trench left open until the damage has been inspected and the necessary repairs have been carried out. In the case of any material damage to any STW apparatus causing leakage, weakening of the mechanical strength of the pipe or corrosion-protection damage, the necessary remedial work will be recharged.

11. It may be necessary to adjust the finished level of any surface boxes which may fall within your proposed construction. Please ensure that these are not damaged, buried or otherwise rendered inaccessible as a result of the works and that all stop taps, valves, hydrants, etc. remain accessible and operable. Minor reduction in existing levels may result in conflict with apparatus such as valve spindles or tops of hydrants housed under the surface boxes. Checks should be made during site investigations to ascertain the level of such apparatus in order to determine any necessary alterations in advance of the works.

12. With regard to any proposed resurfacing works, you are required to contact STW on the number given above to arrange a site inspection to establish the condition of any STW apparatus in the nature of surface boxes or manhole covers and frames affected by the works. STW will then advise on any measures to be taken, in the event of this a proportionate charge will be made.

13. You are advised that Severn Trent Water Limited will not agree to either the erection of posts, directly over or within 1.0 metre of valves and hydrants,

14. No explosives are to be used in the vicinity of any STW apparatus without prior consultation with STW.

TREE PLANTING RESTRICTIONS

There are many problems with the location of trees adjacent to sewers, water mains and other STW apparatus and these can lead to the loss of trees and hence amenity to the area which many people may have become used to. It is best if the problem is not created in the first place. Set out below are the recommendations for tree planting in close proximity to public sewers, water mains and other STW apparatus.

15. Please ensure that, in relation to STW apparatus, the mature root systems and canopies of any tree planted do not and will not encroach within the recommended distances specified in the notes below.

16. Both Poplar and Willow trees have extensive root systems and should not be planted within 12 metres of a sewer, water main or other STW apparatus.

17. The following trees and those of similar size, be they deciduous or evergreen, should not be planted within 6 metres of a sewer, water main or other STW apparatus. E.g. Ash, Beech, Birch, most Conifers, Elm, Horse Chestnut, Lime, Oak, Sycamore, Apple and Pear.

18. STW personnel require a clear path to conduct surveys etc. No shrubs or bushes should be planted within 2 metre of the centre line of a sewer, water main or other STW apparatus.

19. In certain circumstances, both the Company and landowners may wish to plant shrubs/bushes in close proximity to a sewer, water main of other STW apparatus for screening purposes. The following are shallow rooting and are suitable for this purpose: Blackthorn, Broom, Cotoneaster, Elder, Hazel, Laurel, Privet, Quickthorn, Snowberry, and most ornamental flowering shrubs.

- Abandoned Sewer
- Private Combined Gravity Sewer
- Private Foul Gravity Sewer
- Private Surface Water Gravity Sewer
- Public Combined Gravity Sewer
- Public Foul Gravity Sewer
- Public Surface Water Gravity Sewer
- Trunk Combined Gravity Sewer
- Trunk Foul Use Gravity Sewer
- Trunk Surface Water Gravity Sewer
- Combined Use Pressurised Sewer
- Foul Use Pressurised Sewer
- Surface Water Pressurised Sewer
- Highway Drain
- Combined Lateral Drain (SS)
- Foul Lateral Drain (SS)
- Surface Water Lateral Drain (SS)

- Cable, Earthing
- Cable Junction
- Cable, Optical Fibre/Instrumentation
- Cable, Low Voltage
- Cable, High Voltage
- Cable, Other
- Housing, Building
- Housing, Kiosk
- Disposal Site
- Sewage Treatment Works
- Housing, Other
- Pipe Support Structure
- Sewage Pumping Facility
- Sewer Facility Connection Inlet / Outlet

- Blind Shaft
- Combined Use Manhole
- Flushing Chamber
- Foul Use Manhole
- Grease Trap
- Head Node
- Hydrobrake
- Lamphole
- Outfall
- Overflow
- Penstock
- Petrol Interceptor

- Sewer Chemical Injection Point
- Sewer Junction
- Sewerage Air Valve
- Sewerage Hatch Box Point
- Sewerage Isolation Valve
- Soakaway
- Surface Water Manhole
- Vent Column
- Waste Water Storage
- Culverted Watercourse
- Pre-1937 Properties

CATEGORIES

W	- WEIR
C	- CASCADE
DB	- DAMBOARD
SE	- SIDE ENTRY
FV	- FLAP VALVE
BD	- BACK DROP
S	- SIPHON
HD	- HIGHWAY DRAIN
S104	- SECTION 104

All Private Sewers are shown in magenta
All section 104 sewers are shown in green
All Sewers that have been transferred to Severn Trent Water after the 1st October 2011, but have not been surveyed and confirmed by Severn Trent Water are shown in orange

N
W E
S

SEVERN TRENT WATER

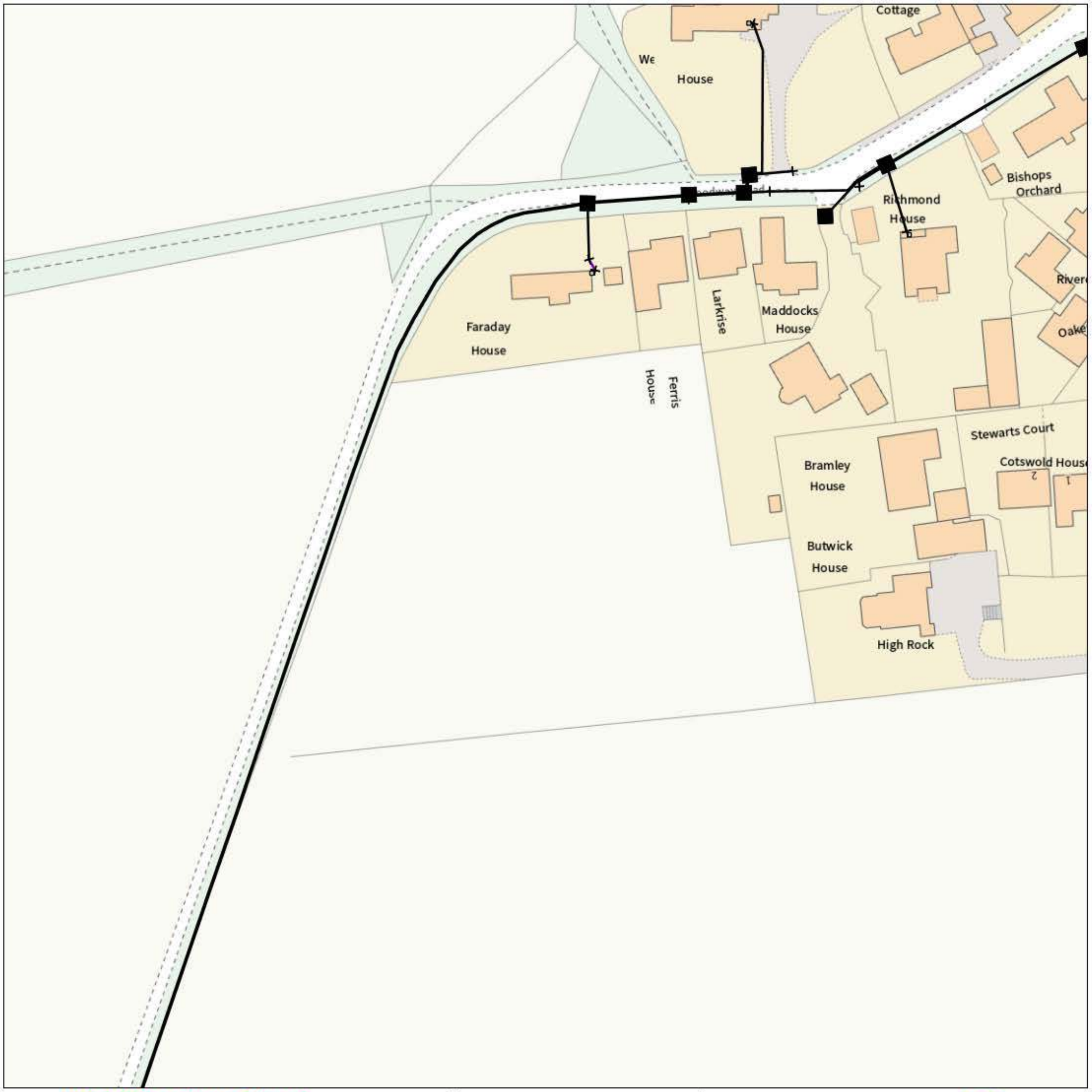
Severn Trent Water Limited
Asset Data Management
PO Box 5344
Coventry
CV3 9FT
Telephone: 0845 601 0610

SEWER RECORD

O/S Map scale: 1:1250
Date of issue: 17.07.18

This map is centred upon:
O / S Grid reference:
x : 435421
y : 237012

Maps by email Plant Information Reply



IMPORTANT WARNING

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CLICK BEFORE YOU DIG

FOR PROFESSIONAL FREE ON SITE ASSISTANCE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS INCLUDING LOCATE AND MARKING SERVICE

email cbyd@openreach.co.uk

ADVANCE NOTICE REQUIRED
(Office hours: Monday - Friday 08.00 to 17.00)
www.openreach.co.uk/cbyd

Accidents happen

If you do damage any Openreach equipment please let us know by calling 0800 023 2023 (opt 1 + opt 1) and we can get it fixed ASAP

KEY TO BT SYMBOLS

	Planned	*Live*
PCP		
Pole		
Box		
Manhole		
Cabinet		

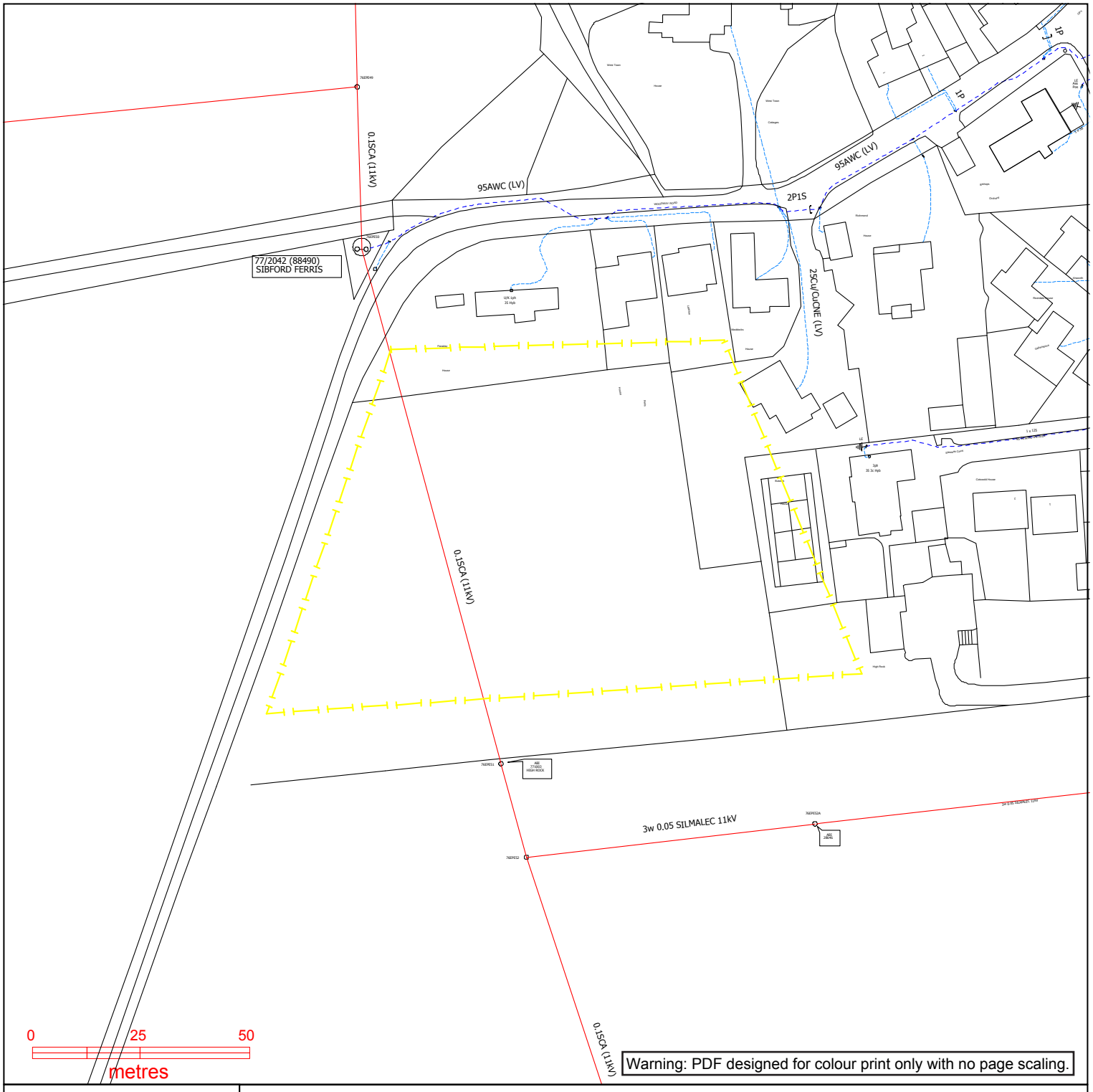
Change Of State	+	Hatchings	
Split Coupling	×	Built	
Duct Tee	▲	Planned	
Building		Inferred	
Kiosk	K	Duct	

Other proposed plant is shown using dashed lines.
BT Symbols not listed above may be disregarded.
Existing BT Plant may not be recorded.
Information valid at time of preparation. Maps are only valid for 90 days after the date of publication.

	Pending Add	*In Place*	*Pending Remove*	*Not In Use*
Power Cable				
Power Duct				N/A

BT Ref : AYJ02151N
Map Reference : (centre) SP3539137175
Easting/Northing : (centre) 435391,237175
Issued : 14/07/2021 14:15:22

WARNING: IF PLANNED WORKS FALL INSIDE HATCHED AREA IT IS ESSENTIAL BEFORE PROCEEDING THAT YOU CONTACT THE NATIONAL NOTICE HANDLING CENTRE. PLEASE SEND E-MAIL TO: nnhc@openreach.co.uk



Warning: PDF designed for colour print only with no page scaling.

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

Contact Us

Mapping Enquiries:

All areas 0121 623 9780

General Enquiries:

All areas 0800 096 3080

Date Requested: 14/07/2021

Job Reference: 22685643

Site Location: 435404 237184

Requested by:

Mr Mark Harrison

Your Scheme/Reference:

GCE01141

Exact Scales:

1:1250 Area or Circle dig site

1:500 Line dig site

Link Box

Site Location

Line/Area

Overhead Line

- PL
- Service
- LV
- HV (11kV)
- HV (33kV)
- HV (66kV)
- HV (132kV)

Underground Cable

SURF Telecoms

PME Earth

Underground Earth

Pilot Cables

Pole Mounted Transformer

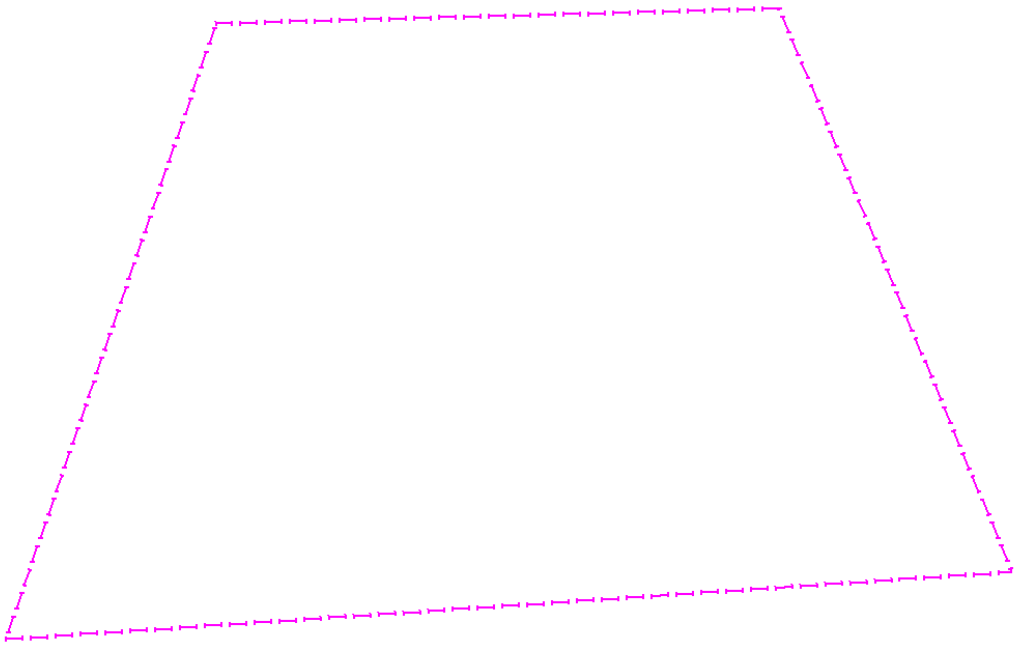
Ground Mounted Transformer

IMPORTANT NOTICES

- This information is given as a guide only and its accuracy cannot be guaranteed. Services or recent additions to the network may not be shown.
- Cables, overhead lines & substations owned by other electricity network owners or private companies may be present and may not be shown.
- You should always verify exact locations of cables using a cable locator and by careful use of hand tools in accordance with HSE guidance note HSG47.
- When working within 10m of any overhead electric line you should follow the requirements of HSE Guidance Note GS6.
- For further advice on working near our electricity cables or lines, call our General Enquiries number.
- Advice should be sought from the Western Power Distribution General Enquiries team for any work that is to take place in proximity to 132kV underground cables and 132kV overhead lines.

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA

0800 6783 105



Warning: PDF designed for colour print only with no page scaling.

SGN
Your gas. Our network.

Contact Us

SGN Safety Admin Team:
0800 912 1722
Email:
plantlocation@sgn.co.uk

Low Pressure Mains
Medium Pressure Mains
Intermediate Pressure Mains
High Pressure Mains
Some Examples Of Plant Items
Valve
Syphon
Depth of Cover
Digsite:
Line:
Area:
LAs
GTs
SSSIs
Diameter Change
Material Change

N
W
E
S

This information is given as a guide only and its accuracy cannot be guaranteed.

Linesearch before dig

Date Requested: 14/07/2021
Job Reference: 22685643
Site Location: 435404 237184
Requested by:
Mr Mark Harrison
Your Scheme/Reference:
GCE01141

Exact Scales:
1:1000 Area or Circle dig site
1:1000 Line dig site

This plan shows the location of those pipes owned by Scotia Gas Networks (SGN) by virtue of being a licensed Gas Transporter (GT). Gas pipes owned by other GTs or third parties may also be present in this area but are not shown on this plan. Information with regard to such pipes should be obtained from the relevant owners. No warranties are given with regard to the accuracy of the information shown on this plan. Service pipes, valves, siphons, sub-connections etc. are not shown but their presence should be anticipated. You should be aware that a small percentage of our pipes/assets may be undergoing review and will temporarily be highlighted in yellow. If your proposed works are close to one of these pipes, you should contact the SGN Safety Admin Team on 0800 912 1722 for advice. No liability of any kind whatsoever is accepted by SGN or its agents, servants or sub-contractors for any error or omission contained herein. Safe digging practices, in accordance with HS (G)47, must be used to verify and establish the actual position of mains, pipes, services and other apparatus on site before any mechanical plant is used. It is your responsibility to ensure that plant location information is provided to all persons (whether direct labour or sub-contractors) working for you on or near gas apparatus. Information included on this plan should not be referred to beyond a period of 28 days from the date of issue.

Report damage immediately – KEEP EVERYONE AWAY FROM THE AREA
0800 111 999

Appendix F – Trial Pit Logs

Trial Pit Log

			TrialPit No TP01 Sheet 1 of 1
Project Name: Land off Woodway Road	Project No. GCE01141	Co-ords: 435381.23 - 237207.30 Level: 169.14	Date 19/10/2021
Location: Sibford Ferris, Oxfordshire		Dimensions (m): 2.10 x 0.70 Depth 2.20	Scale 1:25
Client: Blue Cedar Homes Limited			Logged TB

Water Strike	Samples & In Situ Testing Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.10	JG					TOPSOIL: light brown slightly sandy clayey silt with frequent rootlets.
				0.30	168.84		Light brown very clayey/ silty SAND with occasional cobble-size pockets of firm to stiff light brown sandy silty CLAY and rare medium to coarse tabular gravel of sandstone and a single band (up to 0.05m thick) of stiff silty CLAY in northern end of pit at 0.90mBGL.
	0.70	JP					
	1.00	HSV	HSV=100kPa				
	1.00	HSV	HSV=110kPa				
	1.00	HSV	HSV=120kPa	1.10	168.04		Stiff to very stiff light brown/ light greyish brown slightly gravelly silty CLAY with occasional pockets/ lenses of clayey/ silty SAND. Gravel is fine to coarse subangular limestone.
	1.30	PP	PP=100				
	1.30	PP	PP=137.5				
	1.30	PP	PP=175				
	1.50	JP					
	2.00	JP					
				2.10	167.04		Medium strong light greyish brown/ grey LIMESTONE. Typically recovered as slightly clayey/ silty gravel and cobbles.
				2.20	166.94		End of Pit at 2.20m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Infiltration test undertaken in base of pit. 4, Perth Probe undertaken at 1.00mBGL = 1,1,2,1,1,1,1,1,2,2,4,5,3,4

Stability: Slight spalling throughout.

Trial Pit Log

			TrialPit No TP02 Sheet 1 of 1
Project Name: Land off Woodway Road	Project No. GCE01141	Co-ords: 435422.13 - 237210.55 Level: 171.38	Date 19/10/2021
Location: Sibford Ferris, Oxfordshire		Dimensions (m): 2.30 x 0.70 Depth 2.05	Scale 1:25
Client: Blue Cedar Homes Limited			Logged TB

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							TOPSOIL: light brown/ yellowish brown slightly gravelly clayey sandy silt with occasional rootlets. Gravel is fine to coarse subangular/ blocky sandstone.
				0.30	171.08		Light brown/ yellowish brown sandy very clayey/ silty GRAVEL. Gravel is fine to coarse tabular/ subangular limestone.
	0.70	JP		0.50	170.88		Light brown/ yellowish brown/ grey slightly clayey/ silty occasionally clayey/ silty slightly sandy GRAVEL and COBBLES with rare boulders. Gravel is medium to coarse. Gravel, cobbles and boulders are subangular/ tabular/ blocky limestone.
				1.20	170.18		Light brown/ grey/ yellowish brown slightly clayey/ silty slightly sandy slightly gravelly COBBLES and BOULDERS. Gravel is fine to coarse. Gravel, cobbles and boulders are tabular/ blocky/ subangular limestone.
				2.05	169.33		End of Pit at 2.05m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Infiltration test undertaken in base of pit.

Stability: Moderate overbreak throughout.

Trial Pit Log

TrialPit No: TP03
Sheet 1 of 1

Project Name:	Land off Woodway Road	Project No. GCE01141	Co-ords: 435399.59 - 237180.21 Level: 170.99	Date 19/10/2021
Location:	Sibford Ferris, Oxfordshire	Dimensions (m): 2.00 x 0.70		Scale 1:25
Client:	Blue Cedar Homes Limited	Depth 2.00		Logged TB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.20	170.79		TOPSOIL: light brown/ yellowish brown very sandy clayey silt with occasional rootlets.
	0.50	JP					Light brown/ yellowish brown very clayey/ silty gravelly SAND. Gravel is fine to coarse subangular/ blocky sandstone. Encountered to depths of 0.50mBGL and 0.85mBGL in south-east and north-west of excavation, respectively.
				0.85	170.14		Light brown/ yellowish brown slightly clayey/ silty slightly sandy GRAVEL and COBBLES with occasional boulders from 1.20m. Gravel is medium to coarse. Gravel, cobbles and boulders are subangular/ tabular/ blocky sandy limestone.
	1.80	JP					
				2.00	168.99		End of Pit at 2.00m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Infiltration test undertaken in base of pit. 4, Perth Probe undertaken at 1.10mBGL = 1,1,1,2,2,3,11,bouncing.

Stability: Moderate overbreak within granular material.

Trial Pit Log

TrialPit No: TP04
Sheet 1 of 1

Project Name:	Land off Woodway Road	Project No. GCE01141	Co-ords: 435428.01 - 237174.40 Level: 172.48
Location:	Sibford Ferris, Oxfordshire	Dimensions (m): 2.40 x 0.70 Depth 2.90	Date 19/10/2021 Scale 1:25
Client:	Blue Cedar Homes Limited		Logged TB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.30	172.18		TOPSOIL: brown/ light brown slightly sandy clayey silt with occasional rootlets.
	0.50	HSV	HSV=140kPa				Very stiff desiccated light brown/ yellowish brown clayey sandy occasionally very sandy SILT rarely very clayey/ silty SAND.
	0.50	HSV	HSV=140kPa				
	0.50	HSV	HSV=140kPa				
	0.60	JP					
				0.85	171.63		Very stiff desiccated brown/ light brown rarely dark bluish grey rarely slightly sandy silty CLAY rarely clayey SILT.
	1.00	HSV	HSV=140kPa				
	1.00	HSV	HSV=140kPa				
	1.00	HSV	HSV=140kPa				
	1.50	JP					
				2.20	170.28		Stiff to very stiff greyish brown slightly gravelly silty CLAY. Gravel is fine to medium subangular/ tabular limestone.
	2.50	PP	PP=112.5				
	2.50	PP	PP=137.5				
	2.50	PP	PP=212.5				
	2.60	JP					
				2.85	169.63		Medium strong light brown/ grey LIMESTONE. Typically recovered as gravel and cobbles.
				2.90	169.58		End of Pit at 2.90m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Perth Probe undertaken at 1.00mBGL = 2,2,4,4,5,7

Stability: Stable

Trial Pit Log

			TrialPit No TP05 Sheet 1 of 1
Project Name: Land off Woodway Road	Project No. GCE01141	Co-ords: 435439.20 - 237148.46 Level: 173.87	Date 19/10/2021
Location: Sibford Ferris, Oxfordshire		Dimensions (m): 2.20 x 0.70 Depth 2.05	Scale 1:25
Client: Blue Cedar Homes Limited			Logged TB

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.30	173.56		TOPSOIL: light brown/ brown slightly sandy clayey silt with occasional rootlets.
	0.40	JG					Light brown/ light orangish brown very clayey/ silty SAND occasionally very sandy silty CLAY. Encountered to depths of 0.75mBGL and 1.10mBGL in north and south of excavation, respectively.
	0.50	JP					
	0.50	HSV	HSV=80kPa				
	0.50	HSV	HSV=90kPa				
	0.50	HSV	HSV=90kPa				
	0.90	HSV	HSV=105kPa				
	0.90	HSV	HSV=110kPa				
	0.90	HSV	HSV=110kPa	1.10	172.76		Light brown/ light yellowish brown slightly clayey/ silty GRAVEL and COBBLES with occasional boulders from 1.50m. Gravel is fine to coarse. Gravel, cobbles and boulders are subangular/ tabular limestone.
	1.90	JP					
				2.00	171.86		Medium strong light greyish brown/ light brown LIMESTONE. Typically recovered as slightly clayey/ silty slightly gravelly cobbles and boulders.
				2.05	171.82		End of Pit at 2.05m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Perth Probe undertaken at 0.90mBGL = 2,3,3,7,bouncing.

Stability: Slight overbreak within granular material.

Trial Pit Log

			TrialPit No TP06 Sheet 1 of 1
Project Name: Land off Woodway Road	Project No. GCE01141	Co-ords: 435401.33 - 237141.16 Level: 172.27	Date 19/10/2021
Location: Sibford Ferris, Oxfordshire		Dimensions (m): 2.10 x 0.70 Depth 2.05	Scale 1:25
Client: Blue Cedar Homes Limited			Logged TB

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
							TOPSOIL: light brown very sandy clayey silt with occasional rootlets.
	0.35	JG		0.30	171.97		Light brown/ yellowish brown slightly gravelly clayey/ silty rarely very clayey/ silty SAND with rare cobble-size pockets of sandy silty CLAY. Gravel is fine to coarse tabular/ subangular sandstone.
	0.50	JP					
				0.90	171.37		Brown/ light brown clayey/ silty sandy GRAVEL. Gravel is fine to coarse subangular/ tabular sandy limestone.
	1.40	JP					
				1.55	170.72		Brown/ light yellowish brown slightly clayey/ silty gravelly COBBLES and BOULDERS. Gravel is fine to coarse. Gravel, cobbles and boulders are subangular/ tabular limestone.
				2.00	170.27		
				2.05	170.22		Medium strong light brown/ light greyish brown LIMESTONE. Typically recovered as gravel.
							End of Pit at 2.05m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Perth Probe undertaken at 1.00mBGL = 1,1,1,1,2,1,1,1,2,3,4,4,2,2.

Stability: Significant overbreak and collapse within granular material.

Trial Pit Log

TrialPit No: TP07
Sheet 1 of 1

Project Name:	Land off Woodway Road	Project No. GCE01141	Co-ords: 435344.37 - 237136.83 Level: 169.75
Location:	Sibford Ferris, Oxfordshire	Dimensions (m): 2.40 × 0.70	Date 19/10/2021
Client:	Blue Cedar Homes Limited	Depth 2.00	Scale 1:25 Logged TB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	JG		0.30	169.45		TOPSOIL: light brown sandy clayey silt with occasional rootlets.
	0.90	JP		1.00	168.75		Light brown/ yellowish brown very clayey/ silty sandy GRAVEL. Gravel is fine to coarse subangular/ tabular sandstone.
	1.50	JP		1.45	168.30		Light yellowish brown/ greyish brown clayey/ silty sandy GRAVEL. Gravel is fine to coarse subangular/ tabular limestone.
				2.00	167.75		Light greyish brown/ light brown slightly clayey/ silty gravelly COBBLES and BOULDERS. Gravel is fine to coarse. Gravel, cobbles and boulders are subangular/ tabular limestone.
							End of Pit at 2.00m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Perth Probe undertaken at 0.80mBGL = 1,2,2,1,2,1,1,2,8,bouncing.

Stability: Moderate overbreak within cobbles and boulders.

Trial Pit Log

TrialPit No: TP08
Sheet 1 of 1

Project Name:	Land off Woodway Road	Project No. GCE01141	Co-ords: 435368.72 - 237166.99 Level: 169.70
Location:	Sibford Ferris, Oxfordshire	Dimensions (m): 2.20 x 0.70 Depth 2.10	Date 19/10/2021 Scale 1:25
Client:	Blue Cedar Homes Limited		Logged TB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
	0.20	JP		0.30	169.40		TOPSOIL: light brown sandy clayey silt with occasional rootlets.
	0.40	JG					Light yellowish brown gravelly clayey/ silty occasionally very clayey/ silty SAND rarely very sandy clayey SILT. Gravel is fine to coarse tabular sandstone.
	0.60	JP		0.95	168.75		Light brown/ greyish brown clayey/ silty gravelly COBBLES and BOULDERS. Gravel is fine to coarse. Gravel, cobbles and boulders are subangular/ tabular limestone.
				2.10	167.60		End of Pit at 2.10m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Perth Probe undertaken at 0.80mBGL = 1,1,0,1,2,2,6,bouncing.

Stability: Significant overbreak within cobbles and boulders.

Trial Pit Log

TrialPit No: TP09
Sheet 1 of 1

Project Name:	Land off Woodway Road	Project No. GCE01141	Co-ords: 435354.25 - 237186.71 Level: 168.74
Location:	Sibford Ferris, Oxfordshire	Dimensions (m): 2.20 × 0.70 Depth 1.90	Date 19/10/2021 Scale 1:25
Client:	Blue Cedar Homes Limited		Logged TB

Water Strike	Samples & In Situ Testing: Depth	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
				0.35	168.38		TOPSOIL: light brown clayey sandy silt with occasional rootlets.
	0.40	JG					
	0.50	HSV	HSV=100kPa				Stiff to very stiff light brown/ light yellowish brown slightly gravelly sandy occasionally very sandy clayey SILT rarely very clayey/ silty SAND. Gravel is fine to coarse subangular/ tabular sandstone.
	0.50	HSV	HSV=110kPa				
	0.50	HSV	HSV=95kPa				
	0.80	HSV	HSV=140kPa				
	0.80	HSV	HSV=140kPa				
	0.80	HSV	HSV=140kPa	0.95	167.78		
	0.90	JP					Light brown/ light greyish brown slightly clayey/ silty GRAVEL and COBBLES with occasional boulders. Gravel is fine to coarse. Gravel, cobbles and boulders subangular/ tabular limestone.
				1.35	167.38		Light brown/ light yellowish brown slightly clayey/ silty gravelly COBBLES and BOULDERS. Gravel is fine to coarse. Gravel, cobbles and boulders are subangular/ tabular limestone.
	1.80	JP					
				1.90	166.84		End of Pit at 1.90m

Remarks: 1, Trial pit terminated due to difficult excavation. 2, No groundwater encountered. 3, Perth Probe undertaken at 0.80mBGL = 1,2,2,1,1,1,1,2,2,bouncing.

Stability: Moderate overbreak within granular material.

Appendix G – Infiltration Test Results

Soakaway Test:

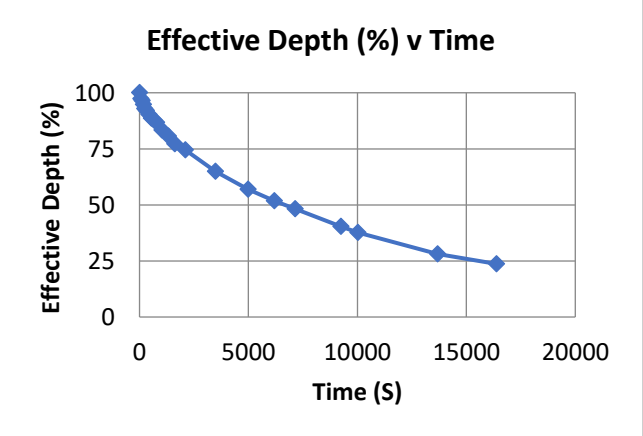
Trial Pit.	TP01
Test No.	1

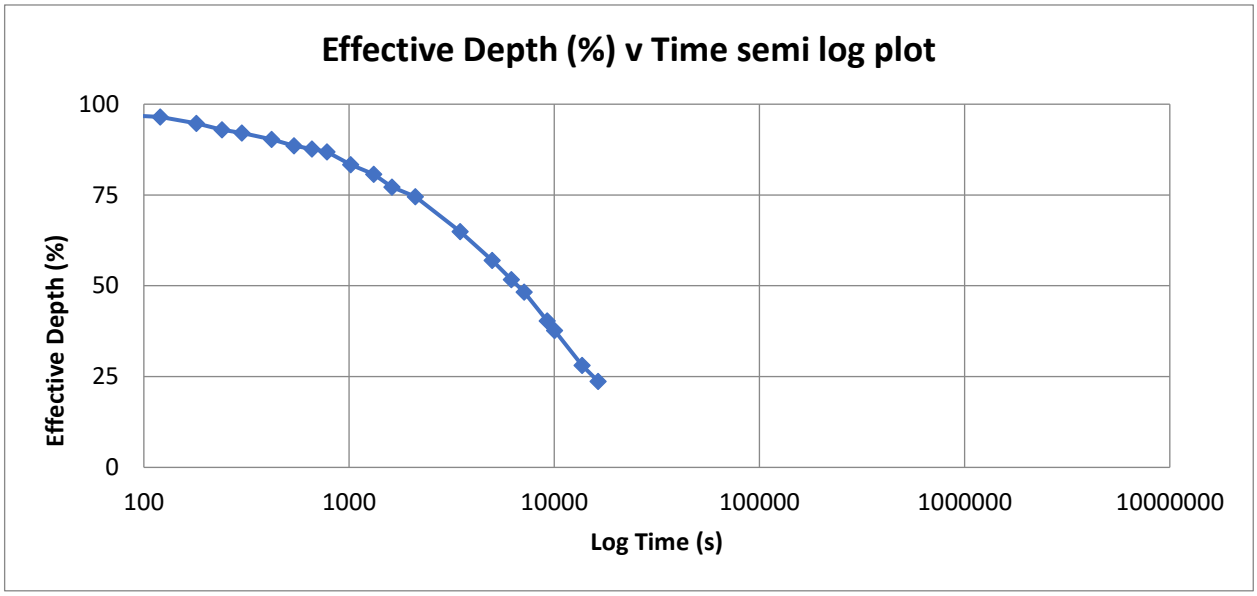
Dimensions:

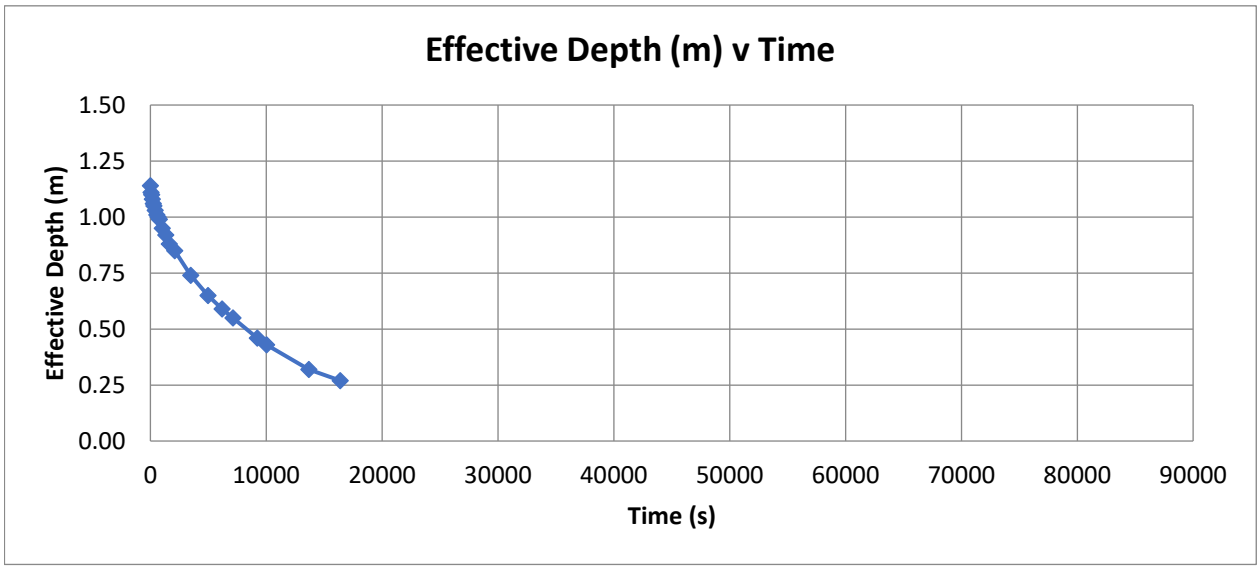
Length	2.10	m
Width	0.70	m
Depth	2.16	m
Start water depth	1.02	m
Effective Depth	1.14	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
19 October 2021	09:32:00	0	1.02	1.14	100
19 October 2021	09:33:00	60	1.05	1.11	97
19 October 2021	09:34:00	120	1.06	1.1	96
19 October 2021	09:35:00	180	1.08	1.08	95
19 October 2021	09:36:00	240	1.10	1.06	93
19 October 2021	09:37:00	300	1.11	1.05	92
19 October 2021	09:39:00	420	1.13	1.03	90
19 October 2021	09:41:00	540	1.15	1.01	89
19 October 2021	09:43:00	660	1.16	1	88
19 October 2021	09:45:00	780	1.17	0.99	87
19 October 2021	09:49:00	1020	1.21	0.95	83
19 October 2021	09:54:00	1320	1.24	0.92	81
19 October 2021	09:59:00	1620	1.28	0.88	77
19 October 2021	10:07:00	2100	1.31	0.85	75
19 October 2021	10:30:00	3480	1.42	0.74	65
19 October 2021	10:55:00	4980	1.51	0.65	57
19 October 2021	11:15:00	6180	1.57	0.59	52
19 October 2021	11:31:00	7140	1.61	0.55	48
19 October 2021	12:06:00	9240	1.70	0.46	40
19 October 2021	12:19:00	10020	1.73	0.43	38
19 October 2021	13:20:00	13680	1.84	0.32	28
19 October 2021	14:05:00	16380	1.89	0.27	24

Effective Depth %	Depth (m)	Time (s)
75	0.855	2100
25	0.285	16000
	Vp75-25	tp75-25
Sum	0.8379	13900
Base	1.47	m2
Side long	1.197	m
Side short	0.399	m
ap50	4.662	m2
Soil Infiltration Rate	**1.29E-05**	**m/s**




Effective Depth (%) v Time semi log plot
Effective Depth (%)
100
75
50
25
0
100
1000
10000
100000
1000000
10000000
Log Time (s)


Effective Depth (m) v Time
Effective Depth (m)
1.50
1.25
1.00
0.75
0.50
0.25
0.00
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
Time (s)

Soakaway Test:

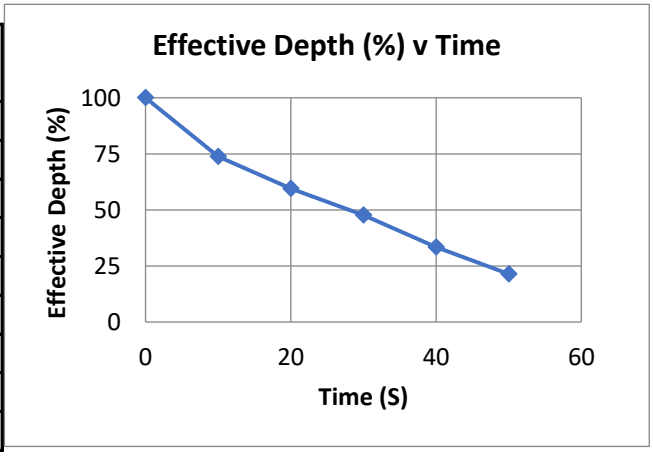
Trial Pit.	TP03
Test No.	1

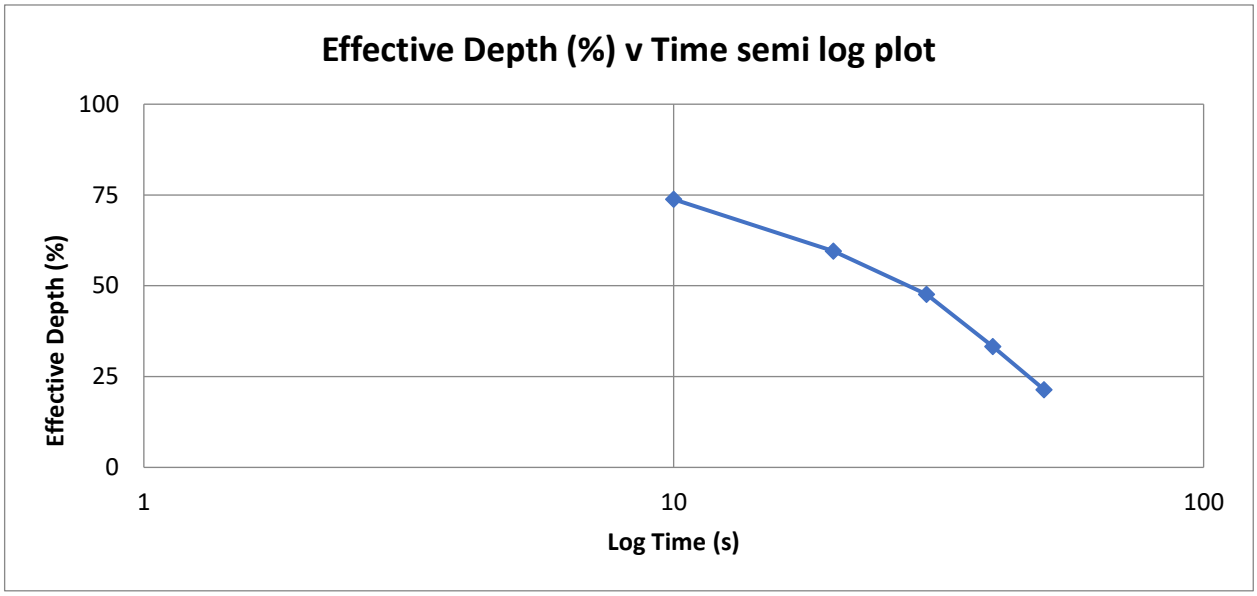
Dimensions:

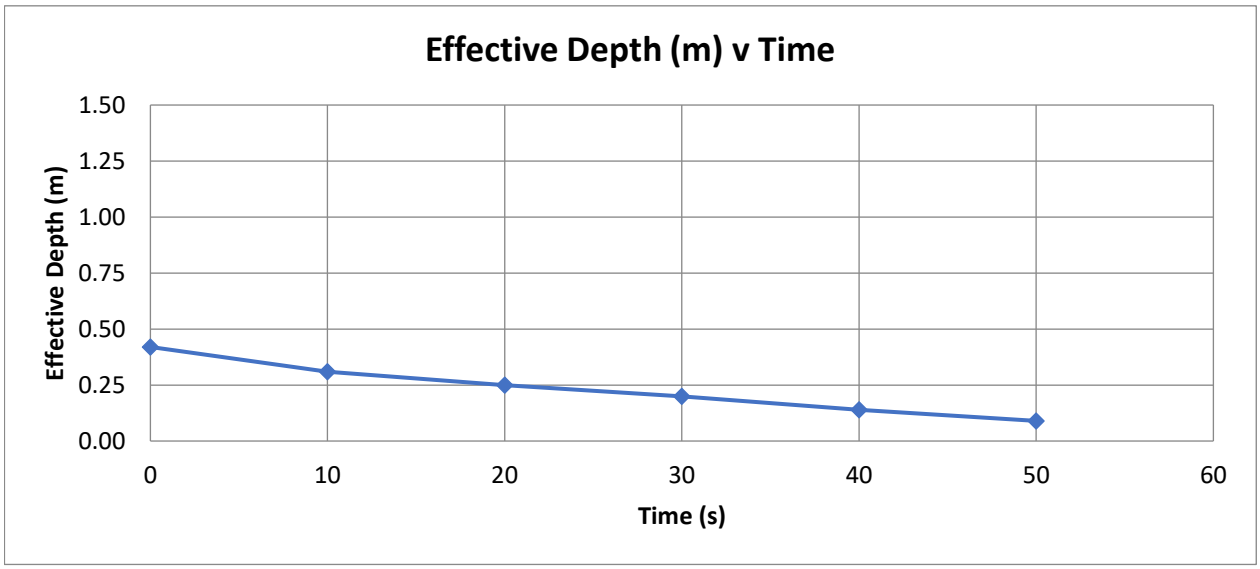
Length	2.00	m
Width	0.70	m
Depth	1.89	m
Start water depth	1.47	m
Effective Depth	0.42	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
19 October 2021	-	0	1.47	0.42	100
19 October 2021	-	10	1.58	0.31	74
19 October 2021	-	20	1.64	0.25	60
19 October 2021	-	30	1.69	0.2	48
19 October 2021	-	40	1.75	0.14	33
19 October 2021	-	50	1.80	0.09	21

Effective Depth %	Depth (m)	Time (s)
75	0.315	10
25	0.105	48
	Vp75-25	tp75-25
Sum	0.294	38
Base	1.4	m2
Side long	0.42	m
Side short	0.147	m
ap50	2.534	m2
Soil Infiltration Rate	**3.05E-03**	**m/s**




Effective Depth (%) v Time semi log plot
100
75
50
25
0
Effective Depth (%)
1
10
100
Log Time (s)


Effective Depth (m) v Time
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Effective Depth (m)
0
10
20
30
40
50
60
Time (s)

Soakaway Test:

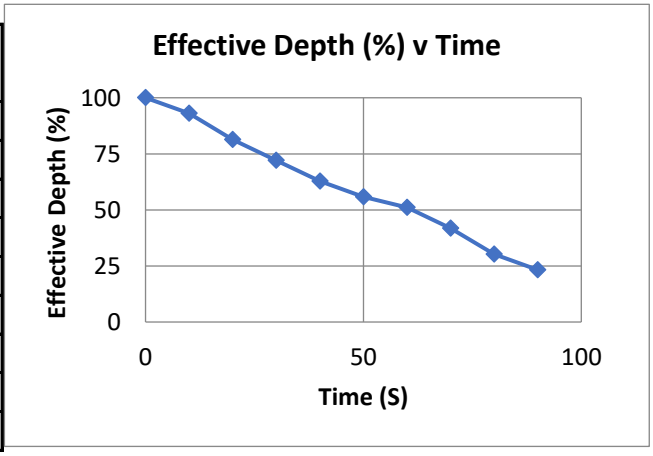
Trial Pit.	TP03
Test No.	2

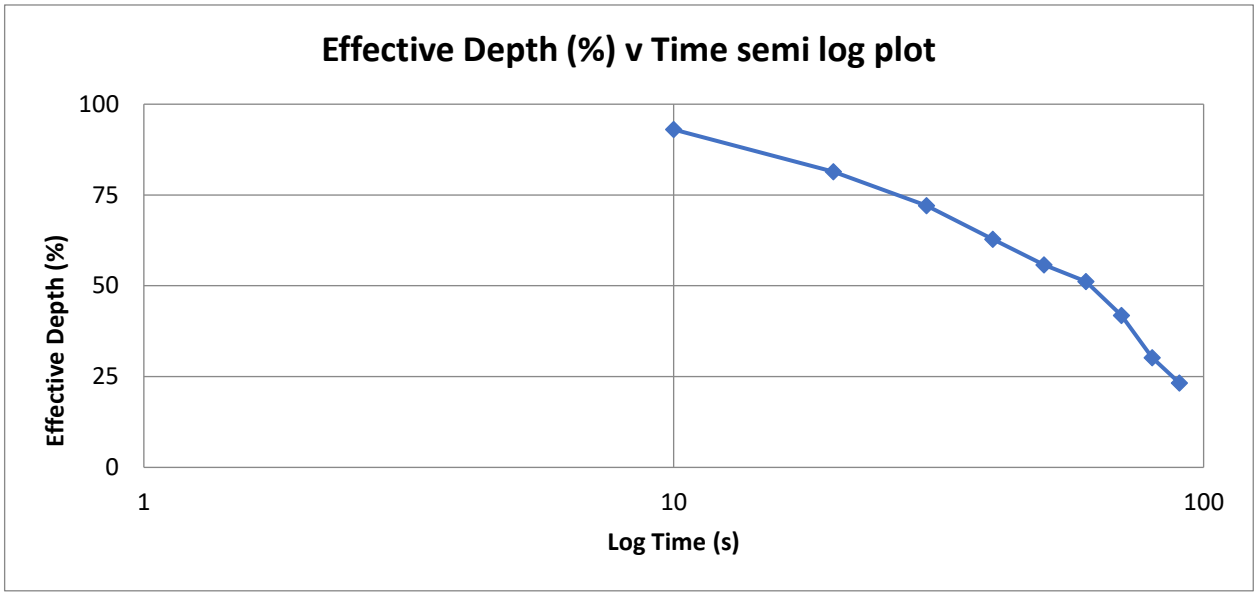
Dimensions:

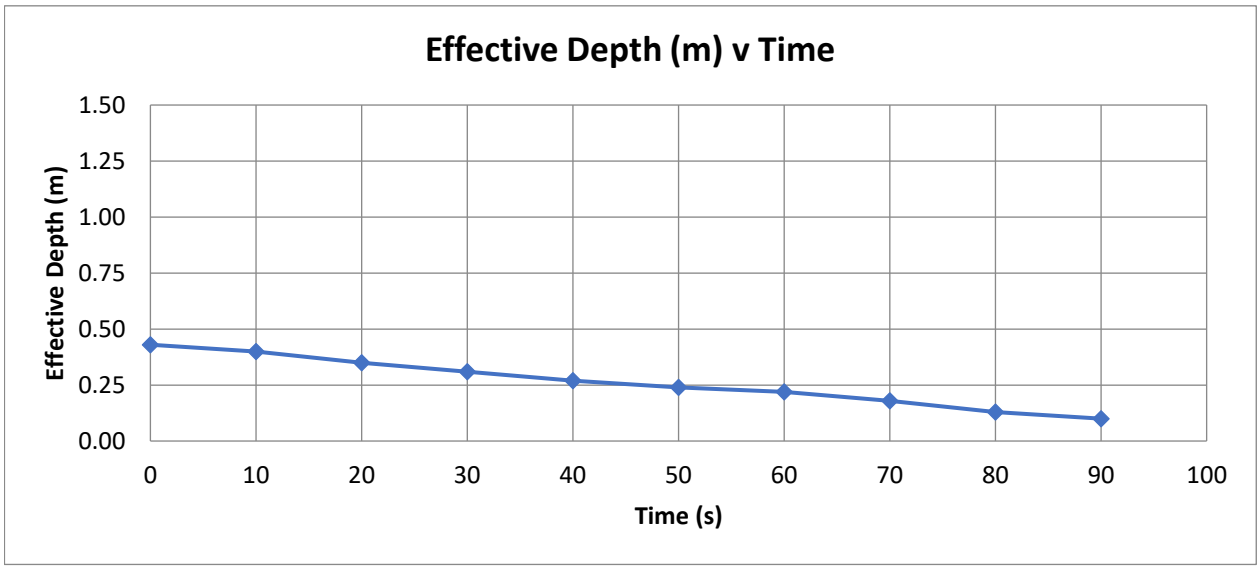
Length	2.00	m
Width	0.70	m
Depth	1.89	m
Start water depth	1.47	m
Effective Depth	0.42	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
19 October 2021	-	0	1.46	0.43	100
19 October 2021	-	10	1.49	0.4	93
19 October 2021	-	20	1.54	0.35	81
19 October 2021	-	30	1.58	0.31	72
19 October 2021	-	40	1.62	0.27	63
19 October 2021	-	50	1.65	0.24	56
19 October 2021	-	60	1.67	0.22	51
19 October 2021	-	70	1.71	0.18	42
19 October 2021	-	80	1.76	0.13	30
19 October 2021	-	90	1.79	0.1	23

Effective Depth %	Depth (m)	Time (s)
75	0.315	26
25	0.105	88
	Vp75-25	tp75-25
Sum	0.294	62
Base	1.4	m2
Side long	0.42	m
Side short	0.147	m
ap50	2.534	m2
Soil Infiltration Rate	**1.87E-03**	**m/s**




Effective Depth (%) v Time semi log plot
100
75
50
25
0
Effective Depth (%)
1
10
100
Log Time (s)


Effective Depth (m) v Time
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Effective Depth (m)
0
10
20
30
40
50
60
70
80
90
100
Time (s)

Soakaway Test:

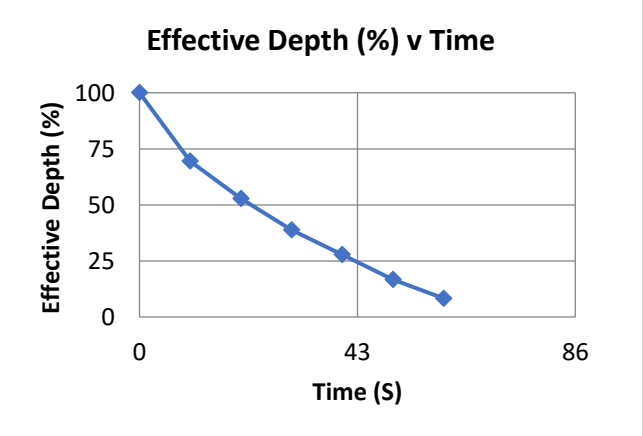
Trial Pit.	TP03
Test No.	3

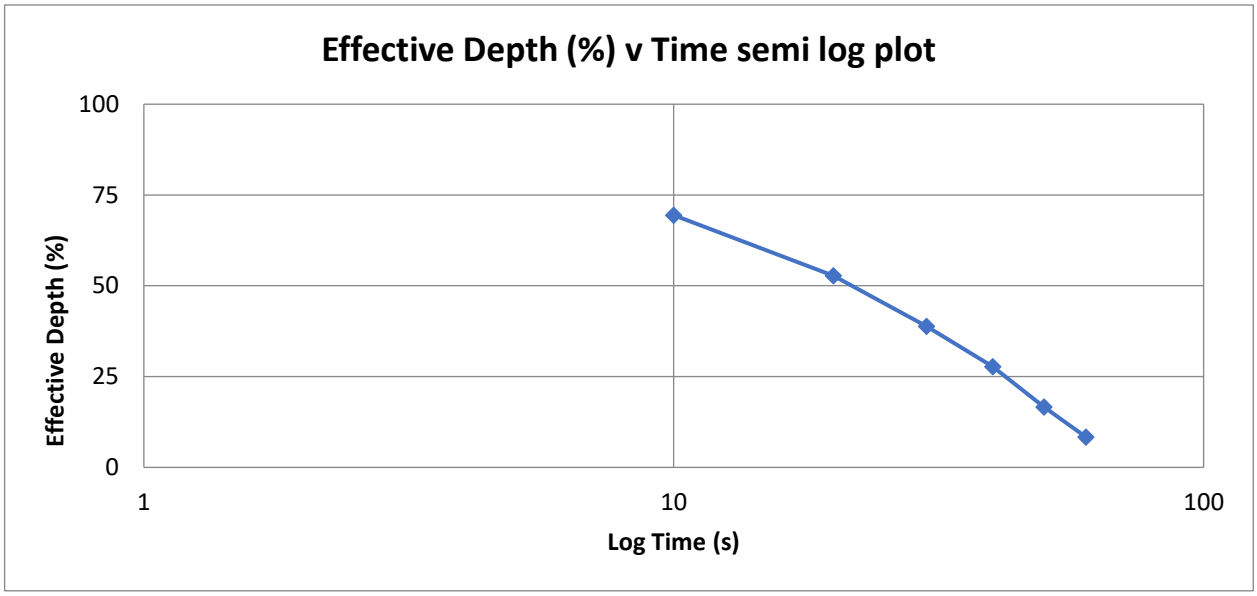
Dimensions:

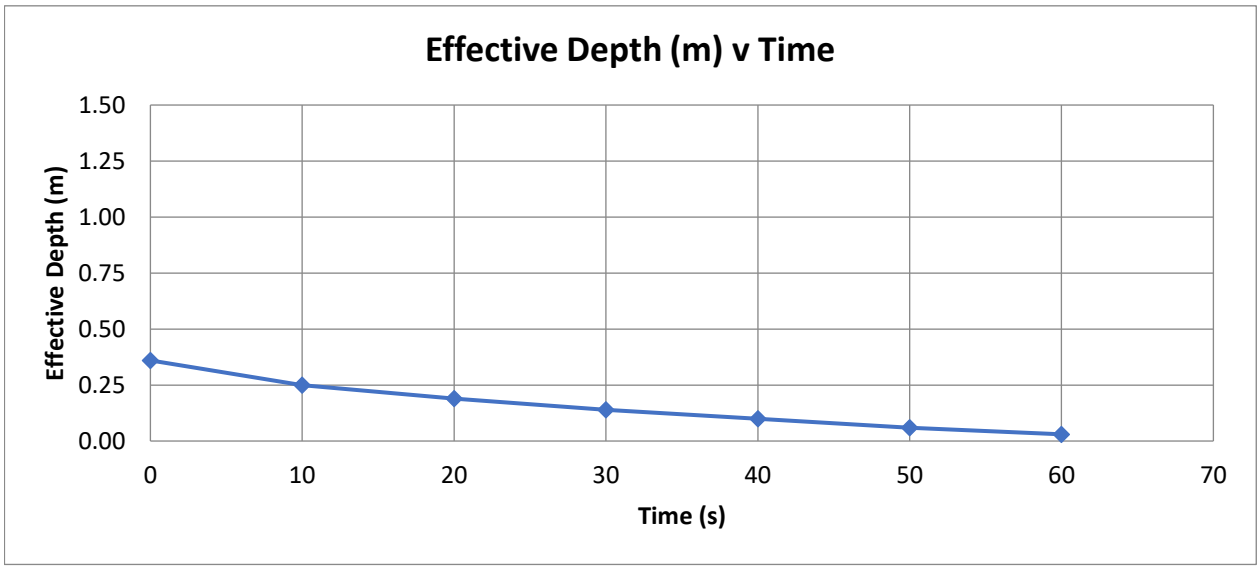
Length	2.00	m
Width	0.70	m
Depth	1.89	m
Start water depth	1.47	m
Effective Depth	0.42	m

Date	Time		Depth (mBGL)	Head/ Effective Depth (m)	Effective Depth (%)
	Hour	Seconds			
19 October 2021	-	0	1.53	0.36	100
19 October 2021	-	10	1.64	0.25	69
19 October 2021	-	20	1.70	0.19	53
19 October 2021	-	30	1.75	0.14	39
19 October 2021	-	40	1.79	0.1	28
19 October 2021	-	50	1.83	0.06	17
19 October 2021	-	60	1.86	0.03	8

Effective Depth %	Depth (m)	Time (s)
75	0.315	8
25	0.105	43
	Vp75-25	tp75-25
Sum	0.294	35
Base	1.4	m2
Side long	0.42	m
Side short	0.147	m
ap50	2.534	m2
Soil Infiltration Rate	**3.31E-03**	**m/s**




Effective Depth (%) v Time semi log plot
100
75
50
25
0
Effective Depth (%)
1
10
100
Log Time (s)


Effective Depth (m) v Time
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Effective Depth (m)
0
10
20
30
40
50
60
70
Time (s)

Appendix H – Chemical Laboratory Test Results

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-37422-1
Initial Date of Issue:	03-Nov-2021
Client	Geo Consulting Engineering Ltd
Client Address:	The Studio, Woodmanton Barns Woodbury Exeter Devon EX5 1HQ
Contact(s):	Tony Borrell General
Project	GCE01141 Land Off Woodway Road, Sibford Ferris
Quotation No.:	Q21-25702
Order No.:	
No. of Samples:	6
Turnaround (Wkdays):	5
Date Approved:	03-Nov-2021
Approved By:	

Date Received:	27-Oct-2021
Date Instructed:	27-Oct-2021
Results Due:	02-Nov-2021

[redacted]

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: GCE01141 Land Off Woodway Road, Sibford Ferris

Client: Geo Consulting Engineering Ltd		**Chemtest Job No.:**			21-37422	21-37422	21-37422	21-37422	21-37422	21-37422
Quotation No.: Q21-25702		**Chemtest Sample ID.:**			1306979	1306980	1306981	1306982	1306983	1306984
		Sample Location:			TP01	TP05	TP06	TP07	TP08	TP09
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.10	0.40	0.35	0.20	0.40	0.40
		Date Sampled:			19-Oct-2021	19-Oct-2021	19-Oct-2021	19-Oct-2021	19-Oct-2021	19-Oct-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
ACM Type	U	2192		N/A	-	-	-	-	-	-
Asbestos Identification	U	2192		N/A	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected	No Asbestos Detected
Moisture	N	2030	%	0.020	12	12	12	11	12	13
pH	U	2010		4.0	8.3	8.0	8.1	8.0	8.0	8.1
Sulphate (2:1 Water Soluble) as SO4	U	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Sulphate (Total)	U	2430	%	0.010	0.032	0.064	0.021	0.034	0.029	0.029
Arsenic	U	2450	mg/kg	1.0	50	37	35	40	30	48
Cadmium	U	2450	mg/kg	0.10	< 0.10	0.11	< 0.10	< 0.10	< 0.10	< 0.10
Chromium	U	2450	mg/kg	1.0	47	37	42	34	34	49
Copper	U	2450	mg/kg	0.50	9.8	13	6.1	10	12	15
Mercury	U	2450	mg/kg	0.10	< 0.10	0.16	< 0.10	< 0.10	< 0.10	< 0.10
Nickel	U	2450	mg/kg	0.50	20	17	22	17	17	26
Lead	U	2450	mg/kg	0.50	13	24	14	16	13	17
Selenium	U	2450	mg/kg	0.20	0.32	0.22	0.38	< 0.20	< 0.20	0.25
Zinc	U	2450	mg/kg	0.50	43	75	43	57	45	55
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Total Organic Carbon	U	2625	%	0.20	0.20	1.0	< 0.20	0.59	0.25	< 0.20
TPH >C5-C6	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C6-C7	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C7-C8	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C8-C10	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C10-C12	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C12-C16	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH >C16-C21	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	23
TPH >C21-C35	N	2670	mg/kg	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	92
Total TPH >C5-C35	N	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	120
Naphthalene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]anthracene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[b]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Soil

Project: GCE01141 Land Off Woodway Road, Sibford Ferris

Client: Geo Consulting Engineering Ltd		**Chemtest Job No.:**			21-37422	21-37422	21-37422	21-37422	21-37422	21-37422
Quotation No.: Q21-25702		**Chemtest Sample ID.:**			1306979	1306980	1306981	1306982	1306983	1306984
		Sample Location:			TP01	TP05	TP06	TP07	TP08	TP09
		Sample Type:			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
		Top Depth (m):			0.10	0.40	0.35	0.20	0.40	0.40
		Date Sampled:			19-Oct-2021	19-Oct-2021	19-Oct-2021	19-Oct-2021	19-Oct-2021	19-Oct-2021
		Asbestos Lab:			DURHAM	DURHAM	DURHAM	DURHAM	DURHAM	DURHAM
Determinand	**Accred.**	**SOP**	**Units**	**LOD**						
Benzo[k]fluoranthene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[a]pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)Anthracene	N	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo[g,h,i]perylene	U	2800	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Of 16 PAH's	N	2800	mg/kg	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Demeton-O	N	2820	mg/kg	0.20	< 0.20					
Demeton-S	N	2820	mg/kg	0.20	< 0.20					
Azinphos-Methyl	N	2820	mg/kg	0.20	< 0.20					
Dimethoate	N	2820	mg/kg	0.20	< 0.20					
Parathion	N	2820	mg/kg	0.20	< 0.20					
Chlorfenvinphos	N	2820	mg/kg	0.20	< 0.20					
Diazinon	N	2820	mg/kg	0.20	< 0.20					
Azinphos-Ethyl	N	2820	mg/kg	0.20	< 0.20					
Fenitrothion	N	2820	mg/kg	0.20	< 0.20					
Malathion	N	2820	mg/kg	0.20	< 0.20					
Mevinphos	N	2820	mg/kg	0.20	< 0.20					
Parathion Methyl	N	2820	mg/kg	0.20	< 0.20					
Alpha-HCH	N	2840	mg/kg	0.20	< 0.20					
Gamma-HCH (Lindane)	N	2840	mg/kg	0.20	< 0.20					
Beta-HCH	N	2840	mg/kg	0.20	< 0.20					
Delta-HCH	N	2840	mg/kg	0.20	< 0.20					
Heptachlor	N	2840	mg/kg	0.20	< 0.20					
Aldrin	N	2840	mg/kg	0.20	< 0.20					
Heptachlor Epoxide	N	2840	mg/kg	0.20	< 0.20					
Gamma-Chlordane	N	2840	mg/kg	0.20	< 0.20					
Alpha-Chlordane	N	2840	mg/kg	0.20	< 0.20					
Endosulfan I	N	2840	mg/kg	0.20	< 0.20					
4,4-DDE	N	2840	mg/kg	0.20	< 0.20					
Dieldrin	N	2840	mg/kg	0.20	< 0.20					
Endrin	N	2840	mg/kg	0.20	< 0.20					
4,4-DDD	N	2840	mg/kg	0.20	< 0.20					
Endosulfan II	N	2840	mg/kg	0.20	< 0.20					
Endrin Aldehyde	N	2840	mg/kg	0.20	< 0.20					
4,4-DDT	N	2840	mg/kg	0.20	< 0.20					
Endosulfan Sulphate	N	2840	mg/kg	0.20	< 0.20					
Methoxychlor	N	2840	mg/kg	0.20	< 0.20					
Endrin Ketone	N	2840	mg/kg	0.20	< 0.20					

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2192	Asbestos	Asbestos	Polarised light microscopy / Gravimetry
2430	Total Sulphate in soils	Total Sulphate	Acid digestion followed by determination of sulphate in extract by ICP-OES.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2800	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS	Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene*	Dichloromethane extraction / GC-MS
2820	Organophosphorus (O-P) Pesticides in Soils by GC-MS	Organophosphorus pesticide representative suite including Parathion, Malathion etc, plus client specific determinands	Dichloromethane extraction / GC-MS
2840	Organochlorine (O-Cl) Pesticides in Soils by GC-MS	Organochlorine pesticide representative suite including DDT and its metabolites, 'drins' and HCH etc, plus client specific determinands	Dichloromethane extraction / GC-MS

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

eurofins | Chemtest
Eurofins Chemtest Ltd
Depot Road
Newmarket
CB8 0AL
Tel: 01638 606070
Email: info@chemtest.com

UKAS TESTING
2183

Final Report

Report No.:	21-43583-1
Initial Date of Issue:	15-Dec-2021
Client	Geo Consulting Engineering Ltd
Client Address:	The Studio, Woodmanton Barns Woodbury Exeter Devon EX5 1HQ
Contact(s):	General Tony Borrell
Project	GCE01141 Land off Woodway Road, Sibford Farms

Quotation No.:	Q21-25702	**Date Received:**	09-Dec-2021
Order No.:		**Date Instructed:**	09-Dec-2021
No. of Samples:	2		
Turnaround (Wkdays):	5	**Results Due:**	15-Dec-2021
Date Approved:	15-Dec-2021		

Approved By:

[redacted]

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: GCE01141 Land off Woodway Road, Sibford Farms

Client: Geo Consulting Engineering Ltd			**Chemtest Job No.:**		21-43583	21-43583
Quotation No.: Q21-25702			**Chemtest Sample ID.:**		1337067	1337068
			Sample Location:		TP01	TP09
			Sample Type:		SOIL	SOIL
			Top Depth (m):		0.1	0.4
			Date Sampled:		19-Oct-2021	19-Oct-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**		
Moisture	N	2030	%	0.020	15	14
Arsenic	U	2450	mg/kg	1.0	62	66
Lead	U	2450	mg/kg	0.50	14	20
As Barge Stomach Phase	N	2630	mg/kg	N/A	0.90	0.52
As Barge Stomach + Intestinal Phase	N	2630	mg/kg	N/A	1.6	1.0
As Barge Bioaccessible Fraction	N	2630	%	N/A	2.7	1.5

Test Methods

SOP	Title	Parameters included	Method summary
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2630	PBET	PBET	Extraction at 37C / ICP-MS

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

Appendix I – Geotechnical Laboratory Test Results

Laboratory Report

UKAS TESTING
2788

GSTL
GEO Site & Testing Services Ltd

Contract Number: 56398

Client Ref:
Client PO: **GCE01141**

Report Date: **11-11-2021**

Client **GEO Consulting Engineering Limited**
The Studio
Woodmanton Barns
Woodbury
Exeter
EX5 1HQ

Contract Title: **Land off Woodway Road, Sibford Ferris**
For the attention of: **Tony Borrell**

Date Received: **01-11-2021**
Date Completed: **11-11-2021**

Test Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	19
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	4
BRE Reduced Suite **includes pH, water & acid soluble sulphate and total sulphur** Sub-contracted Test	2
Samples Received - @ Non Accredited Test	19
Disposal of samples for job	1

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - denotes test included in laboratory scope of accreditation**
 # - denotes test carried out by approved contractor
@ - denotes non accredited tests

Approved Signatories:
Emma Sharp (Business Support Manager) - Paul Evans (Director) - Richard John (Quality/Technical Manager)
Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager) - Wayne Honey (Quality Assistant / Administrator / Health and Safety Coordinator)

GEO Site & Testing Services Ltd
Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	56398	
Site Name	Land off Woodway Road, Sibford Ferris	
Date Tested	10/11/2021	
	DESCRIPTIONS	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
TP01			0.70	-		Brown fine sandy silty CLAY.
TP01			1.50	-		Brown silty CLAY.
TP01			2.00	-		Brown silty CLAY.
TP02			0.70	-		Brown silty CLAY.
TP03			0.50	-		Brown silty CLAY.
TP03			1.80	-		Brown silty CLAY.
TP04			0.60	-		Brown fine gravelly silty CLAY.
TP04			1.50	-		Brown fine gravelly silty CLAY.
TP04			2.60	-		Brown silty CLAY.
TP05			0.50	-		Brown silty CLAY.
TP05			1.90	-		Brown silty CLAY.
TP06			0.50	-		Brown silty CLAY.
TP06			1.40	-		Brown fine gravelly silty CLAY.
TP07			0.90	-		Brown silty CLAY.
TP07			1.50	-		Brown silty CLAY.
TP08			0.60	-		Brown silty CLAY.
TP09			0.20	-		Brown silty CLAY.
TP09			0.90	-		Brown silty CLAY.
TP09			1.80	-		Brown silty CLAY.
				-		
				-		
				-		
				-		
				-		

Operators	Checked	11/11/2021	Richard John (Advanced Testing Manager)
Darcy Etheridge	Approved	11/11/2021	Paul Evans (Quality/Technical Manager)

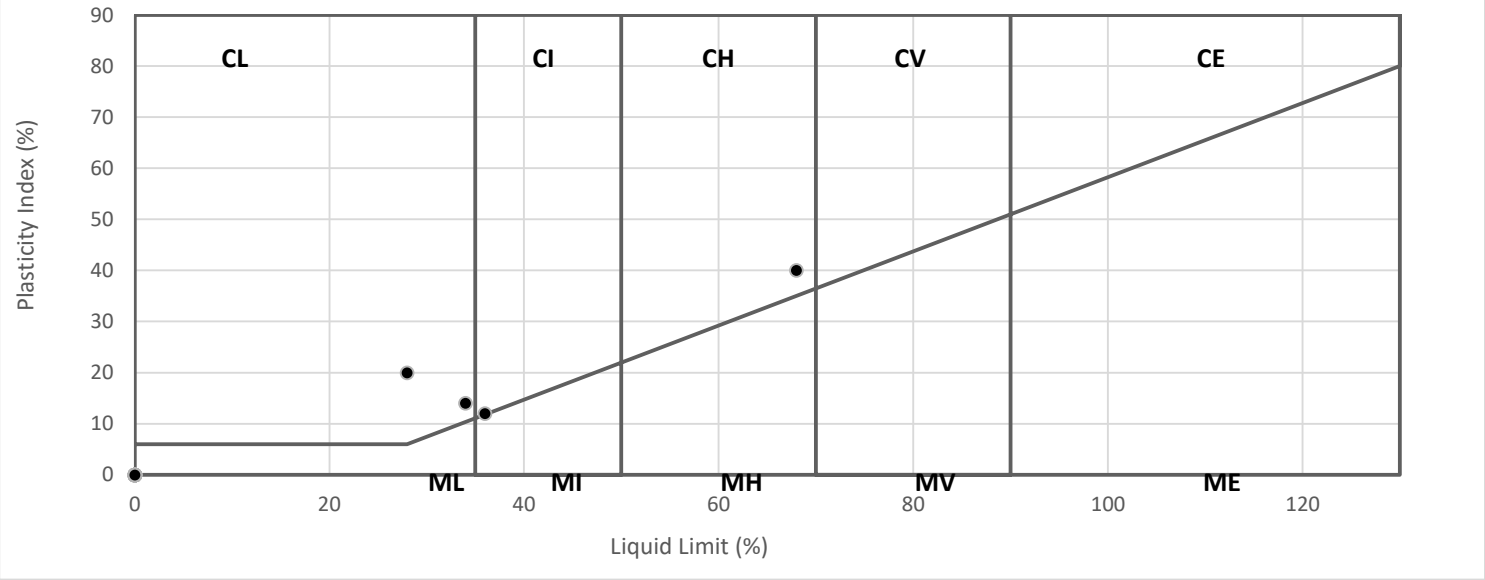
UKAS TESTING
2788

GSTL	NATURAL MOISTURE, LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX (BS 1377:1990 - Part 2 : 4.3 & 5.3)	
Contract Number	56398	
Project Location	Land off Woodway Road, Sibford Ferris	
Date Tested	10/11/2021	

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
TP01			0.70	-		18					
TP01			1.50	-		3.3					
TP01			2.00	-		21					
TP02			0.70	-		17					
TP03			0.50	-		19					
TP03			1.80	-		18					
TP04			0.60	-		16	28	8	20	90	CL Low Plasticity
TP04			1.50	-		21	34	20	14	90	CL Low Plasticity
TP04			2.60	-		36	68	28	40	100	CH High Plasticity
TP05			0.50	-		16					
TP05			1.90	-		17					
TP06			0.50	-		19					
TP06			1.40	-		21					
TP07			0.90	-		16					
TP07			1.50	-		19					
TP08			0.60	-		21					
TP09			0.20	-		18					
TP09			0.90	-		31	36	24	12	100	CI Intermediate Plasticity
TP09			1.80	-		12					
				-							
				-							
				-							
				-							
				-							

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010



Operators	Checked	11/11/2021	Richard John (Advanced Testing Manager)
Darcy Etheridge	Approved	11/11/2021	Paul Evans (Quality/Technical Manager)

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Certificate of Analysis

Certificate Number	21-23628	*Issued:*	10-Nov-21
Client	GEO Site and Testing Services Ltd Unit 4 Heol Aur Dafen Ind Est Dafen Carmarthenshire SA14 8QN		
Our Reference	21-23628		
Client Reference	GCE01141		
Order No	(not supplied)		
Contract Title	Land Off Woodway Road		
Description	2 Soil samples.		
Date Received	04-Nov-21		
Date Started	04-Nov-21		
Date Completed	10-Nov-21		
Test Procedures	Identified by prefix DETSn (details on request).		
Notes	Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.		

Approved By [redacted]

Adam Fenwick
Contracts Manager

UKAS TESTING
2139

Summary of Chemical Analysis
Soil Samples

Our Ref 21-23628
Client Ref GCE01141
Contract Title Land Off Woodway Road

	Lab No	1929939	1929940
	.Sample ID	TP01	TP07
	Depth	0.70	1.50
	Other ID		
	Sample Type	SOIL	SOIL
	Sampling Date	n/s	n/s
	Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Inorganics					
pH	DETSC 2008#		pH	6.3	7.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	10	< 10
Sulphur as S, Total	DETSC 2320	0.01	%	0.01	0.02
Sulphate as SO4, Total	DETSC 2321#	0.01	%	0.03	0.05

Information in Support of the Analytical Results

Our Ref 21-23628
Client Ref GCE01141
Contract Land Off Woodway Road

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1929939	TP01 0.70 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	
1929940	TP07 1.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), Total Sulphur ICP (7 days), Total Sulphate ICP (30 days), Metals ICP Prep (182 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

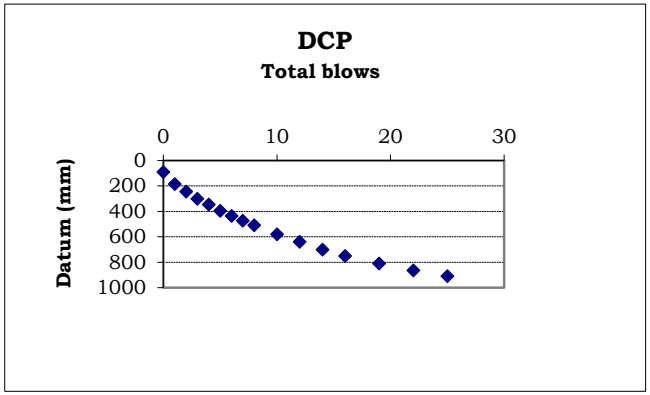
Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Appendix J – DCP Probe Test Results

Project:	Sibford Ferris		DCP No.:	DCP01		Date:	19/10/2021	easting		northing	
Project No.:	GCE01141		Start datum:		90 mm	Start depth:		0 mm			

Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)
0	0	90									
1	1	185									
1	2	245									
1	3	300									
1	4	345									
1	5	395									
1	6	435									
1	7	475									
1	8	510									
2	10	580									
2	12	640									
2	14	700									
2	16	750									
3	19	810									
3	22	865									
3	25	910									



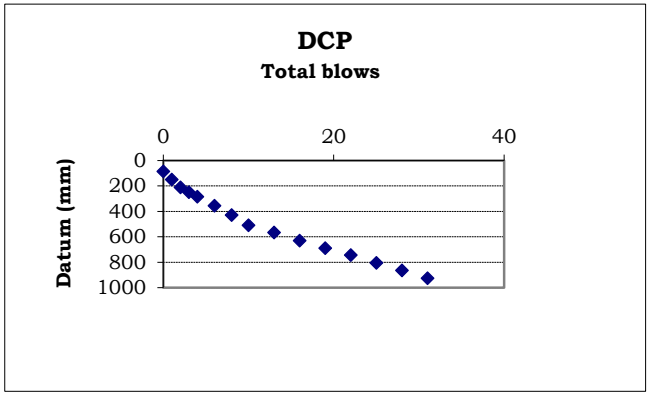
	Datum(mm)	Blows	mm/blow	CBR%	Depth(mm)	Cu
From	90	0			0	
To	395	5	61.00	3.92	305	60.42
From	395	5			305	
To	750	16	32.27	7.68	660	89.63
From	750	16			660	
To	910	25	17.78	14.42	820	129.68
From						
To						
From						
To						

TRRL, Road Transport Note 8.

Log CBR = -1.057 log (mm/blow) + 2.48

Project:	Sibford Ferris		DCP No.:	DCP02		Date:	19/10/2021	easting		northing	
Project No.:	GCE01141		Start datum:	85	mm	Start depth:	0	mm			

Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)
0	0	85									
1	1	150									
1	2	210									
1	3	250									
1	4	285									
2	6	355									
2	8	430									
2	10	510									
3	13	565									
3	16	630									
3	19	690									
3	22	743									
3	25	805									
3	28	865									
3	31	925									



	Datum(mm)	Blows	mm/blow	CBR%	Depth(mm)	Cu
From	85	0			0	
To	510	10	42.50	5.74	425	75.58
From	510	10			425	
To	925	31	19.76	12.89	840	121.45
From						
To						
From						
To						
From						
To						

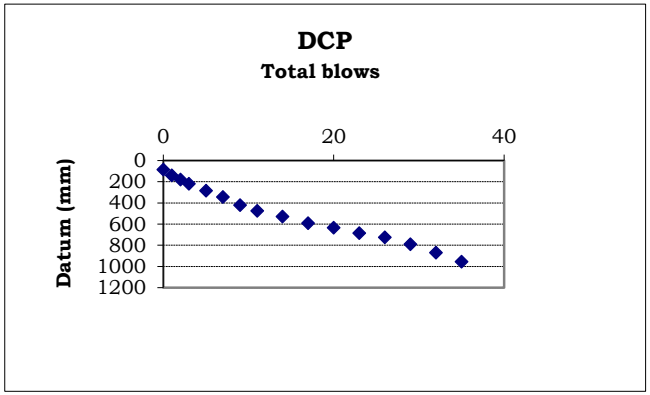
TRRL, Road Transport Note 8.

Log CBR = -1.057 log (mm/blow) + 2.48

Project: Sibford Ferris DCP No.: DCP03 Date: 19/10/2021 easting northing

Project No.: GCE01141 Start datum: 85 mm Start depth: 0 mm

Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)
0	0	85									
1	1	140									
1	2	180									
1	3	220									
2	5	285									
2	7	345									
2	9	420									
2	11	475									
3	14	530									
3	17	590									
3	20	635									
3	23	685									
3	26	725									
3	29	790									
3	32	870									
3	35	955									



	Datum(mm)	Blows	mm/blow	CBR%	Depth(mm)	Cu
From	85	0			0	
To	475	11	35.45	6.95	390	84.56
From	475	11			390	
To	725	26	16.67	15.43	640	134.97
From	725	26			640	
To	955	35	25.56	9.82	870	103.57
From	955	35			870	
To						
From						
To						

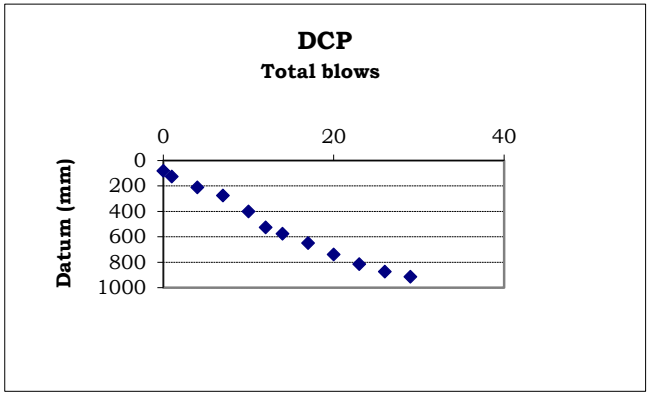
TRRL, Road Transport Note 8.

Log CBR = -1.057 log (mm/blow) + 2.48

Project: Sibford Ferris DCP No.: DCP04 Date: 19/10/2021 easting northing

Project No.: GCE01141 Start datum: 80 mm Start depth: 0 mm

Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)
0	0	80									
1	1	125									
3	4	210									
3	7	275									
3	10	400									
2	12	525									
2	14	575									
3	17	650									
3	20	740									
3	23	815									
3	26	875									
3	29	915									



	Datum(mm)	Blows	mm/blow	CBR%	Depth(mm)	Cu
From	80	0			0	
To	275	7	27.86	8.97	195	98.19
From	275	7			195	
To	740	20	35.77	6.89	660	84.10
From	740	20			660	
To	915	29	19.44	13.11	835	122.68
From						
To						
From						
To						

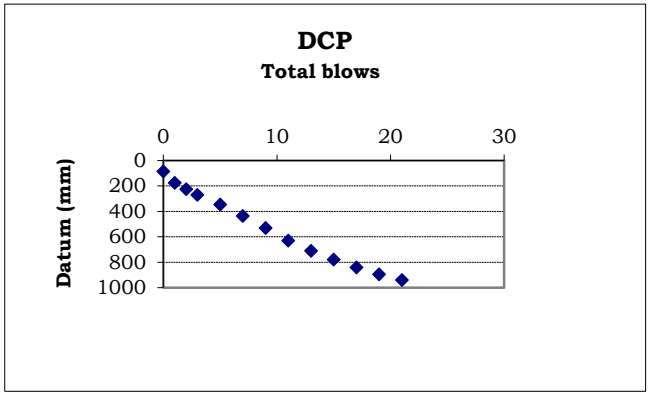
TRRL, Road Transport Note 8.

Log CBR = -1.057 log (mm/blow) + 2.48

Project: Sibford Ferris DCP No.: DCP05 Date: 19/10/2021 easting northing

Project No.: GCE01141 Start datum: 85 mm Start depth: 0 mm

Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)	Blows	Total Blows	Datum (mm)
0	0	85									
1	1	175									
1	2	225									
1	3	270									
2	5	345									
2	7	435									
2	9	530									
2	11	630									
2	13	710									
2	15	780									
2	17	840									
2	19	895									
2	21	940									



	Datum(mm)	Blows	mm/blow	CBR%	Depth(mm)	Cu
From	85	0			0	
To	345	5	52.00	4.64	260	66.70
From	345	5			260	
To	530	9	46.25	5.25	445	71.73
From	530	9			445	
To	780	15	41.67	5.86	695	76.52
From	780	15			695	
To	940	21	26.67	9.39	855	100.88
From						
To						

TRRL, Road Transport Note 8.

Log CBR = -1.057 log (mm/blow) + 2.48