Phase 1 (desk study) report

Church Gate Whaplode

Produced for Moulton Land and Planning

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Phase 1 (desktop) report

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EXECUTIVE SUMMARY

Proposed works	Construction of eight new low-rise dwellings with associated private drive
Site history	Former agricultural use, glasshouse, drying shed and packing shed.
Site topography	Flat and level ground about 5m above Ordnance Datum (AOD)
Hydrology	A ditch (land drain) is about 4m north of the site. There are no potable surface water abstractions within 1km
Hydrogeology	Groundwater level unknown Superficial and solid geology is unproductive aquifer
Anticipated ground conditions	Topsoil / Made ground – to max. depth of 0.2m to 0.4m below ground level (bgl) Tidal flat deposits – to >10m West Walton formation – mudstone/siltstone
Initial conceptual site model	*Potential soil contamination sources:* made ground, former land use agriculture *Contaminants of concern:* PAHs, metals, TPHs, *Possible sources of hazardous ground gas:* None *Pathways:* inhalation, ingestion, absorption, migration *Receptors:* humans, groundwater, rivers, ecology, building materials
Preliminary risk assessment	Potentially low risk to future site users
Phase 2 investigation proposals	Testing for contamination issues not required as some testing has been undertaken.
Gas protection measures	No radon protection needed. No significant risk of gas identified CIRIA classification: CS1. NHBC traffic light classification: Green

1 Introduction

The client, Moulton Land and Planning on behalf of South Lincolnshire Developments Ltd, have engaged Humberside Materials Laboratory Limited (HML) to undertake a Phase 1 desktop study report for a proposed development on land off Church Gate in Whaplode, Spalding Lincolnshire. The land will be hereinafter referred to as *the site*.

1.1 Aims

The aim of the investigation is to assess relevant geo-environmental aspects of the site in relation to the proposed development works. This includes an evaluation of likely ground conditions and potential land contamination issues.

1.2 Scope

The scope of the investigation includes:

- a site walkover
- the collection and review of suitable desk study information
- the production of an initial conceptual site model and preliminary risk assessment
- recommendations for further investigation works, where appropriate

The collected information includes an Envirocheck Report (Order Number: 230266779_1_1), obtained from Landmark Information Group, which includes historical maps and site data from a variety of sources, as shown later (in Appendices B and C).

1.3 Conditions and Limitations

This report is produced solely for the client and should only be copied in full. When transmitted electronically, the definitive copy of the report is held by Humberside Materials Laboratory Ltd.

This report is prepared on the assumption that all facts have been disclosed.

The comments given in this report and the opinions expressed assume that conditions do not vary beyond the range revealed by this study and the information provided in the production of this report is complete and reliable.

2 Sources of Site Information

Various sources of information, as shown below (in Table 1), were reviewed to investigate and compile this desk study investigation.

Table 1: Sources of site information			
Source description		*Details*	*Date*
Site specific	HML site walkover	Photos (in Appendix A)	Jan 2020
	Site location plan	MLP site layout	Nov 2017
	Envirocheck report	Environmental data, historical maps (Appendix B) (reference no.: 230266779_1_1)	Jan 2020
Local information	Online maps and photos	www.google.co.uk, www.openstreetmap.org, www.promap.co.uk & www.streetmap.co.uk	Jan 2020
	Local geological map	BGS 1:50000 series,	1982
	Online BGS data	www.bgs.ac.uk (map data & borehole records)	Jan 2020
	Historic aerial photos	www.britainfromabove.org.uk	Jan 2020
	Historical maps	www.oldmapsonline.org; www.old-maps.co.uk	Jan 2020

3 Site Description and Topography

3.1 Location and size

The site is on land off (and immediately east of) Church Gate within the village of Whaplode in Lincolnshire. The site is in a remote rural area centred around national grid reference (NGR) 532470 323960.

The site occupies an irregular tract of land. It measures about 87m wide by 57m in length at the extremes. The total area is about 0.51 hectares.

Site access is via an existing entry off Church Gate opposite Birchtree Cottage.

A site location plan is included in Appendix A.

3.2 Site features

Historically the site contained three structures. A glass house northeast corner). A drying shed (south) and a packing shed (west). The site is described as a farm but on a small scale with a glass house growing facility. The main operations included drying and packing. The glass house was removed some time ago. Adjacent to this were two tanks (as shown on the historical maps). It is unlikely that these were fuel oil as information from a local farmer indicated most likely the heating would have been solid fuel. Potential tanks would have been irrigation or seed.

Recently the floor slabs which amounted to most of the space was removed and crushed. An asbestos survey was undertaken prior to the demolition and dealt with accordingly. The floor slabs were also removed and crushed. The underlying madeground below the concrete was natural gravel. This has remained and some 6F5 crushed material added to provide a dry stable ground for future construction traffic.

Views of the site and surrounds are presented in Appendix A.

3.3 Site topography

The site is generally level. The average ground level is estimated to be about 5m above Ordnance Datum (AOD).

3.4 Surrounding land use

The site is within a remote rural area on the edge of Whaplode. The site is surrounded by the following features.

- North: Land drain and residential properties beyond.
- East: Arable farmland
- South: Residential housing and a playing field
- West: residential dwellings, Church Gate highway

3.5 Local topography

Beyond the site's boundaries, the land is very flat again at about 5m AOD. There is a slight rise to the south of the church locally to about 7m AOD.

3.6 Visible evidence of contamination

No evidence of potential significant contamination at the site was identified from the site walkover. No staining or sheen was noted that might indicate a spillage (e.g. of oil). No unusual odours were identified. There was no evidence of tanks or other liquid storage at or adjacent to the site. Vegetation appeared healthy with no signs of distress.

3.7 Proposed development

It is proposed to develop the site by constructing eight detached low-rise dwellings. Access being from Church Gate via a private drive.

4 Site History

4.1 Historical timeline

Historical documents (i.e. maps and photos) have been reviewed. Features considered to be potentially relevant are detailed below (in Table 2).

Table 2: Historical map features

Map details	*Within the site boundary*	*Outside of the site boundary*
1888	Orchard and trees. Potentially small structures present.	Drain and trees to the north. Church Gate and Church to the west. Open fields to the east and south.
1904	No significant change	No significant change except for some tree clearance
1931	No significant change	No significant change except that further tree clearance
1951	No significant change	No significant change
1970	Site notated as "The Sycamores", this includes an extensive glass house and small buildings. Two tanks identified adjacent to glass house.	No significant change
1991	No significant change except an additional structure to the south side.	Additional housing adjacent and a playground.
1995	No significant change	No significant change
1999	Glass house removed.	No significant change
2000	No significant change	No significant change except further significant residential development to the north.
2006	Structures appear to have been removed	No significant change
2019	No significant change	No significant change

4.2 Historical summary

Evidence in the historical maps shows the site initially contained trees. Between 1951 and 1970 the site became associated with agriculture. This included a glasshouse, drying shed and packing shed. After 1995 the glasshouse was removed and more recently the hardstanding and other two buildings were removed.

The surrounding area has only been residential, with a playground on one side.

5 Geology, Hydrogeology and Hydrology

5.1 Geology

5.1.1 Made ground

Some reworked topsoil may be present at the site. Otherwise, a little made ground is anticipated based on the tracks and structures shown by the historic maps. More recently, the existing structures have been demolished, crushed and deposited across the site over natural crushed rock fill.

5.1.2 Drift deposits

The local British Geological Survey (BGS) map shows tidal flat deposits of silt and clay. These are mud and sand flats in a mainly horizontal marshy zone influenced by repeated intertidal covering.

5.1.3 BGS historical borehole records

Minimal historical borehole records are present in the area of the site.

5.1.4 Solid geology

BGS mapping indicates the underlying bedrock is the West Walton formation. A mudstone, siltstone of sedimentary rock.

5.1.5 Mining and quarrying

No BGS recorded mineral sites are noted in the area.

Mining is not expected to affect the site. According to the Coal Authority, the site is in an area that might not be affected by coal mining. With respect to non-coal mining activity, a designation of no hazard is given.

5.1.6 Geological hazards

Geological hazards are moderate to no hazard as reported by the British Geological Survey (BGS) and shown below (in Table 3).

Table 3: Geological hazards	
Hazard	*Hazard potential*
Collapsible ground stability	No Hazard
Compressible ground stability	Moderate
Ground dissolution stability	No hazard
Landslide ground stability	Very low
Running sand ground stability	Moderate
Shrinking & swelling clay	Low

5.2 Hydrogeology

The location of the groundwater table is unknown. However, given the low-lying topography, a shallow water table is likely.

The underlying soils are likely to be of low permeability.

No groundwater abstractions either surface or borehole groundwater are noted in the area.

The underlying bedrock is classified as an unproductive stratum. Similarly, the underlying superficial drift deposits is also unproductive.

The site is not within a *source protection zone*.

5.3 Hydrology

The nearest reported surface water feature is reported to be 4m north of the site. This appears to the drain close to the northern boundary.

5.3.1 Flooding

The site is not at risk from flooding (and extreme flooding) from rivers or sea without defences. According to the BGS, there is no potential for groundwater flooding to occur at the surface.

5.4 Anticipated geology

Based on the reviewed desk top information, the anticipated ground conditions are as shown below (in Table 4).

Table 4: Anticipated geology (subject to confirmation with site works)		
Strata	*Description*	*Anticipated depth to base of stratum (m bgl)*
Topsoil / made ground	Natural silts, sand and clays with occasional rootlets, madeground of unknown nature	0.2 – 0.4
Tidal flat deposits	Fine-grained silt and clay, potentially with bands of sand.	>10
West Walton formation	Mudstone siltstone	-

6 Environmental Data

6.1 Pollution and pollution control

There are no recorded *contaminated land entries and notices* within at least 1km of the site.

The nearest (wastewater effluent) *discharge consent* which is still current is located about 51m west of the site at a domestic property. The consent pertains to treated sewage discharge. The next nearest discharge consent is located about 199m north of the site.

There are no *prosecutions relating to controlled waters* within 1km of the site. Similarly, there are no *enforcement and prohibition notices*.

In relation to (integrated) pollution prevention and control, none are recorded within 300m of the site.

The nearest reported pollution incident to controlled waters occurred 29m northwest of the site. It concerned crude sewage into a stream or river in 1995, category 3 minor incident. A further incident, category 3 minor, occurred in 1993. This was 57m southwest of the site.

There are no reported *prosecution relating to authorised processes* in the site area.

There are no reported *radioactive substances* registered within 1km of the site.

Whaplode river is river quality D with a flow rate of less than 0.31 cumsecs. This is 839m northeast.

There are no reported incidents in area in the *substantiated pollution incident register*.

There are no reported *water industry act referrals* noted within 1km of the site.

With respect to hazardous substances, there are no *COMAH* or *NIHHS* sites in the area.

6.2 Waste

Two historical landfill sites are located in the area, one 196m north (piggery) and one 269m northeast (foundry house). These sites have been developed recently.

There are no BGS recorded or Local Authority recorded landfill sites within 1km of the site.

There is no *IPC registered waste* site in the area.

There are no *licensed waste management facilities* in the area.

The nearest identified *potentially infilled land* (water) is 69m south of the site. Dated 1958. Further infilled sites exist 234m west (dated 1958) and 264m northwest, dated 1958. No non-water infilled land is noted in the area.

There are no reported *waste transfer sites* in the area.

6.3 Soil chemistry

Estimated soil chemistry data from the BGS indicates element concentrations for rural soil around the site, as shown below (in Table 5).

Table 5: BGS Estimated Soil Chemistry (rural soil)

Contaminant	*Concentration (mm/kg)*
Arsenic	<15
Cadmium	<1.8
Chromium	40 - 60
Lead	<100
Nickel	15 - 30

6.4 Radon

With respect to *radon potential*, the site is in a Lower probability area with less than 1% of homes above the action level. No radon protection measures are therefore necessary for new homes.

6.5 Industrial land use

The nearest identified Point of Interest (POI) still current – is a garage service 290m north.

Two historic tanks are noted in the site (removed).

6.6 Sensitive land use

The site is in a Nitrate Vulnerable Zone with respect to surface water.

No other sensitive land use is reported in the area.

7 Initial Contaminated Land Assessment

7.1 Assessment principles

Current legislation and best practice, such as Part IIA of the Environmental Protection Act and CLR 11 (EA/Defra, 2004), recommend that potentially contaminated land is managed using a risk-based approach. Model procedures to assess the risks from contaminated land involve the development of a conceptual site model (CSM) and the identification and assessment of relevant contamination linkages.

A contamination linkage comprises a *source* (i.e. a contaminant capable of causing pollution or harm), a *receptor* and a viable *pathway* by which one can be transmitted to the other. If one of these three elements are missing, there is no significant risk.

Any risk from potential contamination can be assessed as a product of the severity of the consequences that might arise from of the contamination hazard and the probability of the hazard occurring, as outlined in CIRIA C552 (Rudland et al., 2001). The definitions used to perform the risk assessment for the subject site are shown below (in Tables 6 and 9).

Table 6: Severity of hazard being realised

Classification	Category/Definition			
	Human	Controlled waters	Property	Eco system
Severe	Short term acute risk	Short term risk	Catastrophic damage	Short term risk
Medium	Chronic damage	Pollution to sensitive water resources		Significant change
Mild		Pollution to non-sensitive water resources	Significant damage	Significant damage
Minor	Non-permanent health effects		Repairable damage	

Table 7: Probability of hazard being realised

Classification	Definition
Highly likely	There is a pollution linkage and an event that appears very likely in the short term and or almost inevitable over a long term, or evidence at the receptor of harm or pollution
Likely	There is a pollution linkage and all elements are present which means that it is probable that an event will occur.
Low likelihood	There is a pollution linkage and circumstances are possible under which an event will occur. However, it is not certain that even over a long period such an event would occur and is less likely in the short term.
Unlikely	There is a pollution linkage, but circumstances are such that it is improbable that an event would occur even in the long term.

A matrix can be used to determine a suitable risk classification, as shown below (in Table 8). The largest risks are where the severity of the contaminant is great and the probability of the contaminant linkage occurring is highly likely. The definitions of the different classifications used in this assessment, based on CIRIA C552 (Rudland *et al.*, 2001), are also shown below (in Table 9).

Table 8: Risk classification matrix					
		Consequence			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Table 9: Risk classification definition	
Classification	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard or there is evidence that severe harm to a designated receptor is currently occurring. This risk if realised is likely to result in a substantial liability. Investigation and or remediation is required.
High	Harm is likely to a designated receptor from an identified hazard or there is evidence that severe harm to a designated receptor is currently occurring. This risk if realised is likely to result in a substantial liability. Investigation and or remediation may be necessary in the short term and likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from the identified hazard. However, it is relatively unlikely that such a hazard would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is normally required to clarify and determine the potential risk. Some remedial works may be required in the long term.
Low	It is possible that harm could arise to a designated receptor from the hazard identified but is likely that this hazard if realised would at worst normally be mild.
Very low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe

7.2 Initial conceptual site model (CSM)

The following conceptual site model considers all plausible sources, pathways and receptors of potential contamination.

7.2.1 Sources of contamination

Potential sources of soil contamination include the following.

- Possible made ground, although removal of ground slabs has revealed natural quarried gravel as a fill below the concrete.
- Former land use (as agricultural).

- Asbestos (from within buildings)

The adjacent land use as a farmyard could be a source of contamination. Potential contaminants of concern could include fractions of total petroleum hydrocarbons (TPHs), although this was to a limited not confirmed source. Metals and PAHs are also feasible. An asbestos survey has been undertaken by another and dealt with accordingly prior to demolition. Pesticides and herbicides are not considered applicable based on small yard for packing etc.

In summary, the contaminants of concern include the following.

- Metals
- Polycyclic aromatic hydrocarbons (PAHs)
- Total petroleum hydrocarbons (TPHs)

7.2.2 Pathways

There are many potential pathways to receptors considered. For the proposed site, these may include:

- Inhalation (i.e. indoor or outdoor dust or vapour).
- Ingestion (i.e. swallowing soil, dust and soils attached to home grown produce).
- Absorption (i.e. dermal contact with soil).
- Migration (i.e. vertical/lateral movement through soil, rock, groundwater, building materials, voids and along services, including potable water supply pipes).

7.2.3 Receptors

Receptors comprise those material items or living beings that may be impacted by contaminants. For the site, these may include:

- human site users (i.e. future occupants and construction workers),
- controlled waters (i.e. groundwater and surface water features),
- building materials and services (e.g. clean water pipework and buried concrete)
- ecological systems (e.g. local wildlife)
- adjacent site users (e.g. humans, ecological systems).

7.3 Pretesting

Prior to submission four samples had been taken for testing. These were from a shallow depth (0.5m) at various locations within the site. Appendix A contains a site plan with the locations marked. The depth of 0.5m was taken in natural ground immediately below the concrete and fill.

The analysis (undertaken by a UKAS/MSCERT accredited laboratory) was used for metals, speciated polyaromatic hydrocarbons (PAH) and petroleum hydrocarbons (TPH). The data has been assessed against published data for domestic gardens with plant uptake included prior to completing the site risk assessment (e.g. LQA/CIEH Category 4 Screening Levels).

The data indicates all metals and metalloids are well below the assessment criteria.

PAH data indicates levels are well below the assessment criteria.

One sample of TPH was analysed and again shows the data is well below the assessment criteria.

7.4 Preliminary risk assessment (PRA)

A preliminary risk assessment of potential contamination linkages which also presents the findings of the initial conceptual site model and four sample results is presented below (in Table 10).

Table 10: Initial conceptual site model and preliminary risk assessment

Potential source	*Potential pathway*	*Potential receptor*	*Probability*	*Severity*	*Risk rating*	*Comments*
Former land use: TPH, metals and PAHs	inhalation, ingestion, absorption	Future occupants	Low likelihood	Mild	Low	
	Inhalation, ingestion, absorption	Construction workers	Low likelihood	Mild	Low	Normal safe working practices should mitigate any risk
	Aggressive attack	Building materials	Unlikely	Mild	Very Low	
	Migration	Bedrock aquifer	Unlikely	Mild	Very low	Bedrock is well-protected by superficial soils. The site is not in a source protection zone.
	Migration	Surface waters	Low Likelihood	Mild	Low	Nearby drain is small. No potable surface water abstraction within 1km
	inhalation, ingestion, absorption	Local flora and fauna	Unlikely	Mild	Very low	No evidence of vegetation distress. Site is not in an ecologically sensitive area.
3. Historical landfill & Underlying Alluvium CO2, CH4, etc.	Migration and inhalation	Future site users	Unlikely	Medium	Low	No evidence of landfill activity in the immediate area. Where Infill is likely it is >50 years old and a significant distance away.

Risk ratings of *very low* or *low* are not considered significant while ratings of *medium / low* (or above) are deemed potentially hazardous and the associated source-pathway-

receptor is taken to be a relevant contamination linkage (RCL) and in need of further consideration.

Accordingly, the above preliminary risk assessment indicates that there is no potentially significant risks associated with the site. Specifically, there is only low risk of harm to future site users from potential contaminants linked to (a) possible made ground and (b) the site's history. Pollutants of concern include TPH, PAH and metals.

7.5 Further investigation objectives

It is not recommended that further investigation is undertaken to gather more information about the identified possible contamination linkages. It is concluded that the phase 1 desktop study associated with a preliminary investigation has robustly indicated low risk.

If during the development any unforeseen contamination is encountered, the local authority shall be notified. Work shall be halted in that area and the contamination investigated and remediated if required, to the satisfaction of the local authority.

Potentially a geotechnical investigation will be undertaken to aid foundation designs. During this process visual and olfactory evidence will be considered to confirm the site conceptual model. If this does not confirm the model, then further testing will be required.

7.6 Gas / vapour protection measures

Potential sources of hazardous ground gas have been considered but these are not contemplated to be viable to pose any significant risk to the site.

Therefore, it is considered that a CIRIA C665 (Wilson et al., 2007) characteristic situation (CS) of CS1 and an NHBC/RSK (Boyle and Worthington, 2006) Traffic Light Classification of Green should be appropriate for the site. Details of suitable gas protection measures are provided by British Standards (BS8485, 2015).

With less than 1% of homes being above the radon limits it is concluded that radon protection measures are not required.

8 Conclusion and recommendations

8.1 Anticipated ground conditions

The anticipated ground conditions indicate the following general sequence of sub-strata at the site (in descending order).

- Topsoil / Made ground – to 0.2m-0.4m bgl
- Tidal flat deposits – to c. >10m bgl
- West Walton Formation – mudstone/siltstone

All anticipated ground conditions are subject to confirmation by site works. Actual ground conditions may differ markedly.

8.2 Site history

Evidence in the historical maps shows the site initially contained trees. Between 1951 and 1970 the site became associated with agriculture. This included a glasshouse, drying shed and packing shed. After 1995 the glasshouse was removed and more recently the hardstanding and other two buildings were removed.

The surrounding area has only been residential, with a playground on one side.

8.3 Hydrogeology

The location of the groundwater table is unknown. However, given the low-lying topography, a shallow water table is likely.

No groundwater abstractions are noted.

The underlying bedrock and superficial drift deposits are classified as unproductive.

8.4 Hydrology

The nearest reported surface water feature is 4m north of the site. This appears to be a small land drain running along the boundary.

No reported (not revoked) *surface water or groundwater abstractions* are indicated.

8.4.1 Flooding

The site is not shown by EA mapping to be in a Flood Zone.

8.5 Initial conceptual site model

Potential sources of soil contamination include the following.

- Possible made ground
- Former land use (as agricultural)

The associated contaminants of concern include the following.

- Metals
- Polycyclic aromatic hydrocarbons (PAHs)
- Asbestos (dealt with by separate report prior to demolition).
- Total petroleum hydrocarbons (TPHs)

Potential pathways include inhalation, ingestion, absorption and migration.

Receptors may include human site users, controlled waters, building materials and services, ecological systems and adjacent site users.

8.6 Preliminary risk assessment (PRA)

A preliminary risk assessment has been carried out based on the source-pathway-receptor contamination model. This has also had the advantage of assessing the test data from four trial pits.

There are potentially no significant risks associated with (a) possible made ground and (b) the site's history. Pollutants of concern include TPH, PAH, and metals. The receptors of these risk are future site users. The resulting risks are low.

The preliminary risk assessment has not identified any viable pollution linkages associated with harmful ground gas.

8.7 Investigation proposals

An investigation has not been recommended based on the site conceptual model. Visual and olfactory evidence will be considered during any geotechnical investigation to amend the proposals to the actual conditions encountered.

8.8 Gas protection measures

Desk study information indicates that the site is not in an area affected by radon. Therefore, no radon protection measures are required.

It is considered that a CIRIA C665 (Wilson et al., 2007) characteristic situation (CS) of CS1 and an NHBC/RSK (Boyle and Worthington, 2006) Traffic Light Classification of Green could be appropriate for the site.

-- End of Report –

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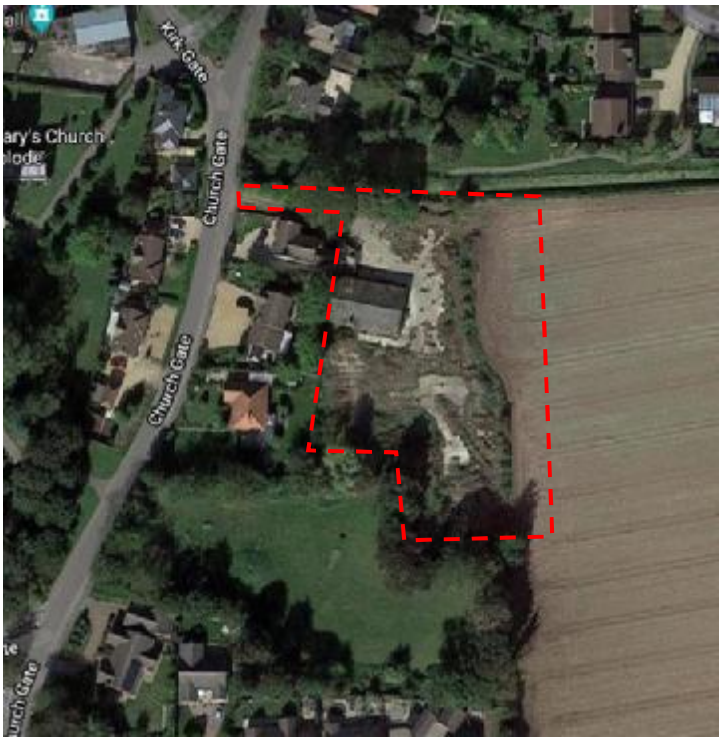
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Appendix A

Plans & Photographs



Location plan



View to the west (remains of packing shed)



View to the south (area of drying shed) Playground beyond



View west along southern boundary



Stockpile of concrete slabs and brick work crushed to 6F5 for future use



View to the north



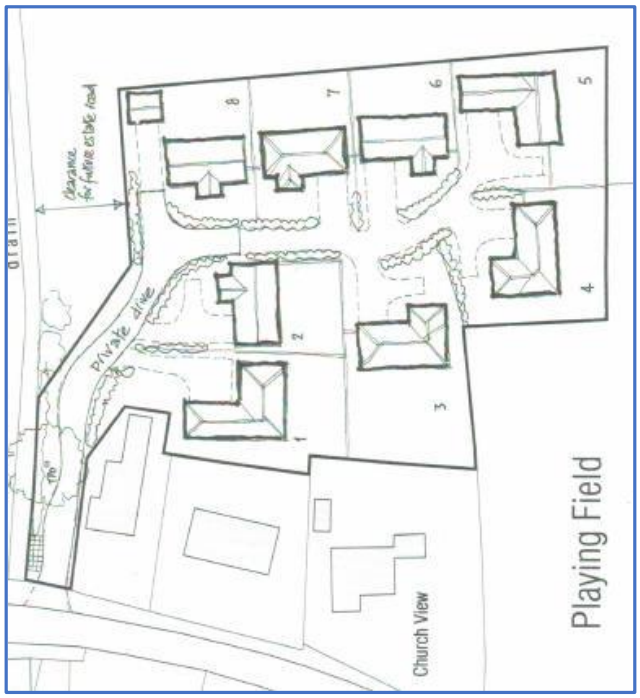
Packing shed (part demolished) west of site



Stockpiles 6F5



Sample location plan



Proposed plan

Appendix B

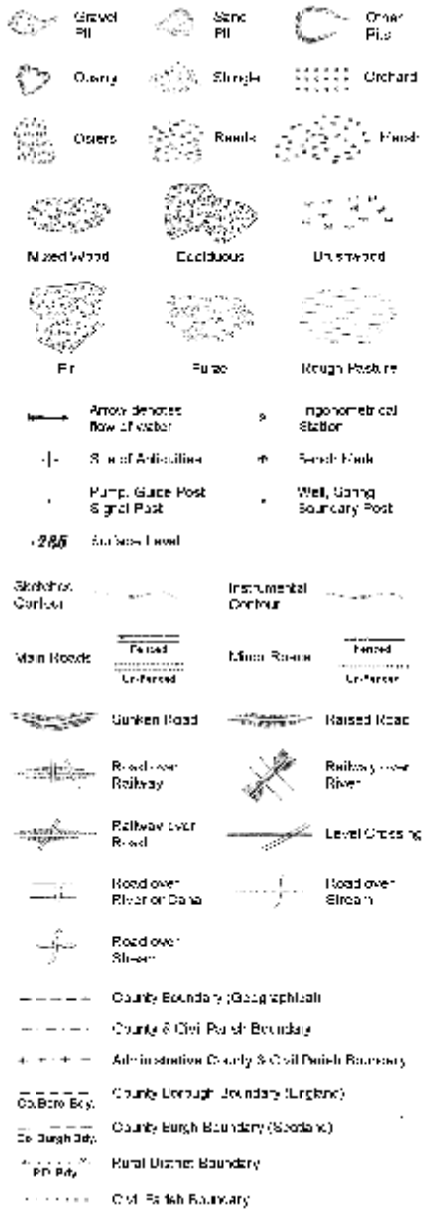
Historic Maps

Appendix C

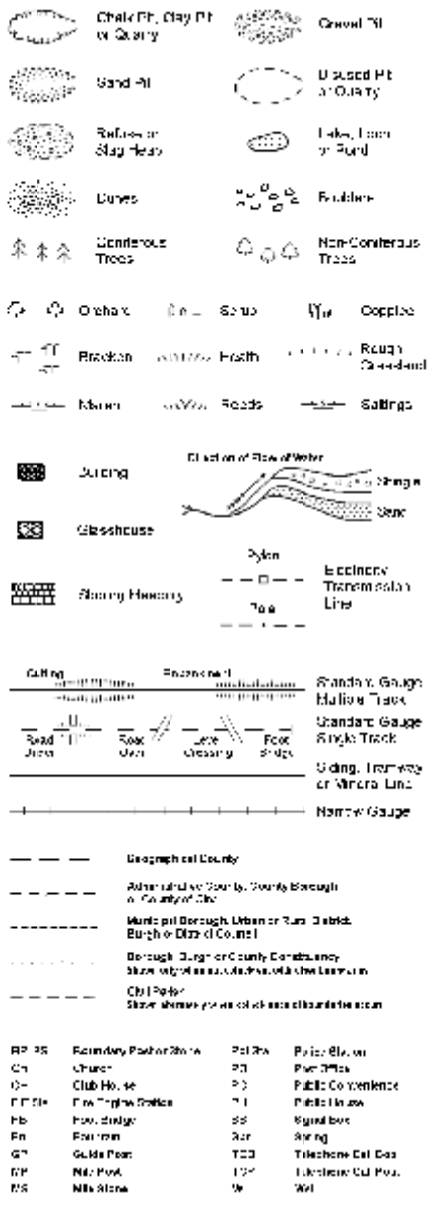
Environmental Data

Historical Mapping Legends

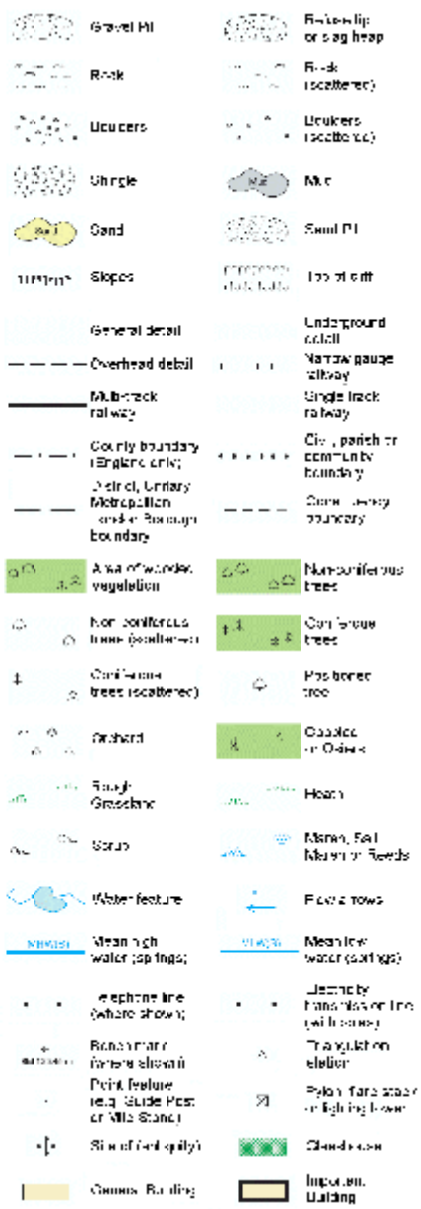
Ordnance Survey County Series 1:10,560



Ordnance Survey Plan 1:10,000



1:10,000 Raster Mapping

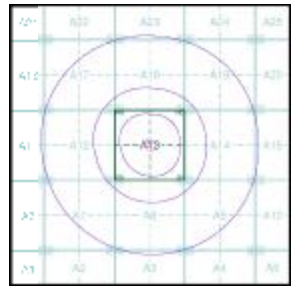




Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lincolnshire	1:10,560	1887	2
Lincolnshire	1:10,560	1906	3
Lincolnshire	1:10,560	1906	4
Lincolnshire	1:10,560	1932	5
Lincolnshire	1:10,560	1932	6
Lincolnshire	1:10,560	1932	7
Lincolnshire	1:10,560	1938 - 1952	8
Lincolnshire	1:10,560	1951 - 1952	9
Ordnance Survey Plan	1:10,000	1956 - 1958	10
Ordnance Survey Plan	1:10,000	1971 - 1977	11
Ordnance Survey Plan	1:10,000	1992	12
10K Raster Mapping	1:10,000	2000	13
10K Raster Mapping	1:10,000	2006	14
VectorMap Local	1:10,000	2019	15

Historical Map - Slice A



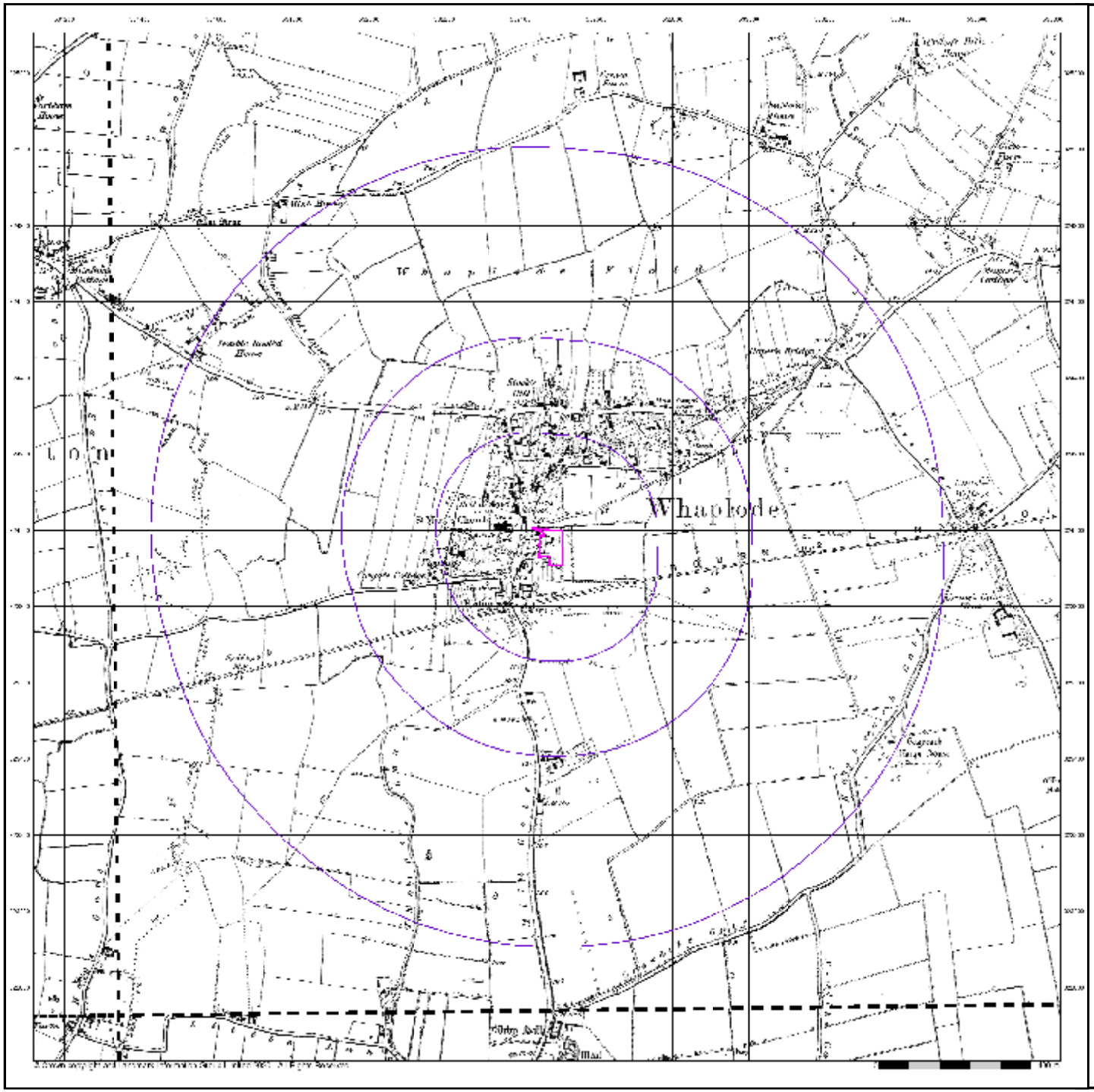
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National Grid Reference: 532470, 323960
Slice: A
Site Area (Ha): 0.51
Search Buffer (m): 1000

Site Details

, Tudor Lodge, Church Gate, Whaplode, Spalding, PE12 6TA

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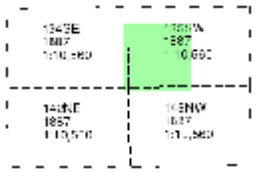
Lincolnshire

Published 1887

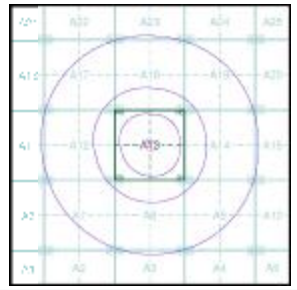
Source map scale - 1:10,560

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)



Historical Map - Slice A



Order Details

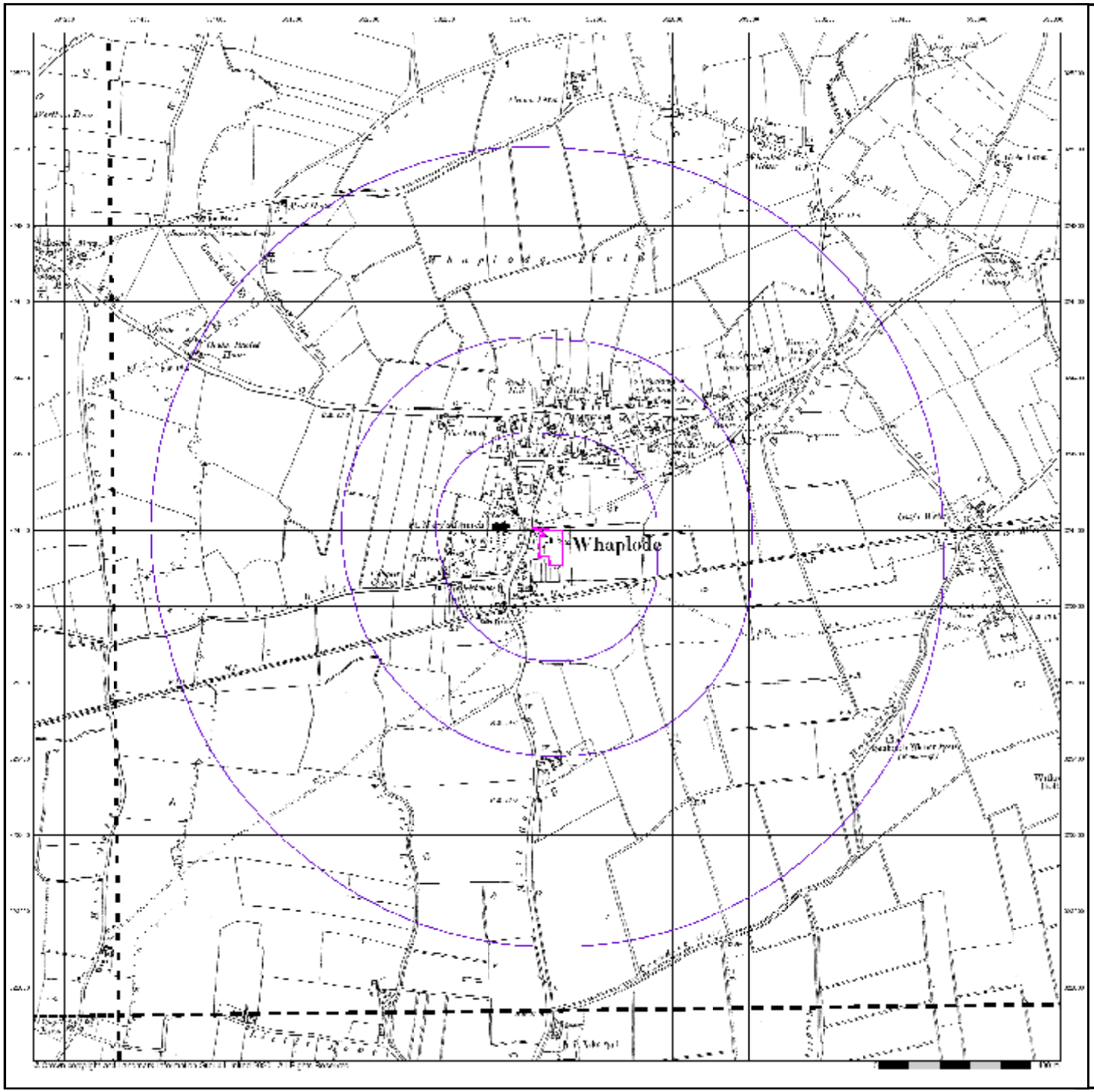
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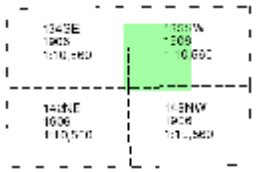
Lincolnshire

Published 1906

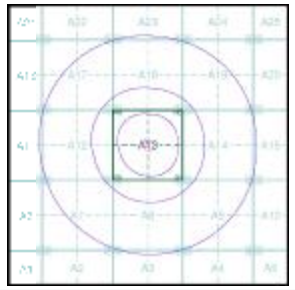
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



N

Order Details

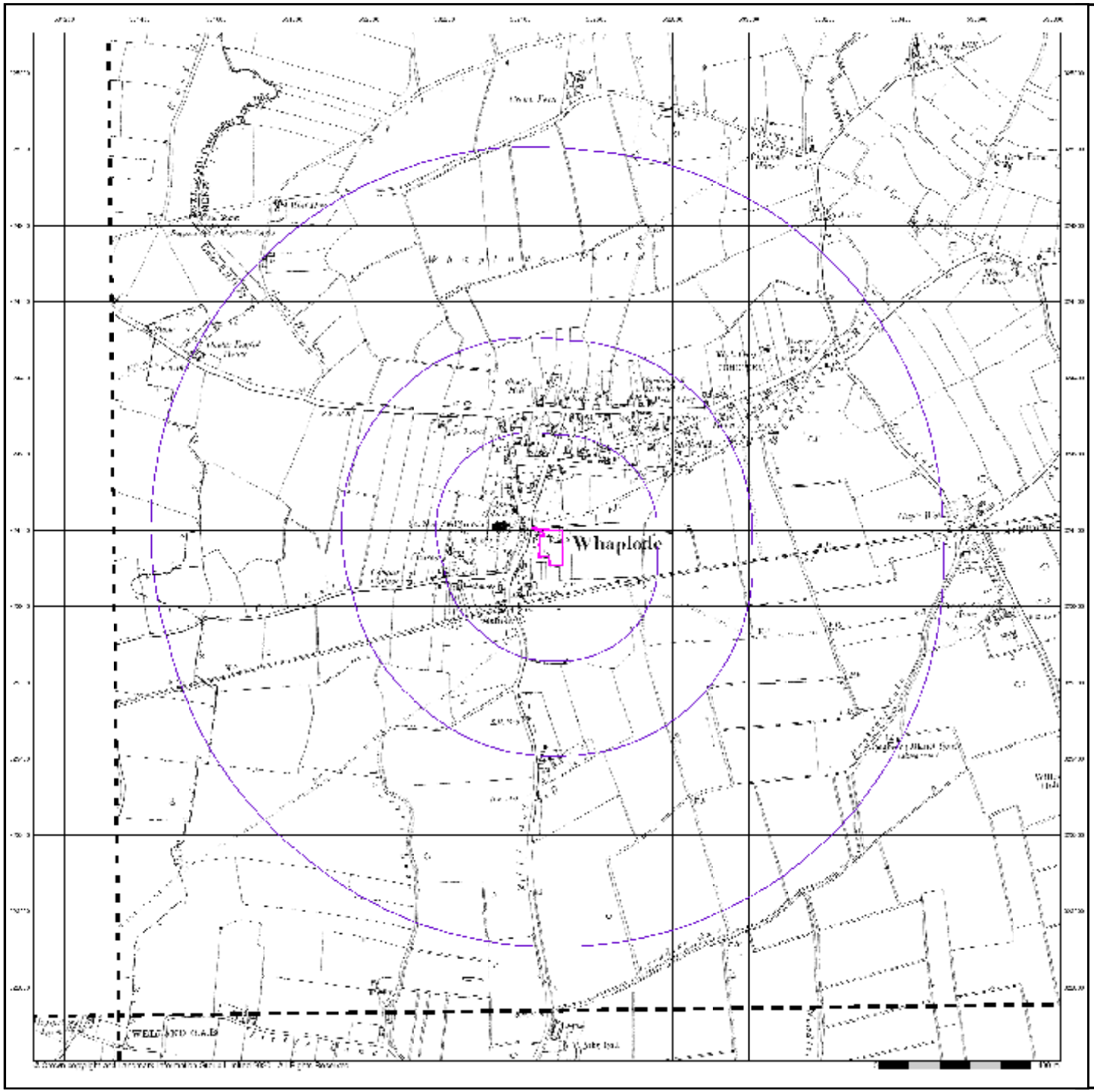
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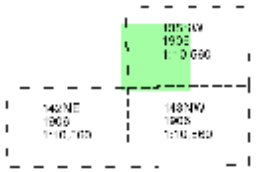
Lincolnshire

Published 1906

Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



N

Order Details

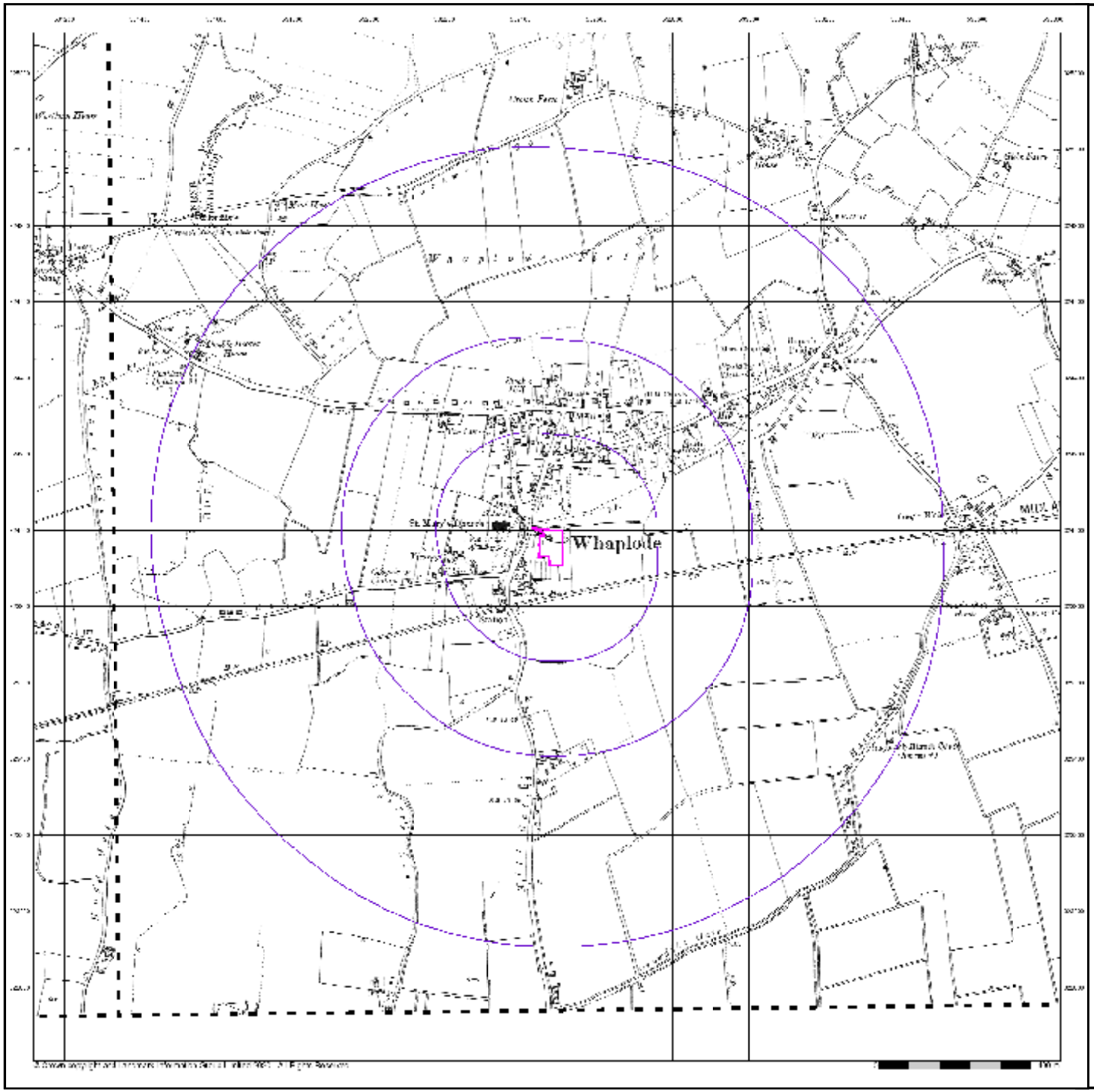
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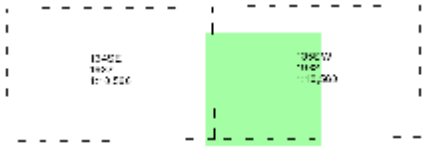
Lincolnshire

Published 1932

Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



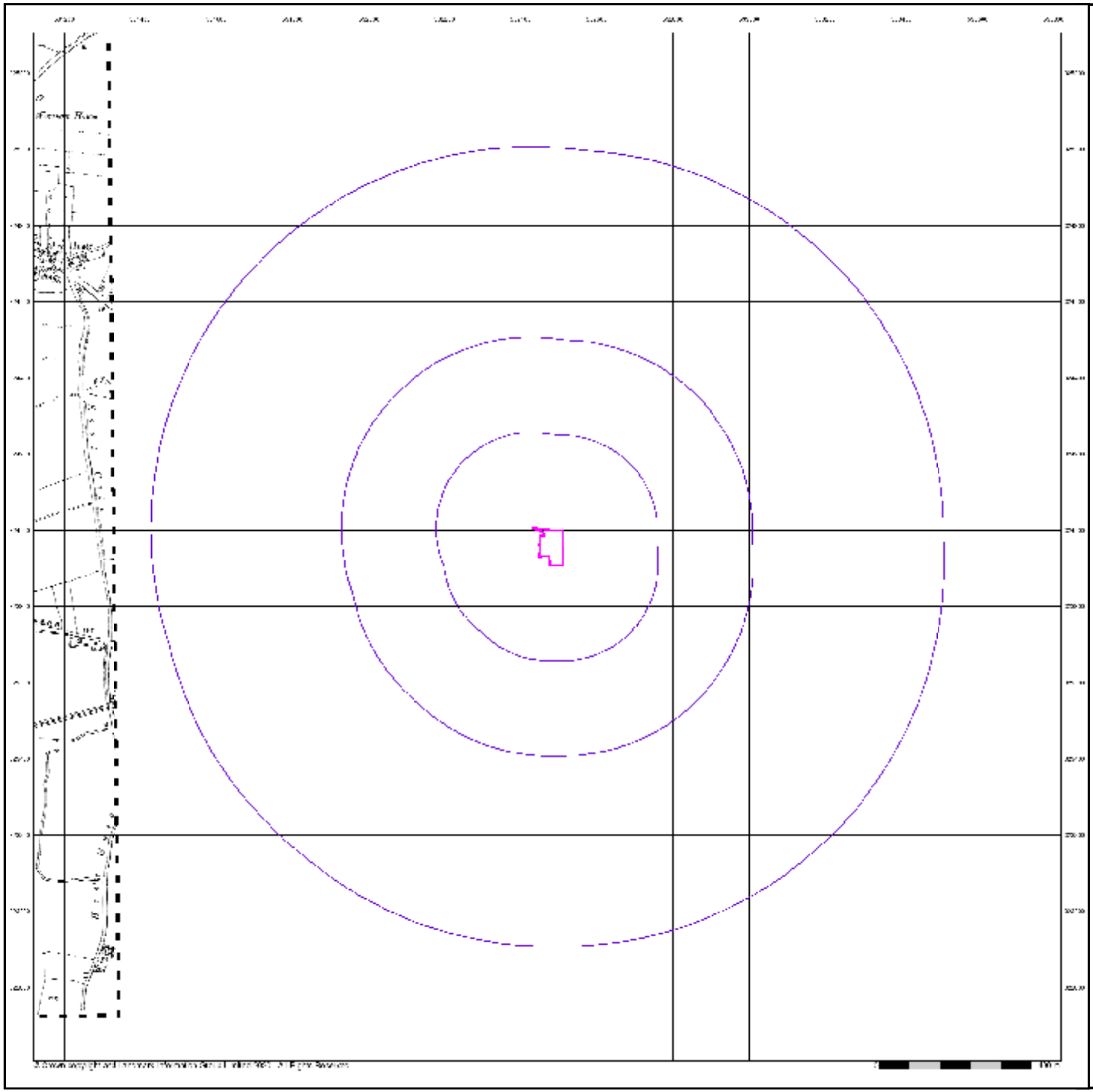
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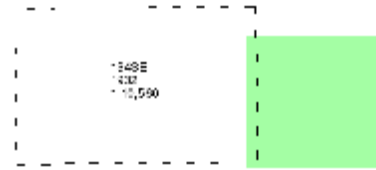
Lincolnshire

Published 1932

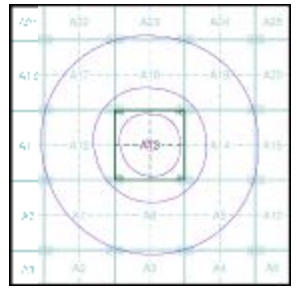
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Map Name(s) and Date(s)



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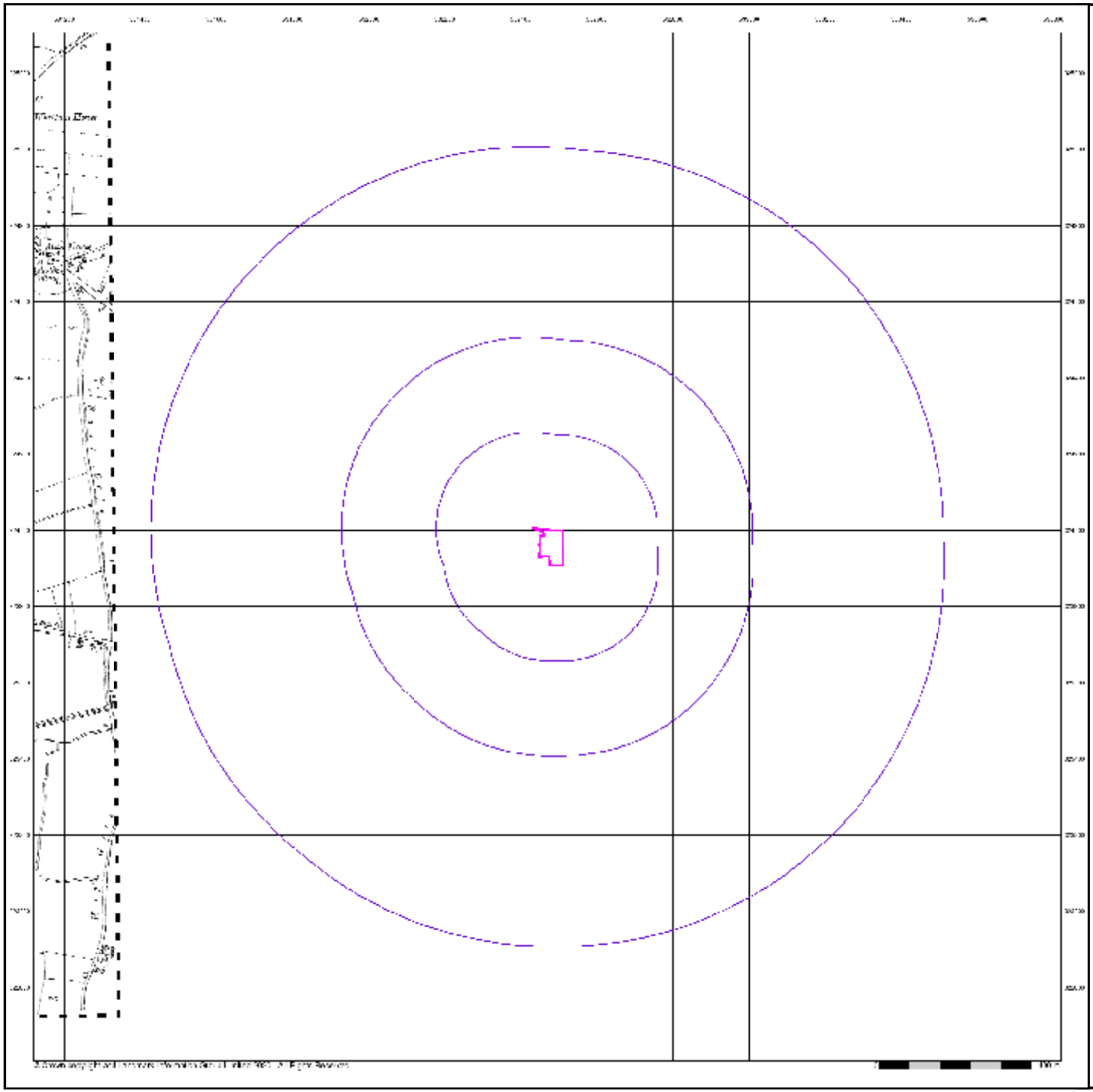


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Site Details

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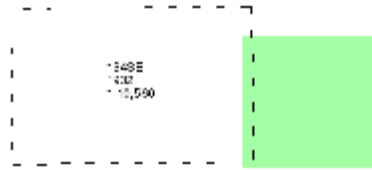
Lincolnshire

Published 1932

Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



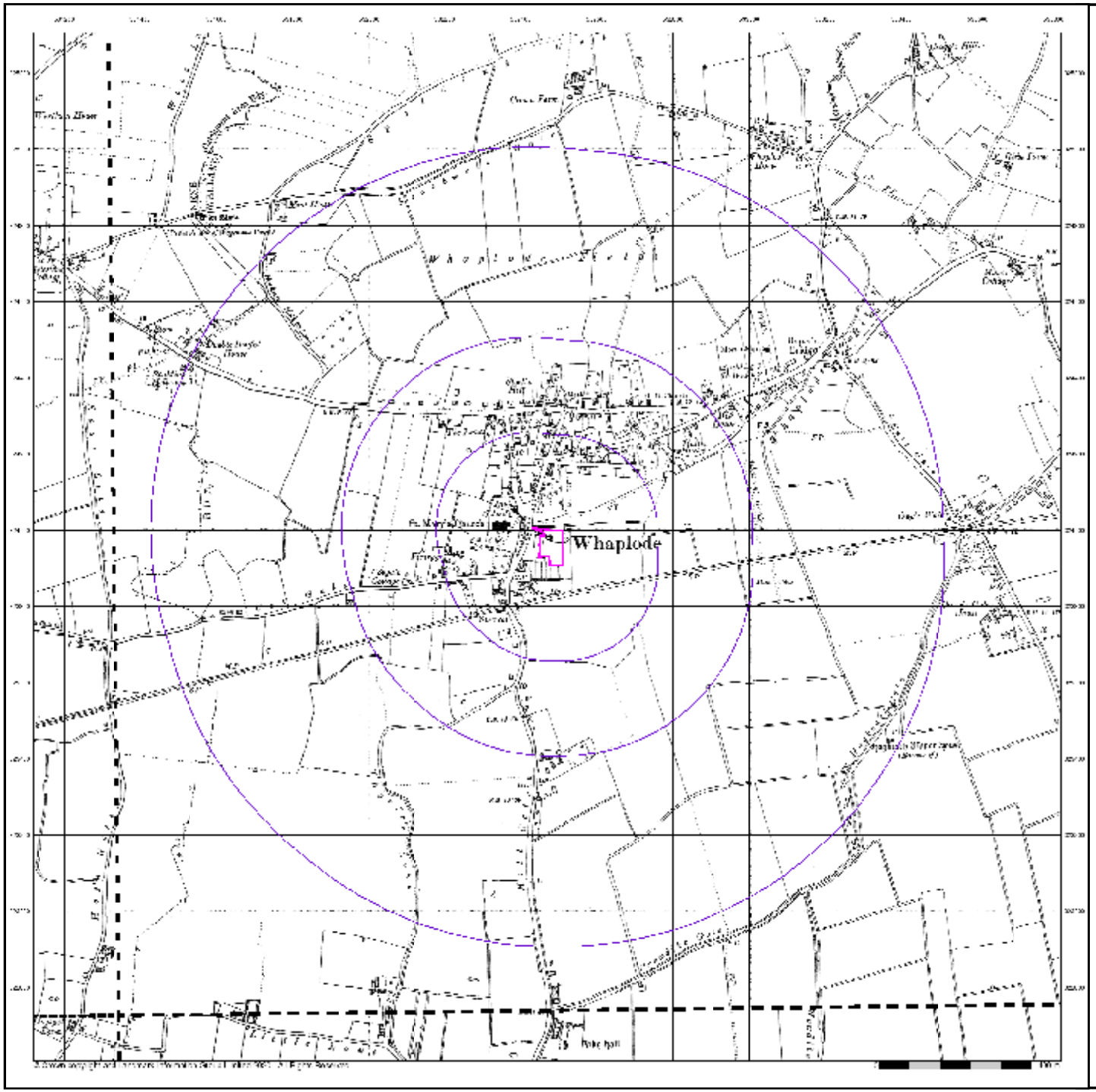
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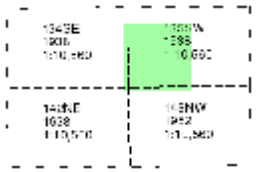
Lincolnshire

Published 1938 - 1952

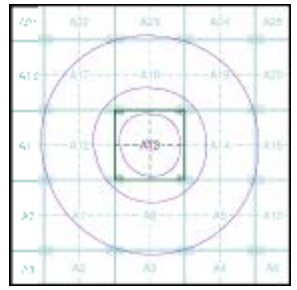
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Map Name(s) and Date(s)



Historical Map - Slice A



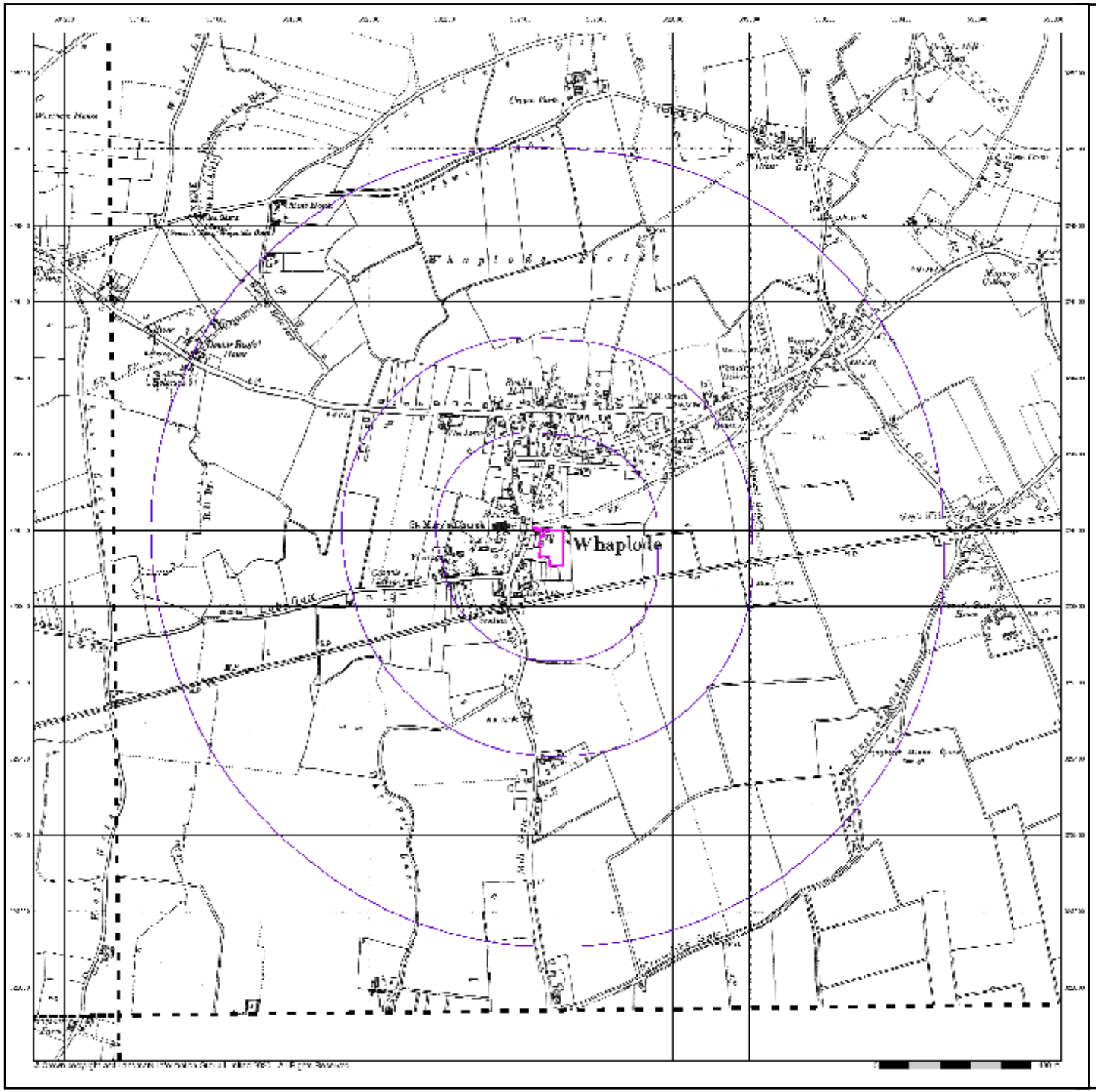
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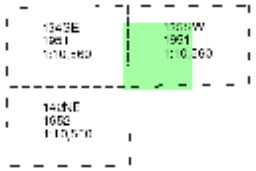
Lincolnshire

Published 1951 - 1952

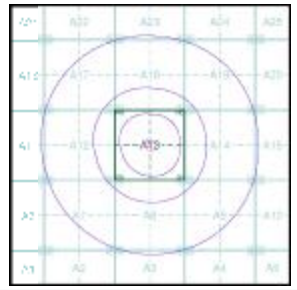
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Map Name(s) and Date(s)



Historical Map - Slice A



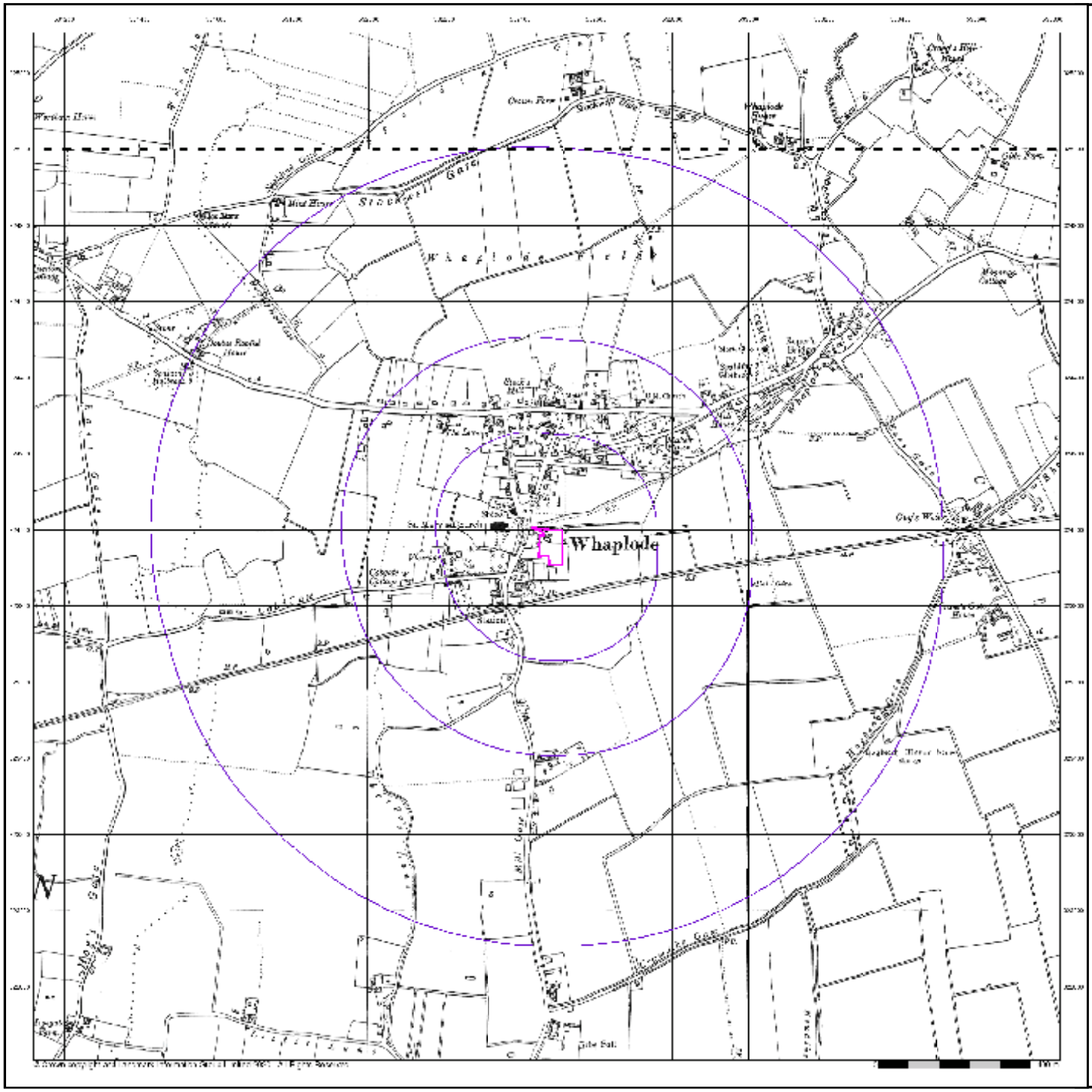
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Ordnance Survey Plan

Published 1956 - 1958

Source map scale - 1:10,000

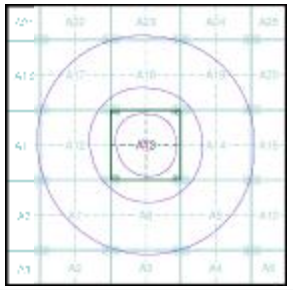
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

TF32NW
1958
1:10,560

TF32SW
1958
1:10,560

Historical Map - Slice A



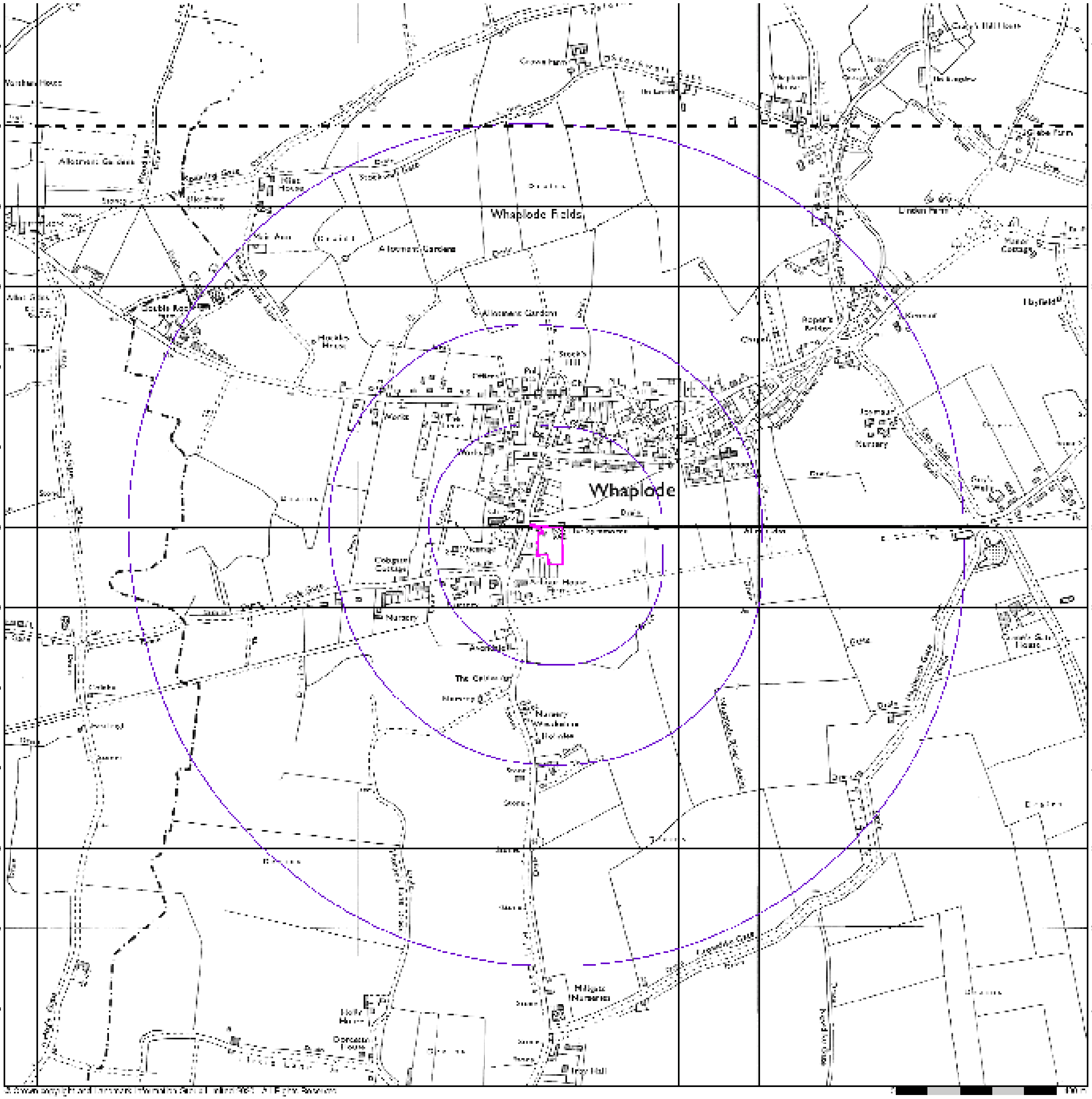
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Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Ordnance Survey Plan

Published 1971 - 1977

Source map scale - 1:10,000

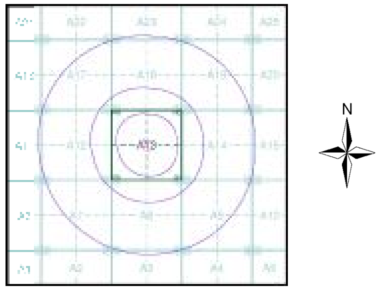
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Map Name(s) and Date(s)

TF32NW
1977
1:10,000

TF32SW
1971
1:10,000

Historical Map - Slice A



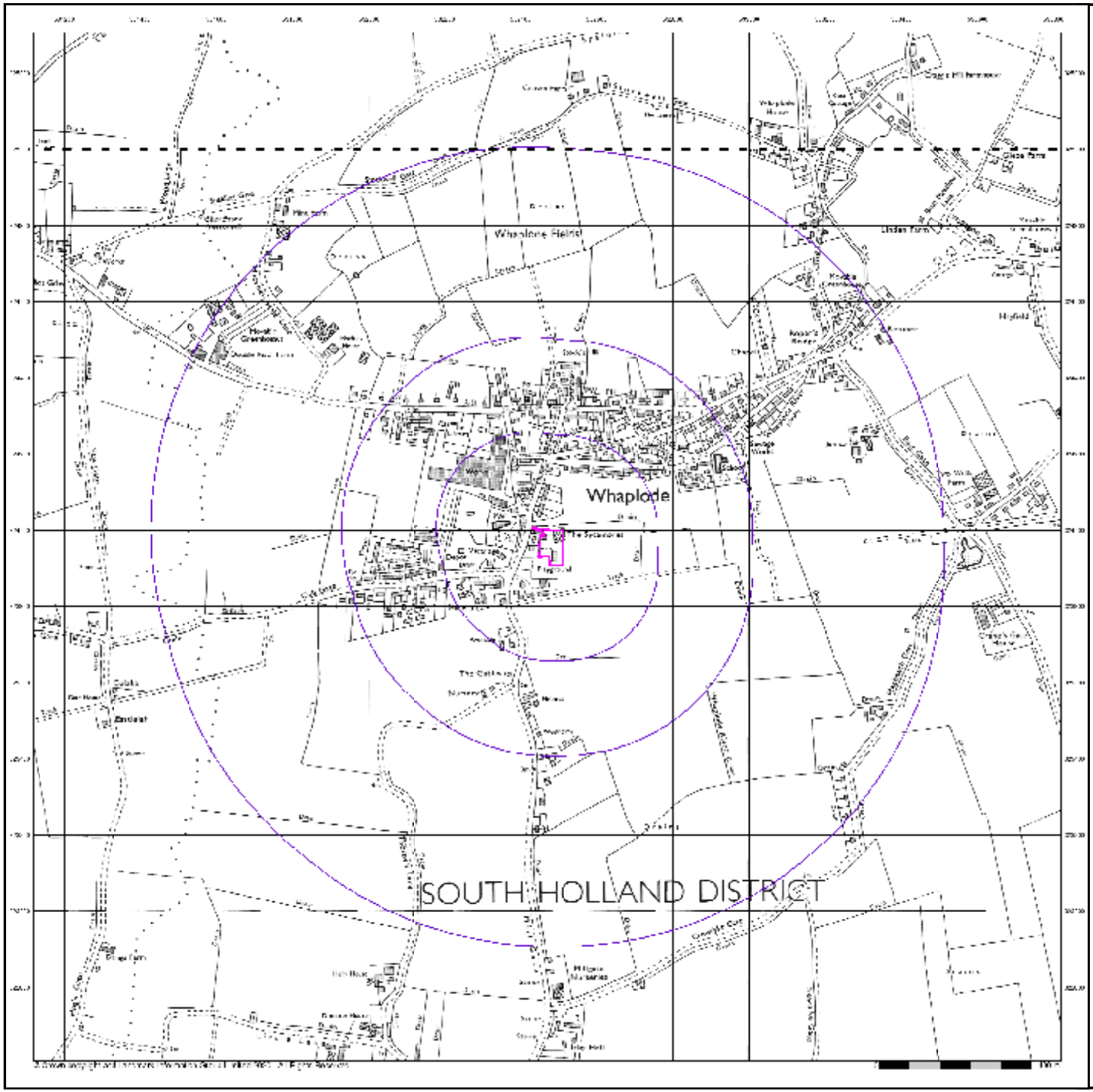
Order Details

Order Number: 230266779_1_1
Customer Ref: MG12120
National Grid Reference: 532470, 323960
Slice: A
Site Area (Ha): 0.51
Search Buffer (m): 1000

Site Details

, Tudor Lodge, Church Gate, Whaplode, Spalding, PE12 6TA

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



Ordnance Survey Plan

Published 1992

Source map scale - 1:10,000

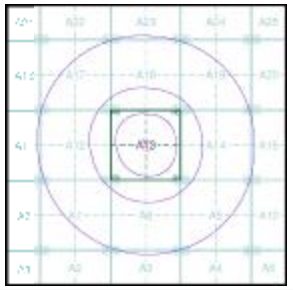
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some 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)

TF32NW
1 : 10 000

TF32SW
1 : 10 000

Historical Map - Slice A



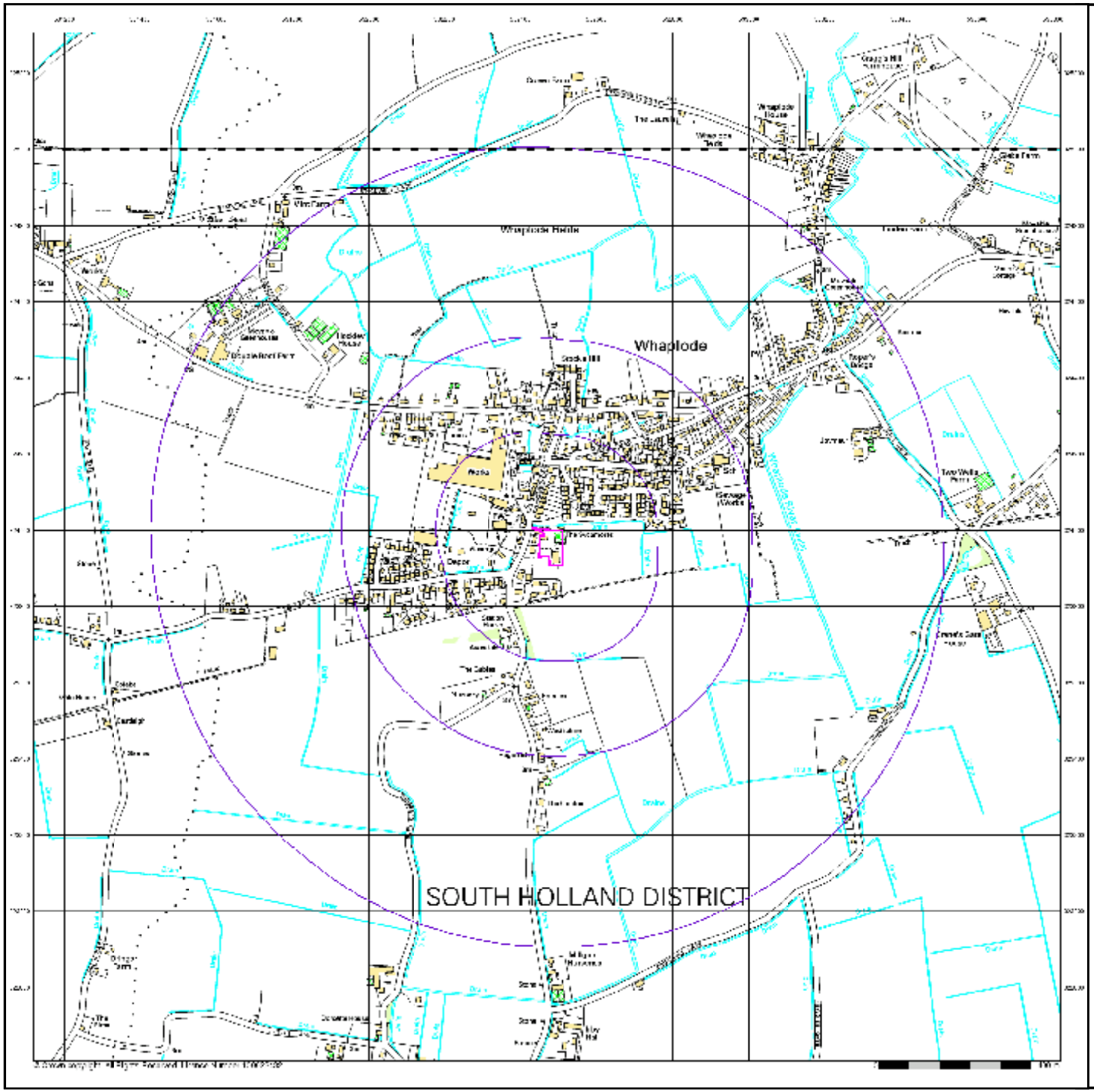
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National Grid Reference:	532470, 323960
Slice:	A
Site Area (Ha):	0.51
Search Buffer (m):	1000

Site Details

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10k Raster Mapping

Published 2000

Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from 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)

TF32NW
1:10,000

TF32SW
1:10,000

Historical Map - Slice A



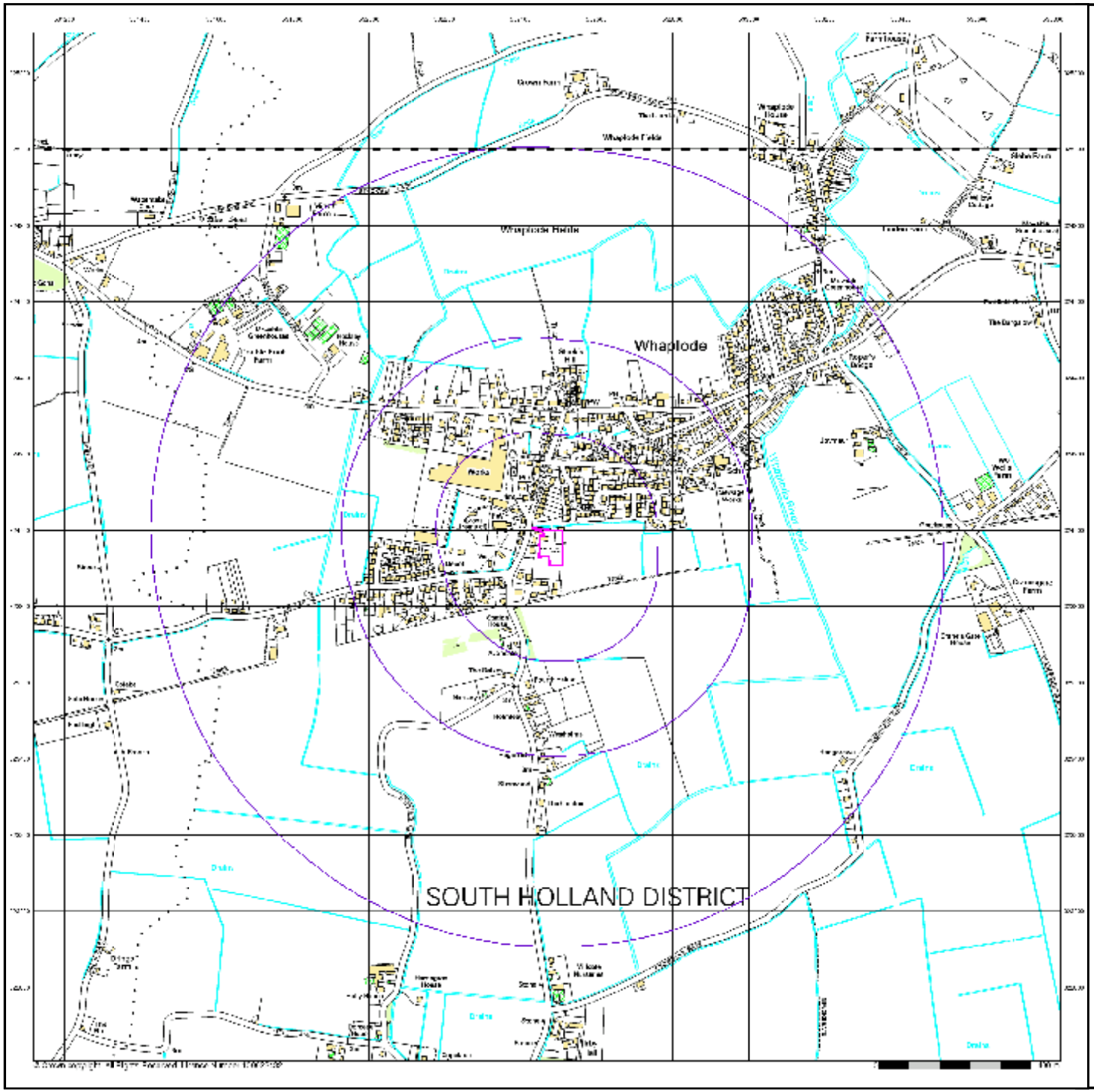
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Order Number:	230266779_1_1
Customer Ref:	MG12120
National Grid Reference:	532470, 323960
Slice:	A
Site Area (Ha):	0.51
Search Buffer (m):	1000

Site Details

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10k Raster Mapping

Published 2006

Source map scale - 1:10,000

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

Map Name(s) and Date(s)

TF32NW
1:10,000

TF32SW
1:10,000

Historical Map - Slice A



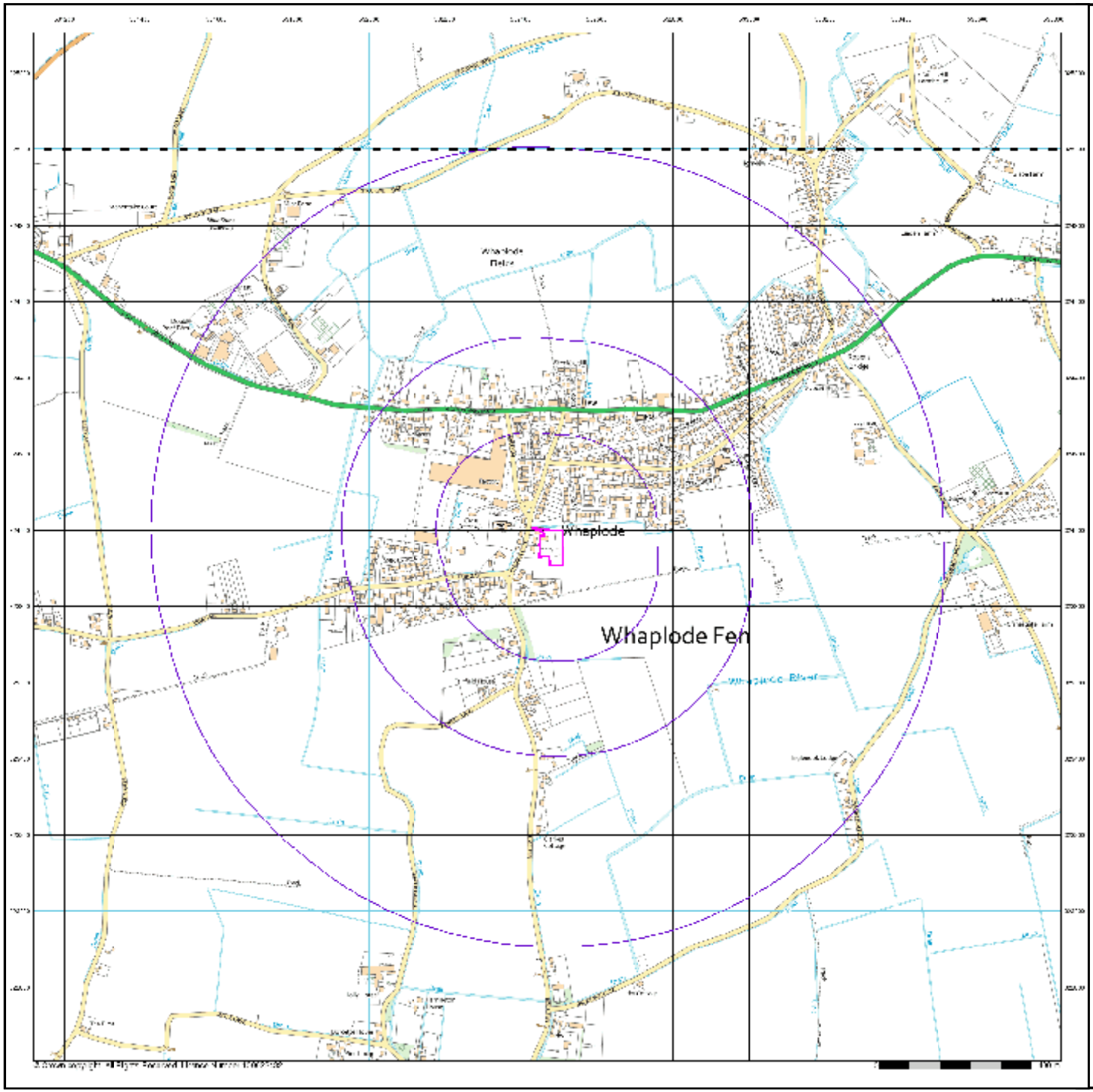
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VectorMap Local

Published 2019

Source map scale - 1:10,000

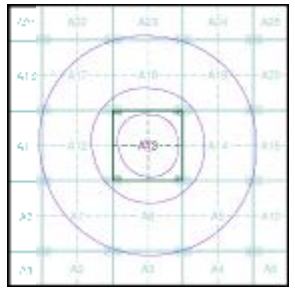
VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap 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)

TF32NW
2019
Variable

TF33SW
2019
Variable

Historical Map - Slice A



Order Details

Order Number:	230266779_1_1
Customer Ref:	MG12120
National Grid Reference:	532470, 323960
Slice:	A
Site Area (Ha):	0.51
Search Buffer (m):	1000

Site Details

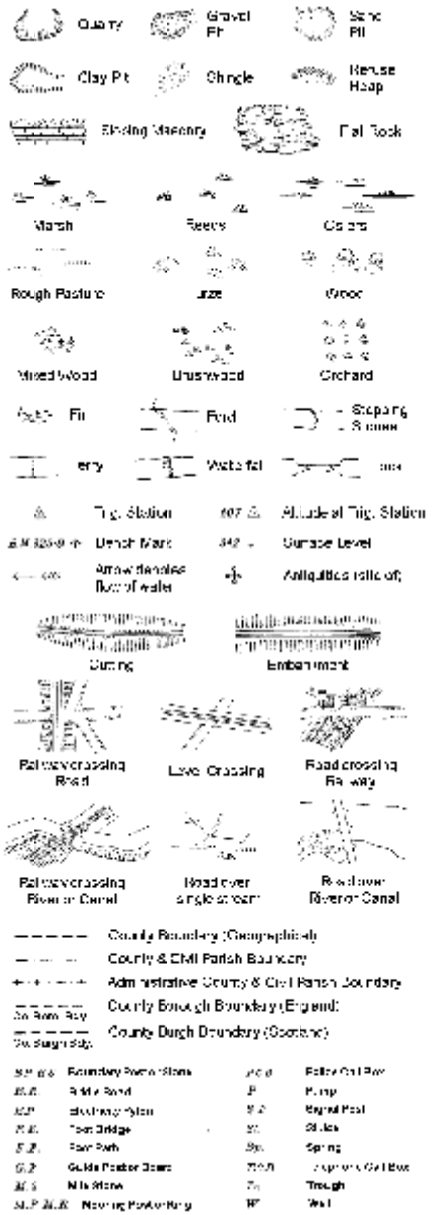
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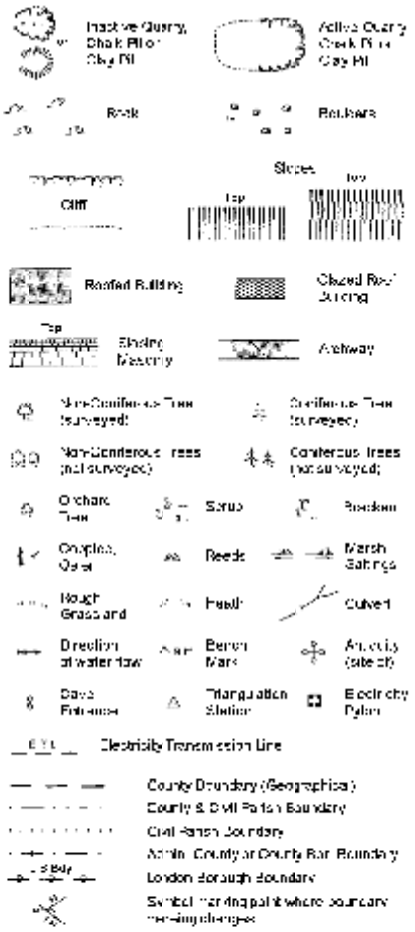
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Web: www.envirocheck.co.uk

Historical Mapping Legends

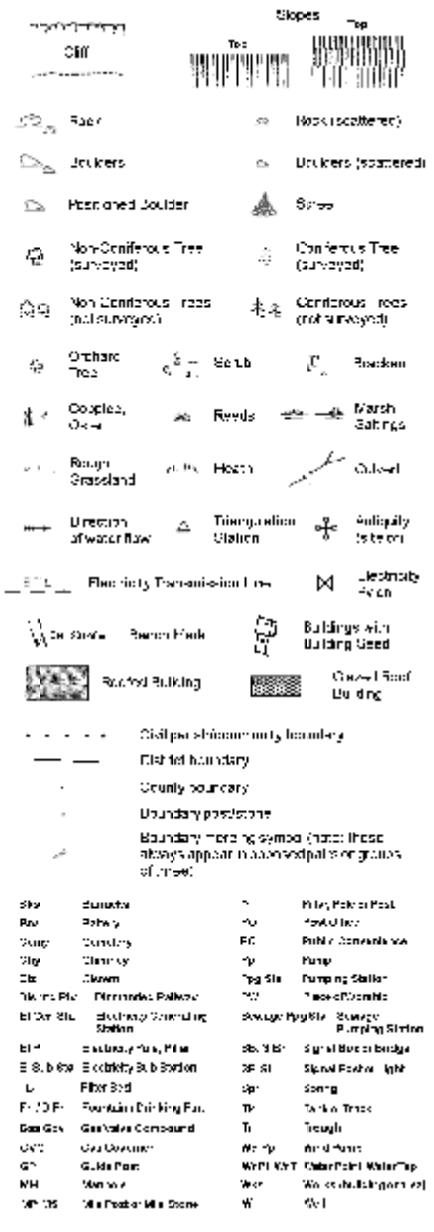
Ordnance Survey County Series and Ordnance Survey Plan 1:2,500



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



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

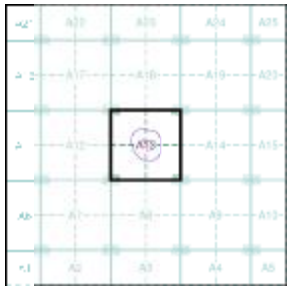




Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lincolnshire	1:2,500	1888	2
Lincolnshire	1:2,500	1904	3
Lincolnshire	1:2,500	1931	4
Ordnance Survey Plan	1:2,500	1970	5
Additional SIMs	1:2,500	1977	6
Additional SIMs	1:2,500	1981 - 1991	7
Additional SIMs	1:2,500	1991	8
Additional SIMs	1:2,500	1993	9
Large-Scale National Grid Data	1:2,500	1995	10
Large-Scale National Grid Data	1:2,500	1996	11
Historical Aerial Photography	1:2,500	1999	12

Historical Map - Segment A13



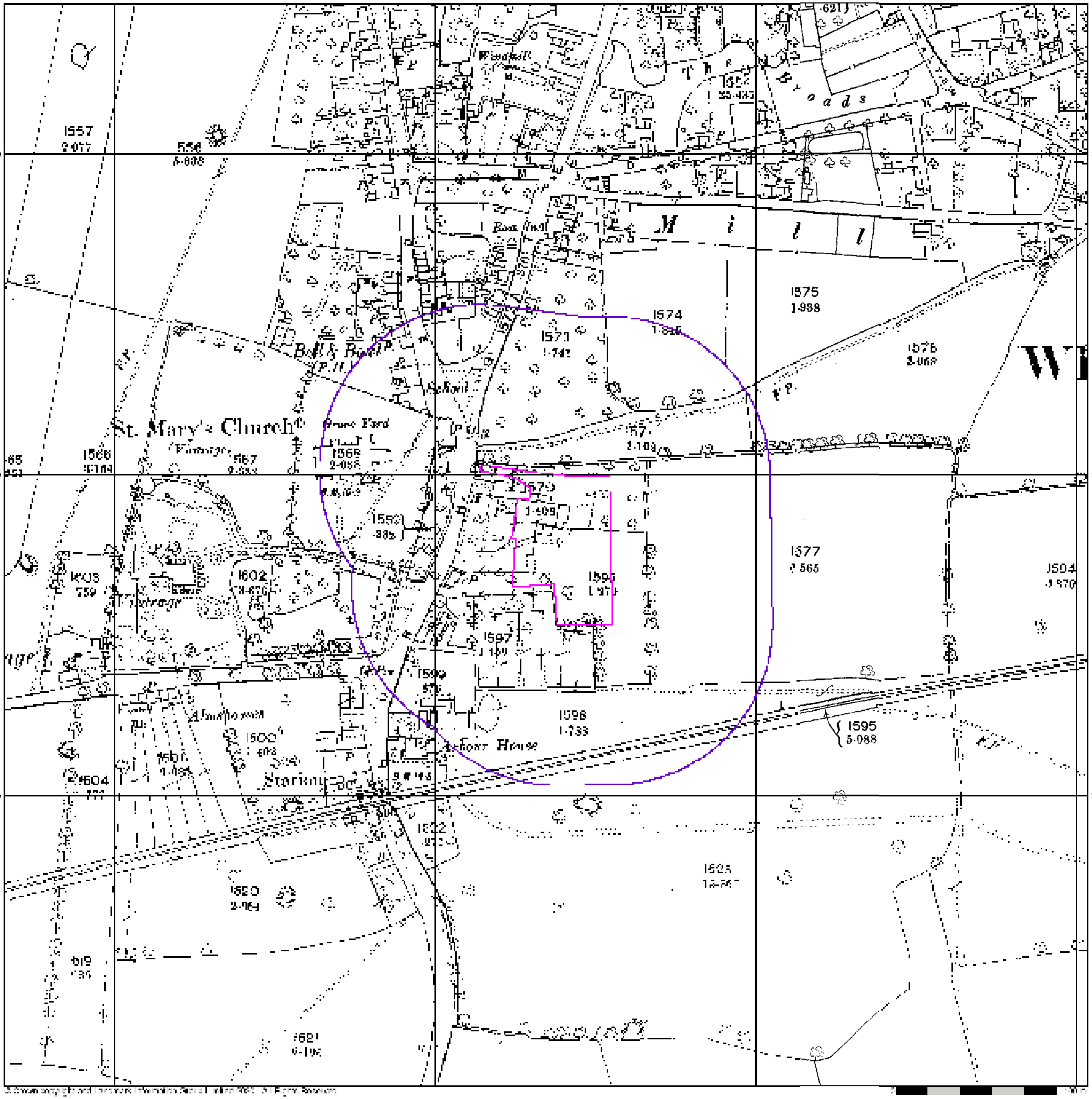
Order Details

Order Number: 230266779_1_1
Customer Ref: MG12120
National Grid Reference: 532470, 323960
Slice: A
Site Area (Ha): 0.51
Search Buffer (m): 100

Site Details

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Lincolnshire

Published 1888

Source map scale - 1:2,500

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

Map Name(s) and Date(s)

Historical Map - Segment A13

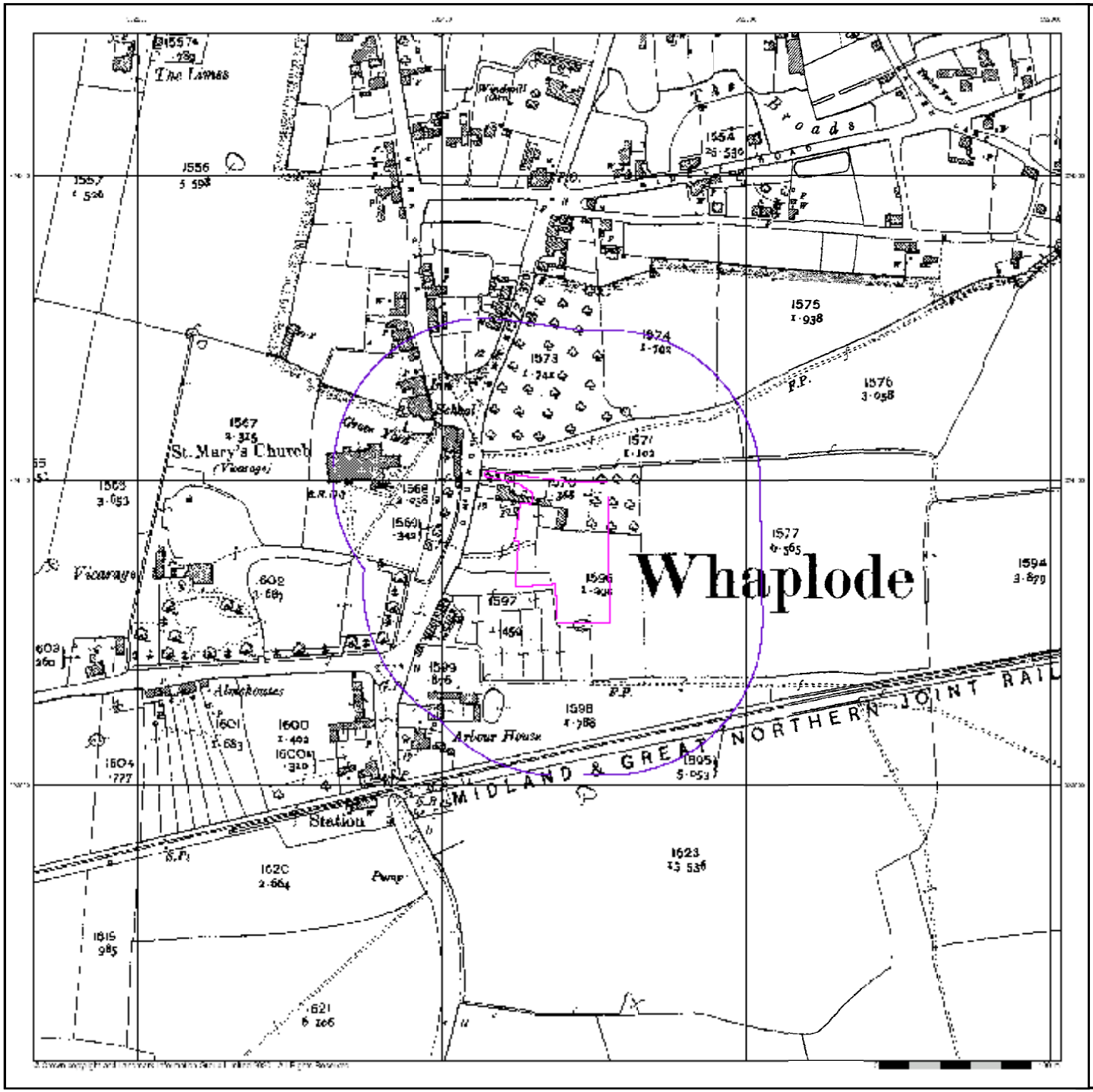
Order Details

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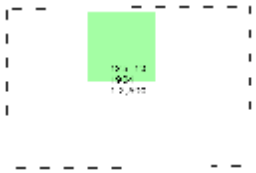
Lincolnshire

Published 1904

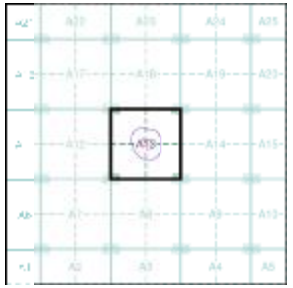
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



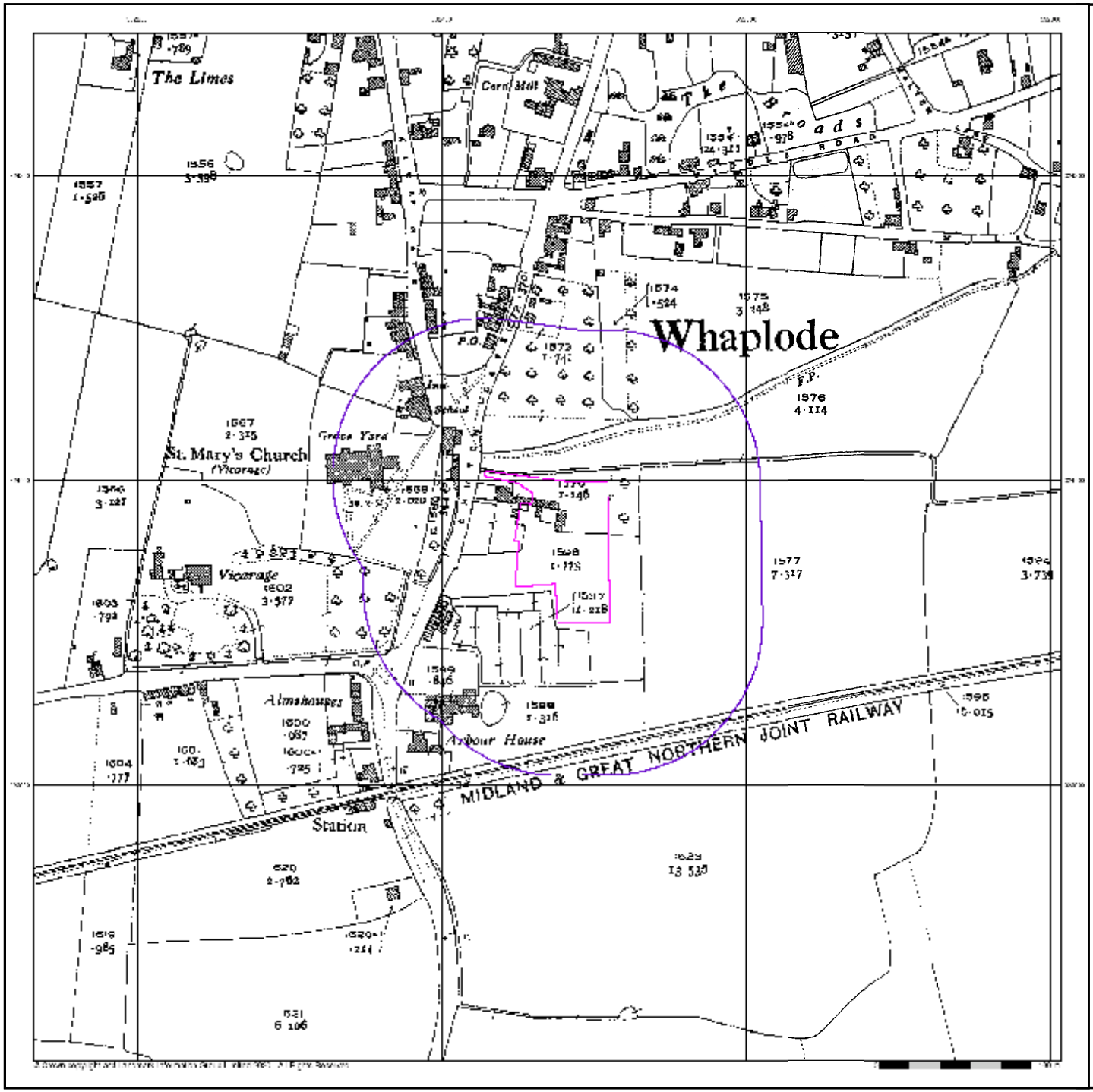
Order Details

Order Number:	230266779_1_1
Customer Ref:	MG12120
National Grid Reference:	532470, 323960
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Site Details

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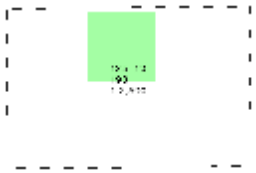
Lincolnshire

Published 1931

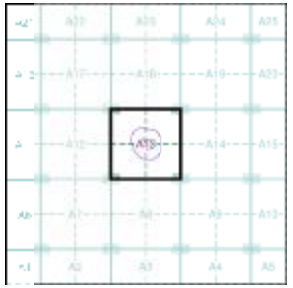
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



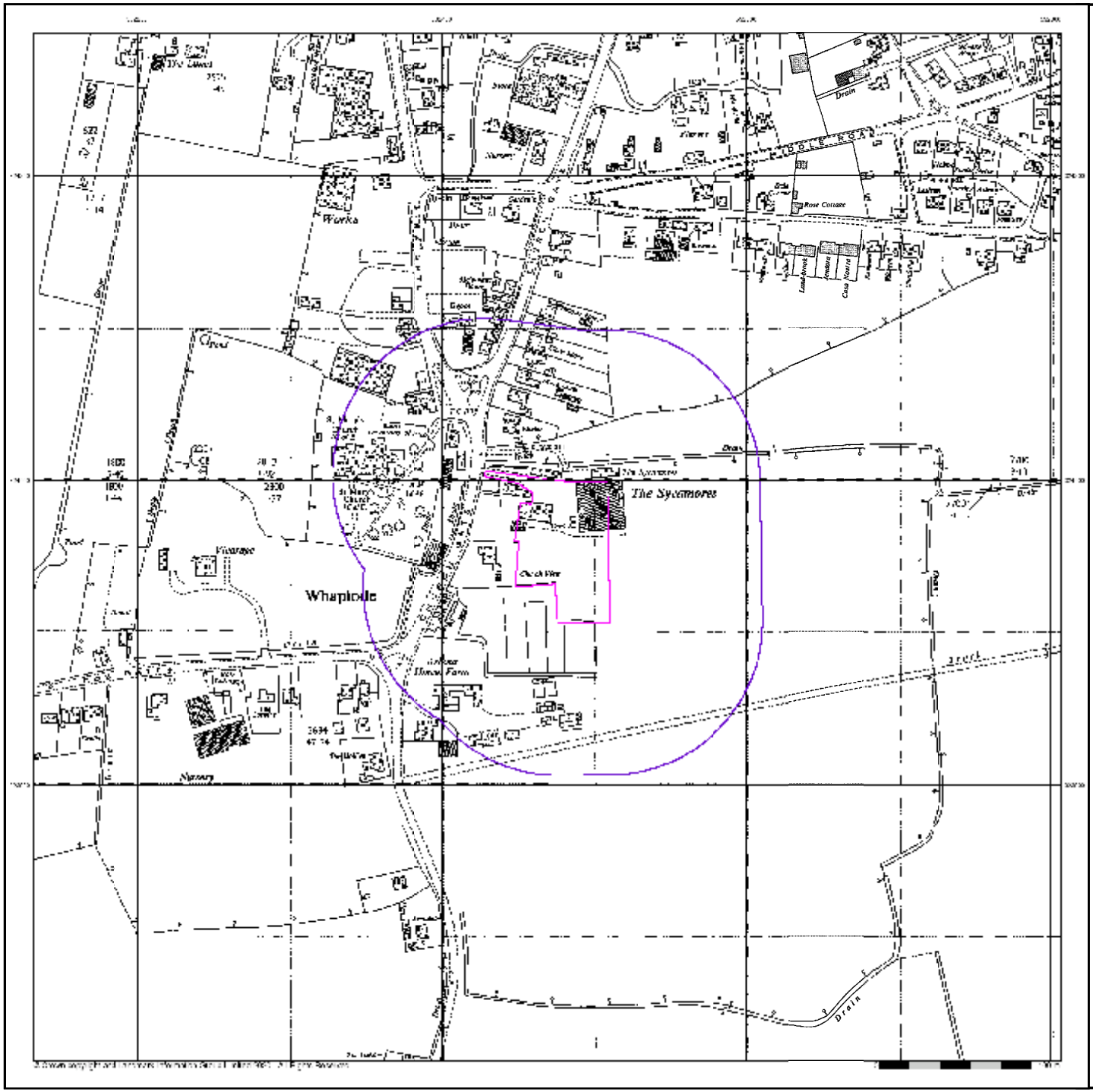
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Order Number:	230266779_1_1
Customer Ref:	MG12120
National Grid Reference:	532470, 323960
Slice:	A
Site Area (Ha):	0.51
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Site Details

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Ordnance Survey Plan

Published 1970

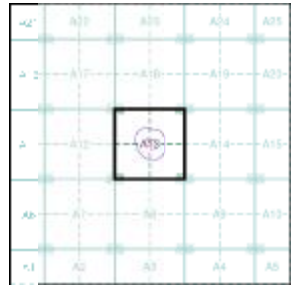
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered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

Map Name(s) and Date(s)



Historical Map - Segment A13



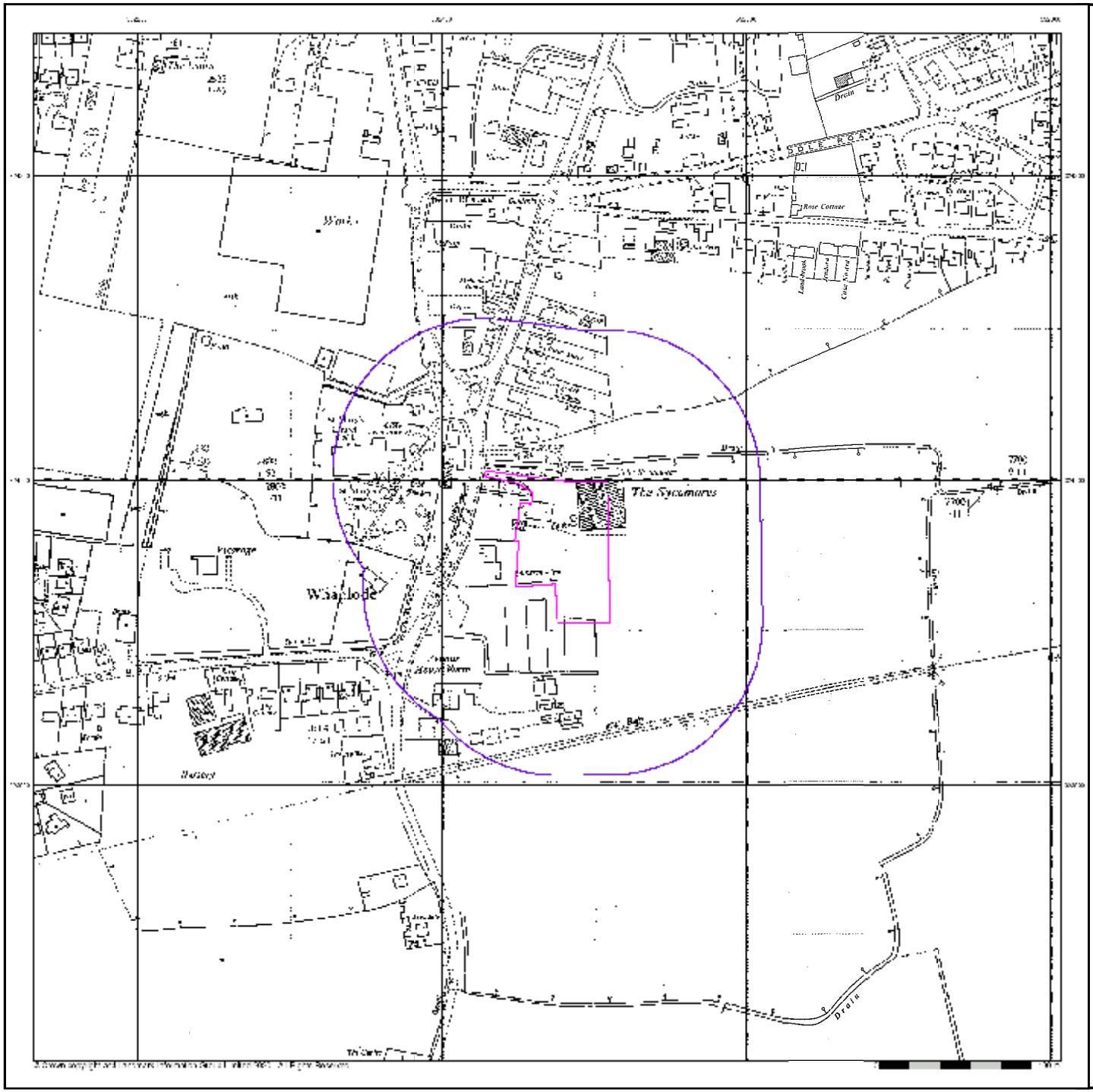
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Additional SIMs

Published 1977

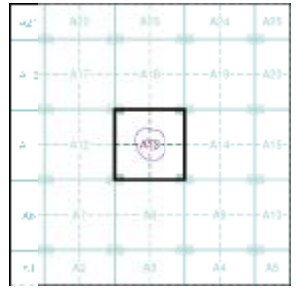
Source map scale - 1:2,500

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



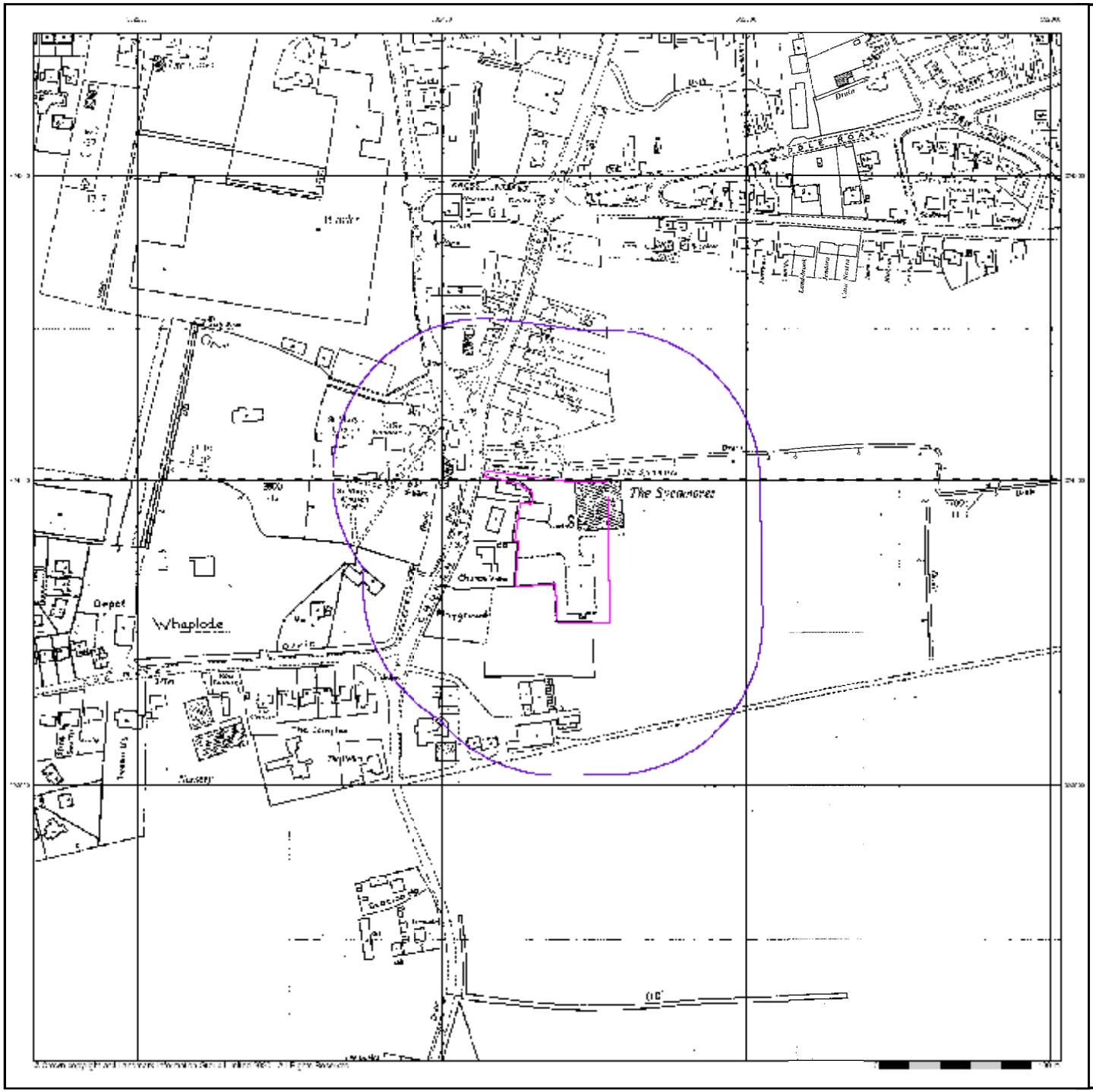
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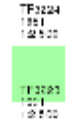
Additional SIMs

Published 1981 - 1991

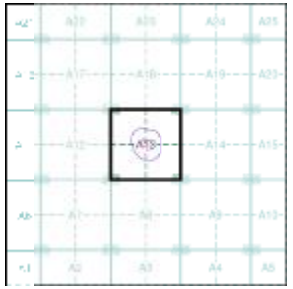
Source map scale - 1:2,500

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Map Name(s) and Date(s)



Historical Map - Segment A13



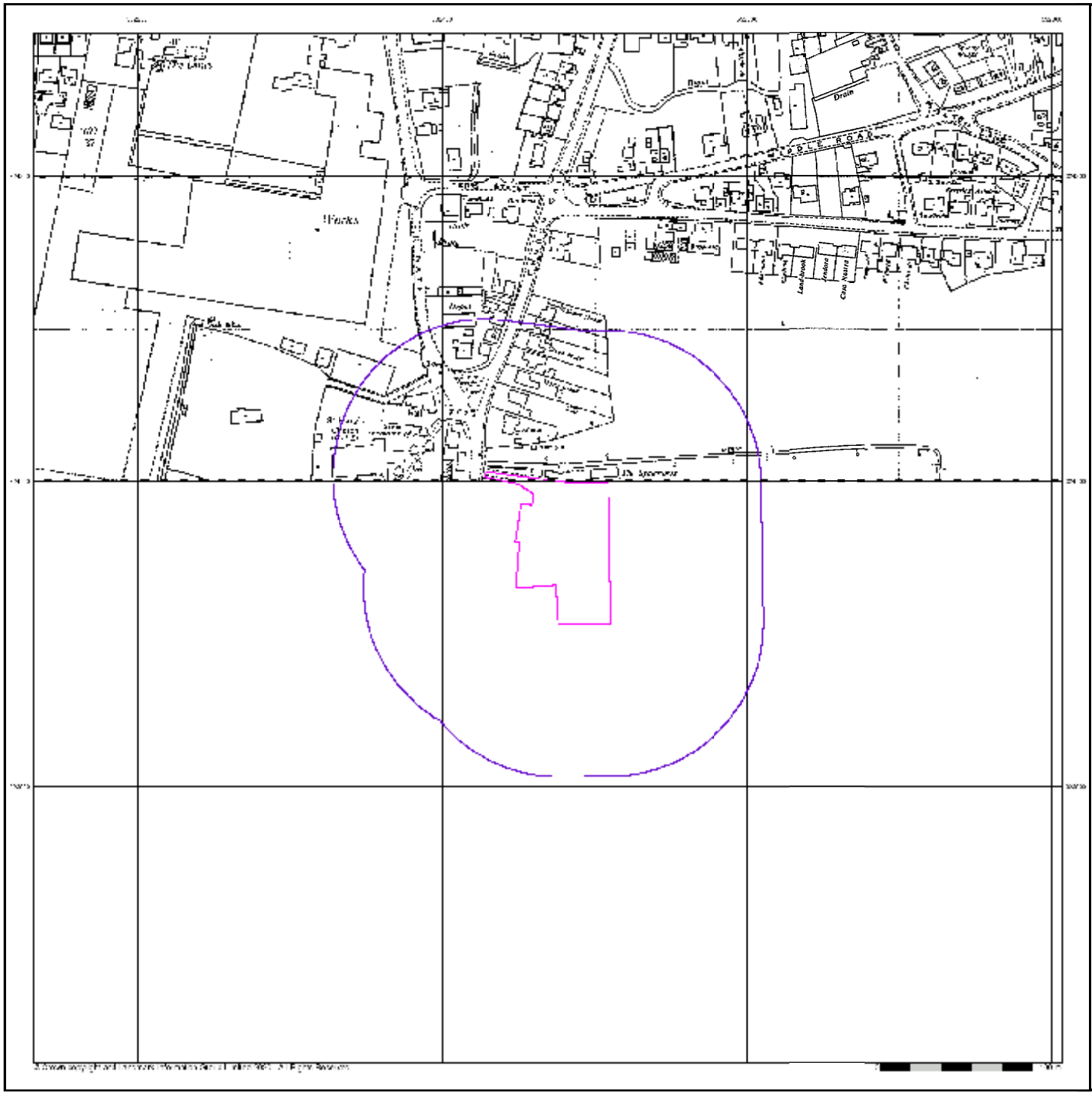
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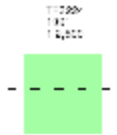
Additional SIMs

Published 1991

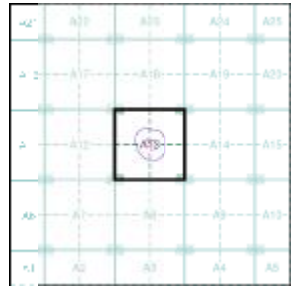
Source map scale - 1:2,500

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Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

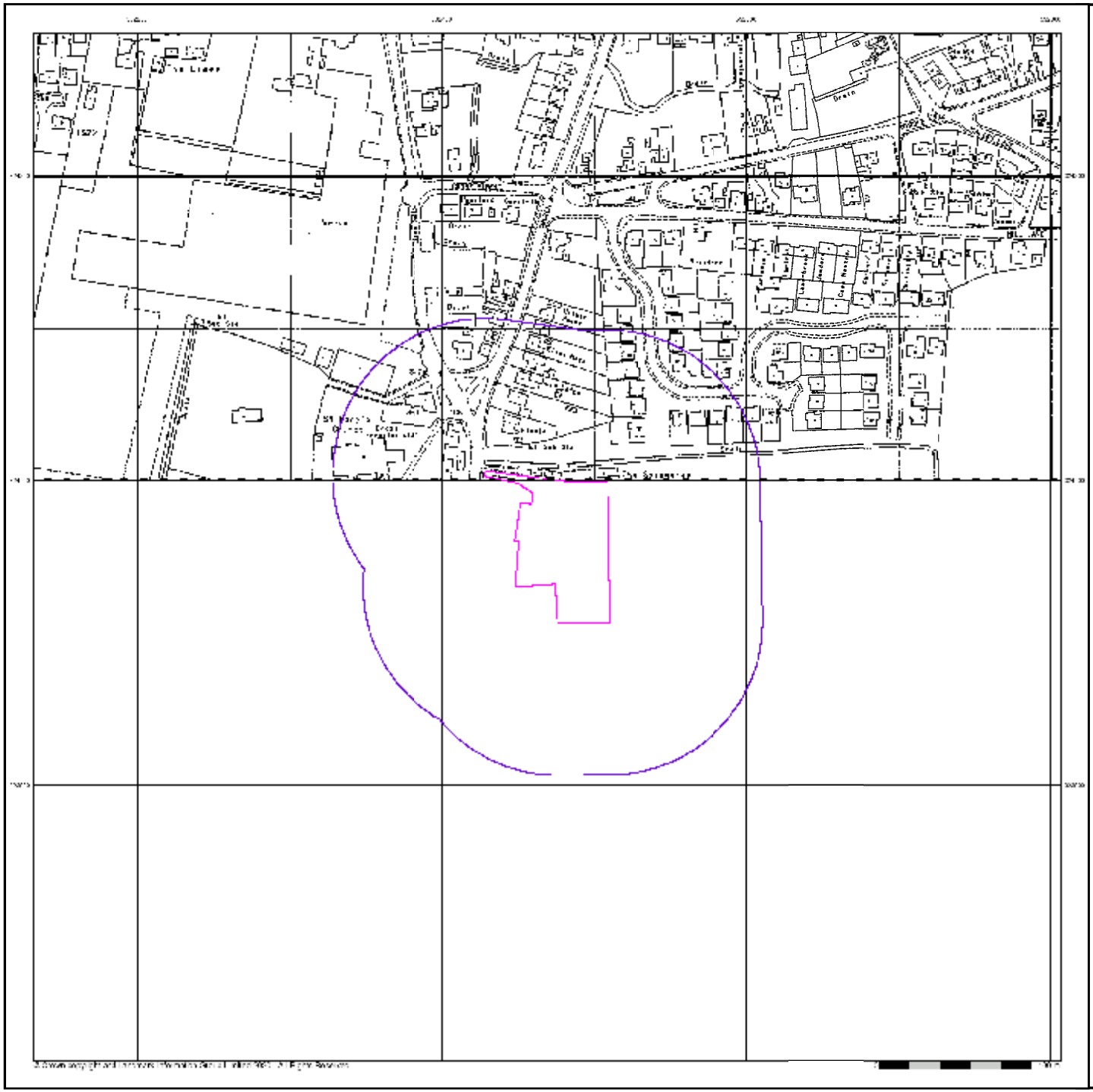
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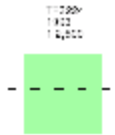
Additional SIMs

Published 1993

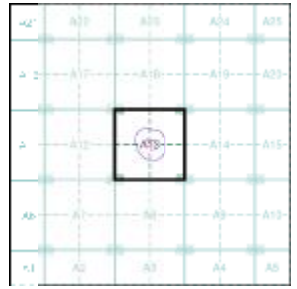
Source map scale - 1:2,500

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

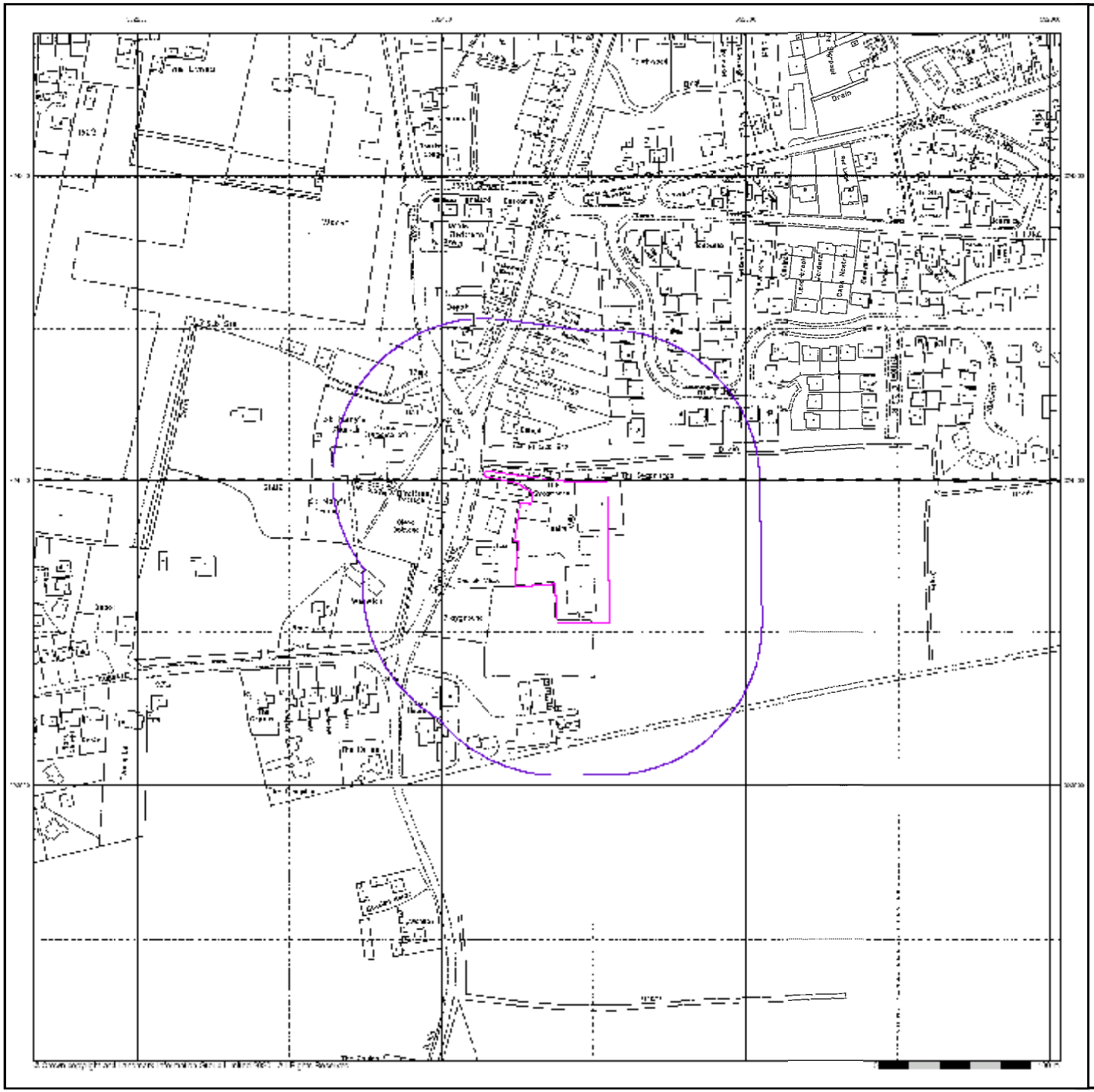
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Large-Scale National Grid Data

Published 1995

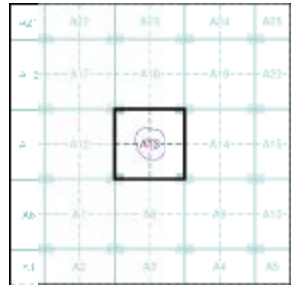
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

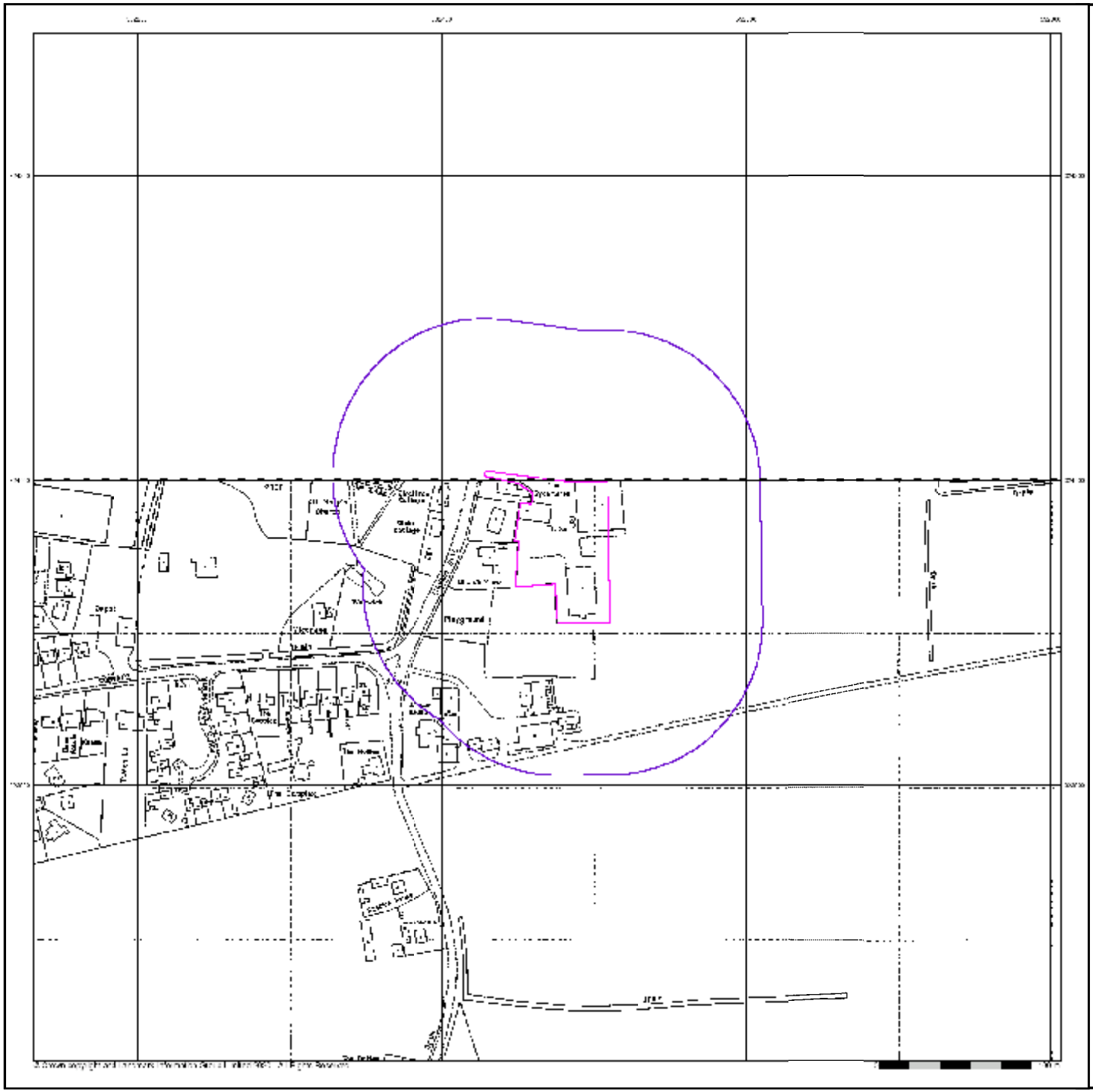
Order Number:	230266779_1_1
Customer Ref:	MG12120
National Grid Reference:	532470, 323960
Slice:	A
Site Area (Ha):	0.51
Search Buffer (m):	100

Site Details

, Tudor Lodge, Church Gate, Whaplode, Spalding, PE12 6TA

Landmark INFORMATION GROUP

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



Large-Scale National Grid Data

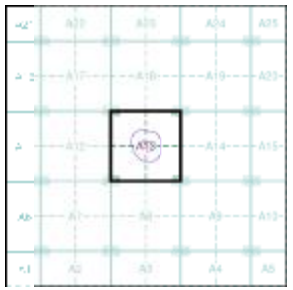
Published 1996

Source map scale - 1:2,500

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Map Name(s) and Date(s)

Historical Map - Segment A13



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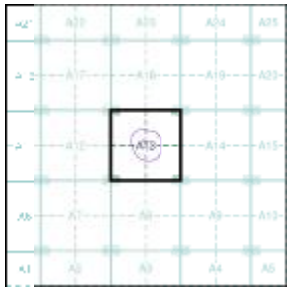


Historical Aerial Photography

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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Order Number:	230266779_1_1
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National Grid Reference:	532470, 323960
Slice:	A
Site Area (Ha):	0.51
Search Buffer (m):	100

Site Details

, Tudor Lodge, Church Gate, Whaplode, Spalding, PE12 6TA

2531

ANALYTICAL TEST REPORT

Contract no:	**70169**
Contract name:	**Whoplode**
Client reference:	**1059/4464**
Clients name:	**Humberside Materials Laboratory**
Clients address:	**Atherton Way** **Brigg** **North Lincolnshire** **DN20 8AR**
Samples received:	**19 February 2018**
Analysis started:	**19 February 2018**
Analysis completed	**23 February 2018**
Report issued:	**23 February 2018**

Notes:

Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key:

U UKAS accredited test
M MCERTS & UKAS accredited test
$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by:

James Spittle
Customer Services Team Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.
Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
70169-1	S/47831 TP1	0.50	Loam with Roots	-	-	20.4
70169-2	S/47832 TP2	0.50	Sand	-	-	15.7
70169-3	S/47833 TP3	0.60	Clayey Loam with Gravel	-	-	18.9
70169-4	S/47834 TP4	0.50	Sand with Roots	-	-	20.1

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SOILS

Lab number			70169-1	70169-2	70169-3	70169-4
Sample id			S/47831 TP1	S/47832 TP2	S/47833 TP3	S/47834 TP4
Depth (m)			0.50	0.50	0.60	0.50
Date sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018
Test	Method	Units				
Arsenic (total)	CE127 M	mg/kg As	9.0	8.9	22	9.0
Beryllium (total)	CE127 U	mg/kg Be	<1	<1	<1	<1
Boron (water soluble)	CE063 M	mg/kg B	1.5	1.6	1.2	1.4
Cadmium (total)	CE127 M	mg/kg Cd	0.2	<0.2	<0.2	<0.2
Chromium (total)	CE127 M	mg/kg Cr	54	69	50	44
Copper (total)	CE127 M	mg/kg Cu	19	14	17	12
Lead (total)	CE127 M	mg/kg Pb	36	45	64	31
Mercury (total)	CE127 M	mg/kg Hg	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 M	mg/kg Ni	14	14	18	12
Selenium (total)	CE127 M	mg/kg Se	0.7	0.6	0.7	0.6
Vanadium (total)	CE127 M	mg/kg V	29	30	32	27
PAH						
Naphthalene	CE087 M	mg/kg	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	CE087 M	mg/kg	<0.01	<0.01	<0.01	<0.01
Acenaphthene	CE087 M	mg/kg	<0.01	<0.01	<0.01	<0.01
Fluorene	CE087 U	mg/kg	<0.01	<0.01	<0.01	<0.01
Phenanthrene	CE087 M	mg/kg	0.17	0.12	0.14	0.10
Anthracene	CE087 U	mg/kg	0.06	<0.02	0.05	<0.02
Fluoranthene	CE087 M	mg/kg	0.30	0.17	0.50	0.20
Pyrene	CE087 M	mg/kg	0.29	0.17	0.48	0.19
Benzo(a)anthracene	CE087 U	mg/kg	0.18	0.09	0.39	0.12
Chrysene	CE087 M	mg/kg	0.14	0.07	0.23	0.08
Benzo(b)fluoranthene	CE087 M	mg/kg	0.15	0.11	0.32	0.13
Benzo(k)fluoranthene	CE087 M	mg/kg	0.08	0.03	0.16	0.05
Benzo(a)pyrene	CE087 U	mg/kg	0.12	0.05	0.31	0.10
Indeno(123cd)pyrene	CE087 M	mg/kg	0.07	<0.02	0.16	0.04
Dibenz(ah)anthracene	CE087 M	mg/kg	<0.02	<0.02	<0.02	<0.02
Benzo(ghi)perylene	CE087 M	mg/kg	0.09	<0.02	0.20	0.07
PAH (total of USEPA 16)	CE087	mg/kg	1.66	0.81	2.93	1.08
TPH						
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	-	-	<0.01	-
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	-	-	<0.01	-
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	-	-	<0.01	-
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	-	-	<1	-
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	-	-	<1	-
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	-	-	1	-
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	-	-	2	-
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	-	-	<1	-
VPH Aliphatic (>C5-C6)	CE067	mg/kg	-	-	<0.1	-
VPH Aliphatic (>C6-C8)	CE067	mg/kg	-	-	<0.1	-
VPH Aliphatic (>C8-C10)	CE067	mg/kg	-	-	<0.1	-

Chemtech Environmental Limited

SOILS

Lab number			70169-1	70169-2	70169-3	70169-4
Sample id			S/47831 TP1	S/47832 TP2	S/47833 TP3	S/47834 TP4
Depth (m)			0.50	0.50	0.60	0.50
Date sampled			15/02/2018	15/02/2018	15/02/2018	15/02/2018
Test	Method	Units				
EPH Aliphatic (>C10-C12)	CE068	mg/kg	-	-	<4	-
EPH Aliphatic (>C12-C16)	CE068	mg/kg	-	-	<4	-
EPH Aliphatic (>C16-C35)	CE068	mg/kg	-	-	<10	-
EPH Aliphatic (>C35-C44)	CE068	mg/kg	-	-	<10	-

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Beryllium (total)	Aqua regia digest, ICP-MS	Dry	U	1	mg/kg Be
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry	M	0.5	mg/kg B
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Vanadium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg V
CE087	Naphthalene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	Wet	U	0.01	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	Wet	M	0.01	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	Wet	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	Wet	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	Wet		0.27	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	Wet		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	Wet		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	Wet		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	Wet		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	Wet		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	Wet		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	Wet		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	Wet		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	Wet		10	mg/kg

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DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.
For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.
Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	**No (not deviating sample)**
Y	**Yes (deviating sample)**
NSD	**Sampling date not provided**
NST	**Sampling time not provided (waters only)**
EHT	**Sample exceeded holding time(s)**
IC	**Sample not received in appropriate containers**
HP	**Headspace present in sample container**
NCF	**Sample not chemically fixed (where appropriate)**
IT	**Sample not cooled**
OR	**Other (specify)**

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
70169-1	S/47831 TP1	0.50	N	
70169-2	S/47832 TP2	0.50	N	
70169-3	S/47833 TP3	0.60	N	
70169-4	S/47834 TP4	0.50	N	