The Sizewell C Project

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Sizewell C: Phase 2 Geo-Environmental Interpretative Report

Main Development Site

EDF Energy

August 2020

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Glossary of Abbreviations and Technical Terms

Abbreviation / Term	Description
ACM	Asbestos Containing Material
ADS	Associated Development Sites
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
BLF	Beach Landing Facility
BTEX	Benzene, toluene, ethylbenzene and xylene
CCF	Coralline Crag Formation
Cefas	Centre for Environment, Fisheries and Aquaculture Science
COMAH	Control of Major Accident Hazards
CoCP	Code of Construction Practice
CPT	Cone Penetration Test
CS	Characteristic Situation
CSM	Conceptual Site Model
C4SLs	Category 4 Screening Levels
DCO	Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
DoWCoP	Definition of Waste Code of Practice
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standards
EDF	EDF Energy
EIA	Environmental Impact Assessment
EPR	European Pressurised Water Reactor
EQS	Environmental Quality Standards
GAC	Generic Assessment Criteria
GPLC	Guiding Principles for Land Contamination
GQRA	Generic Quantitative Risk Assessment
GRO	Gasoline Range Organics
GSV	Gas Screening Value
ha	Hectares
IPPC	Integrated Pollution Prevention and Control
LEEIE	Land to the east of Eastlands Industrial Estate
MAGIC	Multi Agency Geographic Information for the Countryside
m bgl	Metres below ground level
m bsb	Metres below sea bed
MCA	Main Construction Area

Abbreviation / Term	Description
MCERTS	Environment Agency Certification Scheme
MDS	Main Development Site
MMP	Materials Management Plan
NCF	Norwich Crag Formation
NGR	National Grid Reference
NNB	Nuclear New Build
NPPF	National Planning Policy Framework
NPS	National Policy Statement
OCP	Organochlorine pesticide
OPP	Organophosphorus pesticide
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated biphenyl
PCLs	Potential Contaminant Linkages
PCSM	Preliminary Conceptual Site Model
PID	Photo-ionisation detector
PPE	Personal Protective Equipment
RCF	Red Crag Formation
RIGS	Regionally Important Geological Sites
SAC	Special Area of Conservation
SPA	Special Protected Area
SPT	Standard Penetration Test
SPZ	Source Protection Zone
SSAC	Site Specific Assessment Criteria
SSSI	Site of Special Scientific Interest
SSVs	Soil Screening Values
SVOC	Semi Volatile Organic Compounds
SZC	Sizewell C Development
TCA	Temporary Construction Area
TPH	Total petroleum hydrocarbons
UKAS	UK Accreditation Services
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WAC	Waste Acceptance Criteria
WELs	Workplace Exposure Limits
WQS	Water Quality Standards

1. Introduction

1.1. General

Atkins was commissioned by EDF Energy (EDF) to prepare a Phase 2 Geo-Environmental Report for the proposed new nuclear power station at Sizewell in East Suffolk (referred to as Sizewell C). It is intended to submit a Development Consent Order (DCO) application to the Secretary of State, which will be supported by various documents including an Environmental Impact Assessment (EIA). The development proposals are for two main elements:

- **The Main Development Site (MDS)**: including reactor buildings, turbine halls, cooling and drainage water infrastructure, interim waste / fuel storage, operational service centre and offices and electricity transmission equipment; and
- **Associated Development sites (ADS):** including two Park and Ride sites and improvements to rail / highways infrastructure.

There are various existing facilities associated with Sizewell B that need to be relocated in order to accommodate the development of Sizewell C. Several off-site developments are also proposed as part of the MDS including the enhancement of off-site sports facilities in Leiston, fen meadow compensation habitats at Benhall and Halesworth and, if required, a marsh harrier habitat improvement area west of Westleton.

This report is concerned with the proposed developments to be undertaken on-site within the MDS which include the Temporary Construction Area (TCA) as well as the new nuclear power station and offshore infrastructure (referred to herein as the site). The location of the proposed development including site sub-areas (zones) and redline boundary, and a proposed site layout are provided on Drawing Nos. 5166065-ATK-XX-XX-DR-G-0001 and SZC-SZ0100-XX-000-DRW-100004 included in Appendix A.

1.2. Proposed Development and Boundary

The proposed development comprises a Nuclear New Build (NNB) Power Station. This will include two nuclear islands, a power station building, two reactor buildings, turbine halls, marine delivery infrastructure (cooling water intake and outfall tunnels, a Beach Landing Facility (BLF), a fish recovery and return system and drainage infrastructure), interim waste / fuel storage, operational service centre and offices, electricity transmission equipment and the temporary works area.

The site encompasses a total of 729 hectares (ha) of land comprising 362 ha of land onshore and 367 ha of offshore land.

1.2.1. Onshore Area

The onshore area includes three zones of temporary and permanent land take as follows:

1.2.1.1 Main Construction Area (MCA)

The MCA is located in the east of the site and comprises the main power station platform which will house the European Pressurised Water Reactor (EPR) units and permanent operational plant and buildings. Works will also be undertaken along the foreshore to the east of the main power station development platform and a new substation will be constructed to the south-west, within the existing Sizewell B power station complex. Several structures associated with Sizewell B (including the visitors centre, laydown and storage areas, a car park and access road, offices, workshops and training centres) will be relocated to allow for the new power station to be constructed (Sizewell B Relocated Facilities).

A reinforced concrete cut-off wall will be constructed within the MCA to allow excavation of material for the main platform. The cut-off wall would be installed to a depth of approximately 50m below ground level (bgl). Continuous flight augered piles would be installed to a depth of approximately 12m bgl to support the cut-off wall excavation. A dewatering pumping system would be installed within

the Crag Group to lower groundwater levels within the cut-off wall. The material within the cut-off wall will be excavated down to competent sands of the Crag Group and backfilled with sands of the Crag Group obtained from the borrow pits within the TCA.

A flood prevention mound (northern mound) and sea defence approximately 10m high are located to the north and east of the MCA. These will be demolished, moved eastwards and raised to a height of between 10.2m and 14.2m above ordnance datum (AOD) as part of the construction works.
The southern boundary of this zone is south-west of the Sizewell B power station bounded by Sizewell Gap. The Sizewell Marshes Site of Special Scientific Interest (SSSI) bound the west and north of the zone and the North Sea is present to the east. The MCA is generally low lying and flat with elevations ranging from 0.2m AOD to 2.5m AOD.

1.2.1.2 Temporary Construction Area (TCA)

The TCA is primarily located to the north-west of the MCA. The land is required on a temporary basis to facilitate the construction of the power station and will include contractor compound areas, borrow pits, spoil management zones, an accommodation campus and caravan site, extensions to rail infrastructure, a site entrance hub and areas for material storage.

As part of the construction works, sands and gravels of the Crag Group will be excavated from the borrow pits to a depth of approximately 10m bgl and stockpiled before being used as backfill on the main platform to raise levels to 7.3m AOD. Alluvium, Peat and clay materials unsuitable for re-use within the development would be removed and deposited in the borrow pits within the TCA.

This zone is bounded by the Sizewell Marshes SSSI to the south, the Minsmere Levels to the north, the B1122 to the west and the Suffolk coast to the east.

1.2.1.3 Land to the east of Eastlands Industrial Estate (LEEIE)

A smaller section of the TCA is located to the north-east of Leiston approximately 1.7km south-west of the MCA. The is bounded by Valley Road to the west, Lovers Lane to the east and Eastlands Industrial Estate to the south. This zone will be used for temporary storage during construction works.

1.2.2. Offshore Area

The offshore area includes four zones as summarised below:

1.2.1.4 Beach Landing Facility (BLF)

A BLF will be constructed to the north-east of the main power station platform, to allow large deliveries into Sizewell C by barge. Twelve piles would be installed on the foreshore to a depth of approximately 23m below sea bed (m bsb) to allow a removable roadway to extend from the sea defence bund to a dolphin structure in the shallow water.

1.2.1.5 Cooling Water System

Four water intakes and two outfalls are to be constructed on the sea bed around 3km offshore and connected into the power station cooling water pumping station by two intake tunnels and a single outfall tunnel.

The cooling water tunnels would be bored from onshore at a depth of approximately 30m under the seabed within the Crag Group as they extend offshore by a tunnel boring machine seaward from the main power station platform. The tunnels would be lined with pre-cast concrete sections as they are bored. The excavation material will be transported back to the tunnel entrance and excavated materials transported to stockpiles for re-use on site. Lined vertical shafts would also be installed to connect the intake and outfall structures. The associated shafts will also be founded within the Crag Group.

1.2.1.6 Fish Recovery and Return System

Plant for managing screen debris is positioned next to each cooling water pumphouse. Recovered fish would be returned to the sea under gravity via a dedicated fish recovery and return tunnel. The

fish recovery and return tunnel would be approximately 500m in length and the tunnel would extend under the shore and seabed to an outfall headworks.

1.2.1.7 Combined Drainage Outfall

A combined drainage outfall will be used to discharge treated water from the dewatering system and early commissioning discharges in advance of the cooling water systems becoming available, with an outfall position approximately 400m offshore.

1.2.1.8 Dredging

Dredging would be undertaken for the offshore facilities to create a navigational channel and grounding area for the movement of vessels to and from the BLF and to support provision of the headworks for the cooling water intake and outfall tunnels, the fish recovery and return system and the combined drainage outfall heads. Dredged sediment would likely be disposed of at sea.

1.3. Purpose and Structure of Report

The purpose of this report is to collate and assess, where possible, the findings of the previous environmental desk studies and ground investigations relevant to the proposed development, to identify key gaps in data and requirements for further investigation should there be any.

An outline of the report content is provided below:

- Section 2 provides a description of the site and its location.
- Section 3 provides a summary of the existing data including publicly available data sources and previous geo-environmental reports which have been used to prepare this report.
- Section 4 sets out the desk study information obtained to establish the environmental setting of the site.
- Section 5 provides a summary of the Preliminary Conceptual Site Model (PSCM) which has been developed for the site based on the desk study information.
- Section 6 summarises the intrusive ground investigations which have been carried out at the site to date.
- Section 7 provides a description of the ground conditions encountered at the site from existing ground investigations.
- Section 8 provides a generic quantitative risk assessment (GQRA) of the data obtained in the ground investigations to assess potential risks to controlled waters and human health receptors.
- Section 9 provides a revised Conceptual Site Model (CSM) which has been updated based on the findings of the ground investigations and GQRA.
- Section 10 summarises the extent of information available for the site, as well as identifying data gaps.
- Section 11 provides an overall summary of the findings of the report and recommendations for further investigation.

1.4. Assumptions and Limitations

The conclusions and recommendations of this report are based on the plans, reports and information provided to Atkins (see Appendix A) at the time of writing (April 2020).

The findings, opinions and recommendations presented in this report are based on information obtained from a variety of third party sources as detailed within this report (refer to Section 3). Atkins has not been able to independently verify third party information and for the purposes of this assessment has assumed that such information is accurate and complete. Therefore, whilst this report and the opinions contained herein are accurate to the best of Atkins' knowledge and belief, Atkins cannot and does not guarantee the completeness, reliability or accuracy of the descriptions or conclusions based on supplied third party information.

The conclusions of this report are based on the findings of the assessment of data taken from exploratory holes advanced on site as part of the ground investigations completed to date. Exploratory holes sample and/or test a fraction of the ground being investigated and variations can occur between sampling points. Therefore, this report cannot guarantee that unexpected ground conditions or unforeseen contamination will not occur between the sampling points.

Ground gas and groundwater conditions are based on observations made at the time of investigations and subsequent monitoring visits and may be subject to variation due to atmospheric, seasonal or other effects.

Information in relation to ground conditions and chemical testing data was obtained from several ground investigations undertaken between 2009 and 2020. The gas monitoring data were collected in 2011 and 2020, and the groundwater monitoring data between 2011 to 2019. It is noted that the current conditions of the site may have changed since the investigations and monitoring were carried out.

Information in relation to radiological data has been reproduced from available studies and assessments provided by third parties. Detailed assessments and recommendations in relation to radiological risk and radiological waste are outside of the remit of this report.

Centre for Environment, Fisheries and Aquaculture Science (Cefas) testing was undertaken as part of the 2019 offshore ground investigation and results have been included within the assessment. However, a dredging assessment and recommendations in relation to dredging methods and activities are outside of the remit of this report.

Geotechnical data reporting, interpretation and design are not part of the remit of this updated report.

2. Site Setting and Description

2.1. Site Location

The proposed development will be located on the Suffolk coast, to the north of the existing Sizewell B nuclear power station site. The general location of the site is shown on Drawing No. 5166065-ATK-XX-XX-DR-G-0001. The wider Sizewell nuclear complex has supported nuclear power facilities since 1966 and currently has one operational plant (Sizewell B) and one plant being decommissioned (Sizewell A).

The approximate co-ordinates for the centre of each zone located within the onshore area are as follows:

- The MCA is located at approximate National Grid Reference (NGR) TM 47284, 64085;
- The TCA is located at approximate NGR TM 46235, 64729; and
- The LEEIE is located at approximate NGR TM 45592 62778.

The offshore area of the Sizewell C project comprises an area within the North Sea to the east of the MCA. The approximate co-ordinates for the cooling water infrastructure are as follows:

- The intake tunnel 1 extends between NGR TM 48135 63833 and TM 50722 63308;
- The intake tunnel 2 extends between NGR TM 48128 64199 and TM 50926 64253; and
- The outfall tunnel extends between NGR TM 48731 64096 and TM 51923 64128.

The town of Leiston is located 3km to the west of the MCA and 500m to the east of the LEEIE, and the small coastal village of Sizewell is located 1km to the south of the MCA.

The site is located on the Suffolk Heritage Coast within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). The Sizewell Marshes SSSI is present within and adjacent to the western boundary of the MCA. The Minsmere-Walberswick Heaths and Marshes SSSI, which is also designated as a Special Area of Conservation (SAC), Special Protected Area (SPA) and Ramsar site, is located to the north of the site.

2.2. Brief Site Description

The northern section of the MCA largely comprises open fields. The Sizewell Marshes SSSI and associated drains are present in the north-western section of the zone. The central section of the MCA is located within the existing Sizewell B power station. The southern section of the MCA consists of an area of land immediately south of the existing Sizewell B Power Station. An access road is present in the south-east of the zone from Sizewell Gap running north into the MCA. The southernmost part of the MCA comprises agricultural land known as Pillbox Field.

An existing mound known as Bent Hills is present within the MCA adjacent to the north and east of the main platform area. The mound is approximately 4.5m high and is likely to comprise re-worked sand and gravel and Made Ground (rubble / gravel) from the construction of Sizewell B.

The TCA largely comprises agricultural land and open fields with a few residential properties, lanes and tracks. The majority of the residential properties appear to be farms. Several forested areas including Dunwich Forest, Great Mount Wood, Ash Wood and Greenhouse Plantation are also present within the zone.

The LEEIE comprises open fields with an area of hardstanding in the south of the zone. The Saxmundham to Leiston branch line is present along the western boundary of the LEEIE.
Surrounding land uses primarily comprise a mixture of agricultural land, open fields, the Sizewell Marshes SSSI, the Minsmere-Walberswick Heaths and Marshes SSSI and residential and commercial properties. The village of Leiston, approximately 3km south-west of the MCA and adjacent to the LEEIE, comprises a mixture of residential and commercial properties.

2.3. Site Visit

A site visit was carried out by two Atkins Environmental Consultants on 3 and 4 February 2015 to obtain information on the general site setting in relation to the development proposals at the time of the site visit. A second site visit of the MCA, and of the TCA and LEEIE from public roads was undertaken on 21 March 2019 to gain further information on the site setting and to identify potential visual or olfactory contamination present at the time of the visit. A summary of the site visit findings for each zone is presented in the following sections. Photographs taken during the site visits are included as Appendix B.

2.3.1. MCA

The northern zone boundary was formed by a woodland area, the east of the zone was bounded by the North Sea, the south was bounded by Sizewell Gap and the western boundary was formed by trees and fencing.

The northern section of the MCA largely comprised open fields. The Sizewell Marshes SSSI and associated drains were present in the north-western section of the MCA. A large waterlogged area was noted in 2015 in a field towards the east of the northern half of the zone. An area of hardstanding was present in the south-western corner of the MCA which was being used as a car park in 2019. The publicly accessible beach area in the north-east of the site was separated from the site by a 1m high wooden fence. There was a road in the centre of the northern area of the MCA entering from the north and providing access to the car park in the west.

The central section of the MCA extends into the existing Sizewell B power station and comprised several temporary buildings and hardstanding associated with the power station. Due to access restrictions, it was not possible to access this area during the site visits.

The southern section of the MCA consisted of a circular area of land immediately south of the existing Sizewell B power station which comprised open fields, Sandy Lane and several drains. Three electricity pylons were present in the southern section of the zone. An access road from Sizewell Gap running north into the MCA was present in the south-east. The southernmost part of the MCA comprised agricultural land known as Pillbox Field.

There was no visual or olfactory evidence of contamination noted in the areas accessed during the site visits. No significant changes to the MCA were noted between site visits.

2.3.2. TCA

The TCA largely comprised agricultural land and open fields with a few residential properties, lanes and tracks. The majority of the residential properties in 2019 appeared to be farms.

The site visit undertaken in 2015 noted that the eastern section of the zone comprised woodland (Dunwich Forest), separated by grass tracks. Drains were located towards the south-east of the zone transected by a number of bridges. The ‘Triangle’ was located within the woodland and in 2015 comprised an area of replanting surrounded by old wooden fencing and trees.

To the north-east of Dunwich Forest was an area of tree lined agricultural fields. Ash Wood Cottage was located adjacent to the northern boundary of the zone. In 2015, a grass covered mound was noted south of Ash Wood Cottage which was suspected to contain Made Ground, and in this vicinity a rectangular area of concrete was noted which may have been used for storage.

A tree-lined track ran in a north to south orientation across the western area of the zone. To the west of the track, a disused pit was noted to be present in 2015 comprising a heavily vegetated area with steep slopes down to the base of the pit in which there were two disused buildings. The pit area was fenced off by a 0.8m high wire fence. More agricultural fields surrounded this area and along the track.

During the site visit undertaken in 2015, it was not possible to view the western area of the TCA due to access constraints. However, the remaining area of the zone appeared to be occupied by further agricultural fields.

A wire fence formed the southern boundary of the zone just north of the Leiston Carr and Kenton Hills woodland areas. The southern boundary of Dunwich Forest was formed by a muddy/grassy track

with an area of marshland and drains to the south. The southern part of this zone was formed by woodland and trees. The northern boundary was generally formed by low wire fencing and trees. It was not possible to view the western boundaries in 2015.

To the south of the zone woodland areas were present, and further east the Sizewell Marshes SSSI, including drains and larger water bodies were present. The Sizewell Marshes also occupied an area to the north-east. The surrounding areas to the north included mainly agricultural fields and woodland. The areas to the west comprised agricultural fields with residential properties and farms.

Drains form the boundary of the zone in the south-east and waterlogged areas were recorded to be present in the agricultural fields in 2015. A small pond was noted in a field adjacent to Ash Wood in 2015 in the north.

2.3.3. LEEIE

The majority of the northern area of the LEEIE comprised open fields used for agriculture with an area of hardstanding in the south. The Saxmundham to Leiston branch line was present along the western boundary of the LEEIE, with Sizewell Halt rail terminal immediately to the south of the LEEIE. It was not possible to view the southern extent of the zone during the site visits, south of King George's Avenue, due to restricted access. The southern arm of the zone appeared to be a road leading to an uncovered storage area comprising areas of hardstanding, roads, grass and woodland.
The northern area of the zone was bound to the north by hedges along Valley Road. Further west along this road the boundary was lined by trees and overhead cables. The western boundary was formed by the railway line and Lover's Lane formed the eastern boundary of the zone, lined by hedges.

The surrounding area to the north and east of LEEIE mainly comprised agricultural fields. A sewage works was located approximately 60m north of the zone. Residential housing was located adjacent to the south-east and north-west corners of the zone and Eastlands Industrial Estate was located adjacent to the south-west.

No evidence of potential contamination was noted within the LEEIE during the site visit. However, in 2015 a small amount of fly tipping was noted in the north-west of the zone, comprising mostly plastic household rubbish, including plastic bottles and sheeting, in the area of uncultivated vegetation.

2.3.4. Offshore Area

The offshore area comprises an area located to the east of the MCA which includes the foreshore area and the North Sea.

3. Existing Information

3.1. Background

The information presented in this report has been compiled from a review of various data sources, including publicly available information and previous geo-environmental reports and investigations which have been prepared for the site, as summarised in the following sections.

3.2. Publicly Available Data Sources

The following data sources have been reviewed as part of this report:

- Environmental data and historical mapping from Landmark Envirocheck reports dated 2012 [1];
- Publicly available information from the British Geological Survey (BGS) online mapping resource accessed in August 2019 [2];
- Publicly available information from the Department for Environment, Food and Rural Affairs (DEFRA) Multi Agency Geographic Information for the Countryside (MAGIC) website accessed in August 2019 [3];
- Risks in relation to potential unexploded ordnance from Zetica's website accessed in August 2019 [4]; and
- Information in relation to environmentally sensitive sites from the Suffolk Biodiversity Information Service website accessed in August 2019 [5].

3.3. Previous Geo-Environmental Reports

3.3.1. Structural Soils Ltd, March 2009. Factual Report on Supplementary Ground Investigation at Proposed Nuclear Development at Sizewell 'C' [6]

Structural Soils carried out a ground investigation on the instruction Royal Haskoning UK Limited at Sizewell C. The purpose of the investigation was to investigate the ground conditions at the site and to collect samples for geotechnical and environmental testing.

The ground investigation was carried out in October 2008 and comprised:

- 46No. cable percussion boreholes;
- In situ standard penetration tests (SPTs);
- Gas and groundwater level monitoring; and
- Geotechnical and chemical analytical of soil samples.

The report presented a factual record of the fieldwork and laboratory testing undertaken as part of the investigation.

3.3.2. AMEC, February 2010. Desk Based Assessment for Sizewell EPR Site [7]

AMEC undertook a desk based review relating to contaminated land, geology, hydrogeology, groundwater and ground gas to support the development of an EIA for Sizewell C within the boundary of land nominated under the Strategic Site Assessment. The aims of the desk based review were to:

- Undertake a Phase 1 desk study to include a review of historical land use information;
- Undertake a site walkover study;
- Provide a summary of available previous and relevant site investigation reports relating to the study area and vicinity;

- Determine (where possible from existing information) the type and distribution of contamination within soils and groundwater in and adjacent to the study area;
- Identify key data gaps within the existing geology, hydrogeological, soils and contaminated land information;
- Produce a Preliminary Conceptual Site Model (PCSM) which identified potential pollutant linkages based on potential, and where identified, actual pollutant / contaminant sources, potential receptors (based on the proposed development) and potential pathways; and
- Develop and detail a strategy and rationale for further environmental investigations (where necessary) within the study area to verify the PCSM.

3.3.3. EOD Contracts Limited, March 2010. Explosive Ordnance Desk Top Study for Sizewell Power Station [8]

EOD Contracts Ltd. undertook an Unexploded Ordnance (UXO) Desk Top Study for the onshore and offshore investigation areas at Sizewell C. The scope of the study was to assess the likelihood and consequences of an encounter with UXO within the site. The assessment was only undertaken for the area within the MCA and did not include the TCA and LEEIE.

3.3.4. AMEC, July 2010. Radiological survey report for Sizewell C. [9]

AMEC carried out a radiological survey on Sizewell C to determine whether the operation of the Sizewell A and B power stations had contaminated near surface site soils from atmospheric deposition of radionuclides and or site groundwaters through groundwater migration. The survey included the MCA and an area within the east of the TCA.

Conclusions and recommendations were provided as to the nature of the potential residual radiological risk and the implications for continuation of any future site works.

3.3.5. Fugro, July 2010. Sizewell Offshore Investigations – Integration Report [10]

Fugro Engineering Services (Fugro) undertook a geophysical investigation in 2010 to determine ground conditions within the offshore area.

3.3.6. AMEC, 2011. Groundwater Level Monitoring for Period 5 April 2011 to 30 June 2011 (First Interim Factual Report) [11]

AMEC undertook a hydrogeological study of the groundwater environment within the EDF controlled land at Sizewell in 2011. The scope of the study was to:

- Carry out groundwater level, conductivity and temperature monitoring and groundwater analysis in the network of 23 piezometers located within the MCA and an area within the east of the TCA for a minimum of one year;
- Use sea level (tidal data) and meteorological data for the same period, in order to establish whether a relationship between sea level and groundwater levels existed;
- Present the information at specified periods during the monitoring period; and
- Prepare a hydrogeological synthesis report based on the acquired monitoring data.

The report provided information on the monitoring period from April to June 2011.

3.3.7. AMEC, 2011. Groundwater Level Monitoring for Period 1 July 2011 to 21 December 2011 (Second and Third Interim Factual Report) [12]

AMEC undertook a hydrogeological study of the groundwater environment within the EDF controlled land at Sizewell in 2011. This report provided information on the monitoring period from July to December 2011.

3.3.8. ESG, August 2011. Onshore Investigations Phase 1 for Sizewell Site. Factual Report on Ground Investigation [13]

ESG was commissioned by EDF to carry out a ground investigation to obtain geotechnical information for the proposed construction of Sizewell C.

The ground investigation comprised:

- 67 No. cable percussion boreholes;
- 1 No. cable percussion boring extended by rotary core drilling;
- 19 No. rotary core boreholes;
- 45 No. rotary open hole boreholes;
- 2 No. rotary core and rotary open hole boreholes;
- 69 No. machine excavated trial pits;
- In situ SPTs;
- Gas and groundwater level monitoring; and
- Geotechnical testing of soil samples.

3.3.9. AMEC, 2012. Sizewell EPR - Ground Gas Risk Assessment (Campaigns 1 - 7) [14]

AMEC carried out seven rounds of ground gas and groundwater level monitoring in order to carry out a risk assessment. The monitoring rounds consisted of the following:

- Gas Round 1 – 21No. Boreholes monitored in March 2011;
- Gas Round 2 – 38No. Boreholes monitored in April 2011;
- Gas Round 3 - 38No. Boreholes monitored in May 2011;
- Gas Round 4 - 38No. Boreholes monitored in early June 2011;
- Gas Round 5 - 38No. Boreholes monitored in late June 2011;
- Gas Round 6 - 38No. Boreholes monitored in July 2011; and
- Gas Round 7 - 38No. Boreholes monitored in September 2011;

3.3.10. AMEC, 2012. UK EPR Sizewell C – Summary of Groundwater Quality (Campaigns 1 – 6) [15]

AMEC carried out six rounds of groundwater quality sampling (Campaigns 1-6) between December 2010 and August 2011 for Sizewell C. The report presents the results of the groundwater monitoring and sampling programme.

3.3.11. EDF, April 2014. Sizewell C Proposed Nuclear Development. Sizewell C EIA Scoping Report [16]

EDF prepared a Scoping Report to support the application for a DCO to develop Sizewell C. This report sets out the proposed content, methodologies to be adopted and the key matters to be considered in the EIA including soils, geology and land contamination.

3.3.12. AMEC, May 2013. Sizewell C: Summary of Terrestrial Surface Water Quality (Campaigns 1 to 37) [17]

AMEC carried out an investigation into the terrestrial surface water environment in the vicinity of Sizewell C in order to characterise baseline water quality conditions prior to future development activities.

The report summarises the baseline sampling results obtained from January 2010 to January 2013 (Campaigns 1 to 37).

3.3.13. Fugro, 2014 Sizewell C Offshore Ground Investigation – Factual Report on Ground Investigation [18]

Fugro Engineering Services (Fugro) undertook a geotechnical investigation in 2013 to determine ground conditions within the offshore area. Two sites were investigated including the intake 2 shaft and tunnel locations. One sonic borehole and one cable percussion with rotary follow on borehole were drilled at each location.

3.3.14. EDF, May 2014. EPR UK, Sizewell C – Pre-existing Geotechnical Data Synthesis and Interpretative Report [19]

The report provided a summary of the existing geotechnical data available for Sizewell C. The aim of this report was to:

- List and detail the content of relevant pre-existing geotechnical reports;
- Identify geotechnical layers with their depth and thickness; and
- Provide a geotechnical model, including geotechnical parameters, derived from a thorough review of historical data.

3.3.15. EDF, June 2014. UK EPR, Sizewell – Synthesis of Additional Phase 1 Offshore Investigations [20]

The report provided an assessment of the offshore geological model at Sizewell along the intended tunnels and shafts based on geophysical investigations undertaken in 2010 and boreholes drilled in 2013 along the intake 2 tunnel.

3.3.16. AMEC, September 2014. Sizewell EPR – Preliminary Phase 2 Contamination Assessment [21]

AMEC prepared a report to present the preliminary findings of the intrusive investigations and contamination assessment undertaken for Sizewell C. The report provided a summary of the exploratory data and radiochemical and non-radiochemical contamination testing acquired to date during the exploratory works within the study area.

The purpose of the assessment was to characterise the existing site soil, groundwater and gas regimes, to assess the risks to current and future users of the site and other potential receptors and advise on appropriate mitigation measures, should significant risks be identified.

3.3.17. Structural Soils Ltd, November 2014. Factual Report on Ground Investigation on Sizewell C Construction Site Area and Associated Development [22]

Structural Soils carried out a ground investigation on the instructions of NNB Generation Company Ltd. The ground investigation works were split into two phases. Phase 1 of the investigation comprised:

- 42No. cable percussion boreholes;
- 1No. cable percussion boreholes extended by rotary coring;
- 3No. rotary cored boreholes;
- 5No. sonic boreholes;
- 1No. soakaway infiltration tests in boreholes; and
- 6No. falling and rising head permeability tests in boreholes.

Phase 2 of the investigation comprised:

- 38No. cable percussion boreholes;
- 13No. machine excavated trial pits;
- 1No. falling head permeability tests in boreholes; and

- 19No. soakaway infiltration tests in boreholes.

In situ SPTs, gas and groundwater level monitoring and geotechnical and chemical analytical testing of soil were undertaken during both phases of investigation.

3.3.18. Structural Soils Ltd, October 2015. Factual Report on Ground Investigation for onshore Ground Investigation Campaign on the SZC Construction Site Area [23]

Structural Soils Ltd. carried out a ground investigation on the instructions of NNB Generation Company at Sizewell C. The purpose of the investigation was to investigate ground conditions, provide information for the design of foundations and to provide information for preliminary contamination assessment purposes.

The ground investigation was carried out between June and September 2015 and comprised:

- 5No. sonic boreholes;
- 7No. cable percussion boreholes;
- 10No. machine dug trial pits;
- 3No. soakaway tests in trial pits;
- 3No. permeability tests in boreholes;
- In situ SPTs;
- Gas and groundwater level monitoring, and
- Geotechnical and chemical analytical testing of soil and leachate samples.

3.3.19. Fugro, 2015. Sizewell C Offshore Services WE6 Geotechnical Survey Field Results Report and WE8 Integrated Report [24] [25]

Fugro GeoConsulting Ltd (Fugro) carried out a survey of the seabed and sub-seabed data on the instructions of NNB Generation Company at Sizewell C in 2015. The purpose of the investigation was to provide geophysical and geotechnical soils data for the construction of offshore tunnels and shaft. The investigation comprised geophysical surveys across 16 selected survey lines, 30No. vibrocores and 22No. cone penetration tests (CPTs) for geotechnical purposes at 18 locations.

3.3.20. Atkins, 2015. Sizewell Site C. Conceptual Site Model of the Hydrogeological Regime [26]

Atkins was commissioned by NNB Generation Company to prepare a report to confirm the scope of groundwater modelling works to be completed for Sizewell C. The purpose of the report was to develop a CSM to be used as a basis for the development of a numerical groundwater model to inform assessments for the EIA for the proposed development.

3.3.21. Atkins, March 2013-2019. SZC Groundwater and Surface Water Monitoring [27]

Atkins has been undertaking monitoring of the groundwater and surface water regime at the site since 2013 to inform assessments for the development of Sizewell C.

3.3.22. EDF, December 2017. UK EPR, Sizewell – Synthesis of Offshore Ground Investigations Phase 2.1 [28]

The report provided detailed geological cross sections along the axes of the intake 1 and intake 2 tunnels and the outfall tunnel based on geophysical data and geotechnical data collected during ground investigations undertaken in 2013 and 2015.

3.3.23. EDF, May 2019. Sizewell C Proposed Nuclear Development. Sizewell C EIA Scoping Report [29]

EDF prepared an updated Scoping Report to support the Sizewell C DCO application. This report included additional developments to be considered as part of the EIA.

3.3.24. Structural Soils, June 2020. Interim Factual Report on Ground Investigation for onshore Ground Investigation [30]

Structural Soils Ltd. was commissioned by NNB Generation Company to undertake an additional phase of onshore ground investigation at Sizewell C . The purpose of the investigation was to provide additional information on ground conditions and fill data gaps identified following previous work phases.

The ground investigation was undertaken between July 2019 and March 2020 and comprised:

- 8No. CPT plus rotary cored boreholes (DCBH);
- 3No. shallow core boreholes (SCBH);
- 10No. sonic drilling boreholes (SD);
- 14No. cable percussive boreholes to recover Made Ground samples (MGS);
- 4No. vane test holes;
- 14No. Menard Pressuremeter Tests (MPM); and
- 5No. in situ SPTs.

In-situ geo-physical logging, gas and groundwater level monitoring and geotechnical and chemical analytical testing of soil were undertaken during the ground investigation.

3.3.25. Fugro, May 2020. Factual Report on Ground Investigation - SZC Offshore Ground Investigation [31]

Fugro Engineering Services Ltd. carried out a phase of offshore ground investigation on the instructions of NNB Generation Company at Sizewell C between May and July 2019. The purpose of the report was to provide additional information on the ground conditions for construction of inlet and outlet cooling water tunnels and to obtain geo-environmental data for assessment of potential contamination, material re-use and waste disposal, if required as part of the project.

The investigation comprised the drilling of boreholes along the proposed tunnel locations as outlined below:

- 18No. sonic drilling boreholes;
- 15No. destructive drilling boreholes with SPTs ; and
- 3No. destructive drilling boreholes with SPTs and rotary follow-on.

In-situ geo-physical logging was undertaken during the ground investigation. Logging, subsampling and geotechnical and chemical analytical testing of the sediment and underlying strata were undertaken following completion of the ground investigation.

3.3.26. Atkins, March 2020. SZC Enabling Works Geotechnical Design Report (ground conditions and geotechnical parameters) [32]

Atkins has prepared a Geotechnical Design Report to inform the enabling works for the proposed development. The Geotechnical Design Report provides a summary of the ground conditions and geotechnical parameters across the MDS based on the ground model developed for the site by TEGG [33].

4. Environmental Context

4.1. Site History

A review of the historical land use of the site and surrounding area has been undertaken to identify the nature and location of potentially contaminative activities that may have taken place on or adjacent to the site.

Historical maps between 1883 and 2012 at 1:10,560 and 1:10,000 scales and between 1882 and 1995 at 1:2,500 scale are presented within the Envirocheck reports [1], included in Appendix C. Current online mapping has been reviewed to assess land use changes between 2012 and 2018. The historical review looks at previous land uses within 500 m of the boundary of the site.

Key aspects of the site history are summarised in Table 4-1, Table 4-2, Table 4-3 and Table 4-4 below. The site history details are divided into four zones including the MCA, TCA, LEEIE and offshore area.

Table 4-1 - MCA Historical Land Uses

Date	Within the Zone	Surrounding Area (approximate distance and direction)
1883 – 1884	The zone comprises open fields in the north and south. There are drains and an old drainage pump located in the north and centre of the zone. Two sand pits and Warren House are located in the south of the northern section of the zone. Sandy Lane is present in the west of the southern section of the MCA.	The surrounding land use comprises primarily open fields, woodland and agricultural land. Sizewell Gap is present adjacent to the southern boundary of the MCA. There are two sand pits located 250m north-west and south-east of the northern section of the zone and three sand pits located 60m north-east, 100m and 500m north of the southern section of the zone. The Sizewell Belts are located to the adjacent west of the zone. Sizewell Farm is approximately 150m south of the zone. The Vulcan Arms Public House is approximately 50m east of the zone and Sizewell Cottage is approximately 200m east of the zone. A 'Coastguard Station' is labelled approximately 200m south-east of the zone.
1905	A wind pump is located in the north-eastern corner of the zone and additional sand pits are present in the centre of the zone.	An additional sand pit is present 500 m west of the zone.
1928 – 1958	The area of drains in the north and centre of the zone are labelled as '*Liable to Floods'*. There is a rifle range in the centre of the zone and targets located in the east of the zone. '*Form Fours Wood'* and '*Coronation Wood'* are labelled along the southern boundary of the zone. Additional sand pits are indicated in the south-western corner of the zone.	The area of land to the north of the zone is labelled as *'Liable to Floods'*.

Date	Within the Zone	Surrounding Area (approximate distance and direction)
1976	The drains are now labelled on the map as *'drains'* and there are several ponds present in the north-western corner of the zone. There appear to be some foundations within the southern half of the zone. These are likely to be related to the Sizewell B power station. A sewage works is present within the western boundary of the zone adjacent to the foundations.	The foundations present in the south of the zone extend off-site further to the south. Sizewell A Power Station is labelled located 500 m south of the zone. '*Cliff House Caravan Park*' is labelled approximately 400m south-east of the zone.
2006 – 2012	Sizewell B power station has been developed further extending into the southern half of the zone.	Additional drains are present surrounding the zone. An electricity substation is present approximately 150m west of the zone.
2019	No significant changes.	No significant changes.

Table 4-2 - TCA Historical Land Uses

Date	Within the Zone	Surrounding Area (approximate distance and direction)
1883 – 1884	The zone comprises open fields, farmland, marshland and woodland including Goose Hill in the east and Greenhouse Plantation in the west. Several roads and tracks are present transecting the zone from north to south including Lover's Lane and Abbey Road. Isolated residential properties and farms are present across the zone. Upper Abbey is present in the west of the zone around Theberton. Drains and a Sand Pit are present in the east of the zone around Goose Hill. Several other areas which appear to be pits are present in the centre of the zone around Upper Abbey. 'Broom Covert is labelled in the centre of the location of the proposed construction corridor for the electrical supply connection to the east of the LEEIE.	The surrounding land use comprises primarily open fields (which appear to be farmland), marshland and woodland. Leiston Carr and the Sizewell Belts are located adjacent to the south of the zone. Isolated residential properties and farms are present surrounding the zone. The village of Eastbridge is located 500m to the north-west of the zone. The town of Leiston is located 1.5km to the south of the zone and Theberton is located 1km to the north-west of the zone. Leiston Old Abbey is present adjacent to the south-west of the zone. Lower Abbey is present 200m to the north-east of the zone around Eastbridge. An '*Old Sand Pit'* is present 250m to the south of the zone, south of Leiston Old Abbey.
1905	No significant changes.	A wind pump is labelled adjacent to the east of the zone around Goose Hill.
1928 – 1951	A wind pump is present adjacent to Upper Abbey in the west of the zone.	The area of land to the north-east and east of the zone around Goose Hill is labelled as *'Liable to Floods'.*
1957 – 1958	An area in the east of the zone around Goose Hill is labelled as *'Turf Pits'.*	The wind pump adjacent east of the zone around Goose Hill is now labelled as a *'Drainage Pump'.*

Date	Within the Zone	Surrounding Area (approximate distance and direction)
1976	An area in the east of the zone adjacent to Goose Hill is now labelled as *'Dunwich Forest'.* The drains in the east of the zone around Goose Hill are now labelled on the map as *'drains'.* The Sand Pit and other unnamed pits in the centre of the zone around Upper Abbey are now labelled as '*Pit (disused)'*.	A complex drainage network is present adjacent to the south and north of the zone around Dunwich Forest and Goose Hill. Sizewell A Power Station is now labelled on the map located approximately 750m south-east of the zone.
1982	No significant changes.	The villages surrounding the zone have expanded.
2006	No significant changes.	As above.
2012	An electricity substation is present at the eastern extent of the proposed construction corridor for the electrical supply connection to the east of the LEEIE.	As above.
2019	No significant changes.	No significant changes.

Table 4-3 – LEEIE Historical Land Uses

Date	Within the Zone	Surrounding Area (approximate distance and direction)
1883 – 1884	The zone comprises open fields. The Great Eastern Railway Line (Aldeburgh Branch) is present running through the south-west of the zone. A signal post related to the railway line is labelled in the west of the zone.	The surrounding land use comprises primarily open fields (which appear to be farmland), marshland and woodland. The village of Leiston is present adjacent to the south-west of the zone. Valley Road and Lover's Lane are present running along the northern and eastern boundaries of the zone. A Brick Works, Works Farm and an associated clay pit are located 300m to the north-west of the zone. A Brick Field and kilns are present 300m to the west of the zone. A Smithy is located approximately 450m south-east of the zone. A windmill (pumping) is shown approximately 460m west of the zone and a windmill (corn) is located approximately 220m west of the zone.
1905	An area of buildings / hardstanding is shown adjacent to the railway line in the southern arm of the zone. A well and several buildings are shown in the area of Sizewell Crossing.	A tank and sewage outfall are present 100m to the north-west of the zone. The Brick Field and kilns are no longer labelled on the map. An additional Brick Works is indicated 500m to the south-west of the zone.

Date	Within the Zone	Surrounding Area (approximate distance and direction)
		The Smithy and windmill (pumping) are no longer shown on the maps. The land to the south of the railway is now shown as allotment gardens.
1928	No significant changes.	The Brick Works and Works Farm are now labelled as Brick Works Farm. The tank and sewage outfall are now labelled as Sewage Disposal Works with '*septic tanks*'. A gasworks is now shown approximately 40m from the western corner of the zone, comprising two gasholders and several tanks. '*Tanks*' are labelled approximately 380m west of the zone. The town of Leiston has expanded. An Isolation Hospital is present 500m to the south-west of the zone.
1938 – 1958	No significant changes.	The town of Leiston has continued to expand.
1971	The railway line is shown to have been dismantled from approximately halfway along the southern section of the zone.	A factory is present adjacent to the south of the zone. An electricity substation is shown approximately 100m south-west of the zone. A coal yard is present approximately 55m west of the zone, adjacent to the gasworks. A school is labelled approximately 350m south-west of the zone with an associated playing field and recreation ground. The '*tanks*' to the west of the zone are now labelled as gas holders.
1976 – 1977	No significant changes.	Brick Works Farm is now labelled as Brick Kiln Farm and the associated clay pit is marked as disused. A caravan park is shown approximately 75m south-west of the zone. A refuse tip is shown approximately 130m north of the zone beyond the sewage works. The town of Leiston has continued to expand.
1986	A small reservoir is shown in the north-west of the zone, adjacent to the road; this is not shown on present day maps and was confirmed to be absent during the site walkover in 2015. Aerial photography indicates that it may be been infilled.	No significant changes.
2012	A cycle track is present in the southern extent of the zone. A pond is shown in the central area of the northern field area; current aerial	The gasworks have been demolished, now showing a vacant area. The factory adjacent to the south of the zone has

Date	Within the Zone	Surrounding Area (approximate distance and direction)
	photography shows this to be a poorly drained area. The southern arm of the zone is covered with roads / hardstanding.	expanded and is labelled as *'Eastlands Industrial Estate'.*
2019	No significant changes.	No significant changes.

Table 4-4 – Offshore Area Historical Land Uses

Date	Within the Zone	Surrounding Area (approximate distance and direction)
1883 – 1884	The North Sea and foreshore are indicated to be present within the Offshore Area. A rifle range with associated targets are present along the foreshore.	The area to the west of the foreshore mainly comprises open fields with drains and drainage pumps.
1905	No significant changes.	A wind pump and sand pits are present in area to the west of the foreshore. The drainage pump is no longer labelled.
1928 – 1958	The rifle range and targets along the foreshore are no longer shown present.	The area of land to the west of the site is labelled as *'Liable to Floods'.* There is a rifle range with targets labelled in the area to the west of the foreshore intermixed with the sand pits.
1976	Two towers are indicated to be present within the North Sea to the east of Sizewell B Power Station.	Sizewell B Power Station is present to the west of the foreshore. The sand pits and rifle range are no longer shown.
2006 – 2012	No significant changes.	Sizewell B power station is shown further developed extending to the north. A flood mound is shown along the eastern edge of the power station to the west of the foreshore.
2018	No significant changes.	No significant changes.

4.1.1. Additional Information

Reference to previous geo-environmental reports [7] has provided the following additional site history information:

- Between 1964 and 1971 the ground surface within the MCA zone was raised with surplus spoil from the construction of Sizewell A, levelled and a series of roadways was constructed. This area was then used as a contractors' compound for fabrication, processing, storage and spoil disposal areas during the construction of Sizewell B (1987 to 1994). This development is likely to correspond with the foundations identified on the site history maps from 1976.
- The buildings and other above ground structures appear to have been demolished and removed from the zone upon completion of Sizewell B. Structures such as lagoons and other excavations appear to have been backfilled and the area covered with 2.0m to 2.5m of reworked sands and peats, levelled and planted with woodland and grassland. A remaining mound of surplus spoil in the northern area of the MCA formed the Northern Mound (flood bund).
- Made Ground described as sandy fill (reworked Crag Group) and construction waste (e.g. concrete) up to 6m deep, overlying superficial deposits have been reported within this area of the MCA.

- Several areas of potential contamination and potentially contaminating activities were identified within the adjacent Sizewell B power station site including the Pond area, Splitter Vane store, Regenerant Neutralising Tank, Flask Transport and Storage Areas, reactor building area, active effluent discharge line, Hazardous Waste Store, diesel storage tanks, fuel oil tank, the waste oil / incinerator compound, handling of radioactive fuel and waste, non-active plant effluent and site drainage.
- Two concrete reservoirs and associated pump houses were present within the area of the Sizewell B relocated facilities in the south of the MCA. Reservoir A was built in 1961 with a capacity of 1,365m^3 and reservoir B was built in 1988 with a capacity of 3,180m^3. The reservoirs were leased by Magnox Ltd and used for storage of town's main water supply and backup for Sizewell A and Sizewell B [34]. In 2018, as part of their lease termination requirements, Magnox Ltd proposed to demolish the reservoir structures and use the material and soils from the surrounding embankment to infill the reservoir voids [35].
- A pre-demolition survey was completed in April 2017 and indicated the presence of asbestos within the pump houses [36]. Waste Acceptance Criteria (WAC) testing of concrete from the reservoir site did not detect asbestos within the concrete material.
- A ground investigation was undertaken for the reservoirs and surrounding embankment by KDC Contractors Ltd in 2018 [34] to determine the suitability of the materials for re-use. Made Ground comprising re-worked natural sands / silty sands, occasional concrete and brick fragments was encountered from ground level to 0.37m bgl overlying re-worked natural material (sand with gravel) from 0.05m to 4.9m bgl and sand (with bands of silty or clayey sand and pockets of peat and shell fragments) from 2.2m to 9.5m bgl. Groundwater was encountered within the sand layer at depths of 6.0m and 6.8m bgl.
- Soil and groundwater samples were collected and tested for potential contaminants of concern as part of the ground investigation. The test data was assessed by AECOM as part of a risk assessment undertaken for the reservoirs [37]. No elevated levels of contaminants were reported within soil samples and no asbestos was detected. Polycyclic Aromatic Hydrocarbons (PAHs) and metals were reported at elevated concentrations in leachate and groundwater samples above the assessment criteria. However, further assessment by AECOM did not indicate significant risks to controlled waters receptors. AECOM concluded that the soil embankment surrounding the reservoirs was suitable for re-use in the demolition of the reservoir as infill material. It was also concluded that it was appropriate to re-use the concrete material from the structures to infill the voids.
- KDC Contractors Ltd were engaged to remove the asbestos from the pump houses and to complete the demolition of the reservoirs in February 2018 as per Magnox's proposals [35]. Air test reassurance certificates [38] indicate that air monitoring was undertaken during and following the removal of the asbestos and that no visible signs of asbestos or fibres were reported in the air above 0.01 fibres /ml. However, no further information has been provided in relation to the removal / demolition works.

4.2. Geology

4.2.1. Onshore Area

The published geological information for the onshore area of the site [2] is summarised in Table 4-5. Further details in relation to geological stratigraphy are provided in the Enabling Works Geotechnical Design Report [32] which is based on the ground model developed for the site by TEGG [33]. Geological cross sections prepared for the MCA as part of the Enabling Works Geotechnical Design Report are included within Appendix G.

Table 4-5 – Summary of Published Geological Conditions – Onshore Area

	Unit	Sub-Unit	Age		Details
Superficial Deposits	Beach Deposits	Tidal Flats	Quaternary	Holocene	Present close to coast
		Sand and Gravel			
	Peat	-			Low lying marshy areas (SSSI)
	Alluvium	Sand and clay			
	Head	-			Present in river valleys
	Lowestoft Formation	Lowestoft Till		Anglian	Locally present, predominantly at the topographic highs to the north, north-west and west of the development area.
		Lowestoft Sand and Gravel			
Bedrock	Crag Group	Norwich Crag Formation (NCF)		Pliocene - Pleistocene	Present in entire regional study area
		Red Crag Formation (RCF)			
	Thames Group	London Clay Formation	Tertiary (Paleogene)	Palaeocene - Eocene	Present in entire regional study area at depth
		Harwich Formation			
	Lambeth Group	Woolwich and Reading Beds Formation			
	Thanet Group	Thanet Sand Formation			
	Lista Formation	Ormesby Clay Member			
	Chalk Group	White Chalk	Cretaceous	-	Present in entire regional study area at depth

It is noted that Made Ground is likely to be present at the site within the MCA associated with the construction of the adjacent Sizewell B power station, in the southern section of the LEEIE associated with the railway line and in the centre of the TCA around Upper Abbey associated with former pits located in this area.

4.2.2. Offshore Area

Published geological maps [2] generally indicate the offshore area is underlain by marine sediments (tidal flat mud deposits, sand bank deposits, sand and gravel shoreface and beach deposits) overlying bedrock comprising the RCF, NCF, Coralline Crag Formation (CCF), London Clay, Lower London Tertiary and the Chalk Group.

A sandbar is located in the nearshore section with a height of 2m and width of 200m. A larger sandbank (Sizewell Bank) is located further offshore and has a height of 5m and width of 1,600m. The sandbanks run north to south, parallel with the coastline.

4.2.3. Local Geological Sites

According to mapping on the Suffolk Biodiversity Information Service website [5] the site is not located within a Local Geological Site formerly known as Regionally Important Geological or Geomorphological Sites (RIGS).

4.3. Mineral Extraction and Ground Stability

4.3.1. Mining and Natural Cavities

Reference to the Envirocheck reports [1] indicates that the site is not located in an area that is likely to be affected by coal mining, other mining activities or natural cavities.

4.3.2. Historical Extractive Activities

Reference to the Envirocheck reports [1] indicates that there are no historical extractive activities on or within 500m of the site. However, reference to the site history maps included in the Envirocheck reports [1] indicates that several sand and clay pits were located across the site and in the local area which are now marked as disused.

4.3.3. Ground Stability

Ground stability hazards identified in the Envirocheck reports [1] are summarised in Table 4-6:

Table 4-6 – Summary of Ground Stability Hazards

Geological Hazard	Details
Collapsible Ground	Very Low
Compressible Ground	Majority of the site No Hazard, with an area of peat within the TCA classified as Moderate to High and the southern section of the MCA classified as High [7]
Ground Dissolution	No Hazard
Landslide	Very Low to Low
Running Sand	Very Low to Low, with an area adjacent to the coast classified as Moderate [7]
Shrinking or Swelling Clay	No Hazard to Low

4.4. Radon

Reference to the Envirocheck reports [1] indicates that site is in a lower probability radon area, as less than 1% of homes are above the action level. No radon protective measures are considered necessary in the construction of the new power station.

4.5. Hydrogeology

The Environment Agency's aquifer classifications [1] for the geology underlying the site are summarised in Table 4-7.

Table 4-7 – Aquifer Designations

Geology	Description	Aquifer Classification
Superficial	Tidal Flat Deposits	Secondary A Aquifer[1]
	Sand and Gravel	Secondary A Aquifer
	Peat	Unproductive Strata[2]
	Alluvium	Secondary A Aquifer
	Head	Unproductive Strata
	Lowestoft Till	Unproductive Strata
	Lowestoft Sand and Gravel	Secondary A Aquifer
Bedrock	Crag Group	Principal Aquifer[3]
	London Clay Formation	Unproductive Strata
	Harwich Formation	Secondary A Aquifer
	Woolwich and Reading Beds Formation	Secondary A Aquifer
	Thanet Sand Formation	Secondary A Aquifer
	White Chalk	Principal Aquifer

Peat is technically classified as an unproductive stratum. However, due to their ecological importance associated with the Sizewell Marshes SSSI they are considered as a high value receptor for the purpose of the contamination risk assessment.

The Crag Group and chalk bedrock underlying the site are classed as Principal Aquifers. The two aquifers are hydraulically separated by the presence of the London Clay Formation (Unproductive Strata). Due to the thickness of the low permeability London Clay Formation aquiclude, there is not considered to be the potential for significant environmental effects on the chalk aquifer and is therefore not considered further as a receptor.

4.5.1. Groundwater Vulnerability

Reference to the Envirocheck reports [1] indicates that a Source Protection Zone (SPZ) III (Outer Zone) is located approximately 340m to the west of the LEEIE around Leiston.

The soils underlying the majority of the site are identified as having high permeability, with the exception of the peat deposits and Lowestoft Formation, which are identified as having intermediate leaching potential [1].

4.5.2. Groundwater Abstractions

Reference to the Envirocheck reports [1] indicates that two permitted groundwater abstractions are located on site including:

- An abstraction at Upper Abbey Farm for general farming and domestic purposes from the Crag Group. The permit is operated by British Energy Generation Ltd. with a start date of 31 December 1998. The permit end date is not supplied.
- A groundwater abstraction at Sizewell B power station for make-up/top-up water from the Marine Deposits. The permit is operated by British Energy Generation Ltd with a start date of 31 December 1998. The permit end date is not supplied.

[1] Secondary A Aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
[2] Unproductive Strata are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
[3] Principal Aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale.

An additional 10 active groundwater abstractions are listed within 500m of the site. The closest abstraction to the site is a SPZ borehole located 20m to the east of the site at Aldhurst Farm for use within the river/wetland area.

It is noted that this information was obtained in 2012 [1] and new abstractions or changes to the details above may have occurred in the intervening period.

4.5.3. Discharge Consents

Reference to the Envirocheck reports [1] indicates that two consents for discharges onto land and into groundwater are indicated to be present within 1km of the site.

The consents permit the disposal of sewage to land/soakaway from a domestic property located adjacent to the west of the TCA and the disposal of trade (agricultural and surface) discharge into groundwater at an agricultural property located adjacent to the south-west of the TCA.

It is noted that this information was obtained in 2012 [1] and new discharge consents or changes to the details above may have occurred in the intervening period.

4.6. Hydrology

The main surface water feature within 500m of the site is the coastal water of the North Sea located adjacent to the eastern boundary of the site.

A series of surface freshwater features are also present within 1km of the site. These include an extensive network of ponds and drainage ditches, referred to as the Sizewell Belts located adjacent to the west and south of the site. Leiston Beck, located to the west of the MCA, receives drainage from the Sizewell Belts and runs north, parallel with the coast, before joining the Minsmere New Cut, a large watercourse running west to east discharging to the sea via a sluice gate known as 'The Sluice', approximately 2km north of the site.

The Minsmere New Cut river is classified as a heavily modified waterbody with an ecological status of moderate and a chemical status of good in 2016 [39].

4.6.1. Bathymetry

Water depths within the offshore area increase from west to east, ranging from 1.4m AOD in the west to 19.6m AOD in the south-east.

4.6.2. Flood Risk

Several areas of the site are indicated to be at risk of flooding (Flood Risk Zones 1, 2 and 3) as a result of rivers or seas without defences, including the southern, western and northern sections of the MCA and the eastern and southern sections of the TCA [1].

4.6.3. Discharge Consents

Reference to the Envirocheck reports [1] indicates that a discharge consent listed on-site in the south-western corner of the main platform for sewage discharges of trade effluent associated with the existing Sizewell B power station activities into Leiston drain.

Additional discharge consents are listed within 500m of the site relating to:

- Processes being undertaken at the existing Sizewell B power station including cooling water, process water, site drainage and treated effluent discharges to the North Sea and Leiston Beck;
- Sewage discharges from Leiston Sewage Works into Leiston drain; and
- The discharge of trade effluent by Suffolk Water Company into Leiston drain.

It is noted that this information was obtained in 2012 [1] and new discharge consents or changes to the details above may have occurred in the intervening period.

4.6.4. Pollution Incidents to Controlled Waters

Reference to the Envirocheck reports [1] that several pollution incidents have been recorded in relation to the North Sea to the east of the existing Sizewell power station complex from activities associated with the Sizewell B power station, roads and other properties (power generation / distribution) relating to oils, chemicals, organic wastes, crude and storm sewage and naturally occurring pollutants.

It is noted that this information was obtained in 2012 [1] and additional pollution incidents may have occurred in the intervening period.

4.7. Landfill Sites

Two registered landfills and three historical landfill sites are present within 500m of the site [1] [7] including:

- Ogilvie at Home Farm, Sizewell, a registered landfill site located 200m south of the MCA. There is no identified restriction on the source of waste received by the landfill. The dates of operation of the landfill are not provided. The status of the licence is listed as lapsed;
- Leiston Landfill, a registered landfill site located 500m to the west of the LEEIE. The landfill was operational from June 1977 and there is no identified restriction on the source of waste received by the landfill. The status of the licence is listed as lapsed/cancelled or surrendered;
- Carrs Pit historical landfill located 500m to the west of the LEEIE. Inert and industrial waste were accepted at the landfill from December 1976 to December 1987;
- Abbey Pit historical landfill located present adjacent to the south-west of the TCA. No information is provided on the waste type or quantity received by the landfill or the dates of operation; and
- Aldhurst Farm historical landfill located 300m to the north-west of the LEEIE and 340m west of the southern section of the MCA. Inert, industrial, commercial, household and other (construction, demolition and dredging) wastes were accepted at the site from June 1990. There is no end date for acceptance of waste. The landfill is listed as large receiving equal to or greater than 75,000 tonnes of waste per year.

4.8. Waste Management Sites

Two waste management sites are located within 500m of the site [1] including:

- A Household Waste Amenity Site located on Lovers Lane 350m to the north of the LEEIE. The licence for the site was issued in May 1994 to Waste Recycling Ltd, but has since been transferred; and
- A Register Waste Transfer Site is located on Lovers Lane 355m to the north of the LEEIE. The licence for the site is registered to Suffolk Waste Disposal Company and was issued in May 1994. The site has a very small input rate (less than 10,000 tonnes per year) and is permitted to receive household waste. The site is operational as far as is known.

4.9. Hazardous Substances

Sizewell B power station is registered as a Control of Major Accident Hazards (COMAH) site [40]. Sizewell A power station was formerly registered as a COMAH site. However, this registration has ceased, presumably with the closure of the power station circa 2006. Sizewell B power station also holds a hazardous substance consent.

4.10. Integrated Pollution Prevention and Control (IPPC)

Sizewell B power station holds permits for the discharge of non-radioactive cooling water and process water to the North Sea and has a permit (EP3634LR) under the IPPC regime for the combustion of fuel for the site's standby diesel generators [40].

4.11. Registered Radioactive Substances

The Environment Agency public register [40] indicates that Sizewell A and Sizewell B power stations both have radioactive substances permits for the use or storage of radioactive substances.

4.12. Sensitive Land Uses

The site is located within 500m of several sensitive land uses [1] as follows:

- Nitrate Vulnerable Zone – the entire site is located within a Nitrate Vulnerable Zone.
- Suffolk Coast and Heaths AONB – the AONB is present within the MCA and eastern edge of the TCA are located adjacent to the LEEIE.
- Sizewell Marshes SSSI – the SSSI is present within the western edge of the MCA and adjacent to the south and north of the TCA.
- Minsmere-Walberswick Heaths and Marshes SSSI, SAC, Ramsar and SPA – is located adjacent to the north-east of the TCA.

Leiston Abbey (second site) and moated site, which is designated as a Scheduled Monument (SM 1014520) is present 125m to the west of the site. Several Grade II[4] listed buildings are also indicated to be present within the study area including Upper Abbey Farmhouse and the Barn which are located within the site boundary.

4.13. UXO

A Zetica UXO map [4] was obtained to assess the risk of encountering UXO at the site. The UXO map indicates that the site is listed as being in an area at 'moderate bomb risk'.

A UXO desk based assessment was undertaken in 2010 for the area within the MCA by EOD [8]. The report states that the MCA was not directly subject to bomb attacks, but that air raid bombing incidents were reported in several areas around Leiston and Sizewell, including Sizewell Common, Sizewell estate, Leiston heath land the Sizewell Road railway crossing.

The study concludes that the possibility of encountering a UXO is unlikely within the MCA but increases offshore. Mitigation measures included the communication of UXO risks to all stakeholders, further planning for project operations, UXO safety awareness training and the development of a non-intrusive UXO survey and the investigation of the development area to assess any ferrous objects located within the MCA footprint.

No additional UXO assessments are available for the TCA and LEEIE which are likely to be within or in close proximity to the areas of air raid attacks reported in the assessment or for the historical rifle ranges on the foreshore.

[4] Grade II Listed buildings are of special interest and the vast majority of listings.

5. Preliminary Conceptual Site Model (PSCM)

5.1. Approach to PCSM

Land contamination is assessed through the identification of risk presented by potential contaminant linkages (PCLs), i.e. Source-Pathway-Receptor relationships, and the development of a CSM. Guidance provided by the Environment Agency in CLR11[5] [41] and the Guiding Principles for Land Contamination (GPLC) documents [42] provide the technical framework for the development of such CSMs and the application of risk assessment (qualitative or quantitative) to consider whether PCLs) are significant and hence require management or mitigation.

The National Policy Statement (NPS) for Energy Infrastructure, accompanied by the NPS for Nuclear Power Generation, does not include specific requirements for Land Quality assessment beyond considering the risks posed by land contamination and the need for an EIA. Section 4.10 of the NPS EN-01 confirms that issues related to land quality may be subject to separate regulation, and therefore the National Planning Policy Framework (NPPF) [43] has been consulted regarding the need for additional environmental assessment.

The NPPF [43] states that to prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is suitable for its proposed use and appropriate for its location, taking account of ground conditions and any risks arising from land instability and contamination. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of an area or proposed development to adverse effects from pollution, should be taken into account. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner. The basis of CLR11 and GPLC1 is the development of the CSM which is the representation of the source-pathway-receptor (pollutant) linkages on which the assessment of risk can be based.

The basic approach to the human health and controlled waters risk assessment reported here follows the principles given in CLR11 and GPLC1, i.e. application of the following assessment hierarchy:

- Tier 1 risk screening by establishment of potential pollutant linkages, i.e. the PCSM;
- Tier 2 GQRA using generic assessment criteria (GAC) that represent ‘minimal’ or ‘tolerable’ risk; and
- Tier 3 QRA using site specific assessment criteria (SSAC) that represent ‘unacceptable risk’, or where generic assessment criteria are not available or they are not applicable to the CSM.

The following PCSM has been developed using the proposed scheme details and desk study information summarised in the preceding sections of this report, i.e. a Tier 1 assessment.

5.2. Risk Estimation

Through consideration of the potential consequence and likelihood of exposure occurring, a potential risk rating for each PCL has been assigned and is presented in Section 5.3. The purpose of this assessment is to focus upon the potential risks present based on the current baseline and the proposed development including during the construction, operation and post operational phases. It has been assumed that no mitigation measures will be implemented. The definitions of estimated risk are taken from CIRIA report C552 [44] and have been summarised in Table 5-1 below.

[5] It is noted that CLR11 is due to be withdrawn in 2020 and replaced by updated online guidance: Environment Agency Land contamination: Risk Management (LCRM).

Table 5-1 - Definitions of Estimated Risk

Risk Level	Definition
Very High Risk	There is a high probability that severe harm could arise to a designated receptor or there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not already undertaken) is required and remedial works may be necessary in the short term and are likely over the longer term.
Medium Risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild. Further investigation is not necessarily required, however should be considered to confirm that there is no unanticipated contamination present.
Very Low Risk	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. Further investigation is not necessarily required, however may be considered to confirm that there is no unanticipated contamination present.

The risk is evaluated through the probability matrix presented in Table 5-2. The definitions of probability and consequence are given in Appendix D.

Table 5-2 - Estimation of the level of risk by comparison of consequence and probability

Probability (Likelihood)	Consequence: Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Moderate / Low Risk
Likely	High Risk	Moderate Risk	Moderate / Low Risk	Low Risk
Low Likelihood	Moderate Risk	Moderate / Low Risk	Low Risk	Very Low Risk
Unlikely	Moderate / Low Risk	Low Risk	Very Low Risk	Very Low Risk

5.3. PCSM

Based upon the historical and present land uses identified in the various sources and publicly available information reviewed, a PCSM has been produced, identifying potential sources of contamination, migration or exposure pathways and receptors for the site. A worst-case scenario has been adopted in the preparation of this PCSM, i.e. all likely potential sources, exposure or migration pathways and sensitive receptors have been assumed to be present. The PCSM is presented in Table E.1 included in Appendix E. The following sections are described in terms of the potential source-pathway-receptor PCLs, which are defined by interpretation of the information contained within this report and the details of the proposed development, correct at the time of writing (April 2020).

5.3.1. Potential Contaminants

The potential sources of contamination and associated groups of potential contaminants of concern have been identified from the desk-based review of information and are outlined in Table 5-3 below. The list of activities and contaminants of concern listed in the table below should not be considered exhaustive and provides a guide to the likely range of contaminants which may be present at the site within the three zones including the MCA, TCA and LEEIE or within the surrounding area.

Table 5-3 - Summary of Potential On- and Off-site Sources of Contamination

	Activity / Feature	Potential Contaminants
On-site (within MCA, TCA, LEEIE and Offshore Area)	Former rifle range located in the centre of the MCA.	Inorganic and organic contamination including metals and hydrocarbons.
	Made Ground within the north-east of the MCA.	Inorganic and organic contamination including metals and hydrocarbons, Polychlorinated biphenyls (PCBs), asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Drainage and wind pumps in the north and centre of the MCA	Inorganic and organic contamination including metals and hydrocarbons.
	Sewage treatment works located on the western boundary of the MCA.	Metals, organic contaminants including biological contaminants.
	Made Ground, spoil disposal and construction waste on the MCA associated with the construction of Sizewell B and former contractors' compound.	Inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Activities relating to the former contractors' compound on the MCA for Sizewell B including possible storage areas, fabrication areas, lagoons, stone washing / concrete batching area.	Inorganic and organic contamination including metals and hydrocarbons, PCBs, solvents, paints, oils, asbestos, etc.
	Car park located on western edge of the MCA.	Fuels and oils attributed to spills from vehicles, plus exhaust particulates. A range of inorganic and organic contaminants.
	Activities within the MCA associated with the operation of Sizewell B power station including the atmospheric deposition of radioactive materials and discharge of process and cooling water into the North Sea and migration of contaminated groundwater onto the MCA and offshore area.	Risk of contamination from radioactive materials, fuel oil contamination, asbestos and PCBs.
	Former infilled sand pits located across the MCA and TCA.	Risk of inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Peat and Alluvium within the eastern edge of the TCA and in the MCA.	Ground gas generation including carbon dioxide and methane.
	Grass covered mounds (suspected Made Ground) located in the north-east of the TCA.	Inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Fly tipping in the north-west of the LEEIE.	Inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc.
	Railway line running through the southern extent of the LEEIE.	Possible inorganic and organic contaminants including hydrocarbons, diesel, lubricating oils,

	Activity / Feature	Potential Contaminants
		PCBs, PAHs, solvents, herbicides, metals, asbestos and ash used as fill material.
	Made Ground present within the southern section of the LEEIE associated with the railway line and in the northern section associated with an infilled reservoir.	Risk of inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Electricity substation at the eastern extent of the proposed access road in the east of the LEEIE.	Risk of contamination from heavy metals, asbestos and PCBs.
	Farming activities across the entire site area including potential for unmarked farmer's tips.	Contamination risk from herbicides, pesticides, silage, effluent, and fuel oils. Risk of inorganic and organic contamination including metals and hydrocarbons, asbestos, etc.
	Made Ground associated with the construction of roads crossing the various areas of the site as well as activities associated with their operation.	Fuels and oils attributed to spills from vehicles on the roads, plus exhaust particulates. A range of inorganic and organic contaminants including the potential for asbestos.
Off-site (surrounding area)	Activities associated with the operation of Sizewell A and B power stations including asbestos lined tanks and their infill, the deposition of radioactive materials on the MCA and migration of contaminated groundwater onto the MCA.	Risk of contamination from radioactive materials, fuel oil contamination, asbestos and PCBs.
	Former sand pits located 250m north-west and south-east of the MCA and 250m to the south of the TCA which have been infilled.	Risk of inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Former brick works, brick field and clay pit located 300m to the west of the LEEIE which have been infilled.	Risk of inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc. Ground gas generation including carbon dioxide and methane.
	Smithy located approximately 450m south- east of the LEEIE.	Risk of inorganic and organic contamination including metals and hydrocarbons.
	Tank and sewage works located 500m to the south-west of the LEEIE.	Metals, hydrocarbons, organic contaminants including biological contaminants
	Gasworks, coal yard and tanks/gas holders located 40m to the west of the LEEIE.	Coal tar, natural gas processing, fuels. Inorganic chemicals acids and alkalis, other inorganic compounds, metals and metal compounds and asbestos.
	Historical landfills within 500m of the site including unnamed refuse tip, Ogilvie at Home Farm, Leiston Landfill, Carrs Pit, Abbey Pit and Aldhurst Farm.	A range of inorganic and recalcitrant organic contaminants including metals, leachate, nitrates, and the potential for ground gas generation.
	Electrical substation located 100m south-west of the LEEIE.	Risk of inorganic and organic contamination including metals and hydrocarbons and PCBs.
	Farming activities in surrounding areas including potential for unmarked farmer's tips.	Contamination risk from herbicides, pesticides, silage, effluent, and fuel oils. Risk of inorganic and organic contamination including metals and hydrocarbons, PCBs, asbestos, etc.
	Allotments adjacent to the south of the LEEIE.	Contamination risk from herbicides, pesticides and fuel oils.
	Works and factories within Eastlands Industrial Estate.	Vapours and a range of inorganic and organic contamination, including metals, solvents, fuels and oils.

	Activity / Feature	Potential Contaminants
	Made Ground associated with the construction of roads surrounding the site as well as activities associated with their operation.	Fuels and oils attributed to spills from vehicles on the roads, plus exhaust particulates. A range of inorganic and organic contaminants including the potential for asbestos.

5.3.2. Potential Receptors

This section details potential receptors which are relevant to the current and future site uses, and may be relevant to the construction and operation of the site. Potential receptors are outlined in Table 5-4.

Table 5-4 - Summary of Potential Receptors

Receptor Groups	Current site use	Future site use
Human health (on site)	Pedestrians and road users using existing roads, footpaths, railway and fields within the site	Pedestrians and road users using existing roads, footpaths and fields within the site (noted that Sizewell C power station site will be secure)
	Agricultural workers	Agricultural workers
	Recreational site users of the SSSI, marshes and beach along the foreshore	Recreational site users of the SSSI, marshes and beach along the foreshore
	Current Sizewell B site workers using the MCA	-
	-	Future site workers and visitors
	Residents within TCA	Residents within TCA
Human health (off-site)	Occupants of nearby residential, recreational and commercial properties	Occupants of nearby residential and commercial properties
	Pedestrians accessing surrounding roads and footpaths	Pedestrians accessing surrounding roads and footpaths
	Recreational site users of the surrounding SSSI and marshes	Recreational site users of the SSSI and marshes
	Agricultural workers	Agricultural workers
	Workers in adjacent Sizewell A and B power stations	Workers in adjacent Sizewell B power station
Controlled Waters	Groundwater in Principal bedrock aquifer	Groundwater in Principal bedrock aquifer
	Groundwater in Secondary A superficial aquifer	Groundwater in Secondary A superficial aquifer
	North Sea	North Sea
	Ponds and drains on site and within 500m of the site	Ponds and drains on site and within 500m of the site
Property	Existing on-site services and structures	Existing on-site services and structures
	-	Proposed on-site services and structures
	Existing off-site services and structures	Existing off-site services and structures
	Crops and livestock (on-site and off-site)	Crops and livestock (on-site and off-site)
Ecological	Sizewell Marshes SSSI (on-site and off-site)	Sizewell Marshes SSSI (on-site and off-site)

Receptor Groups	Current site use	Future site use
	Minsmere-Walberswick Heaths and Marshes SSSI, Ramsar, SAC and SPA	Minsmere-Walberswick Heaths and Marshes SSSI, Ramsar, SAC and SPA
	Suffolk Coast and Heaths AONB (off-site)	Suffolk Coast and Heaths AONB (off-site)

It has been assumed that there will be limited public access to areas of the site during construction and operation particularly to the power station which will be a secure site. However, access to the site will be possible via existing roads and footpaths. In addition, the current red line boundary includes the foreshore and therefore recreational users have been included in the PCSM.

Risks in relation to short term exposure to contamination by construction workers have not been considered further as part of this assessment. Acute exposure risks will need to be assessed as part of the development of the construction phase health and safety plan and managed through standard good practice health and safety procedures.

5.3.3. Potential Migration / Exposure Pathways

This section details the potential migration or exposure pathways between the sources of contamination and receptors identified above. For a pollutant linkage to exist between the contaminant sources identified and the potential receptors, a pathway must exist.

Potential Human Exposure Pathways:

Potential exposure pathways to the identified on-site human receptors include:

- Dermal contact with and/or ingestion of contaminants in soils, soil-derived dusts and water; and
- Inhalation of contaminants in soil, soil derived dust, fibres, gas and vapours.

The potential exposure pathways to the identified off-site human receptors include:

- Dermal contact with and/or ingestion of contaminants in windblown soil-derived dusts and water that may have migrated off site; and,
- Inhalation of contaminants in windblown soil derived dust, fibres, gas and vapours which may have migrated off site.

Potential Controlled Waters Exposure Pathways:

- Leaching of contaminants in soil to groundwater in underlying aquifers;
- Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers;
- Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses; and,
- Discharge of contaminants entrained in in groundwater and, or surface water run-off followed by overland flow and discharge.

Potential Property Exposure Pathways:

- Direct contact of contaminants in soil and/or groundwater with existing and proposed structures and buried services;
- Migration of contaminated groundwater, ground gas and/or vapours along strata and preferential pathways such as service routes or differentially permeable strata; and
- Migration of contaminated waters/dust/fibres and subsequent uptake by crops or ingestion/ inhalation/dermal contact by livestock.

Potential Ecological Exposure Pathways:

- Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/ inhalation/dermal contact by fauna.

5.3.4. PCSM

A PCSM has been prepared for the site in its current undeveloped state (baseline), and also for future scenarios including construction, operation and post operation (for temporary works areas only). A post-operation (decommissioned) scenario has not been considered at this stage for the power station. The PCSM is included in Table E.1 in Appendix E.

6. Ground Investigation

6.1. Ground Investigation Design

As detailed in Section 3.3, several geo-environmental intrusive ground investigations have been carried out at the site including Structural Soils (2009) [6], Fugro (2010) [10], ESG (2011) [13], Structural Soils (2014) [22], Fugro (2014) [18], Structural Soils (2015) [23], Fugro (2015) [24] [25], Fugro (2020) [31] and Structural Soils (2020) [30].

Groundwater and surface water monitoring and sampling events were undertaken at the site by AMEC between 2010 and 2013 [11] [12] [17] and by Atkins from 2013 to present [27]. Ground gas monitoring was carried out by AMEC in 2011 [14] and by Structural Soils in 2020 [30].

The aims of the ground investigations and monitoring were to:

- Characterise the ground and groundwater conditions within the site (including the soil type, composition, depth, thickness and groundwater flow direction);
- Obtain geotechnical information for the proposed development; and/or,
- Characterise the contamination status of the soils and groundwater and the ground gas regime at the site.

The design of the investigations was based on the development proposals at the time they were undertaken.

6.2. Scope of Works

A summary of the scope of works undertaken over the investigation phases, both onshore and offshore, is provided below. The boreholes were drilled to investigate deeper geology and the trial pits were excavated to investigate the near surface ground conditions.

The factual ground investigation information is presented within the factual reports included in Appendix F. Exploratory hole location plans are included in Appendix A.

6.2.1. Onshore Area

- 214No. cable percussion boreholes (with standpipe installations) to a maximum depth of 56.7m bgl;
- 2No. cable percussion boring extended by rotary core drilling to a maximum depth of 120m bgl;
- 35No. rotary cored boreholes to a maximum depth of 122.9m bgl;
- 45No. rotary open hole boreholes to a maximum depth of 100.6m bgl;
- 2No. rotary core and rotary open hole boreholes to a maximum depth of 125.8m bgl;
- 92No. trial pits to a maximum depth of 5.0m bgl;
- 20No. sonic boreholes to a maximum depth of 120.0m bgl;
- 23No. soakaways tests in trial pits;
- 16No. permeability tests in boreholes;
- Gas and groundwater monitoring installations in window sample, rotary cored holes, sonic boreholes and cable percussion holes;
- Menard pressuremeter tests, SPTs and CPTs;
- Gas and groundwater level monitoring (following the site works);
- Geotechnical laboratory testing; and
- Chemical and radiochemical laboratory testing of soils, leachate, surface water and groundwater.

6.2.2. Offshore Area

- 30No.vibrocores to a maximum depth of 6.6m bsb;
- 19No. sonic drilling boreholes drilled to a maximum depth of 60m bsb;
- 15No. twined destructive drilling boreholes drilled adjacent to the sonic boreholes with SPTs to a maximum depth of depth of 57.25m bsb;
- 4No. twined destructive drilling boreholes drilled adjacent to the sonic boreholes with SPTs and rotary follow-on to a maximum depth of 111.2m bsb;
- Geophysical logging within the 19No. rotary boreholes;
- 18No. CPTs;
- Geotechnical laboratory testing; and
- Chemical testing of sediment and leachate samples.

6.3. Methodology

The ground investigations were undertaken in general accordance with BS 10175 'Code of Practice: Investigation of Potentially Contaminated Sites' [45] and BS 5930 'Code of practice for site investigations' [46] and 'Site Investigation in Construction, UK Specification for Ground Investigation, Second Edition' [47]. (relevant versions throughout investigation dates).

6.4. In-situ Screening

Soil arisings from boreholes and trial pits were screened in-situ during the onshore ground investigations using a photo-ionisation detector (PID) to measure the concentration of total volatile organic compounds (VOCs). A general screen was undertaken as the PID was held over the soil arisings to record levels of VOCs.

6.5. Chemical Analysis

Chemical analysis was carried out in accordance with Environment Agency Certification Scheme (MCERTS) and UK Accreditation Services (UKAS) accredited procedures.

6.5.1. Soils

A total of 288No. soil samples were selected for contamination testing across the various ground investigations. The majority of the chemical analysis was undertaken on soil sampled from exploratory holes located within the MCA (274 No. samples), with 14No. samples tested from the TCA. No chemical analysis was completed for soil samples taken from the LEEIE.

Samples were tested for a range of contaminants of concern including pH; ammoniacal nitrogen; sulphide; metals; cyanide; phenols; PAHs; Total Petroleum Hydrocarbons (TPH); benzene, toluene, ethylbenzene and xylene (BTEX); VOCS; Semi-volatile Organic Compounds (SVOCs); PCBs; Organochlorine Pesticides (OCPs); Organophosphorus Pesticides (OPPs); herbicides and asbestos. A total of 122No. soil samples across the investigation phases were scheduled for the radiochemical analysis including gross alpha (calibrated with americium-241) and gross beta (calibrated with potassium-40), high-resolution gamma spectrometry, total tritium and carbon-14.

A total of 26No. soil samples were scheduled for WAC analysis (full WAC suite) as part of the 2019 ground investigation.

6.5.2. Leachate

Leachability testing was carried out on 19No. soil samples collected from the 2015 investigation from the TCA and 34No. soil samples collected from the 2019 investigation from the MCA. Samples were tested for a range of contaminants of concern including pH, ammonium, ammoniacal nitrogen, sulphate, sulphide, chloride, nitrate, calcium, metals and PAHs.

6.5.3. Groundwater and Surface Water

Monthly monitoring of surface water and groundwater has been undertaken by AMEC between 2011 and 2013 and Atkins from 2013 to present. Groundwater samples were collected on 13No. occasions by AMEC between 2011 and 2012 and on 12No. occasions by Atkins between 2014 and 2019. Surface water samples were collected on 37No. occasions by AMEC between 2010 and 2013 and by Atkins on 5No. occasions between 2014 and 2019.

A total of 516No. groundwater samples were collected from monitoring boreholes located within the MCA and TCA and 582No. surface water samples were collected from a series of interconnected drainage ditches located within the MCA and in the area upstream and downstream of the MCA including Leiston Drain, SSSI drains, unnamed watercourses and Sizewell Drain.

Water samples were tested for a range of parameters and contaminants of concern including pH, ammonia, ammonium, hardness, chloride, nitrate, cyanide, metals, PAHs, BTEX, TPHs, PCBs, VOCs, SVOCs and phenols.

Samples were also scheduled for the radiochemical analysis including gross alpha (calibrated with americium-241) and gross beta (calibrated with potassium-40), high-resolution gamma spectrometry, total tritium and carbon-14.

6.5.4. Sediment

A total of 23No. sediment samples were selected for contamination testing in the 2019 offshore investigation. Samples were tested for a range of contaminants of concern including pH, ammonium, metals, BTEX, Gasoline range organics (GRO), TPH, Organotins, PAHs, PCBs, Phenols, VOCS, SVOCs and asbestos.

A total of 4No. sediment samples were scheduled for radiochemical analysis including high-resolution gamma spectrometry and a total of 10No. sediment samples were scheduled for WAC analysis (full WAC suite).

Leachability testing was carried out on 7No. sediment samples. Samples were tested for a range of contaminants of concern including pH, ammonium, ammoniacal nitrogen, sulphate, sulphide, nitrate, calcium, metals and PAHs.

As part of the 2019 investigation 31No.sediment samples were also scheduled for Cefas analysis including particle size analysis, total organic carbon, metals, Organotins, OCPs, brominated flame retardants, PAHs, total hydrocarbon content, PCBs and high-resolution gamma spectrometry.

6.6. Ground Gas and Groundwater Level Monitoring

6.6.1. Monitoring

Monthly monitoring of groundwater level was undertaken by AMEC between 2011 and 2012 and by Atkins from 2013 to 2019 within boreholes installed in the MCA and TCA. Seven rounds of ground gas monitoring were undertaken by AMEC in 2011 as part of these monitoring rounds. Four additional rounds of gas monitoring were undertaken by Structural Soils within the MCA as part of the 2019 ground investigation, including monitoring of both existing and new boreholes.

6.6.2. Installation Details

Details of the ground gas and groundwater monitoring standpipes installed within boreholes during the ground investigations are summarised in Table 6-1.

Table 6-1 - Standpipe Installation Details

Location	Response Zone (m bgl)		Stratum
	Top	Bottom	
GW1D	8.8	15.81	Crag Group
GW1S	0.9	3.0	Made Ground
GW2	8.8	16.07	Crag Group
GW3	6.7	13.89	Crag Group
GW4/PZ2009_ 20	3.5	10.72	Crag Group
GW5A/PZ200 9_19	4.1	11.12	Crag Group
GW6D	7.3	13.29	Crag Group
GW6S	0.6	4.88	Made Ground
GW7	0.4	6.68	Made Ground / reworked natural
GW8	4.2	10.05	Made Ground / reworked natural
GW9D	12.0	16.39	Crag Group
GW9S	1.0	5.71	Marine Deposits (Sand and gravel)
GW10	0.4	5.38	Made Ground
GW11D	10.1	18.43	Crag Group
GW11S	6.0	8.7	Alluvium/peat
GW11S1	0.4	4.75	Made Ground/ reworked natural
GW12	5.4	13.8	Made Ground and Marine Deposits
GW13	1.0	6.21	Marine Deposits (Sand and gravel)
GW15	0.6	4.78	Made Ground
GW16D	3.8	10.06	Crag Group
GW17	3.2	10.4	Made Ground / reworked natural
GW18	4.8	12.2	Possible reworked Crag Group
GW19	3.6	10.5	Crag Group
GW20	0.8	6.92	Crag Group
GW21	5.4	12.0	Crag Group
GW22	0.8	7.96	Crag Group
GW23	0.8	6.92	Crag Group
GW24D	10.0	15.34	Crag Group
GW24S	0.8	4.39	Made Ground
G1	0.8	7.2	Made Ground
G2	4.4	7.8	Alluvium
G3	4.1	7.0	Alluvium
G4	5.7	9.0	Alluvium
G5	1.3	5.6	Made Ground
G6	0.8	5.5	Made Ground
PZ2009_6	11.2	20.57	Probably Crag Group
PZ2009_14	6.5	19.53	Probably Crag Group
PZ2009_16	11.0	55.0	Probably Crag Group

Location	Response Zone (m bgl)		Stratum
	Top	Bottom	
AF1	9.0	16.50	Crag Group
AF2	0.5	5.0	Alluvium
AF3	2.0	6.0	Alluvium
AF4	2.0	10.0	Crag Group
AF6	7.0	11.0	Crag Group
AF7	2.0	6.0	Crag Group
AF8	3.0	9.0	Crag Group
AF9	3.0	5.0	Alluvium and Crag Group
BDG01A	9.0	15.0	Crag Group
BDG02	8.0	20.0	Crag Group
BP6	10.0	20.0	Lowestoft Till Formation and Crag Group
BP7	12.0	20.0	Crag Group
BP9	8.0	20.0	Crag Group
BP12	12.0	20.0	Crag Group
BP14	6.0	12.0	Crag Group
BP16	15.0	20.2	Crag Group
BP19	6.0	12.0	Crag Group
BP23	6.0	12.0	Crag Group
BP24	13.0	20.8	Crag Group
BP27	9.0	20.0	Crag Group
BP28	8.0	20.0	Lowestoft Till Formation
BR2A	8.5	20.0	Crag Group
BR4	1.0	10.0	Lowestoft Till Formation and Crag Group
BR7	3.0	9.0	Lowestoft Till Formation
BR9	4.5	10.0	Lowestoft Till Formation
BR12	20.0	23.0	Crag Group
BR13-C1	6.0	15.0	Lowestoft Till Formation
BR14-C4	6.0	12.0	Crag Group
BR15	3.0	14.0	Crag Group
C3	7.0	10.0	Lowestoft Till Formation
C7	14.0	20.0	Crag Group
GR2	8.0	30.0	Lowestoft Till Formation and Crag Group
GR3	11.0	20.0	Crag Group
GR6	1.0	7.0	Lowestoft Till Formation
GR9	10.50	15.0	Crag Group
GR11	6.0	15.0	Crag Group
PBP4	6.0	12.0	Lowestoft Till Formation and Crag Group
RR7	4.0	10.0	Crag Group

Location	Response Zone (m bgl)		Stratum
	Top	Bottom	
DCBH2019_2	5.5	7.5	Alluvium/Peat
DCBH2019_3	6.5	8.0	Alluvium/Peat
DCBH2019_4	4	12.5	Alluvium/Peat
DCBH2019_5	4.2	10.0	Alluvium/Peat
DCBH2019_6	7.5	12.5	Alluvium/Peat
DCBH2019_7	-	87.0 (vibrating wire piezometer)	Chalk
DCBH2019_8	-	90.0 (vibrating wire piezometer)	Chalk
SCBH2019_1	3.0	7.0	Alluvium/Peat
SCBH2019_2	2.0	9.0	Alluvium/Peat
SCBH2019_3	3.0	8.5	Alluvium/Peat
MGS2019_A	5.0	6.0	Made Ground
MGS2019_F	1.0	3.0	Made Ground

7. Ground Conditions

7.1. General

This section provides a summary of the ground conditions encountered during the investigations [6] [13] [22] [23] [30]. The ground conditions for the site have been divided into four zones including the MCA, TCA, LEEIE and offshore area. The depths quoted are relative to the ground levels prevailing at the time of the ground investigations.

Full details of the ground conditions encountered at each exploratory hole location are provided in the exploratory hole logs included within the factual reports in Appendix F. Exploratory hole location plans are included in Appendix A.

Further details in relation to ground conditions are provided in the Enabling Works Geotechnical Design Report [32] which is based on the ground model developed for the site by TEGG [33]. Geological cross sections prepared for the MCA as part of the Enabling Works Geotechnical Design Report [32] are included within Appendix G.

7.2. Main Construction Area

7.2.1. Topsoil

Topsoil including ploughed soil in the southern section of the zone was encountered in exploratory holes and comprised either brown orange silty or clayey sand or fine to medium grained sand. The layer generally included rootlets, with a low content of gravels or anthropogenic material. The thickness of this stratum ranged from 0.1m up to 0.8m in the southern section of the zone.

7.2.2. Made Ground

Made Ground was encountered in the majority of exploratory hole location across the northern and central sections of this zone, which often contained construction and demolition materials. Reworked topsoil was encountered within a number of exploratory holes from ground surface to between 3.6m and 7.0m bgl, which comprised either brown silty sand / sandy loam, brown to orange brown sand with occasional to frequent rootlets or brown / orange slightly gravelly sand with roots. Reworked sands were also encountered described as grey gravelly sand with organic and hydrogen sulphide odours and sub-angular to angular gravel and grey sand. Made Ground was recorded up to 10.8m bgl within the embankment along the eastern edge of the MCA. No Asbestos Containing Material (ACM) or suspected ACM was observed during the ground investigations.

7.2.3. Marine Deposits

Marine Deposits were encountered from 6.0m bgl up to depths of 12.7m bgl across the northern and central sections of the zone and in one location within the southern section of the zone. The Marine Deposits generally comprised rounded to sub-angular orange gravel with a varying content of medium to coarse-grained sands. The Marine Deposits are underlain by Alluvium and the Crag Group.

7.2.4. Alluvium and Peat

Alluvium was encountered at depths of between 3.6m and 12.85m bgl within a number of locations in the northern and southern sections of the zone and in one location within the southern section of the zone, overlain by Made Ground or Marine Deposits. The Alluvium contained varying amounts of brown or dark yellow fibrous, slightly silty Peat, interbedded with a grey sandy clay or clayey silt. Distinctive hydrogen sulphide odours were noted within the Alluvium with the thickness of the strata ranging from 2.1m to 4.6m. An average thickness of approximately 3.5m was recorded.

7.2.5. Crag Group

Sands of the NCF and RCF were encountered at depths of between 6.0m and 9.9m bgl in the central and northern sections of the zone and at shallow depth of 0.15m bgl in the southern section of the zone underlying the Marine Deposits and / or Alluvium. The Crag Group generally consisted of either orange or grey fine to coarse silty sand (density increasing rapidly with depth from medium dense to very dense) with occasional subangular to rounded flint gravel. Clasts of grey clayey sand were encountered in several boreholes, in addition to bands of shell fragments.

7.2.6. London Clay Formation

The London Clay Formation is situated directly beneath the Crag Group and was encountered at depths of between 41.2m and 43.5m bgl comprising very firm to very stiff greyish brown slightly sandy to sandy clay.

7.2.7. Lower London Tertiaries

The Harwich Formation (Thames Group) was encountered at depths of between 45.77m and 57.27m bgl comprising medium to strong blueish grey to dark grey argillaceous limestone with calcite veins. The Lambeth Group (Reading and Woolwich Formations) was present underlying the Harwich Formation at depths of between 58.01m and 74.00m bgl. The Lambeth Group generally comprised greyish to yellowish brown silty or clayey fine to medium sand and very stiff dark grey to black slightly silty clay. The Ormesby Clay Member of the Lista Formation was encountered beneath the Lambeth Group at depths of between 68.40m and 72.33m bgl.

7.2.8. Chalk

Chalk was encountered at depths of between 77.00m and 92.25m bgl. The chalk generally comprised structureless chalk consisting of white slightly sandy slightly gravelly silt with gravel and very weak to strong, medium to very high density closely jointed white burrow mottled light grey chalk. The base of the chalk was not proven.

7.2.9. Groundwater

Groundwater strikes were encountered between 0.9m and 7.8m bgl during drilling within the Made Ground, Marine Deposits, Peat, Crag Group and chalk.

7.2.10. Contamination and Anthropogenic Materials

Measurements derived from on-site screening of arisings for the presence of VOCs from exploratory holes within the MCA were generally <5ppm. A sample from GW11D collected at a depth of 8.5m bgl from the Alluvium/Peat layer recorded a VOC concentration of 20ppm.

Organic odours or hydrogen sulphide odours were noted within the Alluvium in the central and northern sections of the zone. Various anthropogenic materials likely to be associated with the construction of Sizewell B were recorded, including concrete, rebar, brick fragments, slag, geotextile fabric and plastic pipe. A pottery fragment was also noted in the southern section of the zone, likely to be related to the historical ploughing of this area.

7.3. Temporary Construction Area

7.3.1. Topsoil

Topsoil typically comprised a brown sand/loam with varying quantity of organic material. Humic topsoil was encountered in boreholes situated beneath pine trees. Coarse sand comprised the minor component of this topsoil, with the majority consisting of decomposing pine needles and a rootlet mat.

7.3.2. Made Ground

Made Ground was encountered within exploratory hole locations which comprised orange silty sand with charcoal fragments or sub-rounded to rounded gravel. Twisted metal fragments were observed. Reworked landfill materials were also observed in two boreholes (GW1S and GW1D). The Made Ground primarily comprised of domestic waste within either a sand matrix or sandy clay matrix. The waste material is likely to originate from the historical Abbey Pit landfill site present adjacent to the south-west of this zone. The thickness of this waste layer was recorded up to 3.2m bgl.

Reworked topsoil (ploughed) was encountered in the boreholes and comprised either brown sand or clayey loam to a depth of 0.2m bgl. Pottery fragments were observed between the ground surface and 0.1m bgl. Reworked Crag Group was present within a number of locations underlying landfill waste material to a depth of 4.0m bgl and comprised orange/brown/black silty and clayey sand with variable gravel content.

7.3.3. Alluvium

Alluvium was present within locations in the south-east of the zone predominantly overlain by Made Ground. Alluvium encountered comprised soft grey to black silty clay and clayey silt, with a predominantly organic odour. The thickness of the stratum ranged from 3.6m to 7.0m bgl.

7.3.4. Lowestoft Till Formation

Lowestoft Till Formation was present within many exploratory hole locations with the exception of the east of the area. This was generally described as medium dense orangish brown slightly gravelly medium to coarse sand. Gravel was subangular to surrounded, fine to coarse flint and quartzite. The stratum was encountered from depths of 0.1m and 0.8m bgl.

7.3.5. Crag Group

The Crag Group was encountered within the majority of exploratory holes excavated in this zone from depths of between 0.1m and 1.0m bgl. The Crag Group generally consisted of orange brown, slightly silty fine to coarse grained sand, with a low content of sub-rounded to rounded flint gravel and occasional silty and clayey laminations.

Occasional iron staining and poorly cemented, thinly laminated bands of silty fine sand and siltstone were observed in seven boreholes. A trace of shell fragments was observed in the Crag Group with occasional rounded fine chalk gravel was observed within boreholes.

7.3.6. Groundwater

Groundwater was encountered between 0.45m and 11.2m bgl during the drilling within the Made Ground and RCF.

7.3.7. Contamination and Anthropogenic Materials

Measurements derived from on-site screening of arisings for the presence of VOCs from exploratory holes excavated in this zone recorded concentrations of up to 2.1ppm.

Organic odours or hydrogen sulphide odours were noted within the Alluvium. Various anthropogenic materials were found and considered likely to originate from the domestic waste of the adjacent former Abbey Pit landfill site, including concrete, rebar, brick fragments, plastic cup, wood fragments and plastic pipe.

7.4. Land to the east of Eastland Industrial Estate

7.4.1. Topsoil

Topsoil was encountered in exploratory holes and comprised brown slightly gravelly silty fine to medium sand. The layer generally included rootlets, with a low content of gravels such as flint and quartzite.

7.4.2. Lowestoft Till Formation

Lowestoft Till Formation was present within the majority of exploratory hole locations. This was generally described as medium dense orangish brown slightly gravelly medium to coarse sand. Gravel is subangular to surrounded, fine to coarse flint and quartzite. The stratum was encountered between 0.4m and 0.8m bgl.

7.4.3. Crag Group

The Crag Group was encountered between 0.4m and 5.0m bgl in the exploratory holes completed within this zone. The stratum was generally described as orange brown, slightly gravelly fine to coarse sand.

7.4.4. Groundwater

Groundwater was encountered between 10.6m and 14.6m bgl during the drilling within the Crag Group.

7.4.5. Contamination and Anthropogenic Materials

'Coarse coke' is noted within one exploratory hole location within the zone. Black speckling is indicated within the Lowestoft Till Formation at one location.

No other signs of contamination are indicated within the logs available for this zone.

7.5. Offshore Area

7.5.1. Marine Deposits

Marine Deposits comprising grey to yellowish brown interlaminated silty sandy gravelly clay, silty gravelly clayey sand and rare laminations of sandy silt with many shell and shell fragments and lenses of Peat were encountered at seabed level with an average thickness of between 2m and 10m.

7.5.2. Crag Group

Undifferentiated Crag Group was encountered in some locations at seabed level and comprised grey to yellowish brown, medium dense to dense, very fine to fine sand with clay layers and shell fragments with an average thickness of 14m. The NCF and RCF comprising grey to dark yellowish brown, dense to very dense, fine, sometimes clayey sand, with numerous shells and shell fragments were encountered at depths of between 0.5m bsb and 20m bsb. The CCF was encountered from seabed level up to depths of around 26m bsb comprising dense to very dense fine to coarse sand with occasional thin laminae of clay, occasional coarse sand to fine gravel sized shell fragments and inclusions of clay, weak claystone and siltstone.

7.5.3. London Clay

London Clay was encountered at depths of between 22 and 26m bsb comprising firm brown clay.

7.5.4. Lower London Tertiaries

The Harwich Formation (Wrabness and Orwell Members) was encountered at depths of between 32m and 51m bsb comprising firm to very stiff fissured dark bluish grey to brownish grey silty and sandy clay with occasional shell fragments. The Lambeth Group (Reading and Upnor Formations) comprising very stiff dark brown and greyish brown silty clay and stiff bluish grey to red, orange and brown very sand silt was encountered at depths of around 35 and 62m bsb. The Ormesby Clay Member of the Lista Formation comprising very weak dark brownish grey and dark greenish grey silty clay and mudstone was encountered beneath the Lambeth Group at depths of around 70m and 73m bsb.

7.5.5. Chalk

Structureless and very weak to weak, low to medium density white and off-white mottled dark greenish grey and orangish brown chalk was encountered at depths of -85 and 88m bsb.

7.6. Hydrogeological Regime

A CSM for the hydrogeological regime within the MCA and adjacent area was developed by Atkins in 2015 and is summarised in the following sections. Further details of the hydrogeological regime and the assessments being completed by Atkins can be found in 'Sizewell Site C. Conceptual Site Model of the Hydrogeological Regime. Ref. 5129919/TR/001' [26].

7.6.1. Groundwater Levels

Groundwater was encountered underlying the MCA and surrounding area within the Made Ground, Peat, Lowestoft Formation (sand and gravel), Crag Group and chalk.

Groundwater level monitoring undertaken at the site as part of previous investigations for the Crag Group and overlying superficial deposits indicate that water levels in the Peat range from 0.0m bgl in summer to 5m bgl in winter. Average groundwater levels in the Crag Group typically increase with distance from the coast. The highest recorded groundwater levels occur in the far north of the site, with a maximum value of 13m bgl. There is evidence of a tidal influence within the Crag Group, particularly in the eastern sections of the Sizewell Marshes SSSI and close to Leiston drain.

7.6.2. Groundwater Flow and Gradient

Groundwater flow within the Crag Group was found to be primarily towards the coast (east), with localised groundwater flow occurring to the north and south.

During periods when high water levels were recorded across the monitoring network, groundwater levels within the MCA were noted to be significantly elevated relative to the surrounding area. The higher water levels may be a result of the Sizewell B cut-off wall to the south causing water levels to rise locally, or it may be a result of Made Ground causing delayed recharge to the underlying Crag Group aquifer.

During lower water levels, a slight dip in groundwater levels was noted, suggesting that the main Leiston Beck / Sizewell Drain may be receiving groundwater baseflow.

7.6.3. Aquifer Properties

The perched groundwater within the Made Ground is considered to be in partial hydraulic continuity with the underlying natural strata, with the laterally inconsistent areas of cohesive material delaying recharge to the underlying aquifers.

The Crag Group aquifer is thought to be generally unconfined. The Crag Group water level is influenced by tidal variation of sea level and is slightly higher than that of the Peat. It is therefore considered that there is the potential for groundwater within the Crag Group to migrate upwards into the Peat.

However, no tidal variation was observed in the Peat. There is also some hydraulic separation between these aquifers due to the low vertical hydraulic conductivity of the Peat and the local presence of low hydraulic conductivity deposits such as Alluvium and Tidal Flats beneath the Peat, which prevent rapid transmission of water between the two groundwater systems.

The water types observed across the site also indicate that there is continuity between the Peat and the surface water drains.

The observed groundwater levels indicate that where the Thames Tertiary Deposits are largely absent, the Crag Group and chalk are in hydraulic continuity, however where the Thames Deposits confine the chalk, groundwater levels diverge. The large difference in the piezometric head of the chalk and Crag Group beneath the MCA, suggests that the London Clay is acting as an aquiclude and confining the chalk.

The Crag Group boreholes within the MCA indicated a degree of salt water intrusion. The Crag Group boreholes on the western edge of the MCA indicated a greater degree of saline intrusion than those on the eastern edge of the MCA.

The chalk is a dual porosity aquifer with a matrix of pores and larger fractures contributing to the overall hydraulic conductivity of the aquifer. The matrix hydraulic conductivity is low and the overall hydraulic conductivity of the aquifer is generally controlled by the larger pores and fractures.

8. Contamination Assessment

8.1. Assessment Introduction

The following presents a summary of the soil, leachate, surface water and groundwater analytical data and ground gas monitoring data collected from the ground investigations [6] [13] [22] [23] [30] [31] and provides a preliminary assessment of the results based on the proposal end use for the site. A complete set of the analytical and monitoring data is presented within the factual reports included in Appendix F. Exploratory hole location plans are included in Appendix A.

8.2. Human Health Risk Assessment

8.2.1. Generic Assessment Criteria

A Tier 2 human health GQRA has been undertaken for the receptors identified in the PCSM in Section 5.3. To evaluate the potential risks to human health, soil data have been screened against GAC as described below, to reflect the various uses of the site and surrounding area. Detailed guidance on human health risk assessment is available in Science Report SR2 [48] SR3 [49] and the CLEA Model. The GAC used in this assessment include the following:

Soil Screening Values (SSVs)

Atkins has produced SSVs based on minimal toxicological risk [48] for a variety of standard land uses at 1% Soil Organic Matter (SOM) (sand soil type) and 6% SOM (sandy loam soil type) using CLEA v1.071 in accordance with Environment Agency guidance [49].

Category 4 Screening Levels (C4SLs)

A revision to the Statutory Guidance of Part 2A of the Environmental Protection Act 1990 was published in April 2012, introducing a new category-based system for assessing risks associated with land contamination including the assessment of the 'significant possibility of significant harm' (SPOSH) whereby Category 1 sites are clearly contaminated and represent a high risk and Category 4 sites are clearly identifiable as low risk and as such would not be classified as Contaminated Land. C4SLs for six contaminants (arsenic, cadmium, hexavalent chromium, lead, benzene and benzo(a)pyrene) for a sandy loam soil with 6% SOM were issued by Defra in December 2014 [50] to provide an indication of "low risk" (i.e. the site is clearly within Category 4), whereas GAC, such as SSVs, are based on "minimal risk". If soil concentrations exceed the C4SLs, then further assessment is required to confirm whether the site lies within Category 4, or may lie within Categories 1-3. The Department for Communities and Local Government has indicated the C4SLs can also be used under the planning regime. Therefore, for this site C4SLs have been used for those determinants that do not have a SSV.

GAC for a commercial end use have been adopted for the assessment, as they are considered conservative for the proposed site end-use of a power station. The commercial GAC are based on an office scenario which assumes a critical receptor (female worker, age 16 to >65 years) working five days a week for 46 weeks of the year, with an exposure frequency of 230 days per year.

Soil data have also been screened against GAC for a public open space (parks) to assess risks to recreational users of the SSSI, marshes and beach along the foreshore and within the adjacent area. It is noted that an accommodation campus will be located within the TCA, which would require more stringent GAC for a residential end use to be applied. However, no existing soil testing data are currently available for this area.

In the general absence of soil SOM data for the majority of samples, the GAC developed for a SOM content of 1% have been adopted as this is a more conservative assessment.

Based on the ratio of genotoxic PAHs to benzo(a)pyrene, the surrogate marker approach for genotoxic PAHs as set out in the C4SL Project Methodology [50] has been adopted.

Potential acute risks resulting from short term exposure to contamination by construction/ maintenance workers involved with the proposed development cannot be assessed using these GAC because they relate to the long-term (chronic) risk. Risks to construction/maintenance workers should be managed with the use of appropriate safe systems of work including Personal Protective Equipment (PPE).

It should be noted that the GACs are liable to change as new policy and technical guidance, including toxicological data, are published by the Environment Agency and other authoritative sources. Further to this, a Detailed Quantitative Risk Assessment (DQRA) may be required to review the level of conservatism in the screening values, depending upon the outcome of the generic data screening exercise at detailed design stage.

8.2.2. Soil Assessment

A total of 288No. soil samples were tested from the MCA and TCA as part of the onshore ground investigations. No exceedances of the commercial land use or public open space (parks) GAC were identified in the soil or sediment samples tested. Herbicides, pesticides and PCBs were not detected above the laboratory limit of detection. An assessment table of the data including GAC is included in Appendix H.

8.2.2.1. Asbestos

As part of the ground investigations undertaken to date, a total of 194No. samples have been visually screened for the presence of asbestos. These include 109No. samples collected from the Made Ground at depths of between 0.0m and 6.0m bgl and 85No. samples collected from Peat, Marine Deposits, Alluvium and weathered Crag Group at depths of between 0.3m and 21.3m bgl.
The presence of asbestos was identified in 3No. samples obtained in the 2019 investigation [30] from two adjacent boreholes located in the south-west of the MCA (MGS_2019_B and MGS_2019_B2). The presence of amosite and chrysotile as loose fibres, board and bitumen was reported in these locations at depths of between 4.0m and 5.0m bgl within the Made Ground. Quantification by hand picking in the laboratory showed asbestos to be present at between 0.023% and 0.130% by weight. A summary of the results is provided in Table 8-1 below.

Table 8-1 - Summary of Asbestos Identification in Soil Samples

Location	Date Sampled	Stratum	Depth (m bgl)	Asbestos Type	Asbestos Description	Asbestos Quantification (% w/w)
MGS_2019_B	23/07/2019	Made Ground	5.0	chrysotile & amosite	Loose fibres within the soil matrix; and, Bound fibres within board and bitumen products	0.182
MGS_2019_B2	31/07/2019	Made Ground	4.0	chrysotile & amosite	Loose fibres within the soil matrix	0.023
	01/08/2019	Made Ground	5.0	chrysotile & amosite	Loose fibres within the soil matrix	0.313

The presence of asbestos has been identified in 3No. of the samples collected from the Made Ground within the MCA. No asbestos has been identified within the natural material underlying the site.

The asbestos was identified in Made Ground at depths of between 4.0m and 5.0m bgl in MGS_2019_B and MGS_2019_B2 located in the south-west of the site. Asbestos was not identified in any other Made Ground samples tested in this location including:

- MGS_2019_B: Made Ground samples at 0.3m and 3.0m bgl;
- MGS_2019_B1: Made Ground samples at 0.3m and 1.0m bgl; and
- MGS_2019_B2: Made Ground samples at 1.0m and 6.0m bgl.

Undisturbed natural strata of Peat was encountered at 6.6m bgl in both locations and asbestos was not identified within the Peat sample tested from MGS_2019_B at 7.0m bgl. Therefore, the asbestos appears to be only present at depth within the Made Ground in this location around 4.0m to 5.0m bgl. Made Ground is generally consistent across the MCA comprising reworked natural gravelly sands (Crag Group) to a depth of approximately 5m bgl. Deeper areas of Made Ground have been encountered up to 10.8m bgl within the flood prevention mound along the eastern edge of the MCA. An increased thickness of Made Ground was also recorded in the location of MGS_2019_B and MGS_2019_B2 compared to other boreholes across the MCA, up to a depth of 6.6m bgl. Deeper Made Ground was also encountered in CBH2009_6 drilled in 2009 and MGS2019_J, MGS2019_K, SD2019_7 and DCBH2019_8 drilled in 2019 around this area of the site, to a maximum depth of 7.3m bgl in MGS2019_K.

The Made Ground comprised a similar reworked natural composition as the Made Ground within the wider site area but included additional fragments of anthropogenic material which were generally not encountered within other areas of the site, including:

- Fragments of rope were recorded in MGS_2019_B and gravel of concrete between 1.3m and 6.6m bgl;
- Fragments of plastic pipe, tile, screws, glass, timber and brick were recorded in MGS_2019_B2 between 2.4m and 5.7m bgl;
- Gravel of concrete and fragments of timber and glass were recorded between 5.5m and 5.9m in MGS_2019_J; and
- Gravel of concrete and fragments of glass were recorded between 4.0m and 7.3m in MGS_2019_K.

Further details are provided in the exploratory hole logs within the factual reports included in Appendix F.

Trial pits TP17, TP26 and TP29 and borehole GW11 located in this area to the east of MGS_2019_B and MGS_2019_B2 recorded shallower thicknesses of Made Ground between 0.8m and 5.5m thick and did not note the presence of anthropogenic material. BH38 located to the west of MGS_2019_J and MGS_2019_K also recorded shallower thicknesses of Made Ground to 1.5m bgl.

Considering the general absence of anthropogenic materials elsewhere across the site and shallower thicknesses of Made Ground, the ground conditions in the vicinity of MGS_2019_B and MGS_2019_B2 may be indicative of a localised area of historical excavation and infilling, including the disposal of construction and demolition materials. The asbestos identified in MGS_2019_B and MGS_2019_B2 is likely to be associated with this deeper area of Made Ground. This Made Ground may be limited to this area of the site considering the geology encountered in surrounding locations. However, further investigation and assessment would be required to determine the lateral extent of Made Ground and presence of asbestos within this area of the site.

8.3. Controlled Waters Assessment

8.3.1. Generic Assessment Criteria (GAC)

A Tier 2 controlled waters GQRA has been undertaken to assess the potential risks posed to the identified controlled waters receptors from the migration of contaminants from identified on-site sources. To assess potential risks to the identified receptors, a comparison of soil-derived leachate and groundwater data against water quality standards (WQS) has been undertaken.

The screening criteria for controlled waters assessment are dependent on the nature of the key receptor. The site is underlain by the Crag Group and chalk Formations, which are classified as a Principal Aquifers and an abstraction borehole associated with a Zone 3 groundwater SPZ is located 20m to the east of the site. Drainage ditches associated with the SSSI marshland are present across the site draining into Leiston Beck and the New Minsmere Cut. The North Sea is present adjacent to the east of the MCA.

The primary controlled waters receptors are considered to be the Principal Aquifer as a groundwater resource. However, it is noted that there is significant saline intrusion within the Crag Group Aquifer underlying the majority of the site [26], which would reduce its value as a potable water resource. The associated watercourses within the SSSI are also identified to be key controlled waters receptors. Soil leachate and groundwater data have therefore been screened against WQS based on both Drinking Water Standards (DWS) to assess the potential risk posed to the underlying Principal Aquifer and coastal and estuarine Environmental Quality Standards (EQS) to assess risks to the surface watercourses within the SSSI.

8.3.2. Soil Leachate

A total of 53No. samples collected from the MCA and TCA were tested for their leachability of contaminants. Several elevated concentrations of inorganics, metals and PAHs were recorded in leachate samples when assessed against the WQS. A summary of the exceedances is provided in Table 8-2. A more detailed assessment of the data including WQS is included in Appendix I.

Table 8-2 - Summary of Soil Leachate Exceedances

Determinand	Unit	Screening Value (EQS)	Screening Value (DWS)	Maximum	No. Exceedances (EQS)	No. Exceedances (DWS)
Ammoniacal Nitrogen as NH_4	mg/l	0.26	0.5	8.876	12	11
Sulphate	mg/l	400	250	276.04	-	2
Cyanide (total)	mg/l	-	0.05	0.082	-	1
Arsenic	mg/l	0.05	0.01	0.023	-	4
Boron	mg/l	2	1	1.12	-	1
Iron	mg/l	1	0.2	1.44	1	9
Lead	mg/l	0.0012	0.01	0.018	6	1
Manganese	mg/l	0.123	0.05	0.452	7	14
Copper	mg/l	0.001	2	0.008	9	-
Mercury	mg/l	0.00007	0.001	0.0002	1	-
Nickel	mg/l	0.004	0.02	0.006	2	-
Vanadium	mg/l	0.02	-	0.078	5	-
Zinc	mg/l	0.0145	3	0.167	6	-
Anthracene	mg/l	0.0001	-	0.00023	2	-
Fluoranthene	mg/l	0.0000063	-	0.00013	6	-

8.3.3. Groundwater

A total of 516No. groundwater samples from a range of strata were collected from monitoring boreholes across the MCA and TCA (refer Section 6.6) on 13No. occasions by AMEC between 2011 and 2012 and on 12No. occasions by Atkins between 2014 and 2019.

Several elevated concentrations of inorganics, metals, PAHs and VOCs were recorded in groundwater samples when assessed against the WQS. A summary of the exceedances is provided in Table 8-3 and Table 8-4. A more detailed assessment of the data including WQS is included in Appendix K.

Table 8-3 - Summary of Groundwater Exceedances (Atkins data)

Determinand	Unit	Screening Value (EQS)	Screening Value (DWS)	Maximum	No. Exceedances (EQS)	No. Exceedances (DWS)
Chloride	mg/l	N/A	250	9500	-	39
Ammoniacal Nitrogen	mg/l	N/A	0.39	16	-	26
Ammonium	mg/l	N/A	0.5	20	-	55
Nitrite	mg/l	N/A	0.5	1.1	-	1
Nitrate	mg/l	N/A	0.05	220	-	74
Sulphate	mg/l	N/A	250	1400	-	1
Sodium	mg/l	N/A	200	2100	-	19
Arsenic (Dissolved)	mg/l	0.025	0.01	0.067	3	11
Cadmium (Dissolved)	mg/l	0.0002	0.005	0.0006	10	-
Chromium (Dissolved)	mg/l	0.0006	0.05	0.068	78	2
Copper (Dissolved)	mg/l	0.00376	2	0.076	17	-
Manganese (Dissolved)	mg/l	N/A	0.05	5.3	-	37
Nickel (Dissolved)	mg/l	0.0086	0.02	0.03	15	1
Lead (Dissolved)	mg/l	0.0013	0.01	0.0071	5	-
Zinc (Dissolved)	mg/l	0.0079	3	0.49	457	-
Iron (Dissolved)	mg/l	1	0.2	18	19	68

Table 8-4 - Summary of groundwater exceedances (AMEC data)

Determinand	Unit	Screening Value (EQS)	Screening Value (DWS)	Maximum	No. Exceedances (EQS)	No. Exceedances (DWS)
Arsenic	mg/l	0.025	0.01	0.077	46	47
Boron	µg/l	7	1	1402	149	150
Cadmium	mg/l	0.0002	0.005	0.009	7	6
Chromium	µg/l	0.0006	0.05	7	1	1
Lead	µg/l	0.0013	0.01	6	10	10
Nickel	mg/l	0.0086	0.02	0.099	155	162

Determinand	Unit	Screening Value (EQS)	Screening Value (DWS)	Maximum	No. Exceedances (EQS)	No. Exceedances (DWS)
Copper	mg/l	0.00376	2	0.032	39	-
Zinc	mg/l	0.0079	3	1.234	252	-
Mercury	mg/l	0.00007	0.001	0.0025	20	14
Iron	mg/l	1	0.2	54.37	127	170
Sodium	mg/l	N/A	200	5336	-	46
Sulphate	mg/l	N/A	200	1197	-	20
Chloride	mg/l	N/A	250	8504	-	139
Nitrate	mg/l	N/A	0.05	214	-	42
Ammonium as NH4	mg/l	-	0.5	84.6	-	25
Free Cyanide	mg/l	0.001	-	0.01	10	-
Naphthalene	mg/l	0.002	-	0.00323	26	-
Anthracene	µg/l	0.0001	-	0.1	18	-
Fluoranthene	mg/l	0.0000063	0.00001	0.001	14	-
Benzo(b)fluoranthene	mg/l	0.000017	-	0.00013	2	-
Benzo(k)fluoranthene	mg/l	0.000017	0.00001	0.00016	2	-
Benzo(a)pyrene	mg/l	0.00000017	0.00001	0.00016	2	2
Toluene	µg/l	0.074	0.7	1	1	1
1,1,1-Trichloroethane	µg/l	0.1	2	3	2	1
Tetrachloroethylene	mg/l	0.01	-	0.031	2	-
1,2-Dichloroethane	mg/l	0.01	0.003	0.132	2	2
Hexachlorobutadiene	µg/l	0.0006	0.0006	1	1	1

Elevated concentrations of inorganics including chloride, sulphate, ammonium, ammoniacal nitrogen, nitrate and sodium are widespread across the site. Reference to the hydrogeological CSM for the MCA [26] indicates that there is significant saline intrusion within the Crag Group Aquifer underlying the majority of this zone and parts of the TCA. Groundwater quality therefore indicates that it is being affected by marine influences causing these elevated concentrations.

Elevated concentrations of metals and inorganics were generally reported within the same order of magnitude or one order of magnitude above the WQS. Zinc, ammonium, ammoniacal nitrogen, lead, boron, nitrate and chromium were reported at greater concentrations above the WQS. These elevated concentrations are widespread across the site and are likely to be due to influences from the underlying geology (Peat), adjacent marshes and farming activities in the surrounding areas.

Elevated concentrations of BTEX, PAHs and VOCs (solvents) were generally reported within the same order of magnitude or one order of magnitude above the WQS, and considered marginal with the exception of fluoranthene, benzo(a)pyrene, anthracene and hexachlorobutadiene which were reported at greater concentrations above the WQS.

The exceedances of BTEX, PAHs and VOCs (solvents) were reported in samples from four boreholes (GW6D, Pz2009_16, Pz2009_14, GW11S1 and GW20) located within the MCA. The exceedances were generally only reported on one monitoring round at each location, with the exception of GW6D and GW20 where exceedances were reported on two consecutive monitoring rounds. Reference to the exploratory hole logs indicates that the boreholes are all installed within the Crag Group. Made

Ground (to a depth of between 0.6m and 6.2m) is present at the majority of locations (with the exception of Pz2009_14) overlying Crag Group (sand). The Made Ground comprises re-worked natural material with no evidence of visual or olfactory contamination. Peat was encountered beneath the Made Ground up to 3.4m deep in GWD6 and Pz2009_16.

No soil or leachate testing was undertaken for these boreholes. However, reference to chemical testing data for adjacent boreholes and trial pits with similar geology indicates that concentrations of PAHs, BTEX and VOCs in soil samples from the Made Ground and underlying natural material in the surrounding areas were below the laboratory limits of detection.

Although there have been potentially contaminative historical uses within the MCA, there is no obvious source of the elevated levels of BTEX and PAHs in these locations and the exceedances may be due to influences from the underlying peat deposits which can cause elevated organic concentrations. The source of the elevated levels of VOCs (solvents) is also not confirmed at present.

8.3.4. Surface Water

Surface water samples were collected on 37No. occasions by AMEC between 2010 and 2013 and Atkins on 5No. occasions between 2014 and 2019. A total of 582No. surface water samples from a series of interconnecting drainage ditches located on-site and in the area upstream and downstream of the MCA including Leiston Drain, SSSI drains, unnamed watercourses and Sizewell Drain were collected and tested.

Exceedances of metals and inorganic contaminants were identified in the majority of samples against WQS. A summary of the exceedances is provided in Table 8-5 and Table 8-6. A full assessment of the data including WQS is included in Appendix J.

Table 8-5 - Summary of Surface Water Exceedances (Atkins)

Determinand	Unit	Screening Value (EQS)	Maximum	No. Exceedances (EQS)
Dissolved Copper	mg/l	0.00376	0.0039	3
Dissolved Zinc	mg/l	0.0068	0.046	24

Table 8-6 - Summary of Surface Water Exceedances (AMEC)

Determinand	Unit	Screening Value (EQS)	Maximum	No. Exceedances (EQS)
Zinc	mg/l	0.0068	112	540
Iron	mg/l	1	1,689	136
Nickel	mg/l	0.0086	6	42
Mercury	mg/l	0.00007	1.41	16
Lead	mg/l	0.0013	16	29
Sodium	mg/l	N/A	2,396	-
Chloride	mg/l	N/A	15,655	-
pH	pH units	7 - 9.0	8.4	134
Dissolved Copper	mg/l	0.00376	30.1	259
Dissolved Zinc	mg/l	0.0068	238	354
Dissolved Nickel	mg/l	0.0086	1.41	18
Sulphate	mg/l	N/A	410	-

Water quality within the surface watercourses on and surrounding the site is noted to be moderate to poor [17]. The water chemistry is likely be influenced by discharges from the Leiston Sewage Treatment Works which may contribute to the elevated concentrations of ammonium and metals. There are also likely to be marine influences (e.g. high sodium, sulphate and chloride concentrations) on the watercourses in the eastern and northern parts of the MCA and TCA from incursion of seawater through the Minsmere Sluice and groundwater influences on the watercourses in closest proximity to the coast.

8.4. Sediment Assessment

Samples were collected from bedrock within boreholes located along the proposed outfall and intake tunnel axis at the depth of the proposed tunnel horizons between 19.5m and 26m bsb. Samples were also collected from superficial strata at depths of between sea bed and 2.0m bsb at the proposed tunnel and shaft locations where dredging is likely to be undertaken.

8.4.1. Generic Assessment Criteria

To determine the potential suitability of the tunnel arisings to be re-used onshore as part of the proposed development, the data were screened against GAC for a commercial and a public open space (parks) end use and leachate data were screened against WQS based on both DWS and EQS (see Sections 8.2.1 and 8.3.2).

To provide information in relation to the potential sea disposal of dredged material, Cefas results were screened against Cefas Action Levels for the Disposal of Dredged Material [51].

8.4.2. Assessment

A total of 23No. samples were scheduled for contamination testing. No exceedances of the commercial land use or public open space (parks) GAC were identified in the samples tested. Herbicides, pesticides and PCBs were not detected above the laboratory limit of detection. An assessment table of the data including GAC is included in Appendix L.

8.4.3. Asbestos

A total of 11No. samples collected were visually screened for the presence of asbestos. No asbestos was visually identified in any of the samples.

8.4.4. Leachate

Leachability testing was carried out on 7No. samples collected from the offshore area to determine the potential suitability of the tunnel arisings to be re-used onshore as part of the proposed development. Data were screened against WQS based on both DWS and EQS as outlined in Section 8.3.2.

Several elevated concentrations of inorganics, metals and phenol were recorded in leachate samples when assessed against the WQS. A summary of the exceedances is provided in Table 8-7. A more detailed assessment of the data including WQS is included in Appendix L.

Table 8-7 - Summary of Sediment Leachate Exceedances

Determinand	Unit	Screening Value (EQS)	Screening Value (DWS)	Maximum	No. Exceedances (EQS)	No. Exceedances (DWS)
Lead	mg/l	0.0013	0.01	0.012	1	1
Mercury	mg/l	0.00007	0.001	0.001	1	-
Vanadium	mg/l	0.1	N/A	0.32	1	-
Zinc	mg/l	0.0079	3	24	1	1
Iron	mg/l	1	0.2	0.24	-	2

Determinand	Unit	Screening Value (EQS)	Screening Value (DWS)	Maximum	No. Exceedances (EQS)	No. Exceedances (DWS)
Chloride	mg/l	N/A	250	395	-	5
Cyanide (Total)	mg/l	N/A	0.05	7.6	-	2
Phenol	mg/l	0.0077	0.05	0.1	1	1

Depending upon the proposed re-use of the materials onshore, the final placement of these materials will need to further consider risks from leachate.

8.4.5. Cefas Analysis

A total of 19No.sediment samples were scheduled for Cefas analysis. Arsenic was reported at slightly elevated concentrations (34.1mg/kg) above Action Level 1 (20mg/kg) but below Action Level 2 (100mg/kg) in one sample tested from IT1_SB_05 at 0.0m. All other results were below Action Level 1. A more detailed assessment of the data including Action Levels is included in Appendix L. Material with contaminant levels between Action Levels 1 and 2 will require further assessment to determine whether it is suitable for sea disposal. Further assessment of the material's physical characteristics, the disposal site characteristics and other relevant data will also be required to inform management of any dredged material. Dredging and sea disposal would need to be undertaken in accordance with a Marine Licence.

8.5. Ground Gas Assessment

A preliminary ground gas risk assessment has been undertaken in general accordance with BS 8485:2015+A1:2019 [52] code of practice for design of protective measures for methane and carbon dioxide ground gases for buildings.

BS8485:2015+A1:2019 states that hazardous gas flow rates (Qhg) should be calculated for methane and carbon dioxide for every borehole for each visit, and suggests the Qhgs be presented alongside the gas monitoring results in a database. Qhg is calculated using the maximum gas concentration recorded (unless lower values can be justified) and the steady state flow rate using the below formula:

Qhg (l/hr) = flow rate (l/hr) x [gas concentration (%) / 100]

The Gas Screening Value (GSV) is the flow rate of a specific hazardous gas considered to be representative of a site, following assessment of all borehole concentrations and gas flow rates, whilst taking account of other influencing factors. Such factors being, for example, whether a response zone was completed flooded (which can compromise gas data), the temporal/spatial nature of the dataset and the acute one-off nature of the risk.

BS 8485:2015+A1:2019 indicates that a decision must be made to determine whether the maximum Qhg in the dataset is appropriate to represent the site (and thereby be selected as the GSV), or whether maximum gas concentrations and maximum steady state flow rates should be combined from any borehole/visit to derive a “worst case GSV”.

The GSV considered representative for the site is then used to select a Characteristic Situation (CS), which is the ground gas regime assumed for design of gas protection measures for new buildings in accordance with BS 8485:2015+A1:2019. The CS is measured on a scale of 1 (very low risk) to 6 (very high risk) and assists in the determination of potential risks associated with the site and provides a general scope of protection measures. The GSVs and CS are presented in Table 8-8 (which is based on Table 2 in BS 8485:2015+A1:2019).

BS 8485:2015+A1:2019 does not include an approach for assessing carbon monoxide or hydrogen sulphide. The relevant Workplace Exposure Limits (WELs) as outlined within the HSE EH40/2015 (2011) document [53] have been adopted for use in a preliminary assessment of carbon monoxide and hydrogen sulphide:

- Carbon monoxide: 30 parts per million (ppm) for long-term (eight hours) exposure limit and 200 ppm for short-term (15 minutes) exposure limit; and
- Hydrogen sulphide: 5 ppm for the long-term exposure limit and 10 ppm for the short-term exposure limit.

Table 8-8 - Site Characteristic GSV and Associated CS

CS	Risk Classification	GSV	Additional Factors
1	Very Low Risk	<0.07	Typical methane <1 % and/or carbon dioxide <5 %. Otherwise consider increase to CS 2.
2	Low Risk	<0.7	Borehole air flow rate not to exceed 70 l/hr. Otherwise consider increase to CS 3
3	Moderate Risk	<3.5	-
4	Moderate to High Risk	<15	Quantitative risk assessment required to evaluate scope of protective measure
5	High Risk	<70	-
6	Very High Risk	>70	-

8.5.1. Carbon dioxide and Methane Results

Ground gas was monitored on seven occasions by AMEC in 2011 and on four occasions by Structural Soils in 2020. The Qhg of each monitoring well has been calculated and a summary of the maximum gas concentrations and steady state flow rates for each monitoring location is provided in Table 8-9.

Table 8-9 - Summary of Ground Gas Monitoring Results

Location	Response Zone	Location	Maximum Peak Concentrations (% v/v)		Maximum Steady State Flow Rate (l/hr)*	Q_{hg} (l/hr) calculated for each well**	
			Methane	Carbon Dioxide		Methane	Carbon Dioxide
GW1D	Crag Group	TCA	0.1	8.7	0.4	0.0004	0.0348
GW1S	Made Ground	TCA	0.1	9.0	0.1	0.0001	0.009
GW2	Crag Group	TCA	0.1	2.3	0.4	0.0004	0.0092
GW3	Crag Group	TCA	0.1	1.8	0.1	0.0001	0.0018
GW4/ PZ2009_ 20	Crag Group	TCA	<0.1	1.5	0.1	0.0001	0.0015
GW5A/ PZ200 9_19	Crag Group	TCA	<0.1	0.2	0.2	0.0002	0.0004
GW6D	Crag Group	MCA	0.1	0.6	0.1	0.0001	0.0006
GW6S	Made Ground	MCA	0.7	0.2	0.1	0.0007	0.0002
GW7	Made Ground/ reworked natural	MCA	0.2	1.1	0.2	0.0004	0.0022
GW8	Made Ground/	MCA	11.8	1.5	0.2	0.0236	0.003

Location	Response Zone	Location	Maximum Peak Concentrations (% v/v)		Maximum Steady State Flow Rate (l/hr)*	Q_{hg} (l/hr) calculated for each well**	
			Methane	Carbon Dioxide		Methane	Carbon Dioxide
	reworked natural						
GW9D	Crag Group	MCA	29.6	2.7	-0.2	0.0592	0.0054
GW9S	Marine Deposits (Sand and gravel)	MCA	4.0	1.5	0.3	0.012	0.0045
GW10	Made Ground	MCA	2.4	3.3	-0.3	0.0072	0.0099
GW11D	Crag Group	MCA	0.8	<0.1	0.2	0.0016	0.0002
GW11S	Alluvium/ Peat	MCA	18.6	4.3	-0.3	0.0558	0.0129
GW11S1	Made Ground/ reworked natural	MCA	14	2.3	-0.2	0.028	0.0046
GW12	Made Ground and Marine Deposits	MCA	10.5	4.2	0.1	0.0105	0.0042
GW13	Marine Deposits (Sand and gravel)	MCA	5	2.4	0.24	0.012	0.00576
GW15	Made Ground	MCA	83.8	13.6	-1.8	1.5084	0.2448
GW16D	Crag Group	MCA	<0.1	0.6	-0.2	0.0002	0.0012
GW17	Made Ground/ reworked natural	MCA	0.1	0.4	0.1	0.0001	0.0004
GW18	Possible reworked crag	MCA	0.1	0.7	0.1	0.0001	0.0007
GW19	Crag Group	MCA	0.1	2.5	0.2	0.0002	0.005
GW24D	Crag Group	MCA	1.3	<0.1	0.2	0.0026	0.0002
GW24S	Made Ground	MCA	0.5	1.4	-3.5	0.0175	0.049
G1B	Made Ground	MCA	1.0	1.9	0.1	0.001	0.0019
G2	Alluvium	MCA	0.4	<0.1	0.1	0.0004	0.0001
G3B	Alluvium	MCA	20.3	5.9	0.2	0.0406	0.0118
G4	Alluvium	MCA	35.3	9.1	0.2	0.0706	0.0182

Location	Response Zone	Location	Maximum Peak Concentrations (% v/v)		Maximum Steady State Flow Rate (l/hr)*	Q_{hg} (l/hr) calculated for each well**	
			Methane	Carbon Dioxide		Methane	Carbon Dioxide
G5	Made Ground	MCA	76.3	10	0.1	0.0763	0.01
G6	Made Ground	MCA	<0.1	0.6	0.2	0.0002	0.0012
PZ2009_6	Probably Crag Group	MCA	0.1	0.1	-0.2	0.0002	0.0002
PZ2009_14	Probably Crag Group	MCA	<0.1	<0.1	-0.3	0.0003	0.0003
PZ2009_16	Probably Crag Group	MCA	0.1	0.2	0.2	0.0002	0.0004
DCBH2019_2	Alluvium and Peat	MCA	23.1	4.6	0.1	0.0231	0.0046
DCBH2019_3	Alluvium and Peat	MCA	0.1	7.0	0.17	0.00017	0.0119
DCBH2019_4	Alluvium and Peat	MCA	11.1	1.9	0.1	0.0111	0.0019
DCBH2019_5	Alluvium and Peat	MCA	1.8	1.2	0.2	0.0036	0.0024
DCBH2019_6	Alluvium and Peat	MCA	9.2	2.7	0.1	0.0092	0.0027
SCBH2019_1	Alluvium and Peat	MCA	0.8	2.3	0.1	0.0008	0.0023
SCBH2019_2	Alluvium and Peat	MCA	15.8	1.8	0.2	0.0316	0.0036
SCBH2019_3	Alluvium and Peat	MCA	26.9	3.5	<0.1	0.0269	0.0035

* Maximum steady state flow rate has been taken as the greatest steady state flow rate, whether negative or positive
**Maximum gas concentrations combined with maximum steady state flow recorded on any site visit
Note: where gas concentrations or flow rates have been recorded as <0.1% v/v or <0.1 l/hr, a value of 0.1 has been used in calculation of the Qhg and where the maximum steady state flow rate is negative, the value has been converted to a positive flow rate.

The gas monitoring records indicate that the response zones of several boreholes were flooded during one or more of the monitoring rounds. Therefore, the recorded data may not be fully representative of the gas regime at the site. Groundwater levels were recorded to be high throughout the winter months of the monitoring periods.

Monitoring was undertaken during high and low barometric pressure during periods of both rising and falling pressure. The lowest barometric pressure was 970mb, recorded during a period of falling pressure.

Installations with response zones constructed in each stratum have been monitored including Made Ground, Alluvium and Peat, Marine Deposits and Crag Group. Low steady state flow rates were generally recorded in these installations, either slightly positive or slightly negative.

The ground gas source at the site is considered to be the Made Ground and organic material within the Alluvium and Peat. Elevated levels of ground gas were recorded in boreholes G3, G4, DCBH2019_4, SCBH2019_2 and SCBH2019_3 which are installed with a response zone within the

Alluvium and Peat; boreholes G5, GW1S, GW11S and GW15 which are installed within the Made Ground and GW9D which is installed within the Crag Group, but directly overlain by a Peat layer.

BS 8485:2015+A1:2019 states that if the recorded gas data may not be fully representative of the gas regime then the maximum gas concentration and maximum steady state flow rate recorded across all locations on all monitoring rounds should be selected.

The highest recorded concentration of methane within the TCA was 0.1% v/v and the highest recorded concentration of carbon dioxide was 9.0% v/v. The maximum recorded flow rate was 0.4l/hr. A 'worst case' GSV for the TCA has been calculated as 0.036. Due to the elevated concentrations of carbon dioxide (above 5% v/v), the worst case GSV corresponds to CS2, which indicates a low risk but requires gas protection measures.

The highest recorded methane concentration within the MCA was 83.8% v/v which is above the upper explosive limit of 15%. The highest concentration of carbon dioxide was recorded at 13.6% v/v. The maximum recorded flow rate was 0.35 l/hr. A 'worst case' GSV for the MCA has been calculated as 0.2933. The worst case GSV corresponds to CS2, which indicates a low risk but requires gas protection measures.

It is noted that this classification does not take into account any earthworks proposed at the site and it is likely that the Made Ground and Alluvium and Peat will be removed as part of the excavation of material for the main platform. Further assessment of gas risks and requirements for gas protection measures should be carried out as part of detailed design and post earthworks, following guidance given by the Code of Practice BS 8485:2015+A1:2019.

8.5.2. Carbon Monoxide and Hydrogen Sulphide

Carbon monoxide concentrations were recorded on-site at levels of between <1ppm and 13ppm which do not exceed the short or long-term exposure limits set out in HSE EH40/2015 In addition, attenuation to indoor property and dilution in outdoor air would be expected to the reduce further the concentrations at the point of exposure.

Hydrogen sulphide was recorded at concentrations of <1ppm on the monitoring occasions.

8.6. Radiochemical Data Assessment

8.6.1. Radiological Survey

A radiological survey was carried out by AMEC in 2010 [9]. The results of the survey undertaken by AMEC concluded that radiation levels within the MCA were generally consistent with background concentrations. A small number of elevated walkover survey readings were noted by AMEC within the MCA in close proximity to the Sizewell B site boundary.

8.6.2. Radiochemical Assessment

8.6.2.1. Soils

A radiochemical assessment of soil sample data collected in 2011 was undertaken by AMEC in 2014 [21] to assess potential risks from radiation in the soils at the site. For data assessment purposes, the radionuclide results were compared by AMEC to published background values where available and with radionuclide concentrations from the Environmental Permitting (England and Wales) Regulations (2011). AMEC concluded that the soil samples collected had levels of radionuclides generally consistent with background levels.

As part of the 2019 onshore ground investigation [30], a total of 11No. soil samples collected from the MCA were scheduled for gross alpha and gross beta, high-resolution gamma spectrometry, total tritium and carbon-14 analysis. A summary of the results is provided below. Further assessment of radionuclide levels will be required to determine potential radiological risks.

Gross alpha and gross beta results were reported as positive values in several soil samples ranging from 110 ± 50 to 350 ± 110 Bq.kg-1 and 168 ± 74to 1120 ± 30Bq.kg-1 respectively.

Naturally occurring radionuclides including potassium-40, radionuclides from the uranium-238 decay series (lead-214 and bismuth-214), radionuclides from the thorium-232 decay series (actinium-228, lead-212, bismuth-212 and thallium-208) were reported above the laboratory limit of detection in several soil samples across the MCA. Concentrations of these radionuclides were similar across all sampling locations. The positive gross alpha results are supported by the presence of the higher levels of naturally occurring radionuclides in the soil samples.

Sources of gross beta radiation include tritium and caesium-137 (anthropogenic radionuclides) and potassium-40 (naturally occurring radionuclide). Tritium and caesium-137 were reported below the laboratory limit of detection in all soil samples. It is therefore considered possible that potassium-40 which was detected in several soil samples across the MCA is predominantly contributing to the gross beta results.

Carbon-14 (naturally occurring) and americium-241 and cobalt-60 (anthropogenic radionuclide) were also reported below the laboratory limit of detection in the soil samples.

8.6.2.2. Surface Water and Groundwater

A radiochemical analysis of surface water data [17] and groundwater data [21] collected between 2011 and 2013 was also undertaken by AMEC. The assessment indicated that levels of radionuclides in several surface water and groundwater samples exceeded DWS screening criteria. However, AMEC concluded that surface water and groundwater were not considered to be contaminated with significant levels of radionuclides to present a hazard to human health.

8.6.2.3. Sediment

As part of the 2019 offshore ground investigation [31], a total of 4No. samples were scheduled for gamma spectrometry analysis. A summary of the results is provided below. Further assessment of radionuclide levels will be required to determine potential radiological risks.

Naturally occurring radionuclides including potassium-40, radionuclides from the uranium-238 decay series (lead-214 and bismuth-214), radionuclides from the thorium-232 decay series (actinium-228, lead-212, bismuth-212 and thallium-208) were detected in several sediment samples. Concentrations of these radionuclides were similar across the sampling locations.

Anthropogenic radionuclides including americium-241 and cobalt-60, caesium-137 were reported below the laboratory limit of detection in the sediment samples.

8.6.3. Re-use of Excavated Material On-site

It is recommended to maximise the re-use of materials on-site, where possible on grounds of both cost and sustainability. Early consideration of the re-use of material is recommended, in order to maximise opportunities. The re-use of on-site excavated soils should be undertaken in accordance with appropriate guidance or legislation such as the CL:AIRE Definition of Waste Code of Practice (DoWCoP) [54] or suitable environmental permits or waste exemptions for example a non-Waste Framework Directive exemption [55].

Under the DoWCoP, there are four factors which need to be considered to determine whether materials excavated on-site are deemed to be waste or not. These include:

- Factor 1: Protection of human health and protection of the environment;
- Factor 2: Suitability for use, without further treatment;
- Factor 3: Certainty of Use; and
- Factor 4: Quantity of Material.

The production of a Materials Management Plan (MMP) is used to assist with the consideration of these factors to ensure that a correct determination is made in relation to the nature of the materials. A ‘Qualified Person’, as defined under the DoWCoP, is required to review MMP, Risk Assessments and Remediation Strategy/Design Statement, together with documentation relating to Planning and Regulatory issues, and then to sign a Declaration which is forwarded to the Environment Agency confirming compliance with the DoWCoP.

Material can be re-used on-site if, among other criteria, it can be demonstrated that it does not pose a potential risk to human health or the environment. Based on the sampling and laboratory testing undertaken, the potential risk to human health or controlled waters from contaminants detected in soils from the site is considered to be low. However, asbestos fibres have been reported in three soil samples from MGS_2019_B and MGS_2019_B2, therefore the risks from asbestos impacted soils will need to be further considered during detailed design.

8.6.4. Topsoil Assessment

A preliminary topsoil assessment of the relevant soil data has been undertaken to assess the potential for re-use of the soil but also to provide information on the potential risks to ecological receptors (flora). Chemical data for pH, copper, nickel and zinc from 207No. soil samples collected from ground level to 1.0m bgl have been screened against criteria outlined in BS 3882-2015 Specification for Topsoil [56].

Six of the soil samples were reported to be slightly acidic (with pH values below pH 7) and 33No. of the samples were reported to be slightly alkaline (with pH values above 8.5). Concentrations of zinc, copper and nickel within the relevant samples were reported to be within the acceptable ranges for topsoil.

The soil samples with pH values outside the specified range were from exploratory holes located within the MCA. No soil samples were tested within other zones on the site. It is likely that the majority of the MCA will be covered with hardstanding and the topsoil may be used elsewhere within the development. However, in areas of proposed landscaping, a suitable growing medium may be required.

8.7. Preliminary Classification of Waste

To classify materials that may potentially be excavated across the site during construction works and require disposal to landfill, a number of steps are required as part of the WM3 Regulations [57] and the current waste management legislation and guidance. The initial steps are to identify:

- If the materials are waste;
- Whether the waste is required to be classified at all;
- The relevant EU List of Waste codes;
- The chemical composition of the material; and,
- If the substances in the waste are ‘hazardous substances’ or ‘Persistent Organic Pollutants’.

It is proposed to re-use site won material as part of the proposed development, reducing the amount of material to be disposed of off-site. However, there is the potential that waste soil generated during construction would be classified as unsuitable for re-use on-site or hazardous, therefore requiring removal from site.

Material that unsuitable for re-use on-site should be disposed of in accordance with Duty of Care as specified in the current waste management legislation and guidance [58]. Waste material may be treated off-site to allow it to be re-used. However, if material is destined for landfill, WAC analysis will be required to demonstrate to the landfill that the material is acceptable for disposal at the specific landfill.

A preliminary waste assessment has been undertaken based on analysed concentrations of contaminants in the soil samples obtained during the site investigation and using Atkins’ on-line waste classification tool (CatWaste^{Soil}) [59].

A total of 118No. soil samples were assessed using CatWaste^{Soil}. The results of the assessment indicate that the majority of samples would be classified as non-hazardous waste. One sample (GW1D ES3) was classified as hazardous waste due to elevated lead and zinc concentrations, defined as Hazardous Property HP14: eco-toxic, Hazard Category H410 - Aquatic chronic 1; very toxic to aquatic life with long lasting effects. Two samples (MGS_2019_B. 5.0m and MGS_2019_B2, 5.0m) are also likely to be classified as hazardous waste due to concentrations of asbestos >0.1%

asbestos by weight of total dried sample which were reported in these samples. The waste assessment results are included in Appendix H.

This classification is based on a limited number of samples and any actual material to be removed off-site for disposal must be appropriately classified in accordance with current waste management legislation and guidance [60] [61] and agreed with the chosen landfill operator. Any ACM will require removal and separate disposal or individual assessment to determine the asbestos content is <0.1% for each individual ACM fragment. It is the responsibility of the waste producer to classify, treat, manage and dispose of waste appropriately and to ensure the chosen landfill is licensed to accept such material. WAC testing will be required if the material is destined for landfill.

A total of 26No. soil samples and 10No. sediment samples were scheduled for WAC analysis as part of the 2019 ground investigation. The WAC testing results indicate that all samples exceeded the non-hazardous landfill WAC limits for pH. Several samples also exceeded the inert or hazardous landfill WAC limits for metals, inorganics, loss on ignition, total organic carbon and total dissolved solid content. WAC testing results are included within the factual reports in Appendix F.

8.8. Contamination Summary

8.8.1. Human Health Risks

There are no exceedances against the human health GAC for a commercial or public open space (parks) end use for the contaminants in the soil samples analysed. However, the presence of asbestos was identified in 3No. samples obtained in the 2019 investigation from two adjacent boreholes located in the south-west of the MCA (MGS_2019_B and MGS_2019_B2).

Due to the acute risk from asbestos, a Soil Screening Value cannot be derived. However, the nature of the risk posed to human health from asbestos can be considered on the basis of whether an exposure pathway is likely to be present and whether the identified asbestos is considered to be likely to produce asbestos free fibres in a sufficient quantity that they are likely to pose a significant risk to human health. Asbestos risks are associated with inhalation (asbestos fibres and dust) pathways. Current guidance related to the identification, assessment and mitigation of asbestos in soil is provided in CIRIA Report C733 [62]. This states that asbestos containing soils only present a risk if asbestos free fibres are disturbed and released to the atmosphere and are likely to be influenced by a range of site specific factors that include:

- The characteristics of the asbestos or ACM (such as amount, type, friability, weathering, and fraction of free respirable fibres);
- The characteristics of the soil (such as soil type/texture, moisture content, surface vegetation);
- Weather factors (such as air humidity, precipitation, temperature, wind speed and direction); and
- Land use/soil disturbance (such as receptor behaviour, distance to the asbestos source, type of site activity, duration and frequency of activities and dust mitigation measures).

The following sections provides an assessment of the identified asbestos in soils and considers in the context of the PCSM whether a risk may be posed to site receptors.

The concentration of asbestos as a percentage identified by weight of the total dry sample was identified above the detection limit of <0.001% in all 3No. samples where it was identified. The highest concentration of asbestos as a percentage identified by weight of the total dry sample was identified in MGS_2019_B2 at 5.0m, associated with loose fibres at 0.313%. Unbound loose asbestos fibres were also identified in the samples from MGS_2019_B2 at 4.0m and MGS_2019_B at 5.0m.

The geology at the locations where asbestos was identified (MGS_2019_B and MGS_2019_B2) comprised Made Ground of silty gravelly fine to medium grained sand with fine to coarse gravel of concrete, sandstone, flint. Due to the general granular nature of the Made Ground soils, there may be a risk of release of loose asbestos fibres if this material is dry when disturbed. Groundwater was encountered during drilling within these locations in the Made Ground at a shallow depth of 1.2m bgl.

Where present, perched water or groundwater will increase moisture content of soils and reduce the likelihood of dust generation and release of fibres.

The identified asbestos within MGS_2019_B and MGS_2019_B2 was located at a depth of 4.0m and 5.0m bgl. Current site users are unlikely to be exposed to dust/fibres as the soils are at depth, are not currently being disturbed and likely to be saturated. Risks in relation to current site users are therefore considered to be very low.

As part of the proposed development, the soils within this area of the site will be excavated down to competent Crag Group to reach the design foundation levels for the proposed buildings and structures. Natural weathered Crag Group from borrow pits located within the TCA will be used to backfill the area to an engineering specification supplemented by imported fill and covered by hardstanding. Therefore, the Made Ground in the vicinity of MGS_2019_B will be removed as part of the proposed earthworks. This will effectively break the pathways associated with the generation and inhalation of dust/fibres. However, the excavation works will disturb the soil and potentially cause the release of asbestos fibres. Therefore, current and future site users and off-site users of adjacent areas could be at risk from exposure to asbestos during construction works. However, potential risks can be managed during the works through the careful application of suitable measures to minimise the release of asbestos fibres.

The potential for asbestos fibre release will need to be further assessed and managed by a suitably qualified asbestos specialist in accordance with the Control of Asbestos Regulations (2012) and appropriate precautions should be taken, including methods of working safely. Short term acute exposure risks to construction workers will need to be assessed as part of the development of the construction phase health and safety plan and managed through standard good practice health and safety procedures. The presence of asbestos in soil at the site should be included in the COSHH assessment of the site, the Code of Construction Practice (CoCP), the MMP, the Construction Phase Health and Safety Plan and other risk assessments, method statements, tool box talks etc., so that all designers and site personnel are made aware of the risk.

If material in the vicinity of MGS_2019_B is proposed to be re-used on-site, it will require further assessment by a suitably qualified asbestos specialist to confirm the suitability of material for re-use and may be required to re-used in accordance with a remediation strategy. If material is to be removed for disposal off-site, it will require appropriate waste classification in accordance with current waste management legislation and guidance [60] [61] and agreement with the chosen landfill operator.

8.8.2. Controlled Waters Risks

Leachate testing of soils identified exceedances of inorganics, metals and PAHs above WQS at several locations within the MCA and TCA. The elevated concentrations were reported in Made Ground and natural material collected from the sand, Alluvium, Peat and Crag Group (sand) suggesting possible background concentrations.

Elevated concentrations of inorganics were recorded in groundwater samples above WQS. The groundwater underlying the majority of the MCA and parts of the TCA is reported to have significant saline intrusion which is confirmed by the analytical data.

Elevated concentrations of metals, nitrate, ammonium and ammoniacal nitrogen were also recorded in groundwater samples above WQS indicating that groundwater quality may also be affected by the underlying geology (Peat), adjacent marshes and farming activities in the surrounding areas.

Exceedances of BTEX, PAHs and VOCs (solvents) were reported in samples from five boreholes located within the MCA. The exceedances were generally only reported on one monitoring round at each location. Although there have been potentially contaminative historical uses within the MCA, no obvious source of these contaminants has been identified. Made Ground was recorded in the majority of boreholes but comprised re-worked natural material with no visual or olfactory evidence of contamination. Soil chemical test data for exploratory holes located in close proximity to these locations did not record concentrations of BTEX, PAHs or VOCs above the laboratory limit of detection. The elevated concentrations of BTEX and PAHs in these locations may be due to

influences from the underlying peat deposits. The source of the elevated levels of VOCs (solvents) is unconfirmed.

Elevated concentrations of metals and inorganic contaminants were recorded in surface water samples above WQS. Water quality within the surface watercourses is noted to be moderate to poor and is attributed to marine influences, discharges from the Leiston Sewage Treatment Works and farming activities in the surrounding areas.

8.8.3. Sediment

There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for the contaminants in the sediment samples analysed. Leachability testing of sediment identified exceedances of inorganics, metals and phenol above WQS. The exceedances were in the same order of magnitude as the WQS and natural attenuation, dilution/dispersion and groundwater retardation will also further reduce the concentrations of contaminants before they reach the groundwater or surface watercourses. It is therefore considered unlikely that the exceedances identified in sediment leachate would represent an unacceptable risk to identified controlled water receptors.

Cefas testing of sediments identified an exceedance of arsenic in one sample above Action Level 1 but below Action Level 2. All other results were below Action Level 1. The material will require further assessment to determine whether it is suitable for sea disposal. Further assessment of the material's physical characteristics, the disposal site characteristics and other relevant data will also be required to inform management of any dredged material. Dredging and sea disposal would need to be undertaken in accordance with a Marine Licence.

8.8.4. Ground Gas

Made Ground and organic Alluvium and Peat are considered to be the main sources of ground gas at the site. The ground gas regime at the site has been classified as CS2 and the incorporation of ground gas protection measures within the proposed development would be required to mitigate potential risks associated with the ingress of carbon dioxide/methane. However, it is noted that this classification does not take into account any earthworks proposed on site and it is likely that the Made Ground and Alluvium and Peat will be removed as part of the excavation of material for the main platform. Further assessment of gas risks and requirements for gas protection measures will be required as part of detailed design and post earthworks.

8.8.5. Radiological Risks

A radiochemical assessment of soil, groundwater and surface water data was undertaken by AMEC in 2014. The presence of naturally and anthropogenically occurring radionuclides were identified in soil, sediment, surface water and groundwater samples. AMEC concluded that radiation levels within the soil, groundwater and surface water at the MCA were unlikely to pose a significant risk to human health. Radiochemical testing undertaken as part of the 2019 indicated the presence of naturally occurring radionuclides in soil and sediment samples. Further assessment of radionuclide levels will be required to determine potential radiological risks.

8.8.6. Materials/Waste

It is recommended to maximise the re-use of materials on-site, where possible on grounds of both cost and sustainability. Early consideration of the re-use of material is recommended, in order to maximise opportunities. The re-use of on-site excavated soils should be undertaken in accordance with appropriate guidance such as the DoWCoP [54] or suitable environmental permits or waste exemptions for example a non-Waste Framework Directive exemption [55].

Slightly acidic and slightly alkaline pH values were reported in several soil samples from the MCA. It is likely that the majority of the MCA will be covered with hardstanding. However, in areas of proposed landscaping, suitable growing medium may be required.

Material that is surplus to requirements and where there is no clear strategy for re-use on-site is classified as waste and should be disposed of in accordance with Duty of Care as specified in the current waste management legislation and guidance.

A preliminary waste assessment indicates that the majority of samples would be classified as non-hazardous waste. One sample was classified as hazardous waste due to elevated lead and zinc concentrations. Two samples may also be classified as hazardous waste due to concentrations of asbestos >0.1% asbestos by weight of total dried sample. However, the actual material to be removed off-site for disposal must be appropriately classified and agreed with the chosen landfill operator. It is the responsibility of the waste producer to classify, treat, manage and dispose of waste appropriately and to ensure the chosen landfill is licensed to accept such material. WAC testing will be required if the material is destined for landfill.

9. Revised Conceptual Site Model

9.1. Revised CSM

Further to the PCSM, (Table E.1 in Appendix E), an updated CSM has been prepared based upon the findings of the ground investigations and risk assessment and is summarised in the following section.

The updated CSM (Table 9-1) shows the contaminants identified at the site, the potential receptors and the potential exposure/migration pathways, as well as the perceived risk category. Definitions of probability, consequence and risk are provided in Appendix D.

The CSM is based on current site levels and any proposed changes in site levels resulting from redevelopment earthworks will need to be reviewed and taken into consideration prior to redevelopment of the site.

Table 9-1 - Revised Conceptual Site Model

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
ON-SITE: MCA and Off-shore Area Based on pervious ground investigations undertaken at the site, the following contaminants have been identified to be present: **MCA** Made Ground: *Asbestos (chrysotile and amosite)* Made Ground, sand, Alluvium, Peat and Crag Group: *Leachable inorganics, metals and PAHs (ammoniacal nitrogen, sulphate, arsenic, boron, iron, lead, manganese, copper, mercury, nickel, vanadium, zinc, anthracene, and fluoranthene)* Made Ground, Alluvium and Peat: *Ground gas (carbon dioxide and methane)* Groundwater: *Inorganics, metals, BTEX, PAHs and VOCs (chloride, ammoniacal nitrogen, ammonium, nitrite, nitrate, sulphate, sodium, arsenic, boron, cadmium, chromium, copper, manganese, nickel, lead, zinc, iron, mercury, free cyanide, naphthalene, anthracene, fluoranthene, benzo(b)fluoranthene, benzo(k)fluoranthene and toluene)*	**Human health:** On-site	Pedestrians and road users using existing roads, footpaths and fields within the site	Dermal contact with and ingestion of contaminants in soil, soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust, fibres and gas/vapours.	Low likelihood	Minor	**Very low risk**	Receptor not present	--	--	Receptor not present	--	--	--	--	--	There were no exceedances against the human health GAC for either a commercial or public open space (parks) end use for the contaminants in the soil samples analysed. However, the presence of asbestos was identified in two adjacent boreholes located in the south-west of the MCA (MGS_2019_B and MGS_2019_B2). Current site users are unlikely to be exposed to dust/fibres as the soils are at depth (4.0m and 5.0m bgl), are not currently being disturbed and likely to be saturated. Risks in relation to current site users are therefore considered to be very low. As part of the proposed development, the soils within this area of the site will be excavated and replaced with Crag Group and covered by hardstanding. This will effectively break the pathways associated with the generation and inhalation of dust/fibres. However, the excavation works will disturb the soil and potentially cause the release of asbestos fibres. Therefore, current and future site users and off-site users of adjacent areas could be at risk from exposure to asbestos during construction works. However, potential risks can be managed during the works through the careful application of suitable measures to minimise the release of asbestos fibres. The ground gas regime at the site has been initially classified as CS2 and the incorporation of ground gas protection measures within the proposed development may be required depending on the proposed earthworks and construction works. Made Ground and organic Alluvium and Peat are considered to be the main sources of ground gas at the site. It is likely that the Made Ground and Alluvium and Peat will be removed as part of the excavation of material for the main platform. However, further assessment of gas risks and requirements for gas protection measures will be required as part of detailed design and post earthworks.
		Agricultural workers		Low likelihood	Minor	**Very low risk**	Receptor not present	--	--	Receptor not present	--	--	--	--	--	
		Recreational site users of the SSSI, marshes and beach along the foreshore		Low likelihood	Minor	**Very low risk**	Receptor not present	--	--	Receptor not present	--	--	--	--	--	
		Current Sizewell B workers using areas of the MCA		Low likelihood	Minor	**Very low risk**	Low likelihood	Mild	**Low risk**	Receptor not present	--	--	--	--	--	
		Future site workers		Receptor not present	--	--	Receptor not present	--	--	Low likelihood	Minor	**Very low risk**	--	--	--	
	Human health: Off-site	Workers in adjacent Sizewell B power station	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dusts and water that may have migrated off site. Inhalation of windblown soil derived dust, fibres and gas/vapours which may have migrated off site.	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	
		Pedestrians accessing surrounding roads and footpaths		Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	
		Agricultural workers		Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	
		Recreational site users of the surrounding SSSI and marshes		Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
Surface water: *Inorganics and metals (sodium, sulphate, chloride, pH, zinc, iron, mercury, nickel, lead and copper)* **Off-shore Area** Sediment: *Leachable inorganics, metals and phenol (lead, mercury, vanadium, zinc, iron, chloride, total cyanide and phenol)*	**Controlled Waters**	Principal Bedrock and Superficial Secondary A aquifers	Leaching / migration of contaminants in soil to groundwater in underlying aquifers.	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	--	--	--	Leachate testing of soils identified limited exceedances of inorganics, metals and PAHs at several locations within the MCA in Made Ground and natural material collected from the Sand, Alluvium, Peat and Crag Group. Elevated concentrations of contaminants of concern including inorganics, metals, BTEX, PAHs and VOCs were recorded in the groundwater and surface water samples tested. The groundwater underlying the majority of the MCA is subject to significant saline intrusion and may also be affected by the underlying geology, adjacent marshes and farming activities. Water quality within the surface watercourses is also noted to be moderate to poor which is attributed to marine influences, discharges from the Leiston Sewage Treatment Works and farming activities in the surrounding areas. There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for contaminants in sediment samples analysed. Leachability testing of sediment identified exceedances of inorganics, metals and phenol above WQS. Cefas testing of sediments identified an exceedance of arsenic in one sample above Action Level 1. The material will require further assessment to determine whether it is suitable for sea disposal. Further assessment of the material's physical characteristics, the disposal site characteristics and other relevant data will also be required to inform management of any dredged material.
			Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers.	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	--	--	--	
		Ponds and drains on site and within 500 m of the site	Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	--	--	--	
			Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	--	--	--	
		North Sea	Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses.	Unlikely	Medium	**Low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	--	--	--	
			Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Unlikely	Medium	**Low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	--	--	--	
	Property / services	Existing on-site and off-site services and structures	Direct contact of contaminants in soil and/or groundwater with existing buried service.	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	The results of the screening have indicated that concentrations of metals, PAHs and TPH were reported at low concentrations within soil samples. Slightly elevated concentrations of metals, PAHs, BTEX, VOCs and inorganics were recorded in leachate and groundwater samples. This indicates that there are unlikely to be significant risks to on-site property receptors from contaminants detected in soils and groundwater underlying the site. However, aggressive ground
			Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	--	--	--	
		Proposed on-site services and structures	Direct contact of contaminants in soil and/or groundwater with existing buried service.	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Minor	**Very low risk**	--	--	--	

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
		associated with the site	Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	--	--	--	conditions (particularly sulphate) and the potential implications to buried structures will need to be assessed further as part of detailed design. The ground gas regime at the site has been initially classified as CS2 and the incorporation of ground gas protection measures within the proposed development may be required depending on the proposed earthworks and construction works. Made Ground and organic Alluvium and Peat are considered to be the main sources of ground gas at the site. It is likely that the Made Ground and Alluvium and Peat will be removed as part of the excavation of material for the main platform. However, further assessment of gas risks and requirements for gas protection measures will be required as part of detailed design and post earthworks.
		Crops and livestock (on-site and off-site)	Direct contact, ingestion, inhalation and uptake of soil and water contamination by crops and/or livestock.	Unlikely	Minor	**Very low risk**	Receptor not present	--	--	Receptor not present	--	--	--	--	--	There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for contaminants in soil samples analysed. Slightly elevated concentrations of metals, PAHs, BTEX, VOCs and inorganics were recorded in leachate, groundwater and surface water samples. This indicates that there are unlikely to be significant risks to on-site or off-site crops and livestock receptors from contaminants detected in soils and groundwater underlying the site.
			Migration of contaminated waters/dust/fibres and subsequent uptake by crops or ingestion/inhalation/dermal contact by livestock.	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	
	Ecological	Sizewell Marshes SSSI	Direct contact between soil and water contamination and ecological receptors.	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for contaminants in soil samples analysed. Slightly elevated concentrations of metals, PAHs, BTEX, VOCs and inorganics were recorded in leachate, groundwater and surface water samples. This indicates that there are unlikely to be significant risks to ecological receptors from contaminants detected in soils and groundwater underlying the site.
			Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/inhalation/dermal contact by fauna.	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	
		Minsmere-Walberswick Heaths and Marshes SSSI, RAMSAR, SAC and SPA and Suffolk Coast and Heaths AONB	Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/inhalation/dermal contact by fauna.	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	--	--	--	
ON-SITE: TCA	**Human health:**	Pedestrians and road users using existing roads,	Dermal contact with and ingestion of contaminants in soil,	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	There were no exceedances against the human health GAC for either a commercial or public open

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
Based on pervious ground investigations undertaken at the site, the following contaminants have been identified to be present: Natural strata: *Leachable inorganics and metals (ammoniacal nitrogen, sulphate, arsenic, boron, iron, lead, manganese, copper, mercury, nickel, vanadium and zinc)* Made Ground: *Ground gas (carbon dioxide and methane)* Groundwater: *Inorganics and metals (chloride, ammoniacal nitrogen, ammonium, nitrite, nitrate, sulphate, sodium, arsenic, boron, cadmium, chromium, copper, manganese, nickel, lead, zinc, iron and mercury)* Surface water: *Inorganics and metals (sodium, sulphate, chloride, pH, zinc, iron, mercury, nickel, lead and copper)*	On-site	footpaths and fields within the site	soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust and gas/vapours.													space (parks) end use for the contaminants in the soil samples analysed. This indicates that there are unlikely to be significant risks to on-site and off-site human receptors from contaminants detected in soils underlying the site. The ground gas regime at the site has been initially classified as CS2 and the incorporation of ground gas protection measures within the proposed development may be required depending on the proposed earthworks and construction works. Made Ground and organic Alluvium and Peat are considered to be the main sources of ground gas at the site. Further assessment of gas risks and requirements for gas protection measures will be required as part of detailed design and post earthworks.
		Agricultural workers		Unlikely	Mild	**Very low risk**	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	
		Residents within the TCA		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
	Human health: Off-site	Occupants of nearby residential, recreational and commercial properties	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dusts and water that may have migrated off site. Inhalation of windblown soil derived dust, fibres and gas/vapours which may have migrated off site.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Pedestrians accessing surrounding roads and footpaths		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Agricultural workers		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Recreational site users of the SSSI and marshes		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
	Controlled Waters	Principal Bedrock and Superficial Secondary A aquifers	Leaching / migration of contaminants in soil to groundwater in underlying aquifers.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	Leachate testing of soils identified limited exceedances of inorganics and metals at several locations within the TCA in natural material. Elevated concentrations of inorganics and metals were recorded in the groundwater and surface water samples tested. The groundwater underlying part of the TCA is subject to significant saline intrusion and may also be affected by the underlying geology, adjacent marshes and farming activities. Water quality within the surface watercourses is also noted to be moderate to poor which is attributed to marine influences, discharges from the Leiston Sewage Treatment Works and farming activities in the surrounding areas.
			Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low Risk**	
		Ponds and drains on site and within 500 m of the site	Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Medium	**Low risk**	
			Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Medium	**Low risk**	
		North Sea (off-site)	Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
			Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Existing on-site and off-site	Direct contact of contaminants in soil	Unlikely	Minor	**Very low risk**	Low likelihood	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	The results of the screening have indicated that concentrations of

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
	Property / services	services and structures	and/or groundwater with existing buried service.													metals, PAHs and TPH were reported at low concentrations within soil samples. Slightly elevated concentrations of metals and inorganics were recorded in leachate and groundwater samples. This indicates that there are unlikely to be significant risks to on-site property receptors from contaminants detected in soils and groundwater underlying the site. However, aggressive ground conditions (particularly sulphate) and the potential implications to buried structures will need to be assessed further as part of detailed design. The ground gas regime at the site has been initially classified as CS2 and the incorporation of ground gas protection measures within the proposed development may be required depending on the proposed earthworks and construction works. Further assessment of gas risks and requirements for gas protection measures will be required as part of detailed design and post earthworks.
			Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Proposed on-site services and structures associated with the site	Direct contact of contaminants in soil and/or groundwater with existing buried service.	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Minor	**Very low risk**	Receptor not present	--	--	
			Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	Receptor not present	--	--	
		Crops and livestock (on-site and off-site)	Direct contact, ingestion, inhalation and uptake of soil and water contamination by crops and/or livestock.	Unlikely	Mild	**Very low risk**	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for contaminants in soil samples analysed. Slightly elevated concentrations of metals and inorganics were recorded in leachate, groundwater and surface water samples. This indicates that there are unlikely to be significant risks to on-site or off-site crops and livestock receptors from contaminants detected in soils and groundwater underlying the site.
			Migration of contaminated waters/dust/fibres and subsequent uptake by crops or ingestion/inhalation/dermal contact by livestock.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
	Ecological	Sizewell Marshes SSSI	Direct contact between soil and water contamination and ecological receptors.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for contaminants in soil samples analysed. Slightly elevated concentrations of metals and inorganics were recorded in leachate, groundwater and surface water samples. This indicates that there are unlikely to be significant risks to ecological receptors from contaminants detected in soils and groundwater underlying the site.
			Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/inhalation/dermal contact by fauna.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Minsmere-Walberswick Heaths and Marshes SSSI, RAMSAR, SAC and SPA and	Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/inhalation/dermal contact by fauna.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
		Suffolk Coast and Heaths AONB														
ON-SITE: LEEIE No ground investigation data is available for the LEEIE. Potential contaminants may be present associated with the following historical and current land uses: Fly tipping in the north-west of the LEEIE. Railway line running through the southern extent of the LEEIE and associated buildings. Farming activities across the entire site area including potential for unmarked farmers tips. Made Ground present within the southern section of the LEEIE associated with the railway line and in the northern section associated with an infilled reservoir. Electricity substation at the eastern extent of the proposed access road in the east of the LEEIE. Made Ground associated with the construction of roads crossing the various areas of the site as well as activities associated with their operation. Moderate UXO risk across the site. *Risk of inorganic and organic contamination including metals and hydrocarbons, asbestos, fuels, oils, PCBs, PAHs, herbicides and pesticides.*	**Human health:** On-site	Pedestrians and road users using existing roads, railway, footpaths and fields within the site	Dermal contact with and ingestion of contaminants in soil, soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust and gas/vapours.	Low likelihood	Mild	**Low risk**	Receptor not present	--	--	Receptor not present	--	--	Low likelihood	Mild	**Low risk**	No ground investigation data is available for the LEEIE. Potential contaminants may be present at the site. However, risks to potential human health, Controlled Waters, property and ecological receptors are considered to be very low to moderate/low, based on previous site uses and the proposed development.
		Agricultural workers		Unlikely	Mild	**Very low risk**	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	
	Human health: Off-site	Occupants of nearby residential, recreational and commercial properties	Dermal contact with and/or ingestion of contaminants in windblown soil-derived dusts and water that may have migrated off site. Inhalation of windblown soil derived dust, fibres and gas/vapours which may have migrated off site.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Pedestrians accessing surrounding roads and footpaths		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Agricultural workers		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
	Controlled Waters	Principal Bedrock and Superficial Secondary A aquifers	Leaching / migration of contaminants in soil to groundwater in underlying aquifers.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	
			Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	
		Ponds and drains on site and within 500 m of the site	Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Mild	**Very low risk**	
			Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Mild	**Very low risk**	
	Property / services	Existing on-site and off-site services and structures	Direct contact of contaminants in soil and/or groundwater with existing buried service.	Unlikely	Minor	**Very low risk**	Low likelihood	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	Unlikely	Minor	**Very low risk**	
			Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Proposed on-site services and	Direct contact of contaminants in soil	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Minor	**Very low risk**	Receptor not present	--	--	

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
		structures associated with the site	and/or groundwater with existing buried service.													
			Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	Receptor not present	--	--	
		Crops and livestock (on-site and off-site)	Direct contact, ingestion, inhalation and uptake of soil and water contamination by crops and/or livestock.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
			Migration of contaminated waters/dust/fibres and subsequent uptake by crops or ingestion/inhalation/dermal contact by livestock.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
	Ecological	Sizewell Marshes SSSI	Direct contact between soil and water contamination and ecological receptors.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
			Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/inhalation/dermal contact by fauna.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
OFF-SITE: Potential sources of off-site contamination include: Activities associated with the operation of Sizewell A and B power stations including asbestos lined tanks and their infill, the deposition of radioactive materials on the MCA and migration of contaminated groundwater onto the MCA. Former sand pits located 250 m north-west and south-east of the MCA and 250 m to the south of the TCA	**Human health:** On-site	Pedestrians and road users using existing roads, footpaths, railway and fields within the site	Dermal contact with and ingestion of contaminants in soil, soil-derived dust and water. Inhalation of contaminants in soil, soil-derived dust and gas/vapours.	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	The areas surrounding the site are covered with hardstanding or vegetated, which will reduce dust generation and therefore limit the potential for dermal, inhalation and ingestion pathways. Therefore, it is considered that there are unlikely to be a significant risk to on-site human receptors from off-site soils.
		Agricultural workers		Unlikely	Mild	**Very low risk**	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Recreational site users of the SSSI, marshes and beach along the foreshore		Low likelihood	Mild	**Low risk**	Receptor not present	--	--	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	
		Current Sizewell B site workers using the MCA		Low likelihood	Mild	**Low risk**	Receptor not present	--	--	Low likelihood	Mild	**Low risk**	Low likelihood	Mild	**Low risk**	
		Future site workers		Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	Receptor not present	--	--	
		Residents within the TCA		Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
	Controlled Waters	Principal Bedrock and Superficial Secondary A aquifers	Leaching / migration of contaminants in soil to groundwater in underlying aquifers.	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Slightly elevated concentrations of metals, PAHs, BTEX, VOCs and inorganics were recorded in leachate, groundwater and surface

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
which have been infilled. Former brick works, brick field and clay pit located 300 m to the west of the LEEIE which have been infilled. Smithy located approximately 450m south- east of the LEEIE. Tank and sewage works located 500 m to the south-west of the LEEIE. Historical landfills within 500 m of the site including refuse tip, Ogilvie at Home Farm, Leiston Landfill, Carrs Pit, Abbey Pit and Aldhurst Farm. Gasworks, coal yard and tanks located 40 m to the west of the LEEIE. Electrical substation located 100 m south-west of the LEEIE. Farming activities in surrounding areas including potential for unmarked farmers tips. Allotments adjacent to the south of the LEEIE. Made Ground associated with the construction of roads surrounding the site as well as activities associated with their operation. Works and factories within Eastlands Industrial Estate. *Risk of inorganic and organic contamination including metals and hydrocarbons, asbestos, solvents, fuels, oils, PCBs, radioactive materials, coal tar, acids and alkalis, herbicides and*			Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers.	Unlikely	Medium	**Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Medium	**Low risk**	water samples. However, given the widespread nature of the exceedances it is considered likely that these elevated concentrations are due to influences from saline intrusion, the underlying geology, adjacent marshes and farming activities and representative of background concentrations in the wider area.
		Ponds and drains on site and on site	Migration of contaminated water into underlying aquifers followed by lateral migration into nearby watercourses.	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Low likelihood	Medium	**Moderate / Low risk**	
			Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Unlikely	Medium	**Low risk**	Low likelihood	Medium	**Moderate / Low risk**	Unlikely	Medium	**Low risk**	Unlikely	Medium	**Low risk**	
	Property / services	Existing on-site services and structures	Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata .	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	Limited flow rates have been identified during gas monitoring and it is unlikely that there is a significant flow and migration of gas and vapour onto the site. Therefore, it is considered that there are unlikely to be significant risks to on-site property receptors from off-site soils.
		Proposed on-site services and structures associated with the site	Migration of ground gas along strata and preferential pathways such as service routes or differentially permeable strata.	Receptor not present	--	--	Receptor not present	--	--	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	
		Crops and livestock (on-site)	Migration of contaminated waters/dust/fibres and subsequent uptake by crops or ingestion/inhalation/dermal contact by livestock.	Unlikely	Mild	**Very low risk**	Unlikely	Medium	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	The areas surrounding the site are covered with hardstanding or vegetated, which will reduce the potential for inhalation or dust pathways. Therefore, it is considered that there are unlikely to be significant risks to crops and livestock receptors.
	Ecological	Sizewell Marshes SSSI	Migration of contaminated waters/dust/fibres and subsequent uptake by flora or ingestion/inhalation/dermal contact by fauna.	Unlikely	Mild	**Very low risk**	Low likelihood	Mild	**Low risk**	Unlikely	Mild	**Very low risk**	Unlikely	Mild	**Very low risk**	The areas surrounding the site are covered with hardstanding or vegetated, which will reduce the potential for inhalation or dust pathways. Therefore, it is considered that there are unlikely to be significant risks to ecological receptors.

Source	Receptor		Contaminant exposure / migration pathway	Baseline			Construction			Operation			Post Operation (temporary works areas only)			Comments
				Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	Probability	Consequence	Risk Category	
pesticides. Ground gas generation.																

10. Gap Analysis

The following sections summarise the extent of information available for the site, as well as identifying data gaps and providing recommendations for further work.

10.1. Ground Investigation

Several ground investigations have been undertaken at the site [6] [13] [22] [23] [30] [31]. A summary of the coverage and scope of the investigations, and data gaps in relation to the identified potential sources of contamination within and adjacent to the site is provided in Table 10-1 and the following sections.

Table 10-1 – Sources of Contamination and Existing Ground Investigation Data

Location	Potential Contamination Source	Existing Ground Investigation Data
On-site (within MCA, TCA, LEEIE and Off-Shore Area)	Former rifle range located in the centre of the MCA.	Exploratory holes located in the area surrounding the former rifle range.. Chemical test data for soils, leachate, groundwater and surface water and ground gas monitoring data available.
	Made Ground within the north-east of the MCA.	Exploratory holes located in the north-east of the MCA. However, limited locations within the northern mound and sea defence. Chemical test data for soils, leachate, groundwater and surface water and ground gas monitoring data available.
	Drainage and wind pumps in the north and centre of the MCA	Exploratory holes located in close proximity to the drainage and wind pumps. Chemical test data for soils, leachate, groundwater and surface water.
	Sewage treatment works located on the western boundary of the MCA.	Only one borehole drilled in this area. Groundwater and surface water test data available, but no soil or leachate chemical test or ground gas monitoring data is available.
	Made Ground, spoil disposal and construction waste on the MCA associated with the construction of Sizewell B and former contractor's compound.	Good coverage of exploratory holes across the MCA. Chemical data for soils, leachate, groundwater and surface water and ground gas monitoring data available.
	Activities relating to the former contractor's compound on the MCA for Sizewell B including possible storage areas, fabrication areas, lagoons, stone washing / concrete batching area.	Good coverage of exploratory holes across the MCA. Chemical data for soils, leachate, groundwater and surface water and ground gas monitoring data available,.
	Activities within the MCA associated with the operation of Sizewell B power station including radioactive materials.	Generally good coverage of exploratory holes across the MCA.. Chemical data for soils, leachate, groundwater and surface water and ground gas monitoring data available.
	Former infilled sand pits located across the MCA and TCA.	Good coverage of exploratory holes across the MCA. Chemical test data for soils, leachate, groundwater and surface water and ground gas monitoring data available. Several exploratory holes across the TCA.. Limited leachate, groundwater and surface water data and ground gas monitoring data available but no soil chemical data.
	Peat and alluvial deposits within the eastern edge of the TCA and in the MCA.	Exploratory hole locations in the north-east of the MCA, but limited ground investigation data for the north-western corner of the MCA within the SSSI.. Limited chemical data for soils, leachate, groundwater and surface water and ground gas monitoring data available. Limited exploratory holes across the TCA. Limited leachate data, groundwater data and ground gas monitoring data available but no soil chemical data.

Location	Potential Contamination Source	Existing Ground Investigation Data
	Grass covered mounds (suspected Made Ground) located in the north-east of the TCA.	Exploratory holes located within the north-east of the TCA.. Limited leachate data, groundwater data and ground gas monitoring data available but no soil chemical data.
	Fly tipping in the north-west of the LEEIE.	Two boreholes located within the north-west of the LEEIE. No chemical data of soils, leachates or groundwater available and no ground gas monitoring data.
	Railway line running through the southern extent of the LEEIE and associated buildings.	No exploratory holes located near the railway line or within the southern extent of the LEEIE. Some exploratory holes in other areas of the zone. No chemical data of soils, leachates or groundwater available and no ground gas monitoring data.
	Made Ground present within the southern section of the LEEIE associated with the railway line and in the northern section associated with an infilled reservoir.	No exploratory holes located near the railway line or the infilled reservoir. Some exploratory holes in other areas of the zone. No chemical data of soils, leachates or groundwater available and no ground gas monitoring data.
	Electricity substation at the eastern extent of the proposed access road in the east of the LEEIE.	No exploratory holes located near the electricity substation. Exploratory hole locations in the southern section of the MCA to the east of this area.. Limited chemical data for soils, groundwater and surface water and ground gas monitoring data available, but no leachate data.
	Farming activities across the entire site area including potential for unmarked farmer's tips.	Good coverage of exploratory holes across the MCA. Chemical data for soils, leachate, groundwater and surface water and ground gas monitoring data available. Less coverage of exploratory holes across the TCA and LEEIE. Limited soil, leachate, surface water and groundwater test data and ground gas monitoring data. No chemical data of soils, leachates, surface water or groundwater available and no ground gas monitoring data.
	Moderate UXO risk across the site.	No UXO survey or intrusive investigation has been carried out. Desk top UXO study information available only for the MCA.
	Made Ground associated with the construction of roads crossing the various areas of the site as well as activities associated with their operation.	Good coverage of exploratory holes across the MCA. Chemical data for soils, leachate, groundwater and surface water and ground gas monitoring data available. Less coverage of exploratory holes across the TCA and LEEIE. Limited soil, leachate, surface water and groundwater data and ground gas monitoring data. No chemical data of soils, leachates, surface water or groundwater available and no ground gas monitoring data.
	Offshore area	Good coverage of exploratory holes along proposed tunnel axis and shaft areas. Limited exploratory holes located around the BLF. Limited soil, leachate and Cefas chemical data for tunnel axis and shaft area. No chemical data for BLF.
Off-site (surrounding area)	Activities associated with the operation of Sizewell A and B power stations including asbestos within reservoir pump houses, the deposition of radioactive materials on the MCA and migration of contaminated groundwater onto the MCA.	Good coverage of exploratory holes across the MCA in the areas adjacent to Sizewell A and B and chemical data available. Limited information available in relation to the removal / demolition of the reservoirs and pump houses within the area of the Sizewell B relocated facilities in the south of the MCA.
	Allotments adjacent to the south of the LEEIE.	No exploratory holes located within the southern extent of the LEEIE and no ground investigation data available.
	Works and factories within Eastlands Industrial Estate.	No exploratory holes located within the southern extent of the LEEIE and no ground investigation data available.

As detailed in Table 10-1, ground investigation has been undertaken across the site. However, the investigations have been mainly focused on the area within the MCA with the majority of exploratory

holes located in this zone. Less information is available for the TCA, LEEIE and offshore area. In addition, some areas of the TCA and LEEIE have not been subject to investigation, i.e. the south of the LEEIE and the western edge of the TCA including the area of the proposed accommodation campus.

The historical ground investigations were mainly undertaken to provide geotechnical information and limited contamination test data are available for the site. No soil, leachate or groundwater contamination testing has been undertaken within the LEEIE and there is limited data for the majority of the TCA and offshore area.

Only limited gas monitoring has been undertaken, with the majority of monitoring carried out within boreholes located in the MCA. Gas monitoring has only been undertaken within six locations within the TCA and no gas monitoring has been undertaken within the LEEIE.

10.1.1. Additional Ground Investigation

It is recommended that additional ground investigation is undertaken to provide a wider coverage within the MCA (northern mound and sea defence and SSSI), TCA, LEEIE and offshore area. The ground investigation should include the installation of further exploratory holes to target data gaps, collection and chemical testing of soil, leachate, surface water and groundwater samples and monitoring of new and existing boreholes (where present) to provide information in relation to groundwater levels and ground gas. Atkins is currently undertaking a groundwater and surface water monitoring programme at the site and the proposed additional works should be undertaken in conjunction with the existing programme.

An updated Phase 2 Report should be prepared following the additional ground investigation to update the ground model and CSM for the site. Depending upon the findings of the additional works, further assessments may be required for the proposed development, including DQRAs, preparation of remediation strategies and/or piling risk assessments.

10.2. Materials Management / Soils Re-use

Limited chemical data are available for the TCA, LEEIE and offshore area. Additional chemical testing will be required to inform the re-use of material across the site during the construction works.

10.3. Sizewell B Former Reservoirs

Two concrete reservoirs and associated pump houses were present within the area of the Sizewell B relocated facilities in the south of the MCA. Asbestos was identified to be present within the reservoir pump houses. The reservoirs and pump houses are reported to have been demolished in 2018, with the asbestos removed prior to demolition works [35]. Air monitoring is indicated to have been undertaken during and following the removal of the asbestos [38]. A ground investigation was undertaken for the reservoirs and surrounding embankment by KDC Contractors Ltd in 2018 [34] to determine the suitability of the materials for re-use. It was recommended to use the site won material and the crushed concrete to backfill the voids created by removal of the reservoirs [37]. However, no further information has been provided to date in relation to the removal / demolition works. Additional consideration of the removal works and the current status of this area is therefore recommended.

10.4. UXO Risk

A UXO desk based assessment was undertaken for the MCA by EOD [8]. The report states that the MCA was not directly subject to bomb attacks, but that air raid bombing incidents were reported in several areas around Leiston and Sizewell, including Sizewell Common, Sizewell estate, Leiston heath land the Sizewell Road railway crossing. These areas appear to be within or in close proximity to the TCA and LEEIE. It is therefore recommended that additional assessment is undertaken to assess the potential risks posed by UXO in these zones and also for the historical rifle ranges on the foreshore.

It is also noted that several mitigation measures were recommended by EOD including the communication of risks to all stakeholders, further planning for project health and safety operations, UXO safety awareness training and the development of a non-intrusive UXO survey and the investigation of the development area to assess any ferrous objects located within the MCA footprint.

11. Conclusions and Recommendations

11.1. Conclusions

The proposed development comprises a NNB Power Station which will be located on the Suffolk coast, to the north of the existing Sizewell B nuclear power station site. The site encompasses approximately 729ha of land comprising 362 ha of land onshore and 367 ha of offshore land. The onshore area includes three zones of temporary and permanent land take comprising the MCA, TCA and LEEIE. The offshore area comprises of four zones include the BLF, cooling water system, fish recovery and return system and combined drainage outfall.

Ground investigations were undertaken at the site within the onshore and offshore areas in 2009, 2011, 2014, 2015 and 2019/2020. The investigations comprised the drilling and excavation of cable percussion boreholes, rotary core holes and trial pits to a maximum depth of 125.8m bgl. Soil, leachate, groundwater and surface water samples were collected and tested as part of the ground investigations. Groundwater level and gas monitoring was also undertaken.

Made Ground up to 10.8m bgl was encountered within the MCA overlying Marine Deposits, Alluvium and Peat, Crag Group, London Clay, Lower London Tertiaries and Chalk. Ground conditions within the TCA comprised Made Ground up to 3.2m bgl overlying Alluvium, the Lowestoft Till Formation and the Crag Group. Topsoil overlying the Lowestoft Till Formation and Crag Group was encountered within the LEEIE. Marine deposits were encountered within the offshore area overlying the Crag Group, London Clay, Lower London Tertiaries and chalk.

Groundwater was recorded within the Peat and Crag Group. Groundwater level monitoring indicates that water levels in the peat range from surface in summer to 5m bgl in winter. Average groundwater levels in the Crag Group typically increase with distance from the coast. The highest recorded groundwater levels occur in the far north of the site, with a maximum value of 13m bgl.

There were no exceedances against the human health GAC for either a commercial or public open space (parks) end use for the contaminants in the soil samples analysed. However, the presence of asbestos was identified in 3No. samples obtained in the 2019 investigation from two adjacent boreholes located in the south-west of the MCA (MGS_2019_B and MGS_2019_B2).
The identified asbestos was located at a depth of 4.0m and 5.0m bgl. Current site users are unlikely to be exposed to dust/fibres as the soils are at depth, are not currently being disturbed and likely to be saturated. Risks in relation to current site users are therefore considered to be very low. As part of the proposed development, the soils within this area of the site will be excavated and replaced with Crag Group and covered by hardstanding. This will effectively break the pathways associated with the generation and inhalation of dust/fibres. However, the excavation works will disturb the soil and potentially cause the release of asbestos fibres. Therefore, current and future site users and off-site users of adjacent areas could be at risk from exposure to asbestos during construction works. However, potential risks can be managed during the works through the careful application of suitable measures to minimise the release of asbestos fibres. The potential for asbestos fibre release will need to be further assessed and managed by a suitably qualified asbestos specialist. Short term acute exposure risks to construction workers will need to be assessed as part of the development of the construction phase health and safety plan and managed through standard good practice health and safety procedures.

Leachate testing of soils identified limited exceedances of inorganics, metals and PAHs at several locations within the MCA and TCA in Made Ground and natural material collected from the Sand, Alluvium, Peat and Crag Group.

Elevated concentrations of contaminants of concern including inorganics, metals, BTEX, PAHs and VOCs were recorded in the groundwater and surface water samples tested. The groundwater underlying the majority of the MCA and parts of the TCA is subject to significant saline intrusion and may also be affected by the underlying geology, adjacent marshes and farming activities. Water quality within the surface watercourses is also noted to be moderate to poor which is attributed to

marine influences, discharges from the Leiston Sewage Treatment Works and farming activities in the surrounding areas.

The ground gas regime at the site has been initially classified as CS2 and the incorporation of ground gas protection measures within the proposed development may be required depending on the proposed earthworks and construction works. Made Ground and organic Alluvium and Peat are considered to be the main sources of ground gas at the site. It is likely that the Made Ground and Alluvium and Peat will be removed as part of the excavation of material for the main platform. However, further assessment of gas risks and requirements for gas protection measures will be required as part of detailed design and post earthworks.

There were no exceedances against the human health GAC for a commercial or public open space (parks) end use for contaminants in the sediment samples analysed. Leachability testing of sediment identified exceedances of inorganics, metals and phenol above WQS. Cefas testing of sediments identified an exceedance of arsenic in one sample above Action Level 1. The material will require further assessment to determine whether it is suitable for sea disposal. Dredging and sea disposal would need to be undertaken in accordance with a Marine Licence.

A radiochemical data assessment of soil, groundwater and surface water data undertaken by AMEC in 2014 identified the presence of naturally and anthropogenically occurring radionuclides soil, sediment, surface water and groundwater samples. AMEC concluded that radiation levels within the soil, groundwater and surface water at the MCA were unlikely to pose a significant risk to human health. Radiochemical testing undertaken as part of the 2019 indicated the presence of naturally occurring radionuclides in soil and sediment samples. Further assessment of radionuclide levels will be required to determine potential radiological risks. A detailed radiological assessment is outside of the scope of this report.

The results suggest that site won soils should be suitable for re-use, however in areas of proposed landscaping a suitable growing medium may be required. In addition, asbestos fibres have been reported in three soil samples and risks from asbestos will need to be further assessed by a suitably qualified asbestos specialist to confirm the suitability of this material for re-use. The material may be required to be re-used in accordance with a remediation strategy.

Material that is unsuitable for re-use on site should be disposed of in accordance with current waste management legislation and guidance. Waste material may be treated off-site to allow it to be re-used. However, if material is destined for landfill, WAC analysis will be required to demonstrate to the landfill that the material is acceptable for disposal at the specific landfill. A preliminary waste assessment indicates that the majority of samples would be classified as non-hazardous waste with one sample classed as hazardous waste due to elevated lead and zinc concentrations. The presence of asbestos >0.1% free fibres in two samples may also classify them as hazardous waste. WAC testing results indicate that several soil and sediment samples exceeded landfill WAC limits. It is the responsibility of the waste producer to classify, treat, manage and dispose of waste appropriately and to ensure the chosen landfill is licensed to accept such material.

Potential contamination risks associated with the current land use are considered to be very low for human health, property and ecological receptors and low to moderate/low for controlled waters receptors. Risks during construction without mitigation measures are considered to be very low to low for human health receptors, property and ecological receptors and low to moderate/low for controlled waters receptors. Risks during operation without mitigation measures are considered to be very low for human health, property and ecological receptors and low to moderate/low for controlled waters receptors.

11.2. Recommendations

It is recommended that additional ground investigation with suitable chemical testing is undertaken to provide a wider coverage within the MCA (northern mound and sea defence and SSSI), TCA, LEEIE and offshore area, to provide additional information in relation to the ground conditions and to inform the re-use of material during construction works.

The ground investigation should include the installation of further exploratory holes and monitoring wells to target data gaps within the TCA, LEEIE and offshore area (as outlined in Table 10-1).. The

additional ground investigations should include the collection and chemical testing of soil, leachate, surface water and groundwater samples and monitoring of new and existing boreholes (where present) to provide updated information in relation to groundwater and ground gas.

An updated Phase 2 Report should be prepared following the additional ground investigation and further assessments may be required including DQRAs, preparation of remediation strategies and/or piling risk assessments.

Additional consideration of the removal of the reservoirs within the area of the Sizewell B relocated facilities is recommended as part of the Sizewell B works to confirm that the structures have been removed / validated in accordance with best practice.

Further assessment of the UXO risks at the site should also be undertaken, particularly within the TCA and LEEIE. In addition, the UXO mitigation measures recommended by EOD should be implemented for the site.

Re-use of materials on-site is recommended where possible on grounds of both cost and sustainability. Early consideration of this issue should be undertaken in order to maximise material re-use. The re-use of on-site excavated soils should be undertaken in accordance with appropriate guidance such as the DoWCoP or suitable environmental permits or waste exemptions for example a non-Waste Framework Directive exemption [55].

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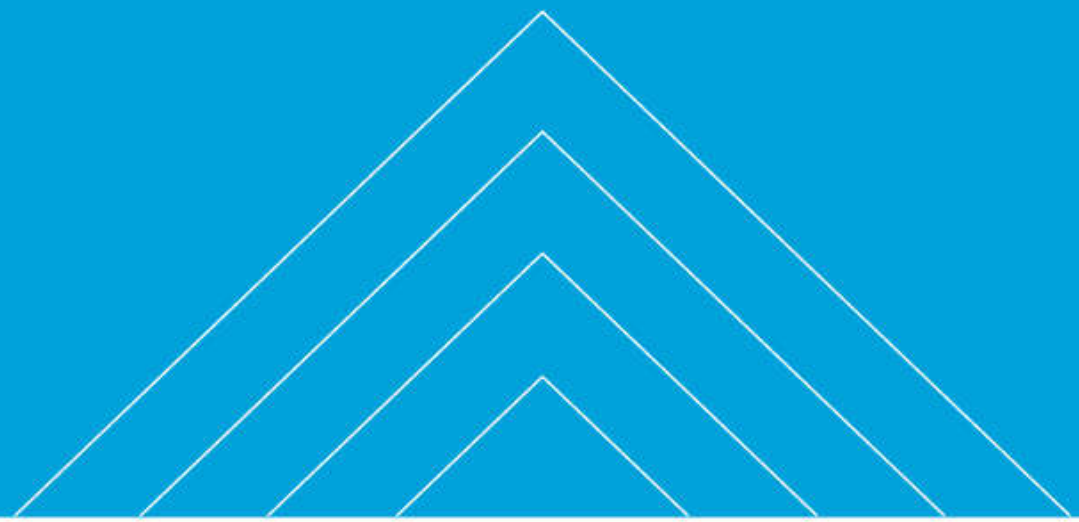
Appendices



Appendix A – Drawings and Figures

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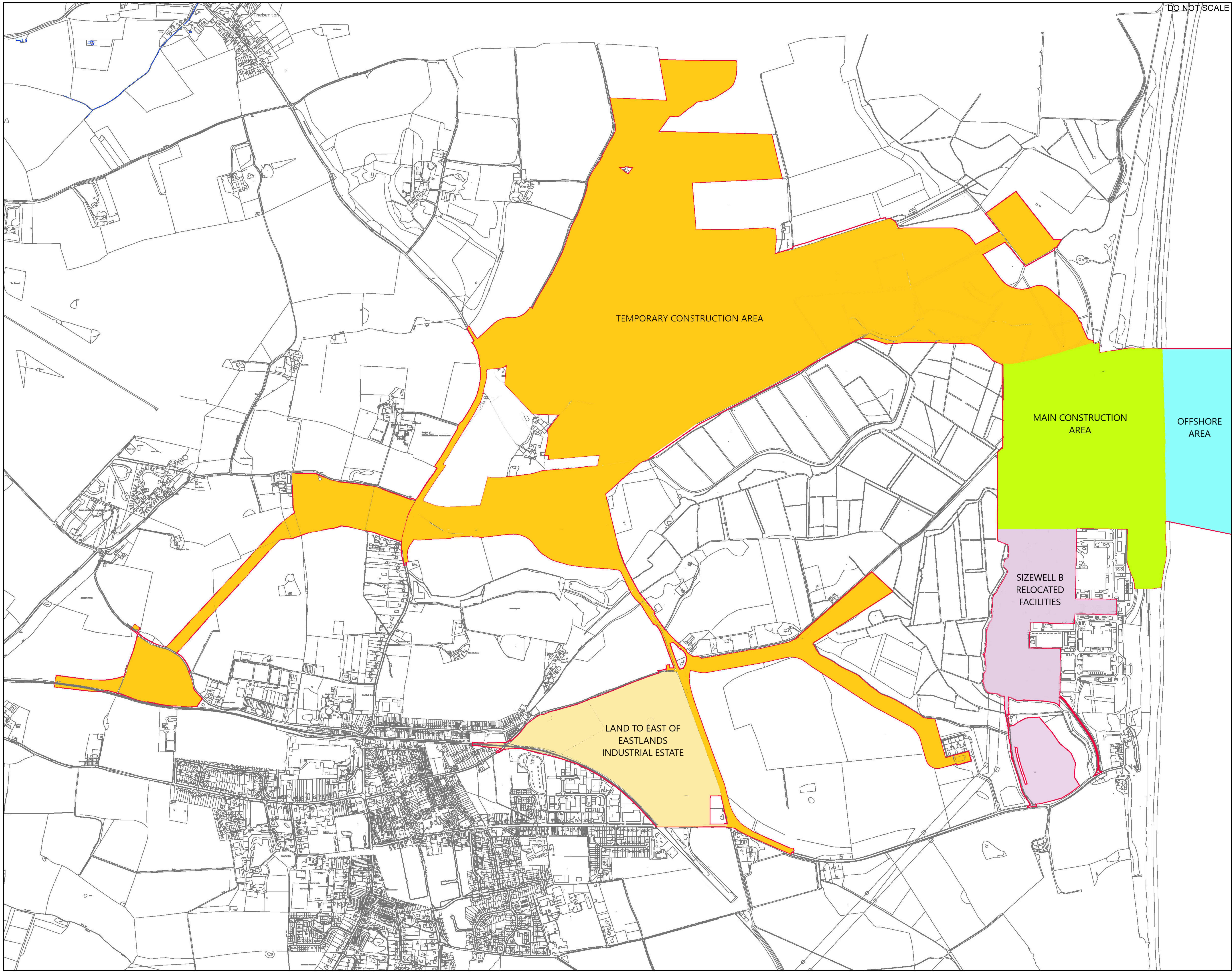

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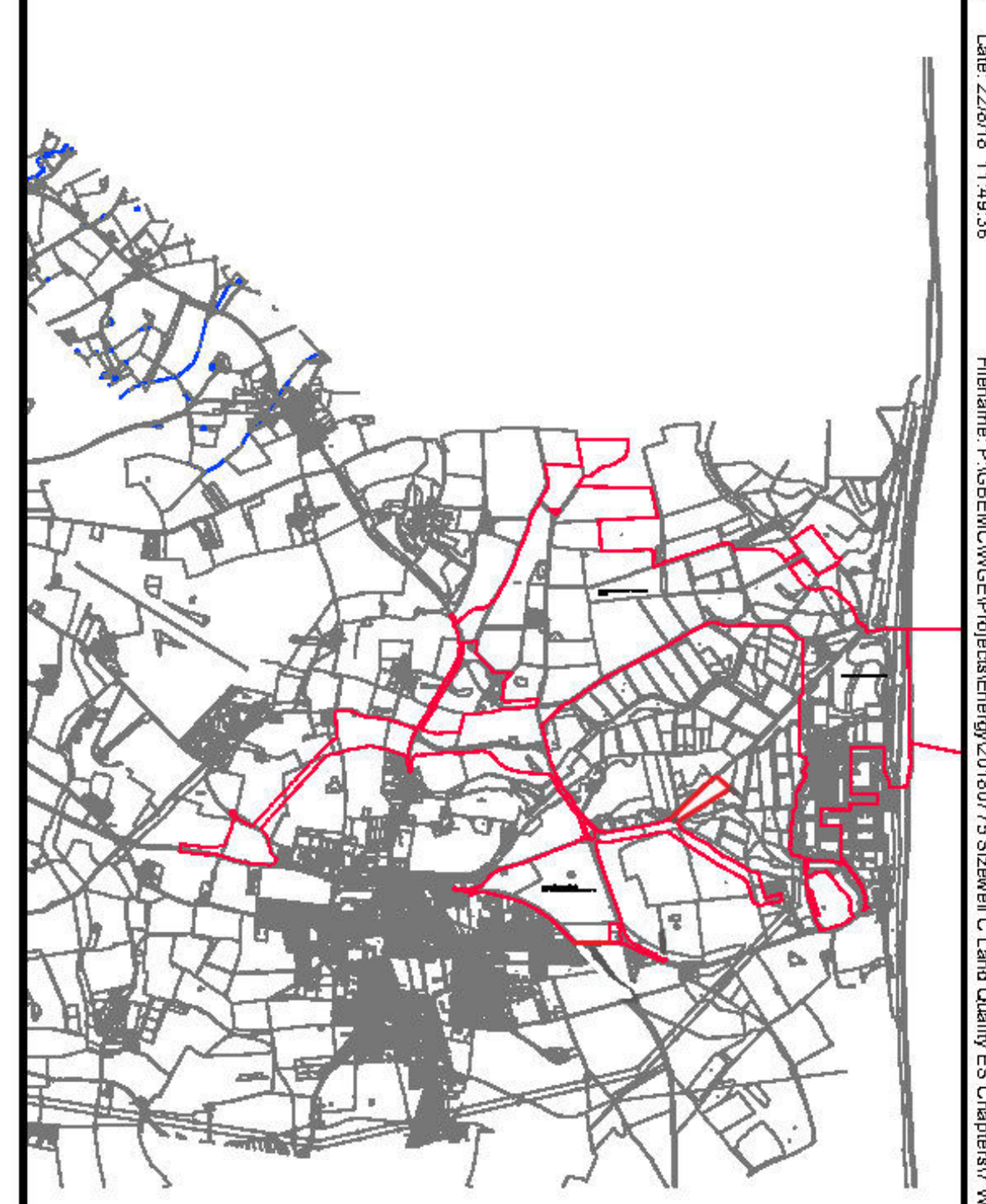

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Suitability: SO

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Project Title: SIZEWELL C

Drawing Title: MAIN DEVELOPMENT SITE SUB AREAS

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Revision: P1.2

Rev.	Date	Description	By	Chk'd	App'd

Drawing Status: WORK IN PROGRESS

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Project Title

SIZEWELL C LAND QUALITY
ES CHAPTERS

Drawing Title

EXPLORATORY HOLE LOCATION PLAN
SHEET 1 OF 3

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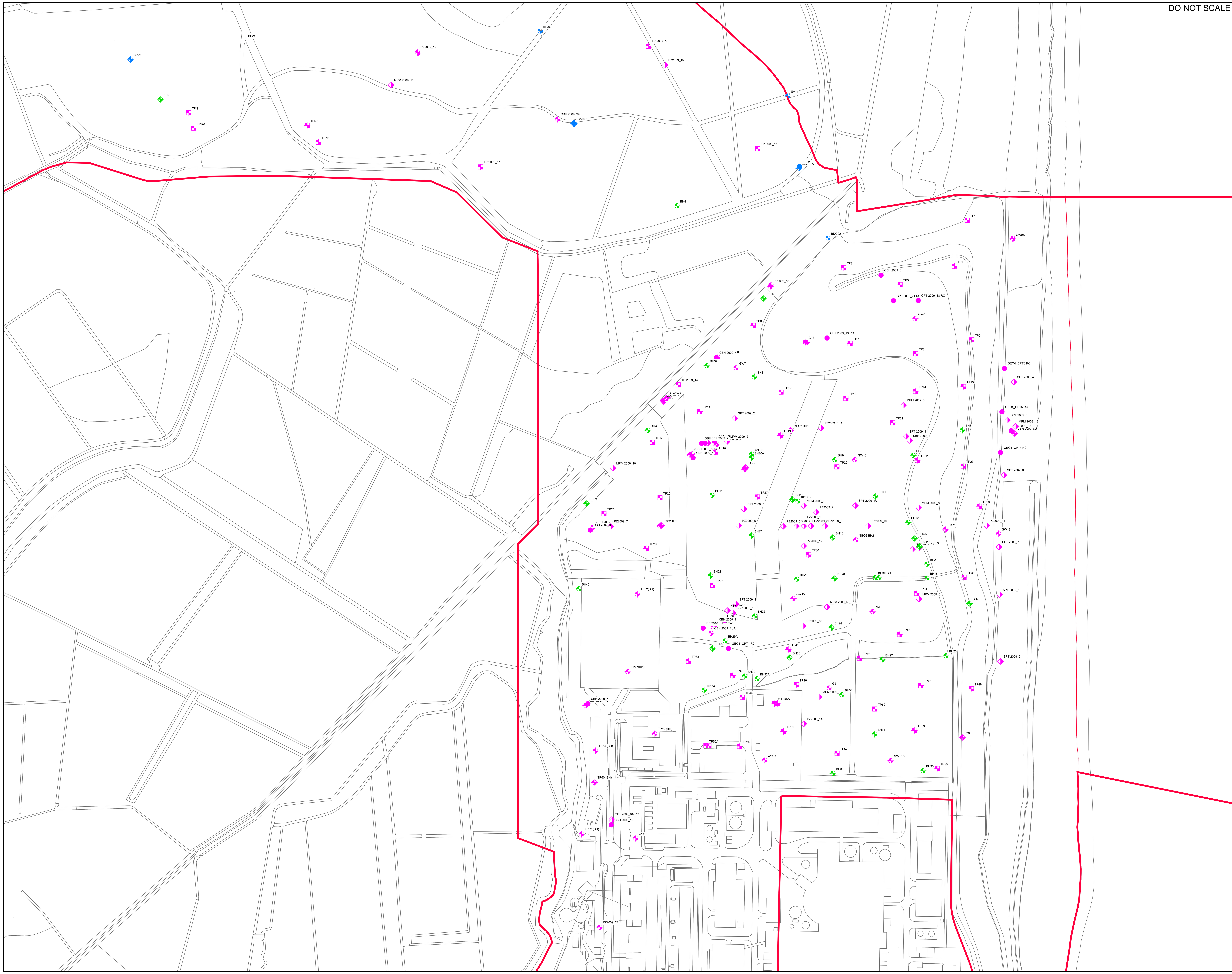

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Drawing Title: EXPLORATORY HOLE LOCATION PLAN SHEET 2 OF 3

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Aztec West
Bristol
BS32 4RZ
Tel: +44 (0)1454 662000
Fax: +44 (0)1454 663333
www.atkinsglobal.com

Client

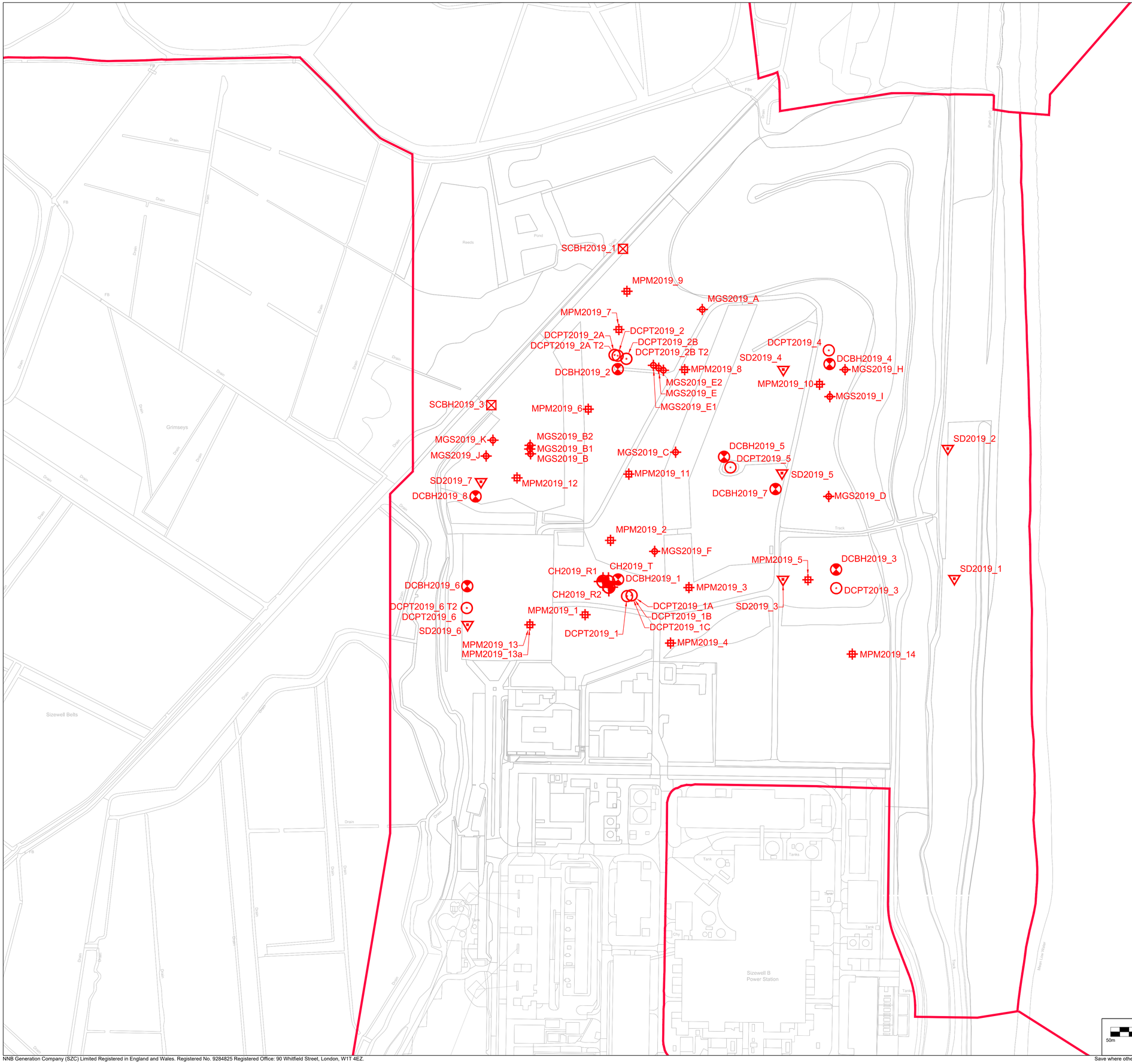
Project Title: SIZEWELL C LAND QUALITY ES CHAPTERS

Drawing Title: EXPLORATORY HOLE LOCATION PLAN SHEET 3 OF 3

Scale	Designed	Drawn	Checked	Authorised
1:1000	JJ	RJ	EG	–
Original Size: A1	Date: –/–/–	Date: –/–/–	Date: –/–/–	Date: –/–/–

Drawing Number: 5166065-ATK-XX-XX-DR-G-0004
Revision: P1.1

USER: FO377549 Date: 23/8/18 11:31:04
Filename: P:\GB\MCW\GE\Projects\Energy\251907\5 Sizewell C Land Quality ES Chapters\7 WIP\7.1 Main Development Site\Figures\02 - DR\5166065-ATK-XX-XX-DR-G-0001 Sizewell Exploratory Hole Location Plan.dwg



NORTH

Scale 1:2000

50m 0m 50m 100m

UK PROTECTIVE MARKING:
UK PROTECT

DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID	☐	NATIONAL GRID OSGB36	☒
OTHER GRID	☐	(To be defined in the contract project plan)	

CONTRACT PROJECT PLAN DOC. REF. No: N/A

NOTES:

1. EDF AERIAL TOPOGRAPHY SURVEY MAPPING DATA WITH A BASE SCALE OF 1:5000 ADOPTED AS DRAWING BACKGROUND TOPOGRAPHY DATA.
2. EXPLORATORY HOLE POSITIONS ARE PLOTTED FROM AS-BUILT CO-ORDINATES PROVIDED IN AGS FORMAT OR CREATED FROM PDF FACTUAL DATA.
3. ALL CO-ORDINATES ARE IN METRES AND ARE BASED ON THE NATIONAL GRID. ALL LEVELS ARE IN METRES AND RELATIVE TO ORDNANCE DATUM.

LEGEND:

- SIZEWELL C MAIN DEVELOPMENT SITE BOUNDARY
- DEEP CORE BOREHOLE LOCATION
- MADE GROUND SAMPLING LOCATION
- MENARD PRESSUREMETER TEST LOCATION
- SONIC DRILLING LOCATION
- CROSS HOLE LOCATION
- DEEP CPTu WITH SEISMIC PROBE LOCATION
- SHALLOW CORE BOREHOLE LOCATION

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION

N/A

MAINTENANCE/CLEANING

N/A

DECOMMISSIONING/DEMOLITION

N/A

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
A	27/08/20	DH	EG	S3	Fit For Comment	EG

NNB GenCo (SZC) LTD.

Client: SZC

Consultant: ATKINS, Member of the SNC-Lavalin Group

CONTRACTOR COMPANY TRADE NAME : ATKINS

CONTRACTOR REF. No. N/A

CONTRACT NUMBER : N/A

CONTRACTOR WBS CODE : SZ0100-066 | QRA RELATED Yes ☐ No ☒

APPLICABILITY:
1: Document related to Unit 1
2: Document related to Unit 2
9: Document that applies to buildings/systems common to Unit 1 & 2
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX				
SZC (doc: SZ)				
0	1	2	9	
X				

BUILDING: 000

SYSTEM: N/A

SCALE 1:2000

SIZE A1

PAGE 1/1

DESCRIPTION

SIZEWELL C 2019 ONSHORE GROUND INVESTIGATION EXPLORATORY HOLE LOCATIONS

DOCUMENT REFERENCE No.

Project	Contract No. / Orig. Co	Asset / Zone	System / Building	Doc. type	Chrono No.
SZC	SZ0100-066	XX	000	DRW	000001

DOCUMENT SUB -TYPE: N/A

EDF CLASSIFICATION CODE: N/A

SUBCONTRACTOR COMPANY TRADE NAME: N/A

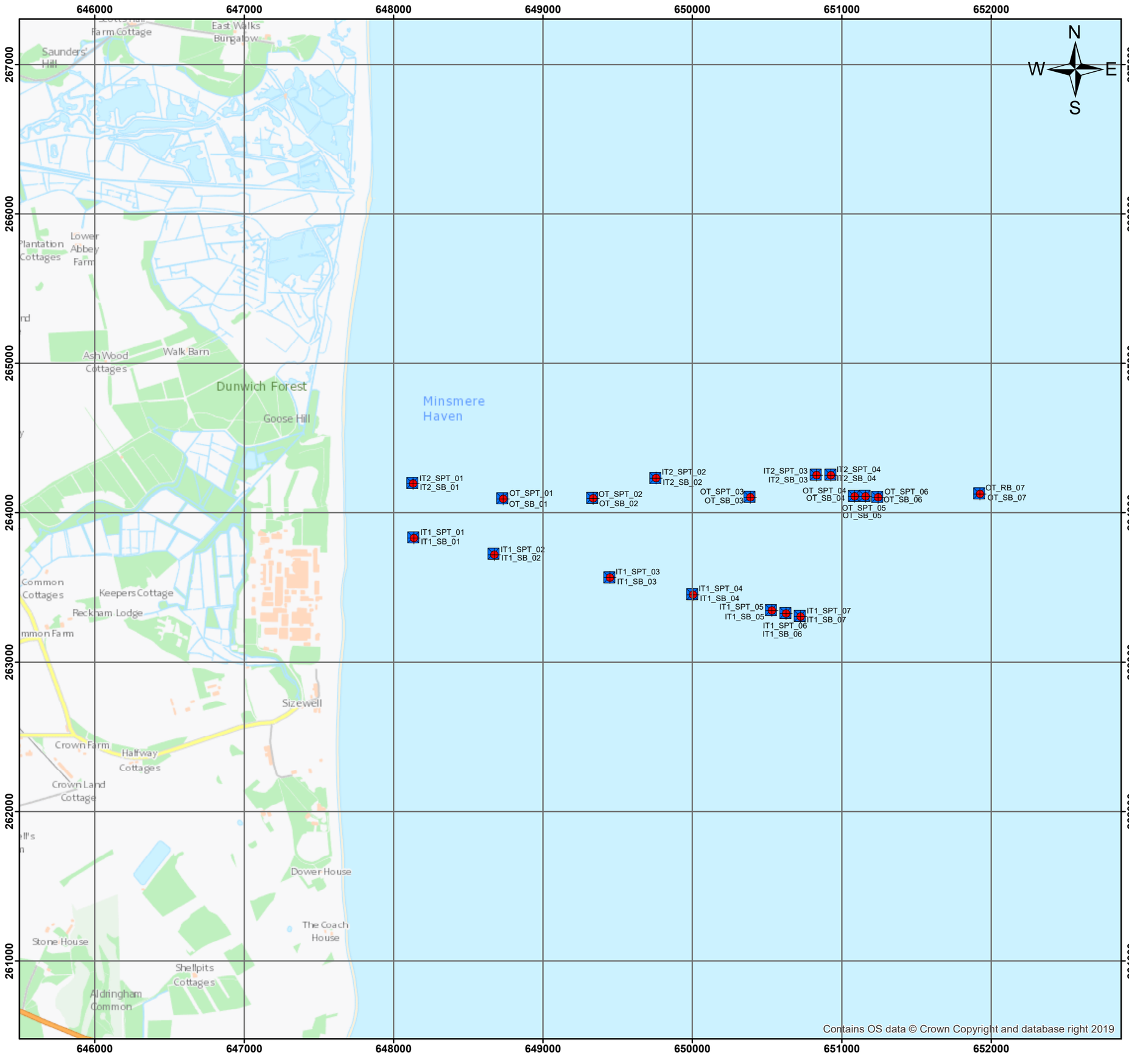
SUBCONTRACTOR DOCUMENT REF. No: N/A

This pattern must be entirely readable
For A0 and A1 : ABERPFTHLIJOOCGQUVWMNSZXKY
zsaeocmuvnwxirfkhbdpqgyjlt 71423855690

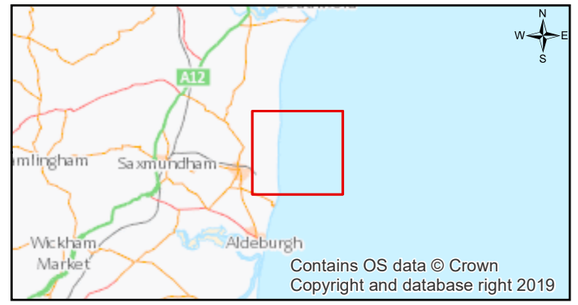
0 1 2 3 4 5 6 7 8 9 10

INTELLECTUAL PROPERTY:	NNB: OWNERSHIP	EDF: N/A	CONTRACTOR: N/A

UK PROTECTIVE MARKING:
UK PROTECT



Location



Scale: 1:500,000
0 5 10 20 30 40 Kilometres

Legend

- Rotary Boreholes
- Sonic Cored Boreholes

Notes

- A rotary borehole (rotary open hole and coring) was drilled adjacent to each sonic cored borehole to achieve the associated SPT data and/or to further extend the borehole by rotary coring.

Rev.	Date	Description	Initials
1	14/01/2020	Draft Issue	LCB

Scale: 1:25,000
0 0.25 0.5 1 1.5 2 Kilometres

Coordinate System

British National Grid

Client

NNB Generation Company (SZC) Limited
90 Whitfield Styreet,
London,
W1T 4EZ
Tel: 020 321 98311
Website: www.edfenergy.com

Principle Contractor

Fugro
Fugro House, Hithercroft Road, Wallingford,
Oxfordshire, OX10 9RB, United Kingdom
Registered in England No. 1284352
VAT No. GB 133 1704 09
www.fugro.com

Project Title

SZC 2019 Offshore Ground Investigation

Figure Title

Exploratory Hole Location Plan

Figure Number

LP1

Drawn By	Checked By	Approved By	Issued On	Project No.	Sheet Size	Rev.
LCB	CAY	ROR	14/01/2020	G190016U	A3	1

Appendix B – Site Walkover Photographs (2015 and 2019)

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments	
View of field to the east of the northern half of site. Shows rectangular concrete area adjacent to pile of bricks and rebar, with waterlogged area in background, surrounded by cones.	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments	
View of field to east of northern half of site, looking north. Shows track through centre, with waterlogged area to the left.	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments View looking south east. Shows wooden fence and slope down to beach, with the jetty as part of Sizewell A in the far background.	
Updated view in 21/03/19	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments	
View looking north east. Shows track running along the east of the site, with some wire fencing and gorse bushes noted.	
Updated view 21/03/19 looking south-east	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments View across eastern field in northern half with track in foreground, waterlogged area shown to the right, and Sizewell B visible in the background.	
Updated view in 21/03/19	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments View of north eastern part of the site, shows tracks and woodland, surrounded by fences.	
Updated view 21/03/19	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments View of surface water drain in north west of site, surrounded by vegetation.	
Updated view 21/03/19	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments View of central field in northern half of site, showing hedges bounding the field and several deer.	
Updated view in 21/03/19	

Date: 21/03/19	Project: Sizewell C Site Walkover, MCA
Comments	
View of the northern mound	

Date: 04/02/15	Project: Sizewell C Site Walkover, MCA
Comments	
View from east of site, looking further east. Shows wooden fence and publicly accessibly beach area and sea in background.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments View of fields in south looking north west. A frozen waterlogged area is shown.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments Vegetation in fields to the south of the TCA.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View along southern boundary, looking south east, showing wire fence.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View of woodland in Hilltop Covert, comprising predominantly pine trees.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments View of the southern boundary of Dunwich Forest, showing the muddy track in the bottom left-hand corner. Newly planted trees and ferns are visible on the slope, up to the established pine trees.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments View of drain along south eastern boundary of TCA, orientated approximately east to west.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View of the 'Triangle' showing area of replanting surrounded by pine trees.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View looking north west in approximate centre of the site, showing overhead cables in background.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View of back of Ash Wood Cottage looking north, showing concrete area, with grass-covered mound in the background.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View of fields in centre of TCA, looking in a south west direction	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View of fields towards west of TCA, looking south west, with tree-lined track in background. Track runs in north-south orientation.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
Vegetated area of disused pit, showing steep slopes with abandoned building on far right.	

Date: 04/02/15	Project: Sizewell C Site Walkover, TCA
Comments	
View of disused pit area, looking south east, showing wire fencing bounding the site.	

Photograph 1	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of LEEIE from Unit 4 of Eastlands Industrial Estate looking north east, showing railway line in foreground and Sizewell B in background.	
Updated view 21/03/19	

Photograph 2	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of field in north west corner of the site, looking south. Shows slope up to field, and Eastlands Industrial Estate in the background.	

Photograph 3	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of field in north west corner of site, looking south east. Shows hedges lining field, and overhead cables.	

Photograph 4	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of slope from entrance on Valley Road looking south. Shows some fly-tipping.	

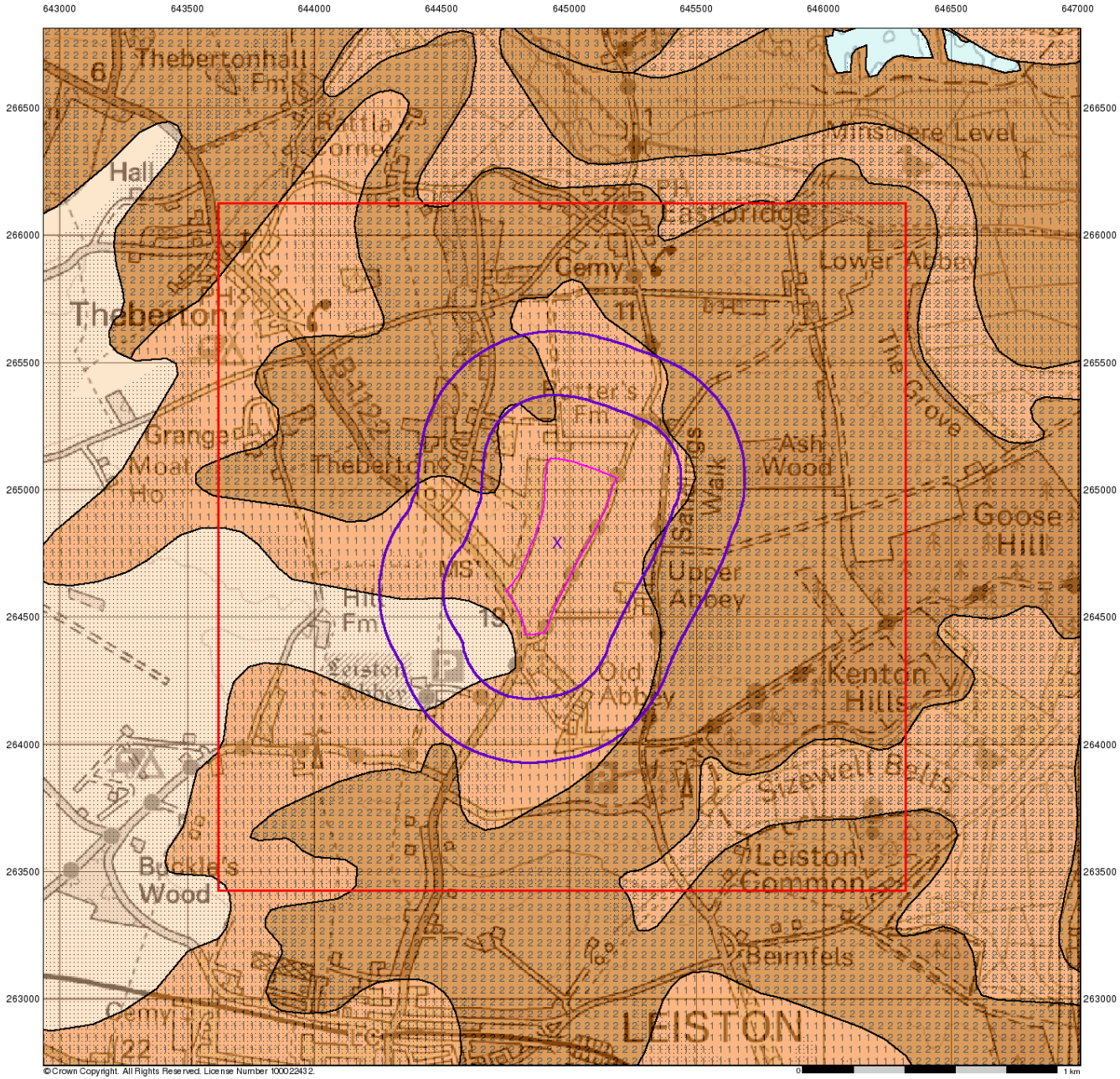
Photograph 5	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of LEEIE looking north. Shows railway line in foreground, wire boundary fence, overhead cables, and hedges lining the field in the north west corner of the site.	

Photograph 6	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of eastern boundary of LEEIE, showing tall hedges and wire fencing.	

Photograph 7	Project: Sizewell C Site Walkover, LEEIE
Date: 04/02/15	
Comments:	
View of LEEIE from northern boundary looking south. Shows tall hedge boundary, with no fencing.	

Appendix C – Envirocheck Reports

Appendix C – Envirocheck Reports: Part 1



amec

Groundwater Vulnerability

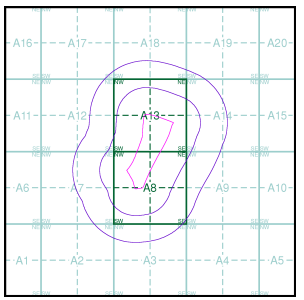
General

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

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



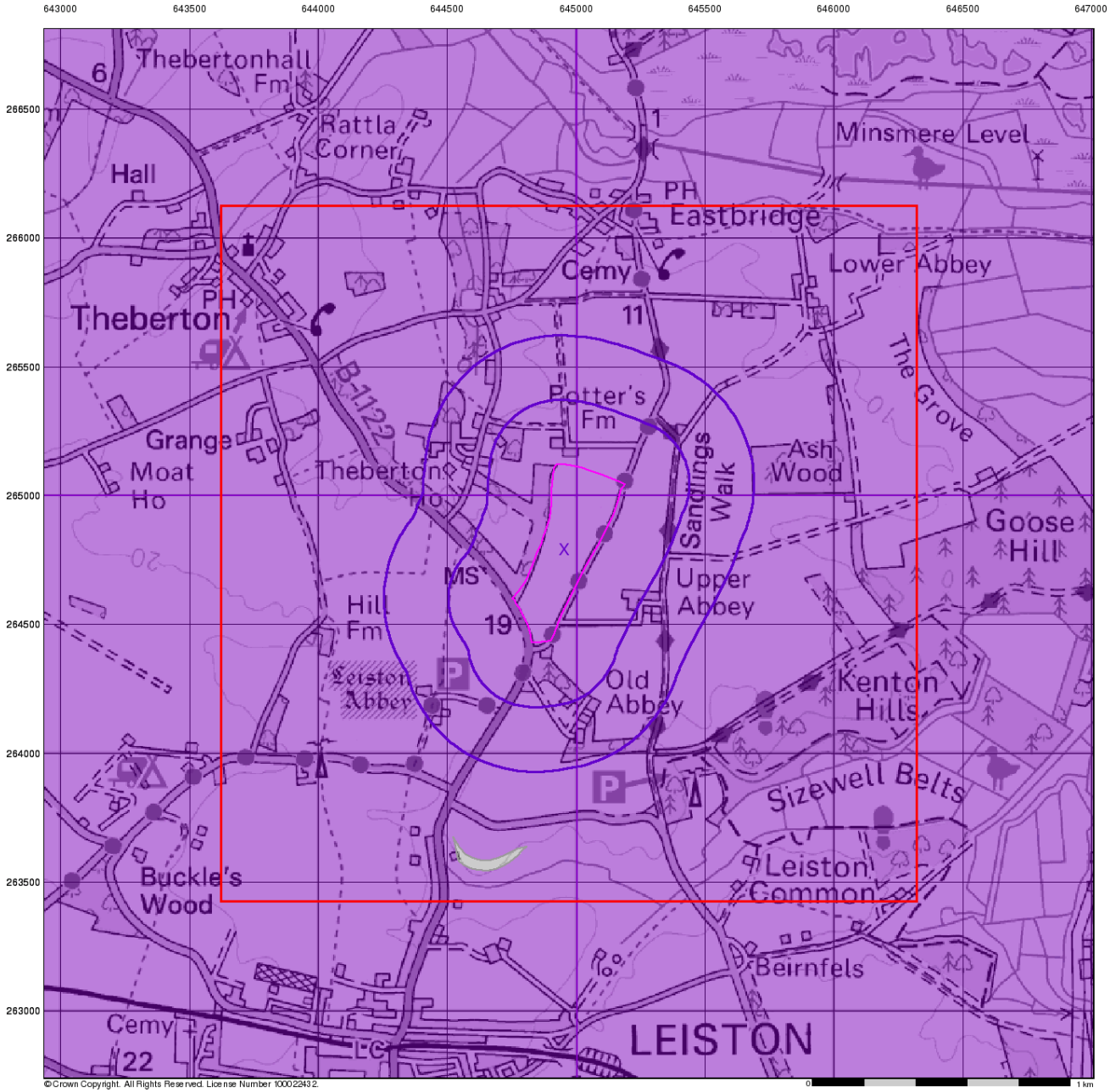
Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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



Bedrock Aquifer Designation

General

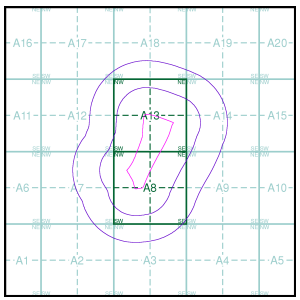
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



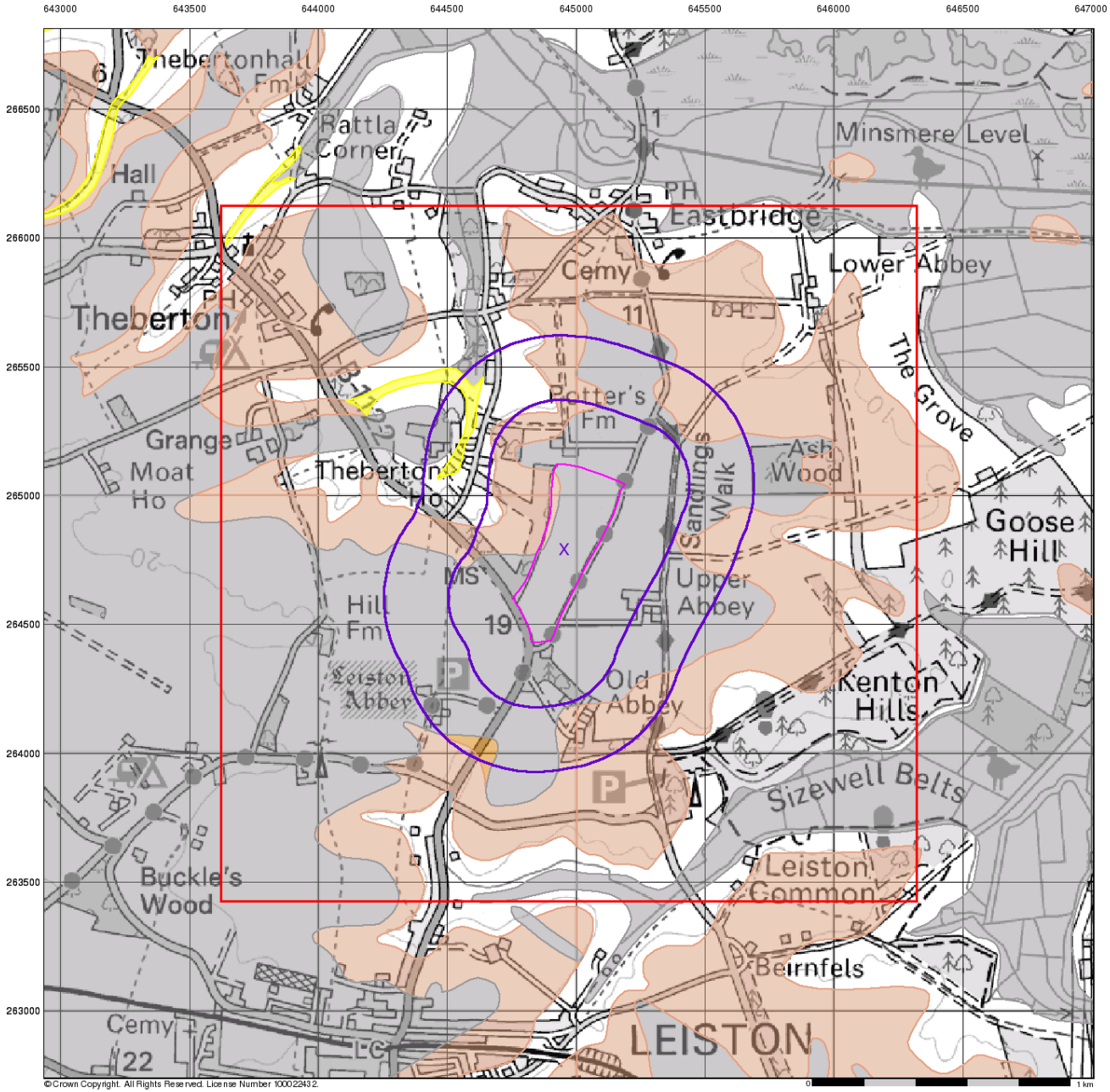
Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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



Superficial Aquifer Designation

General

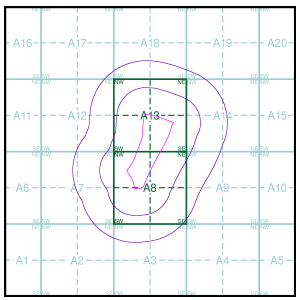
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



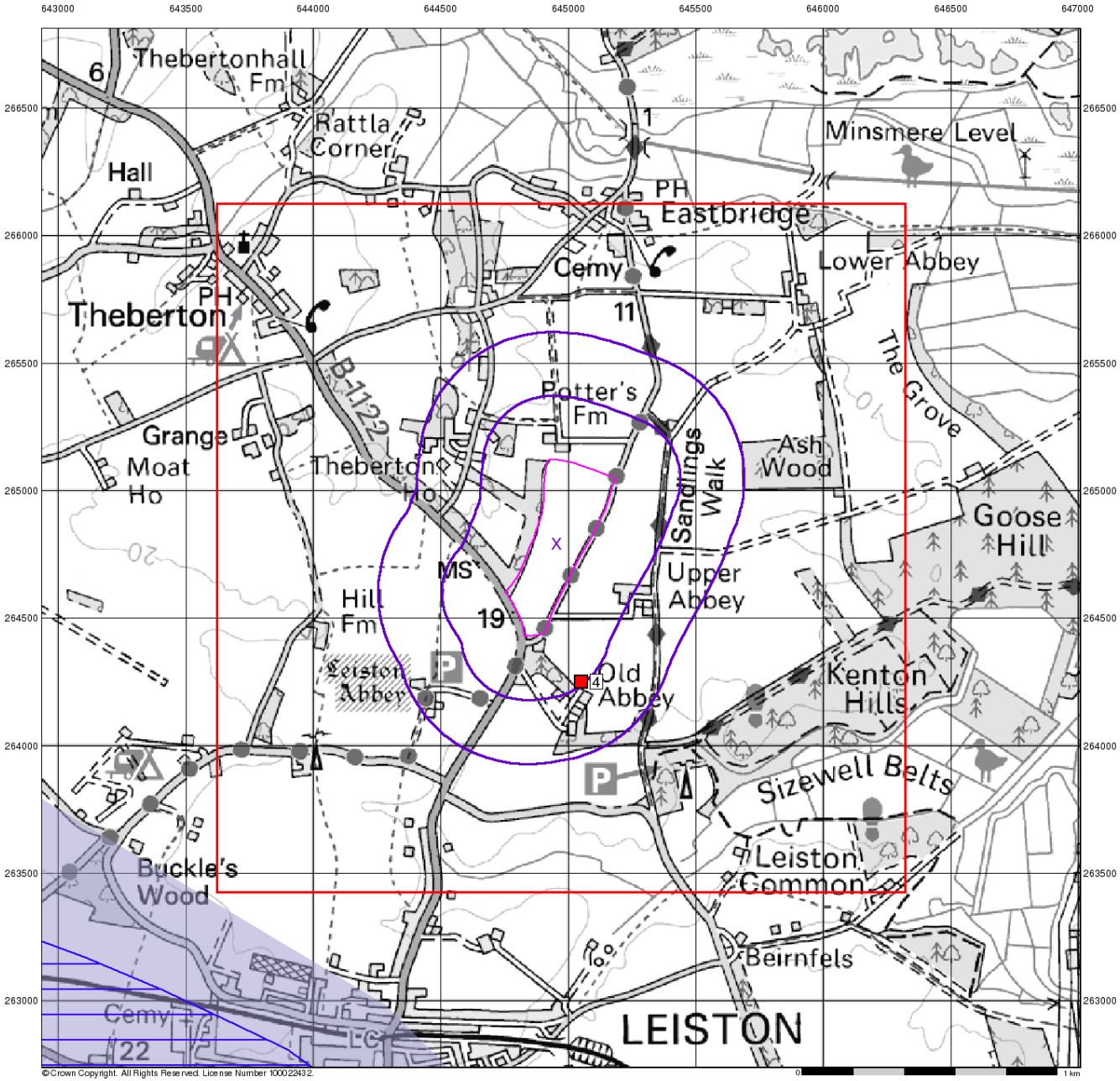
Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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



Source Protection Zones

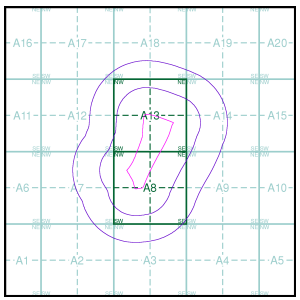
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



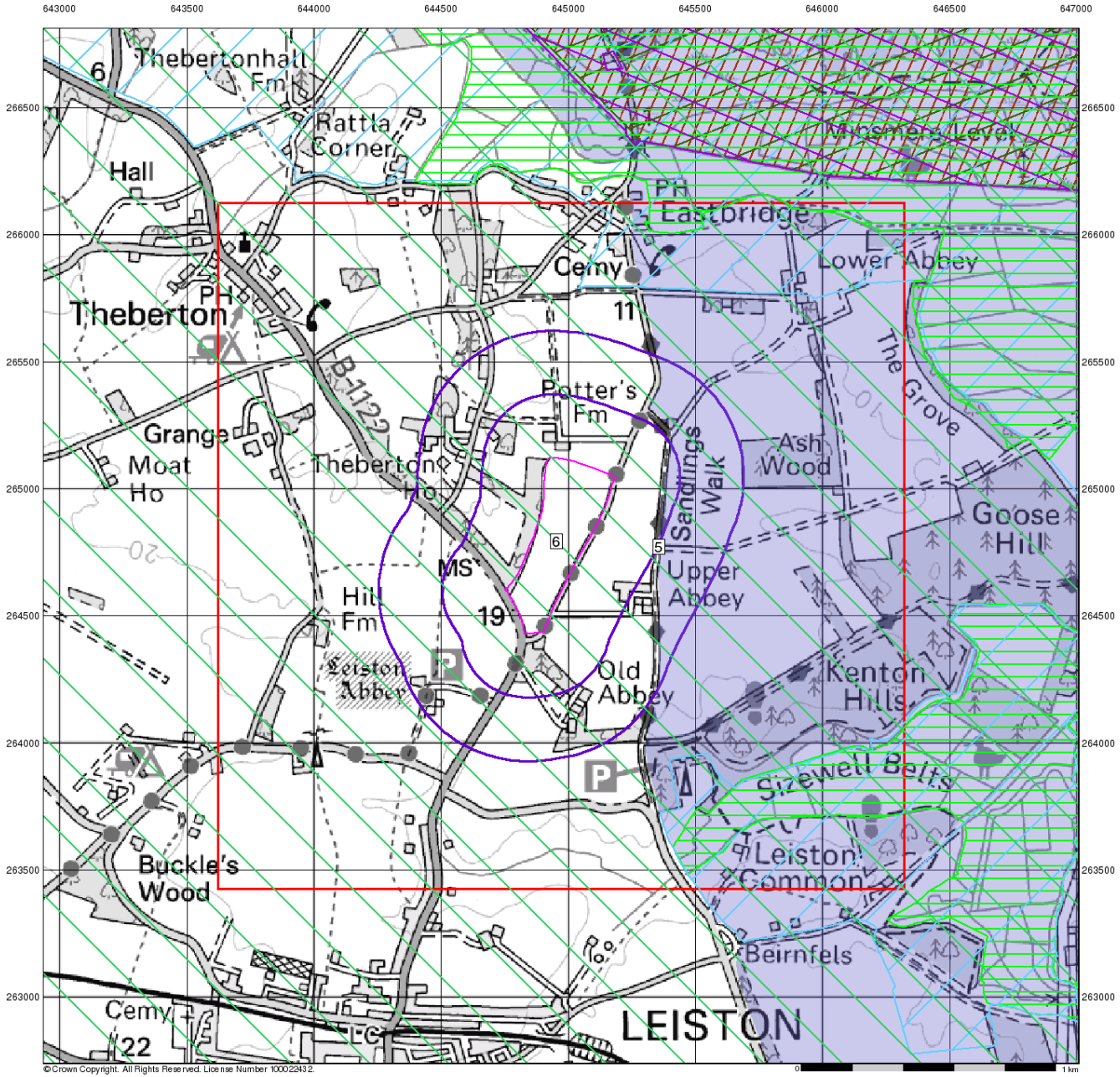
Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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



amec

Sensitive Land Uses

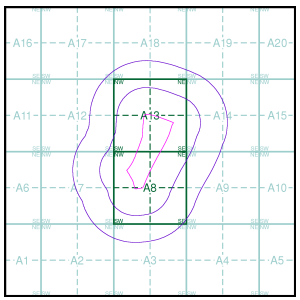
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
40136387_1_1

Customer Reference:
32623

National Grid Reference:
644950, 264790

Slice:
A

Site Area (Ha):
13.92

Search Buffer (m):
500

Site Details:

Site at Greenhouse plantation (east)
Leiston
Suffolk

Client Details:

Miss D Shankar
AMEC Environment & Infrastructure UK Ltd
Unit 1, Long Barn
Village Road
Nercwys
Mold
Flintshire
CH7 4EW

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	6
Hazardous Substances	-
Geological	7
Industrial Land Use	-
Sensitive Land Use	13
Data Currency	14
Data Suppliers	18
Useful Contacts	19

Introduction

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

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

Copyright Notice

Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v47.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Agency & Hydrological				
Contaminated Land Register Entries and Notices				
Discharge Consents	pg 1			2
Enforcement and Prohibition Notices				
Integrated Pollution Controls				
Integrated Pollution Prevention And Control				
Local Authority Integrated Pollution Prevention And Control				
Local Authority Pollution Prevention and Controls				
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 1		Yes	
Pollution Incidents to Controlled Waters				
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality	pg 1	1		
River Quality Biology Sampling Points				
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions	pg 1		1	1 (*8)
Water Industry Act Referrals				
Groundwater Vulnerability	pg 4	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 4	Yes	n/a	n/a
Superficial Aquifer Designations	pg 4	Yes	n/a	n/a
Source Protection Zones	pg 4		1	
Extreme Flooding from Rivers or Sea without Defences				n/a
Flooding from Rivers or Sea without Defences				n/a
Areas Benefiting from Flood Defences				n/a
Flood Water Storage Areas				n/a
Flood Defences				n/a
Waste				
BGS Recorded Landfill Sites				
Historical Landfill Sites				
Integrated Pollution Control Registered Waste Sites				
Licensed Waste Management Facilities (Landfill Boundaries)				
Licensed Waste Management Facilities (Locations)				
Local Authority Recorded Landfill Sites				
Registered Landfill Sites				
Registered Waste Transfer Sites				
Registered Waste Treatment or Disposal Sites				

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
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				
Geological				
BGS 1:625,000 Solid Geology	pg 7	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 7	Yes	Yes	Yes
BGS Recorded Mineral Sites				
BGS Urban Soil Chemistry				
BGS Urban Soil Chemistry Averages				
Brine Compensation Area			n/a	n/a
Coal Mining Affected Areas			n/a	n/a
Mining Instability			n/a	n/a
Man-Made Mining Cavities				
Natural Cavities				
Non Coal Mining Areas of Great Britain				n/a
Potential for Collapsible Ground Stability Hazards	pg 10	Yes		n/a
Potential for Compressible Ground Stability Hazards				n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 11	Yes		n/a
Potential for Running Sand Ground Stability Hazards	pg 11	Yes	Yes	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 11	Yes		n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a
Industrial Land Use				
Contemporary Trade Directory Entries				
Fuel Station Entries				

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Sensitive Land Use				
Areas of Adopted Green Belt				
Areas of Unadopted Green Belt				
Areas of Outstanding Natural Beauty	pg 13		1	
Environmentally Sensitive Areas				
Forest Parks				
Local Nature Reserves				
Marine Nature Reserves				
National Nature Reserves				
National Parks				
Nitrate Sensitive Areas				
Nitrate Vulnerable Zones	pg 13	1		
Ramsar Sites				
Sites of Special Scientific Interest				
Special Areas of Conservation				
Special Protection Areas				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Mr & Mrs Dowley Property Type: Sewage Disposal Works - Other Location: Theberton House (Barn Conversion) Potters Street, Theberton, Leiston, Suffolk, Ip16 4rl Authority: Environment Agency, Anglian Region Catchment Area: Catchment 29 Unknown Detail Reference: Prelf20769 Permit Version: 2 Effective Date: 14th December 2011 Issued Date: 14th December 2011 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: To Land **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A12NE (NW)	373	1	644560 265220
1	**Discharge Consents** Operator: Mr & Mrs Dowley Property Type: Sewage Disposal Works - Other Location: Theberton House (Barn Conversion) Potters Street, Theberton, Leiston, Suffolk, Ip16 4rl Authority: Environment Agency, Anglian Region Catchment Area: Catchment 29 Unknown Detail Reference: Prelf20769 Permit Version: 1 Effective Date: 22nd October 2007 Issued Date: 22nd October 2007 Revocation Date: 13th December 2011 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: To Land **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 (NW)	373	1	644560 265220
	Nearest Surface Water Feature	A13NW (N)	5	-	644963 265124
	River Quality Name: Leiston Bk GQA Grade: River Quality F Reach: Leiston...Minsmere Sluice Estimated Distance (km): 4.5 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A8NW (S)	0	1	644898 264453
2	**Water Abstractions** Operator: Mr J R Poll Licence Number: 7/35/03/*G/0051 Permit Version: 100 Location: Bore Nr Leiston Old Abbey,Leis Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Glacial Sand and Gravel; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st April 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8SE (S)	240	1	645050 264250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Water Abstractions** Operator: British Energy Generation Ltd Licence Number: 7/35/03/*G/0045 Permit Version: 101 Location: Well At Upper Abbey Fm,Leiston Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Crag; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 31st December 1998 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	321	1	645320 264570
	Water Abstractions Operator: Mr J R Poll Licence Number: 7/35/03/**/051 Permit Version: Not Supplied Location: Bore Near Leiston Old Abbey, LEISTON Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 23 Yearly Rate (m3): 500000 Details: Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3NE (S)	732	1	645190 263765
	Water Abstractions Operator: Mr J R Poll Licence Number: 7/35/03/**/051 Permit Version: Not Supplied Location: Sizewell Belt Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 16 Yearly Rate (m3): 500000 Details: Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A17NE (N)	745	1	644600 265790
	Water Abstractions Operator: Mr J R Poll Licence Number: 7/35/03/*G/0051 Permit Version: 100 Location: 20 Wellpts At Holly Tree Fm,Th Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Glacial Sand and Gravel; Status: Perpetuity Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 1st April 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A17NE (NW)	803	1	644500 265800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: J R Poll Licence Number: 7/35/03/*g/059 Permit Version: Not Supplied Location: Well At Theberton Grange, THEBERTON Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Well Daily Rate (m3): 0 Yearly Rate (m3): 5000 Details: Crag; Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (NW)	814	1	644105 265195
	Water Abstractions Operator: Mr J R Poll Licence Number: 7/35/03/*G/0073 Permit Version: 100 Location: Eighteen Wellpts Theberton Gr. Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Crag; Status: Perpetuity Authorised Start: 01 March Authorised End: 30 September Permit Start Date: 1st February 1992 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A12NW (NW)	820	1	644100 265200
	Water Abstractions Operator: F Barker & Co Licence Number: 7/35/03/*G/0049 Permit Version: 100 Location: 15 Wellpts Ne Of Brick Wks Fm Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Glacial Sand and Gravel; Status: Perpetuity Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 1st December 1993 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	959	1	645100 263500
	Water Abstractions Operator: Mr J R Poll Licence Number: 7/35/03/*S/0051 Permit Version: 100 Location: Spr Fed Drain At Sizewell Belt Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Perpetuity Authorised Start: 01 May Authorised End: 30 September Permit Start Date: 1st April 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4NW (SE)	967	1	645600 263770

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: F Barker & Co Licence Number: 7/35/03/**/049 Permit Version: Not Supplied Location: North East Of Brick Works Farm Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 15 Yearly Rate (m3): 300000 Details: Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	975	1	645150 263495
	Groundwater Vulnerability Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 33 East Suffolk Scale: 1:100,000	A13SW (SW)	0	1	644955 264792
	Drift Deposits Drift Deposit: Low permeability drift deposits occuring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 33 East Suffolk Scale: 1:100,000	A13SW (SW)	0	1	644955 264792
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	A13SW (SW)	0	2	644955 264792
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	A13SW (N)	0	2	644955 265001
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	A13SE (E)	0	2	645003 264792
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	A13SE (N)	0	2	645003 265001
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SW (SW)	0	2	644955 264792
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SW (N)	0	2	644955 265001
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (N)	0	2	645003 265001
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (E)	0	2	645003 264792
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SW (NW)	0	2	644891 264826
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SW (N)	0	2	644936 265001
4	**Source Protection Zones** Name: Bore Nr Leiston Old Abbey,Leis Source: Environment Agency, Head Office Reference: An429 Type: Groundwater Source	A8SE (S)	240	1	645050 264250
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Suffolk County Council - Has supplied landfill data		0	6	644955 264792
	Local Authority Landfill Coverage Name: Suffolk Coastal District Council - Had landfill data but passed it to the relevant environment agency		0	7	644955 264792

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Norwich Crag, Red Crag and Chillesford Clay	A13SW (SW)	0	2	644955 264792
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (N)	0	3	644955 265000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SW (N)	0	3	644933 265000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SW (NW)	0	3	644890 264827
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (SW)	0	3	644955 264792
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SE (E)	0	3	645000 264792
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (N)	0	3	645000 265000

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: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SW (NW)	177	3	644714 264918
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13SW (NW)	196	3	644680 265000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A13NE (N)	200	3	645000 265316
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14SW (E)	255	3	645382 264832
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A8SE (S)	266	3	645000 264185
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A14NW (NE)	295	3	645420 265228

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: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SE (N)	339	3	645000 265457
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A12SE (NW)	347	3	644543 265095
	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: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A3NW (S)	407	3	644682 264052
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12NE (NW)	412	3	644494 265153
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A3NW (S)	429	3	644927 264000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A3NW (S)	436	3	644955 264000

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: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A12NE (NW)	439	3	644603 265420
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A3NE (S)	449	3	645000 264000
	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: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A3NW (S)	453	3	644692 264000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: <15 mg/kg	A2NE (SW)	478	3	644582 264022
	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	A13SW (SW)	0	2	644955 264792
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	2	645003 264792
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	2	644955 264792

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 (E)	0	2	645003 264792
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	2	644955 264792
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	2	645003 264792
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	2	644955 264792
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	2	645003 264792
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	175	2	644717 264919
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	197	2	644683 265001
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644936 265001
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	2	644955 264792
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	2	645003 264792
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (NW)	0	2	644891 264826
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	201	2	645003 265318

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	2	644955 264792
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	2	645003 264792
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	0	2	644955 264792
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	2	645003 264792
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	2	644955 265001
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13SE (N)	0	2	645003 265001

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Areas of Outstanding Natural Beauty** Name: Suffolk Coast & Heaths Multiple Areas: Y Total Area (m2): 405129557.32 Designation Date: 31st March 1970 Source: Natural England	A9NW (E)	190	4	645359 264770
6	**Nitrate Vulnerable Zones** Name: Not Supplied Description: NVZ Area Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13SW (SW)	0	5	644955 264792

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Suffolk Coastal District Council - Environmental Health Department	September 2011	Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region	April 2012	Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region	June 2012	Quarterly
Integrated Pollution Controls Environment Agency - Anglian Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - Anglian Region	April 2012	Quarterly
Local Authority Integrated Pollution Prevention And Control Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Local Authority Pollution Prevention and Controls Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	December 2011	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region	June 2012	Monthly
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region	June 2012	Monthly
Registered Radioactive Substances Environment Agency - Anglian Region	April 2012	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	January 2011	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	January 2011	Annually
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Water Abstractions Environment Agency - Anglian Region	April 2012	Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region	April 2012	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Source Protection Zones Environment Agency - Head Office	April 2012	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	May 2012	Quarterly

Agency & Hydrological	Version	Update Cycle
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2012	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	May 2012	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	May 2012	Quarterly
Flood Defences		
Environment Agency - Head Office	May 2012	Quarterly
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Anglian Region - Eastern Area	January 2012	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Local Authority Landfill Coverage		
Suffolk Coastal District Council - Environmental Health Department	May 2000	Not Applicable
Suffolk County Council	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Suffolk Coastal District Council - Environmental Health Department	May 2000	Not Applicable
Suffolk County Council	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	May 2012	Bi-Annually
Explosive Sites		
Health and Safety Executive	June 2012	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Suffolk Coastal District Council	December 2011	Annual Rolling Update
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update
Planning Hazardous Substance Consents		
Suffolk Coastal District Council	December 2011	Annual Rolling Update
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	January 2010	Variable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2012	Bi-Annually
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	August 2011	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	May 2012	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2012	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Outstanding Natural Beauty Natural England	February 2012	Bi-Annually
Environmentally Sensitive Areas Natural England	February 2012	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2012	Bi-Annually
Marine Nature Reserves Natural England	February 2012	Bi-Annually
National Nature Reserves Natural England	February 2012	Bi-Annually
National Parks Natural England	February 2012	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Annually
Ramsar Sites Natural England	February 2012	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2012	Bi-Annually
Special Areas of Conservation Natural England	February 2012	Bi-Annually
Special Protection Areas Natural England	February 2012	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	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
3	**Landmark Information Group Limited** 5 - 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Telephone: 01392 441761 Fax: 01392 441709 Email: cssupport@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk
4	**Natural England** Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
5	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
6	**Suffolk County Council** St Edmund House, County Hall, Ipswich, Suffolk, IP4 1LZ	Telephone: 01473 583000 Fax: 01473 230240 Website: www.suffolkcc.gov.uk
7	**Suffolk Coastal District Council - Environmental Health Department** Council Offices, Melton Hill, Woodbridge, Suffolk, IP12 1AU	Telephone: 01394 383789 extn 2238 Fax: 01394 385100 Website: www.suffolkcoastal.gov.uk
-	**Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	**Landmark Information Group Limited** The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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

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 (225)
Instrumental Contour (200)
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)
RD. 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
Glasshouse
Direction of Flow of Water — Shingle — Sand
Sloping Masonry
Pylon — Pole — Electricity Transmission Line

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

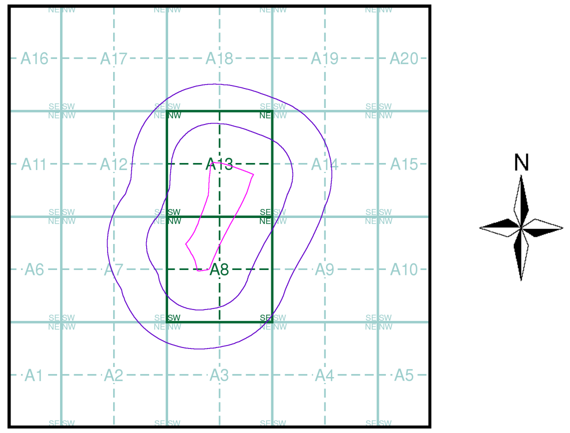
1:10,000 Raster Mapping

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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:10,560	1883 - 1884	2
Suffolk	1:10,560	1905	3
Suffolk	1:10,560	1928	4
Suffolk	1:10,560	1938	5
Suffolk	1:10,560	1950 - 1951	6
Ordnance Survey Plan	1:10,000	1957 - 1958	7
Ordnance Survey Plan	1:10,000	1976 - 1977	8
Ordnance Survey Plan	1:10,000	1982	9
10K Raster Mapping	1:10,000	2012	10

Historical Map - Slice A



Order Details

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Site Details

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Landmark Information Group

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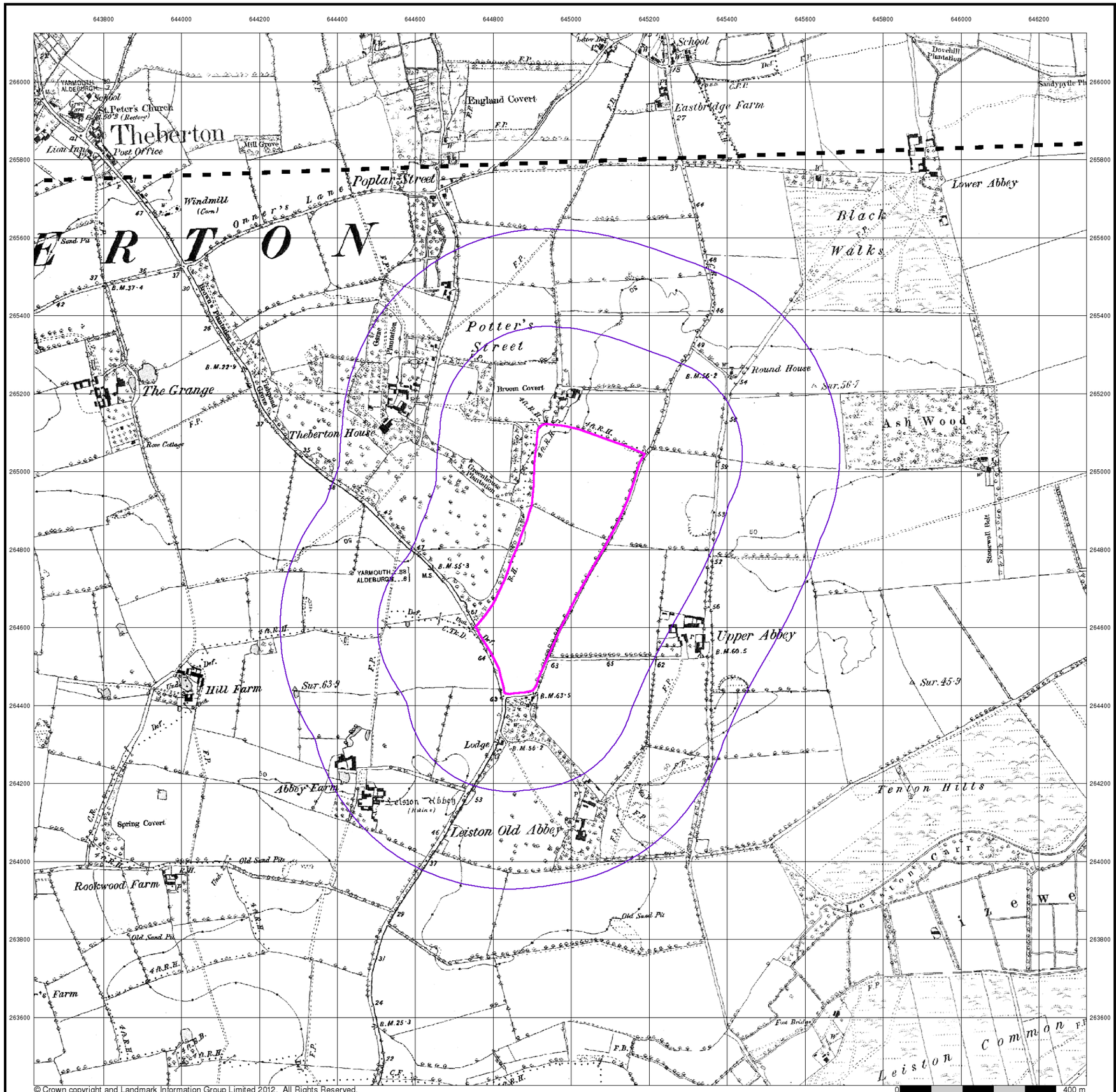

amec

Suffolk

Published 1883 - 1884

Source map scale - 1:10,560

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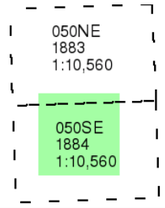
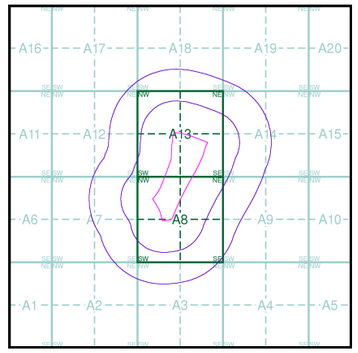
Map Name(s) and Date(s)



Historical Map - Slice A



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Site Details

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Landmark Information Group

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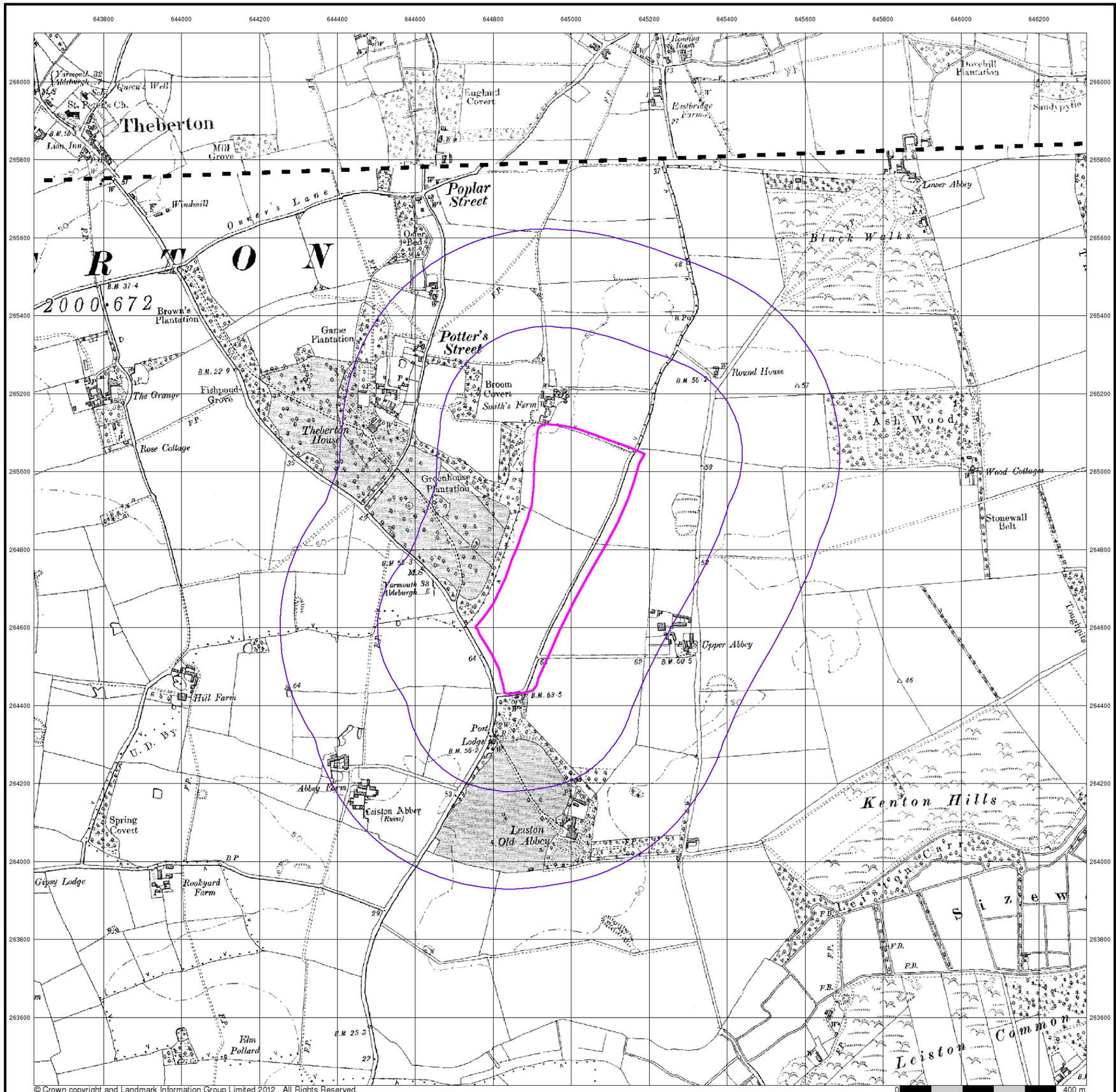

amec

Suffolk

Published 1905

Source map scale - 1:10,560

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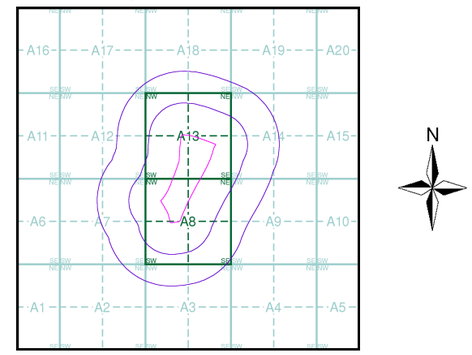
Map Name(s) and Date(s)

050NE
1905
1:10,560

050SE
1905
1:10,560

Historical Map - Slice A



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Landmark Information Group

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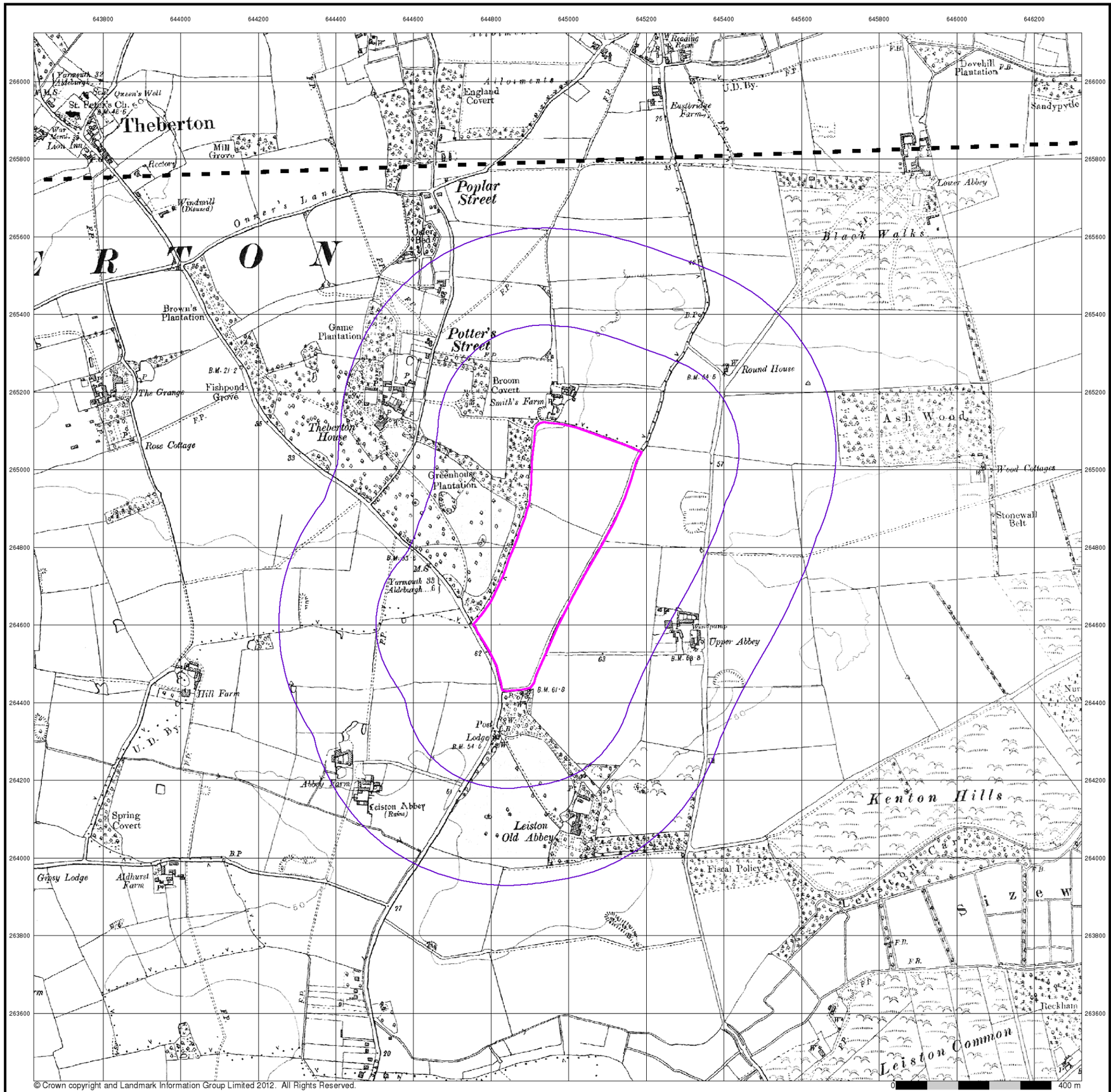

amec

Suffolk

Published 1928

Source map scale - 1:10,560

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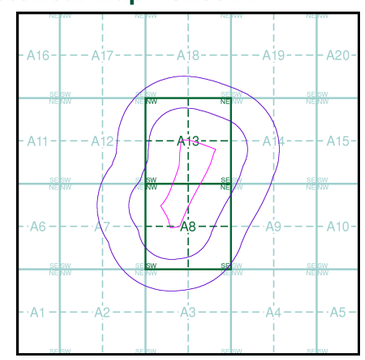
1928
1:10,560

050SE
1928
1:10,560

Historical Map - Slice A



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Site Details

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Landmark Information Group

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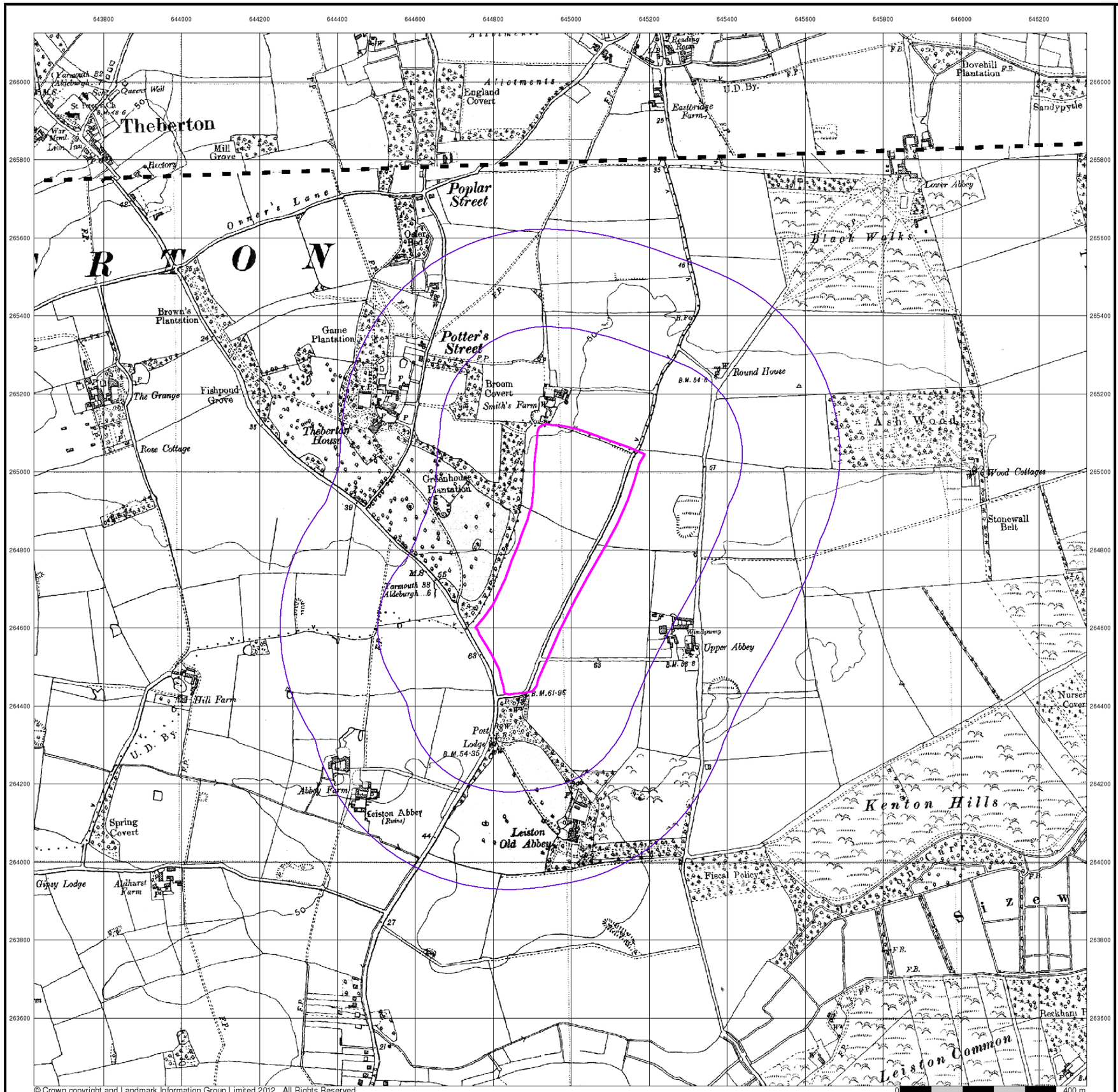

amec

Suffolk

Published 1938

Source map scale - 1:10,560

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Map Name(s) and Date(s)

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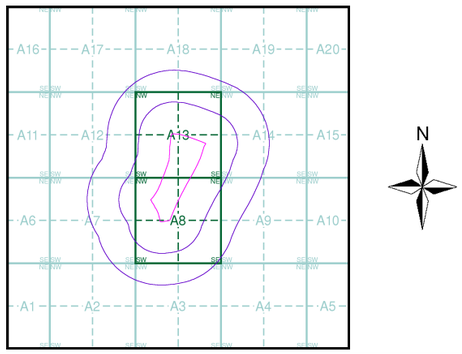
1938
1:10,560

050SE
1938
1:10,560

Historical Map - Slice A



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Site Details

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Landmark Information Group

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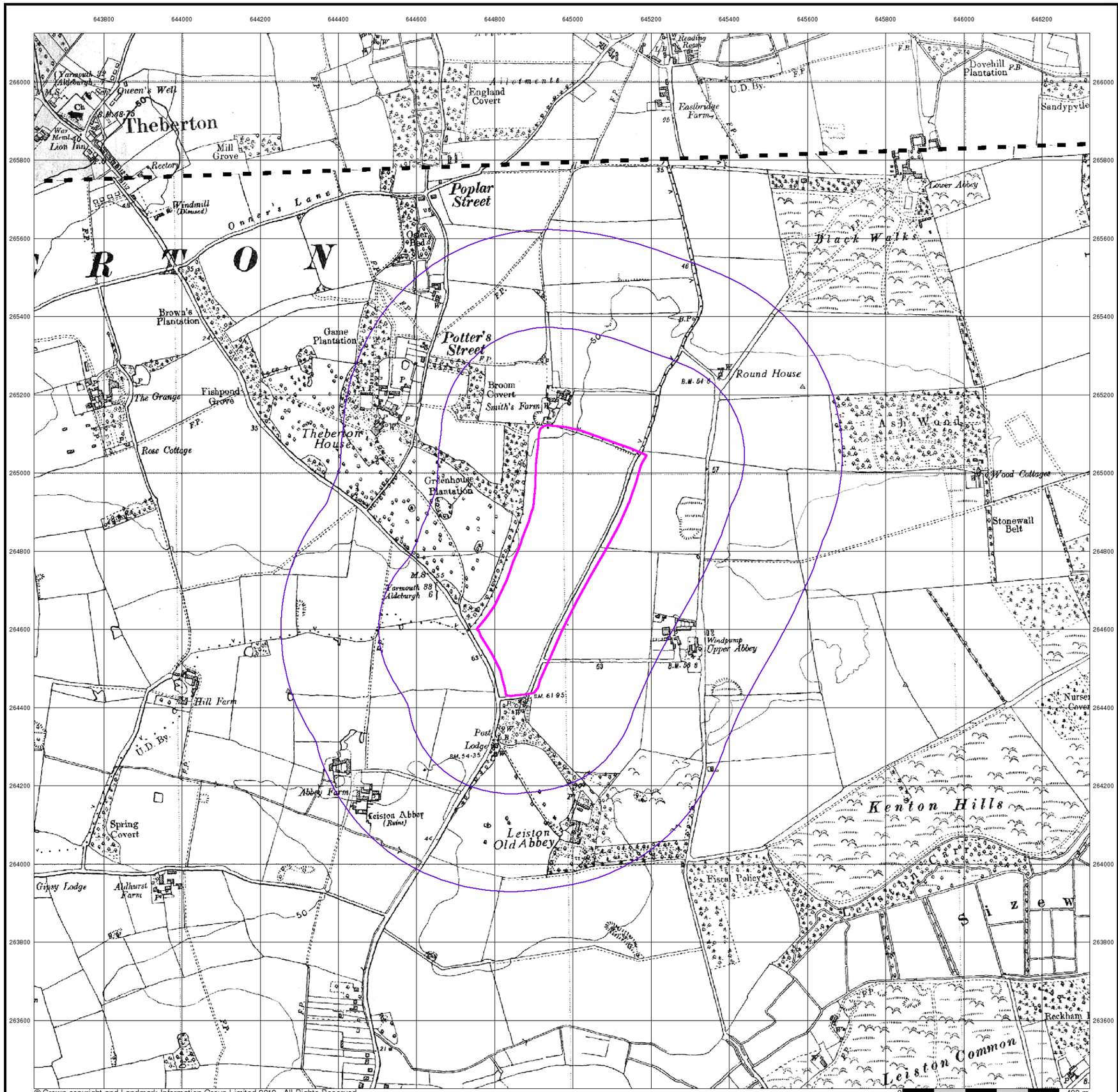

amec

Suffolk

Published 1950 - 1951

Source map scale - 1:10,560

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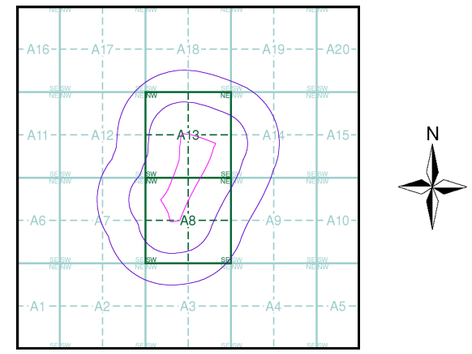
Map Name(s) and Date(s)

050NE
1951
1:10,560

050SE
1950
1:10,560

Historical Map - Slice A



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Site Details

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Landmark® Information Group

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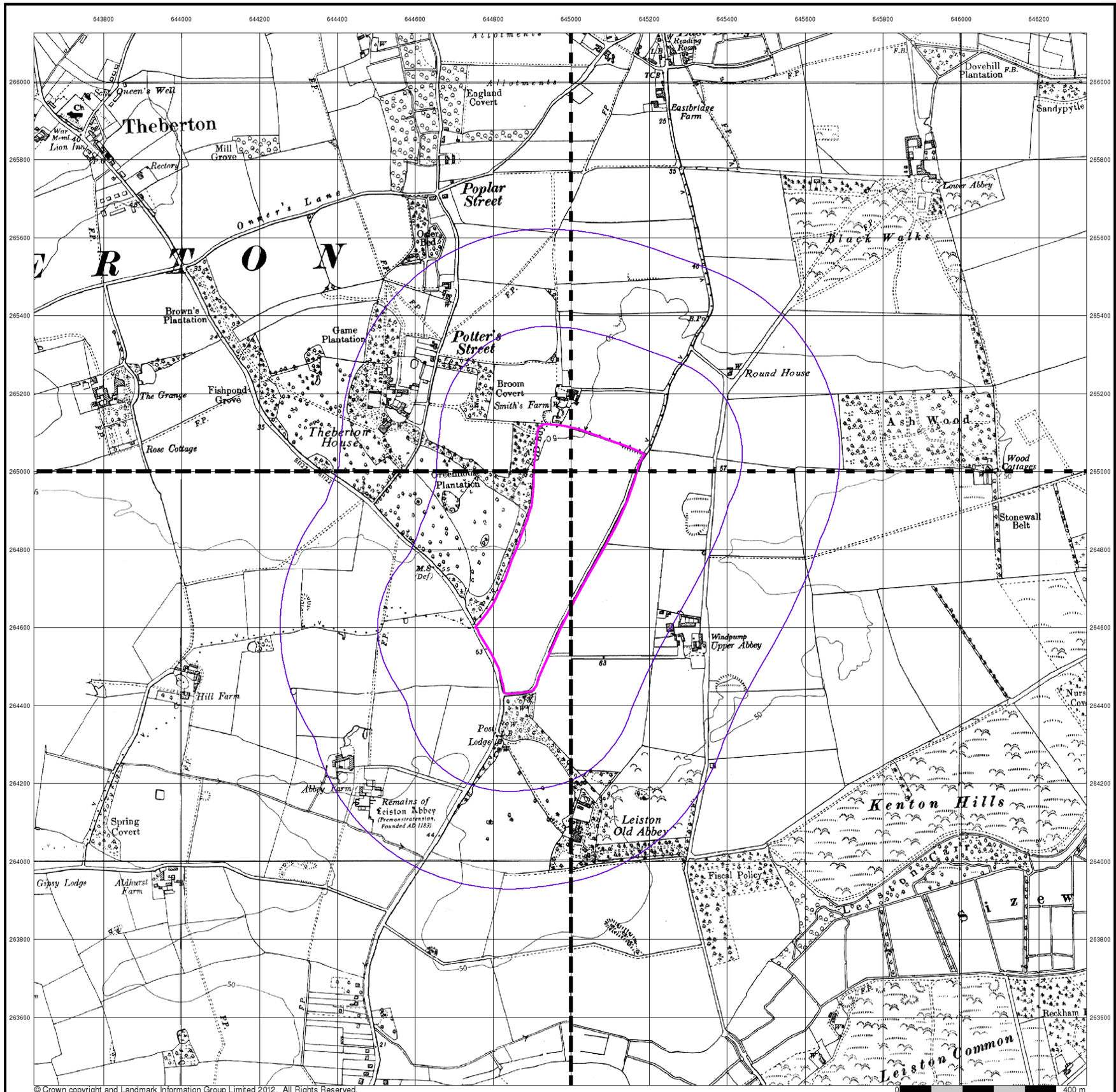

amec

Ordnance Survey Plan

Published 1957 - 1958

Source map scale - 1:10,000

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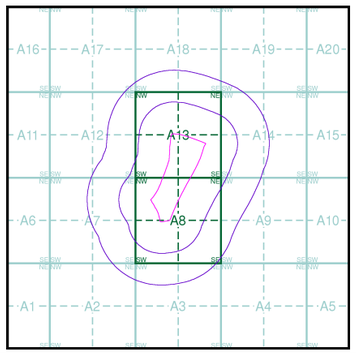
Map Name(s) and Date(s)

TM46NW 1957 1:10,560	TM46NE 1958 1:10,560
TM46SW 1958 1:10,560	TM46SE 1958 1:10,560

Historical Map - Slice A



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Site Details

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Landmark Information Group

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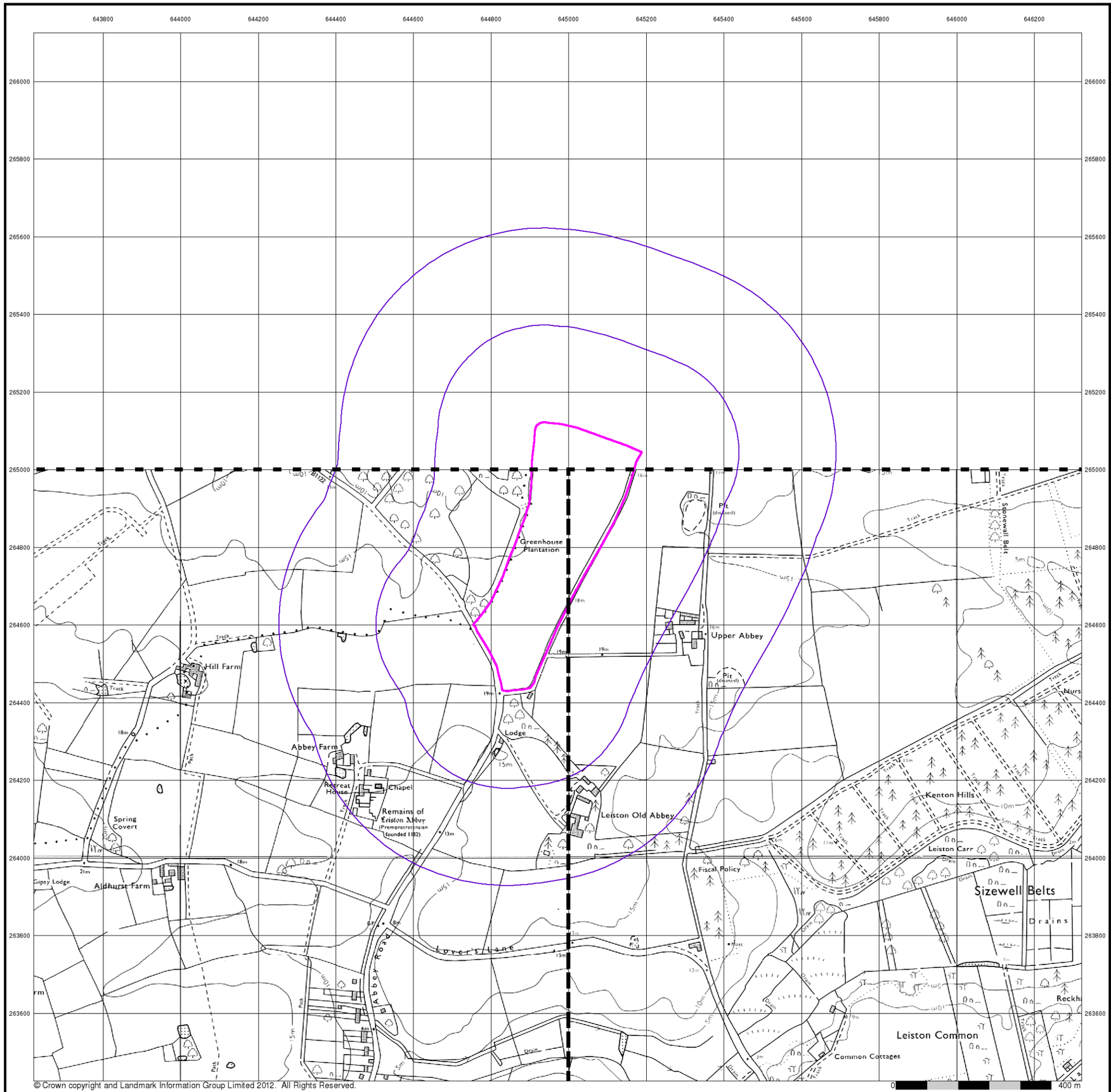

amec

Ordnance Survey Plan

Published 1976 - 1977

Source map scale - 1:10,000

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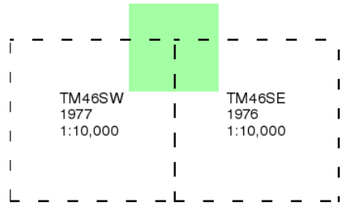
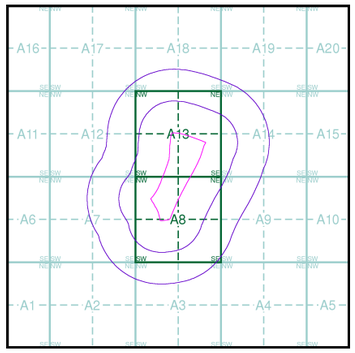


Historical Map - Slice A



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Site Details

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Landmark® Information Group

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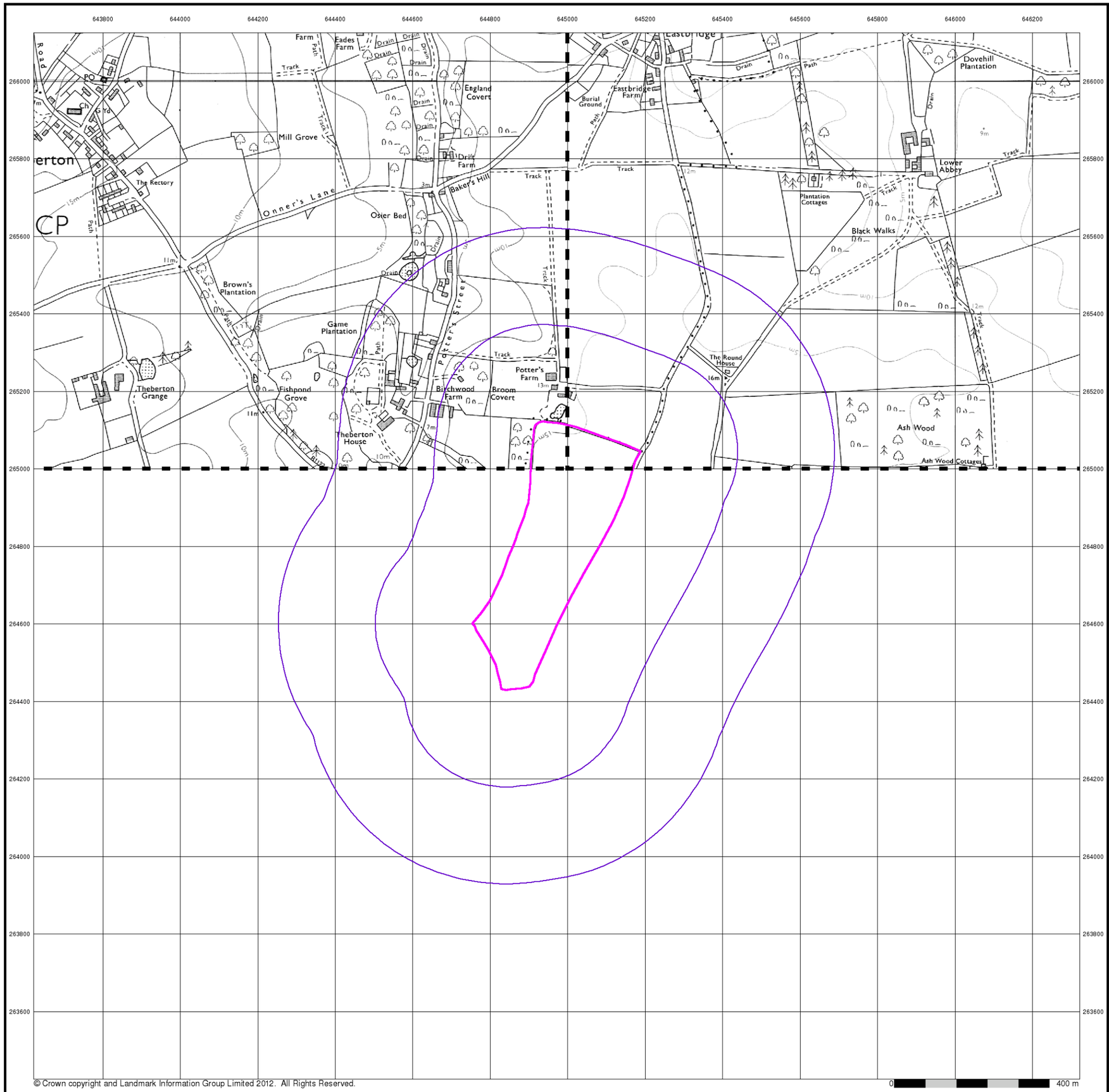

amec

Ordnance Survey Plan

Published 1982

Source map scale - 1:10,000

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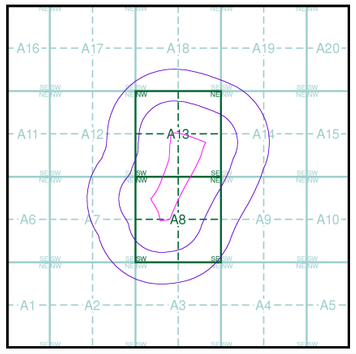
Map Name(s) and Date(s)

Historical Map - Slice A



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Site Details

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Landmark® Information Group

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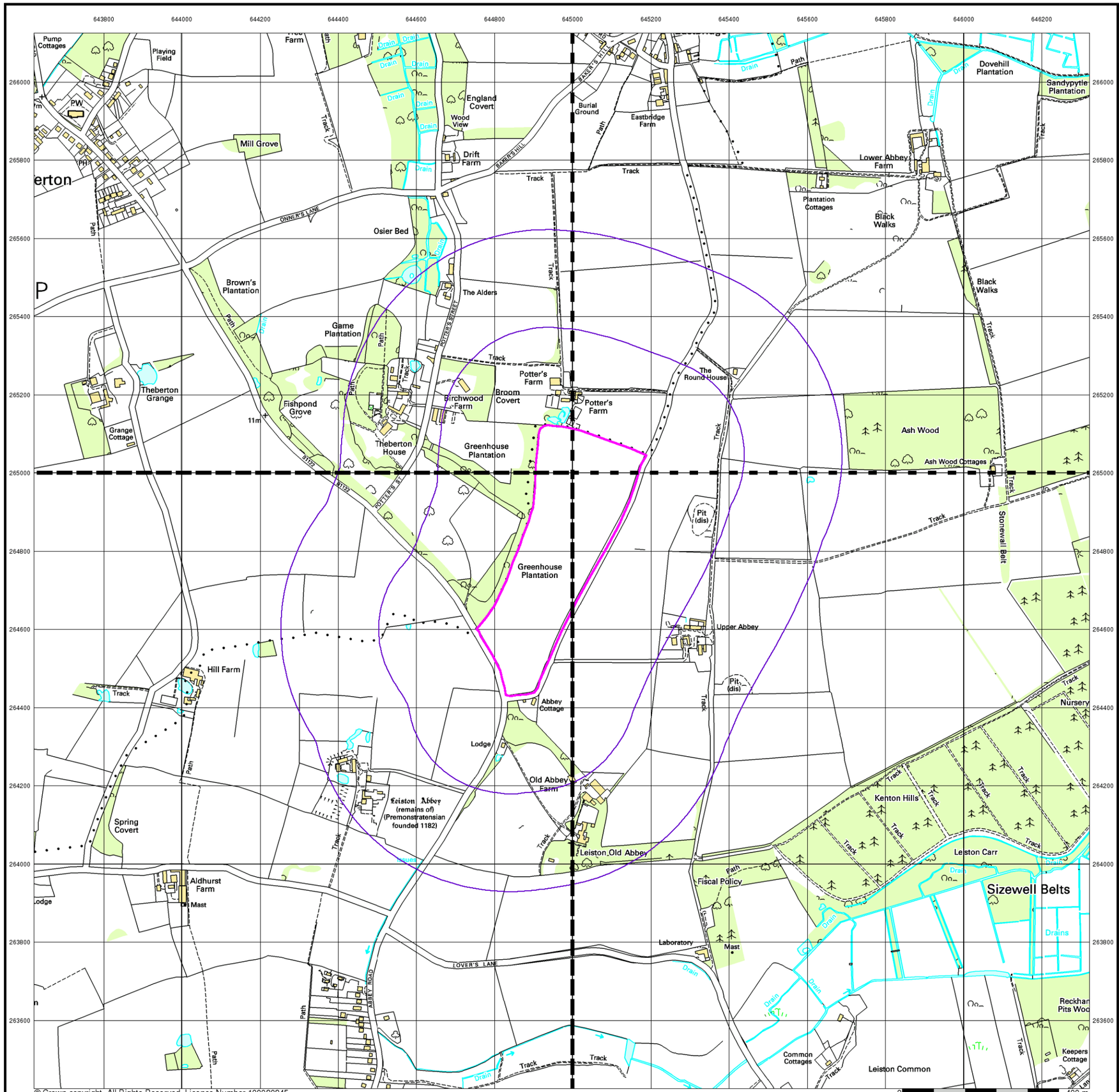


amec

10k Raster Mapping

Published 2012

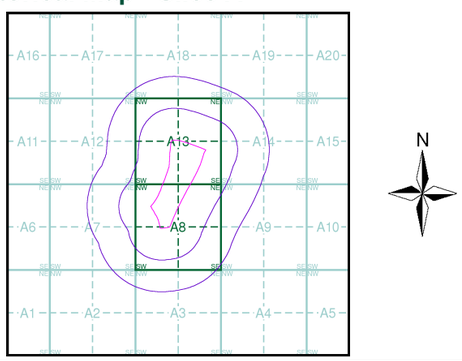
Source map scale - 1:10,000

[illegible]

Map Name(s) and Date(s)

TM46NW 2012 1:10,000	TM46NE 2012 1:10,000
TM46SW 2012 1:10,000	TM46SE 2012 1:10,000

Historical Map - Slice A



Order Details

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Site Details

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Landmark® Information Group

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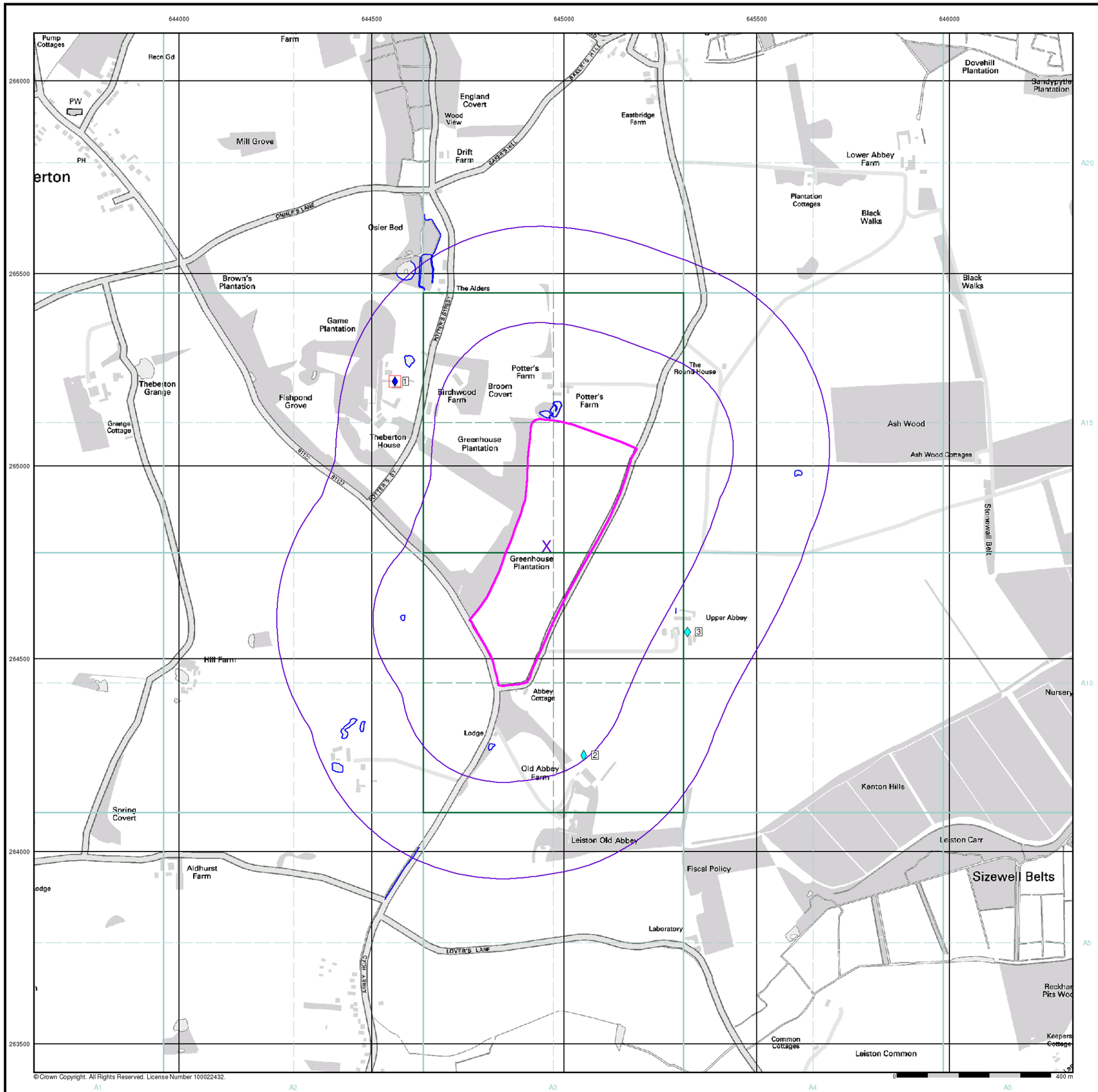


General

- 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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

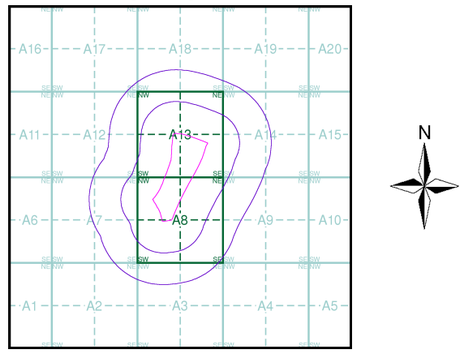
Waste

- 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
- 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

Site Sensitivity Map - Slice A



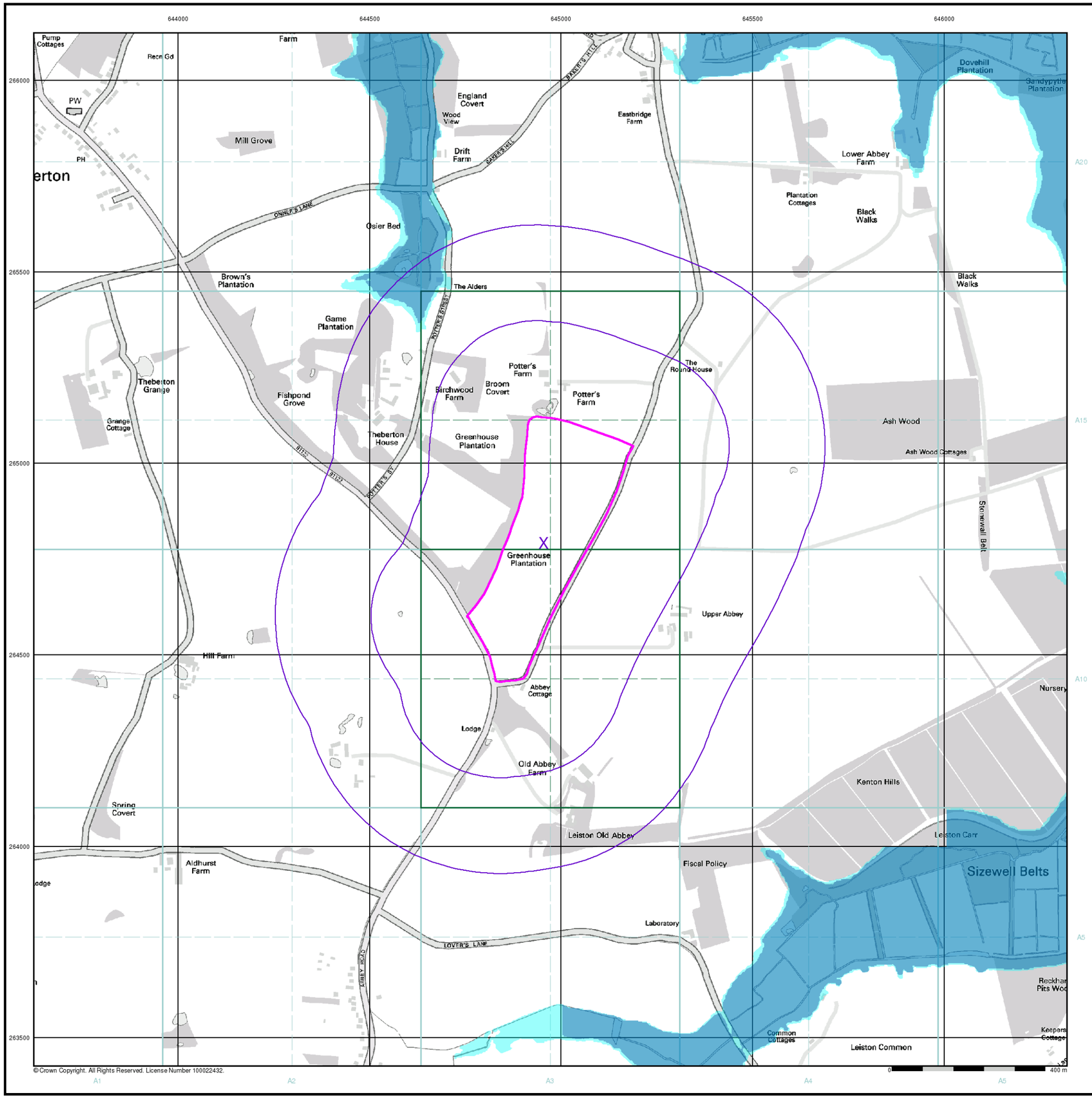
Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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



amec

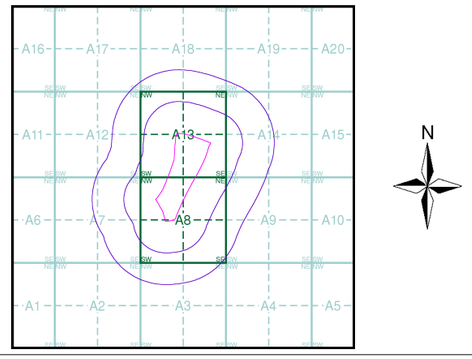
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice A



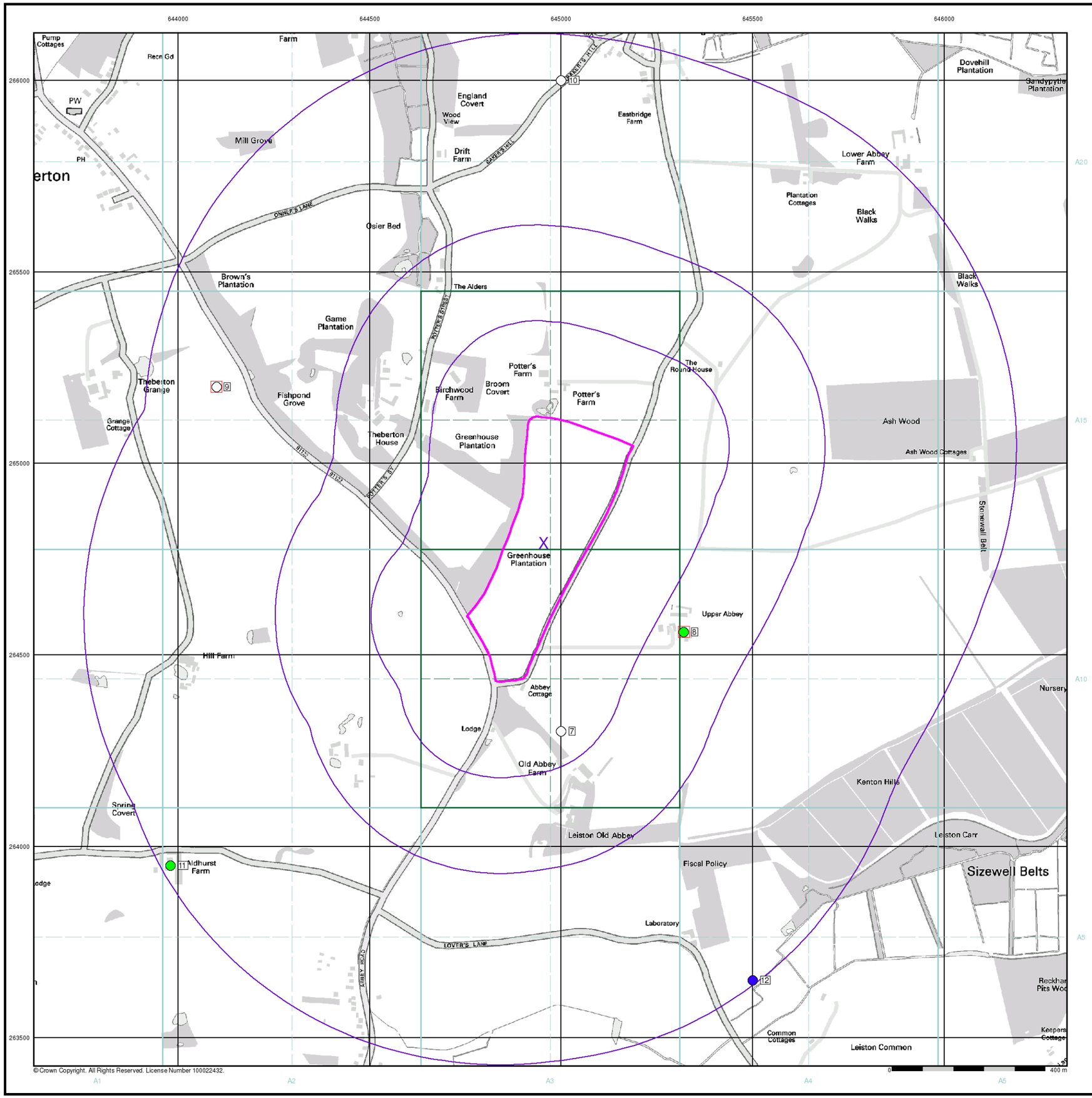
Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

Landmark® Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



General

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

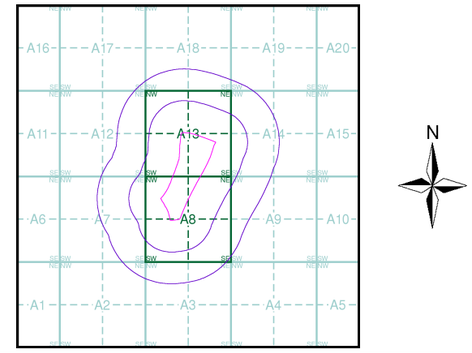
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A



Order Details

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National Grid Reference:	644950, 264790
Slice:	A
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644000 644500 645000 645500 646000

266000 265500 265000 264500 264000 263500

A20 A15 A10 A5

Pump Cottages
Farm
Recn Gd
PW
PH
erton
Mill Grove
England Covert
Wood View
Drift Farm
BAKER'S HILL
Eastbridge Farm
Dovehill Plantation
Sandypytle Plantation
Lower Abbey Farm
Plantation Cottages
Black Walks
CHANEL'S LANE
Osier Bed
Brown's Plantation
The Alders
Game Plantation
POTTER'S STREET
Potter's Farm
The Round House
Theberton Grange
Fishpond Grove
Birchwood Farm
Broom Covert
Potter's Farm
Grange Cottage
Theberton House
Greenhouse Plantation
B1122
POTTER'S ST
Ash Wood
Ash Wood Cottages
Stonewall Belt
X
Greenhouse Plantation
Upper Abbey
Hill Farm
Abbey Cottage
Lodge
Old Abbey Farm
Kenton Hills
Nursery
Spring Covert
Leiston Old Abbey
Leiston Carr
Aldhurst Farm
Fiscal Policy
Sizewell Belts
Laboratory
LOVER'S LANE
KING'S HIGH WAY
Reckham Pits Wood
Common Cottages
Keepers Cottage
Leiston Common

A1 A2 A3 A4 A5

0 400 m

amec

General

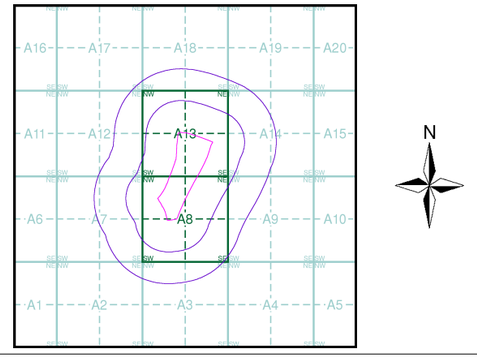
Specified Site Specified Buffer(s) X Bearing Reference Point

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



Order Details

Order Details:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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General

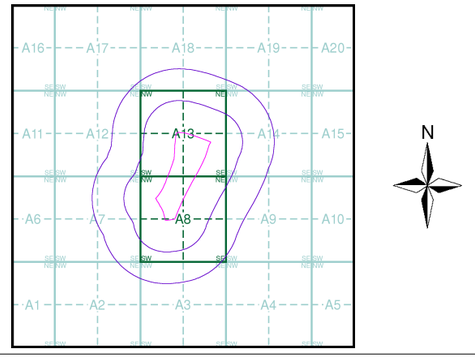
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

Order Details:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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Tel: 0844 844 9952
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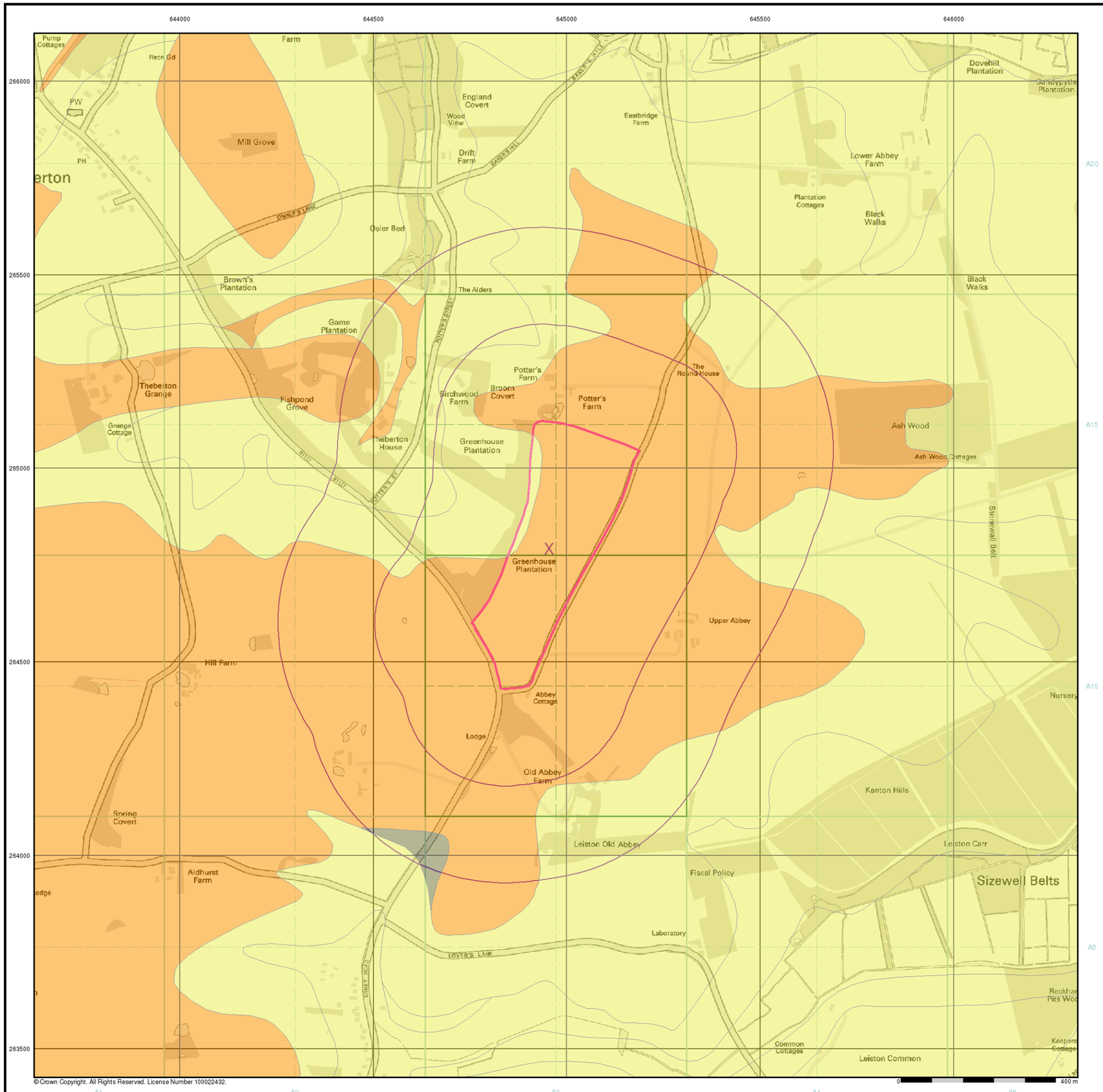


amec

General

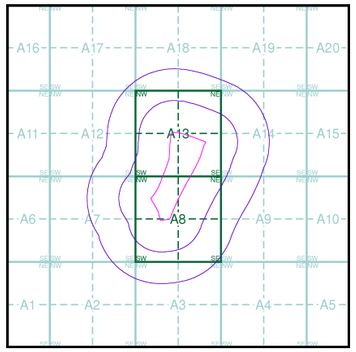
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

Order Details:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644950, 264790
Slice:	A
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

Landmark Information Group
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Web: www.envirocheck.co.uk

General

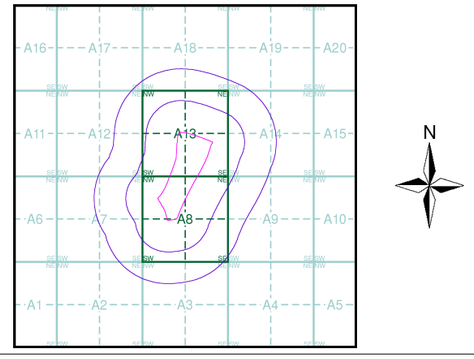
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- < 150
- 150 - 300
- 300 - 600
- 600 - 900
- > 900

Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details:	40136387_1_1
Customer Ref:	32623
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Slice:	A
Site Area (Ha):	13.92
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Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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

General

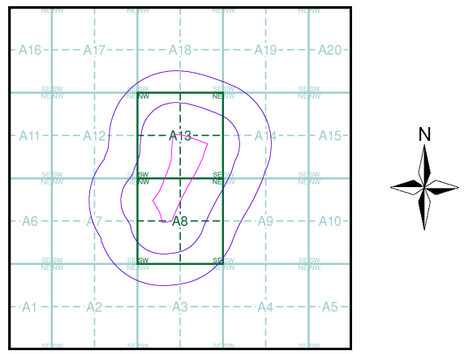
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

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Slice:	A
Site Area (Ha):	13.92
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Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

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Historical Mapping Legends

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

Quarry
Gravel Pit
Sand Pit
Clay Pit
Shingle
Refuse Heap
Sloping Masonry
Flat Rock
Marsh
Reeds
Osiers
Rough Pasture
Furze
Wood
Mixed Wood
Brushwood
Orchard
Fir
Ford
Stepping Stones
Ferry
Waterfall
Lock
Trig. Station
507 Altitude at Trig. Station
B.M.325·9 Bench Mark
342 Surface Level
Arrow denotes flow of water
Antiquities (site of)
Cutting
Embankment
Railway crossing Road
Level Crossing
Road crossing Railway
Railway crossing River or Canal
Road over single stream (B.R.)
Road over River or Canal

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)

BP BS	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	Sl.	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

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Rock
Boulders
Cliff
Slopes (Top)
Roofed Building
Glazed Roof Building
Sloping Masonry (Top)
Archway
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
B M Bench Mark
Antiquity (site of)
Cave Entrance
Triangulation Station
Electricity Pylon
E T L — Electricity Transmission Line

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

Cliff
Slopes (Top)
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Positioned Boulder
Scree
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
Triangulation Station
Antiquity (site of)
E T L — Electricity Transmission Line
Electricity Pylon
BM 231.60m Bench Mark
Buildings with Building Seed
Roofed Building
Glazed Roof Building

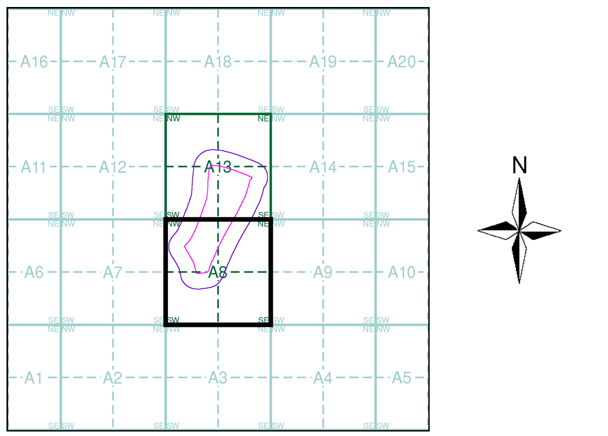
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

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

Historical Mapping & Photography included:

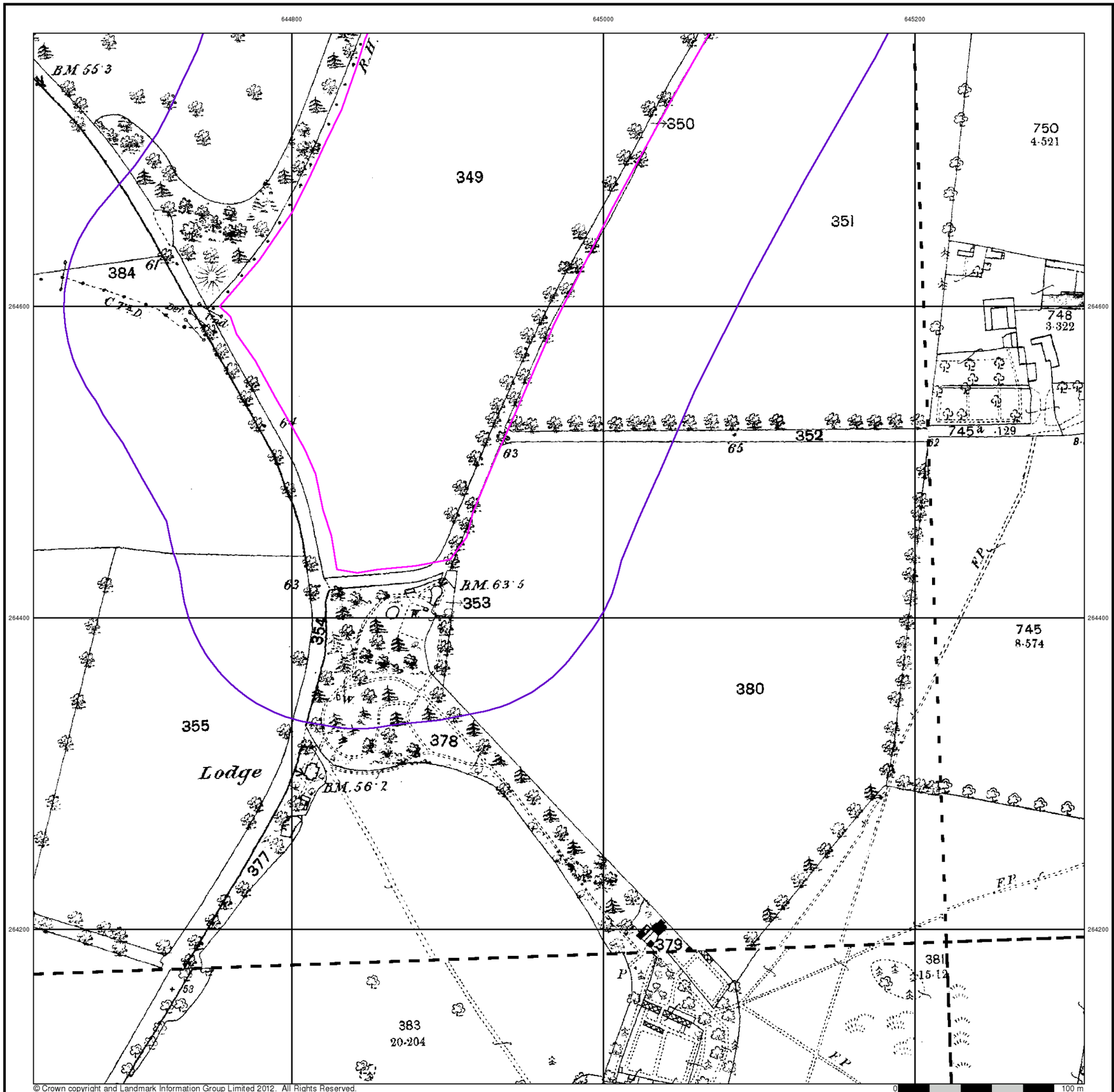
Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1971	5
Large-Scale National Grid Data	1:2,500	1995	6

Historical Map - Segment A8



Order Details

Site Details



amec

Suffolk

Published 1884

Source map scale - 1:2,500

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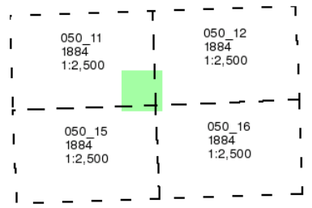
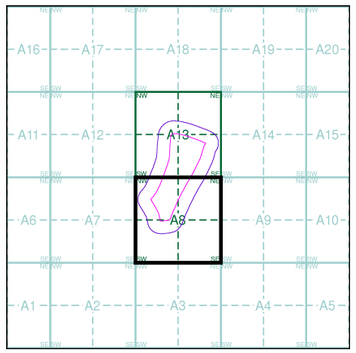
Map Name(s) and Date(s)



Historical Map - Segment A8



Order Details

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	A
[redacted]	[redacted]
[redacted]	[redacted]

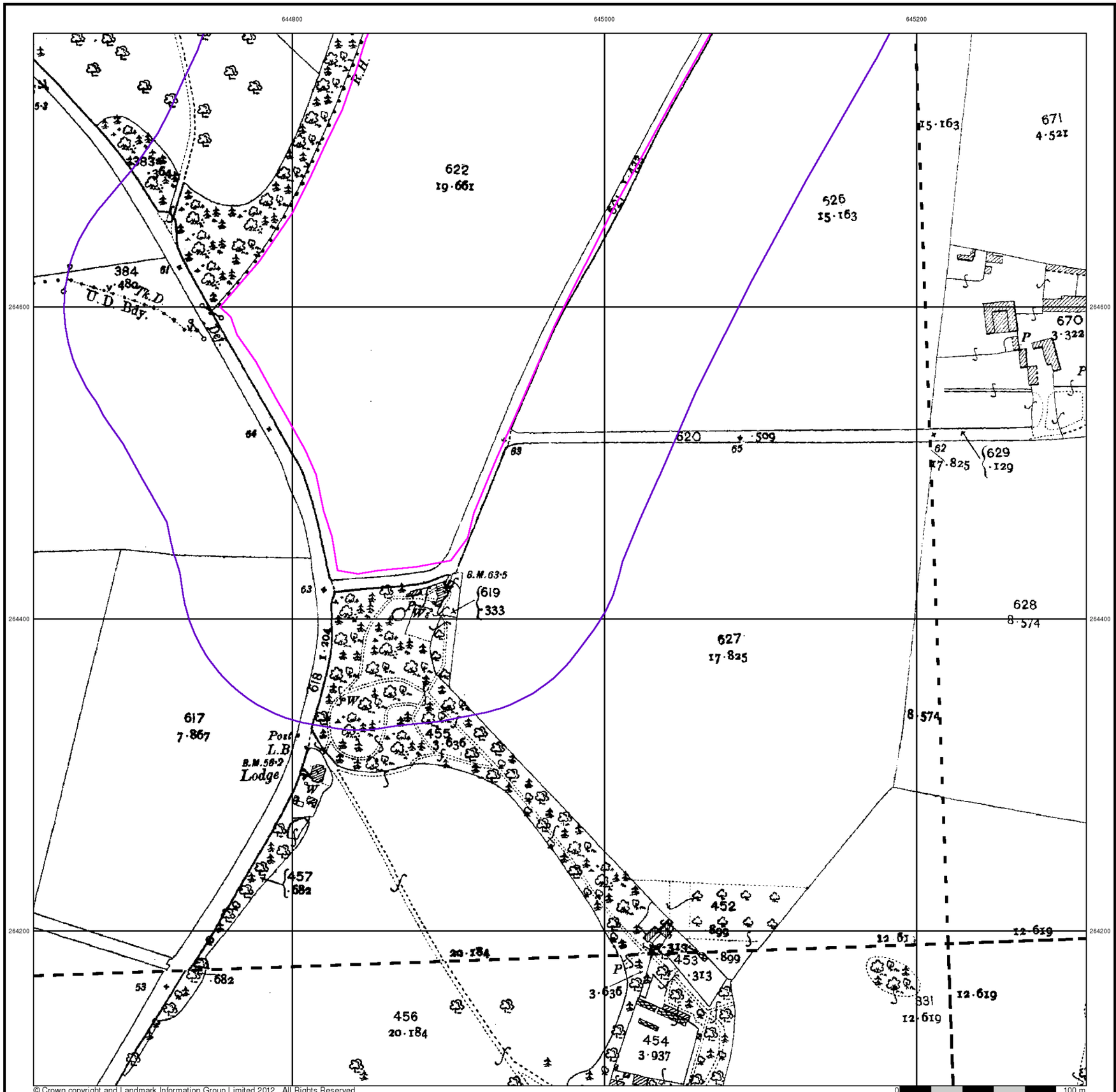
Site Details

[redacted]

Landmark Information Group

[redacted]

[redacted]



amec

Suffolk

Published 1904

Source map scale - 1:2,500

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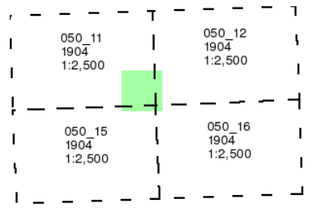
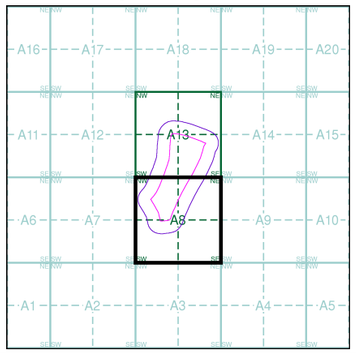
Map Name(s) and Date(s)



Historical Map - Segment A8



Order Details

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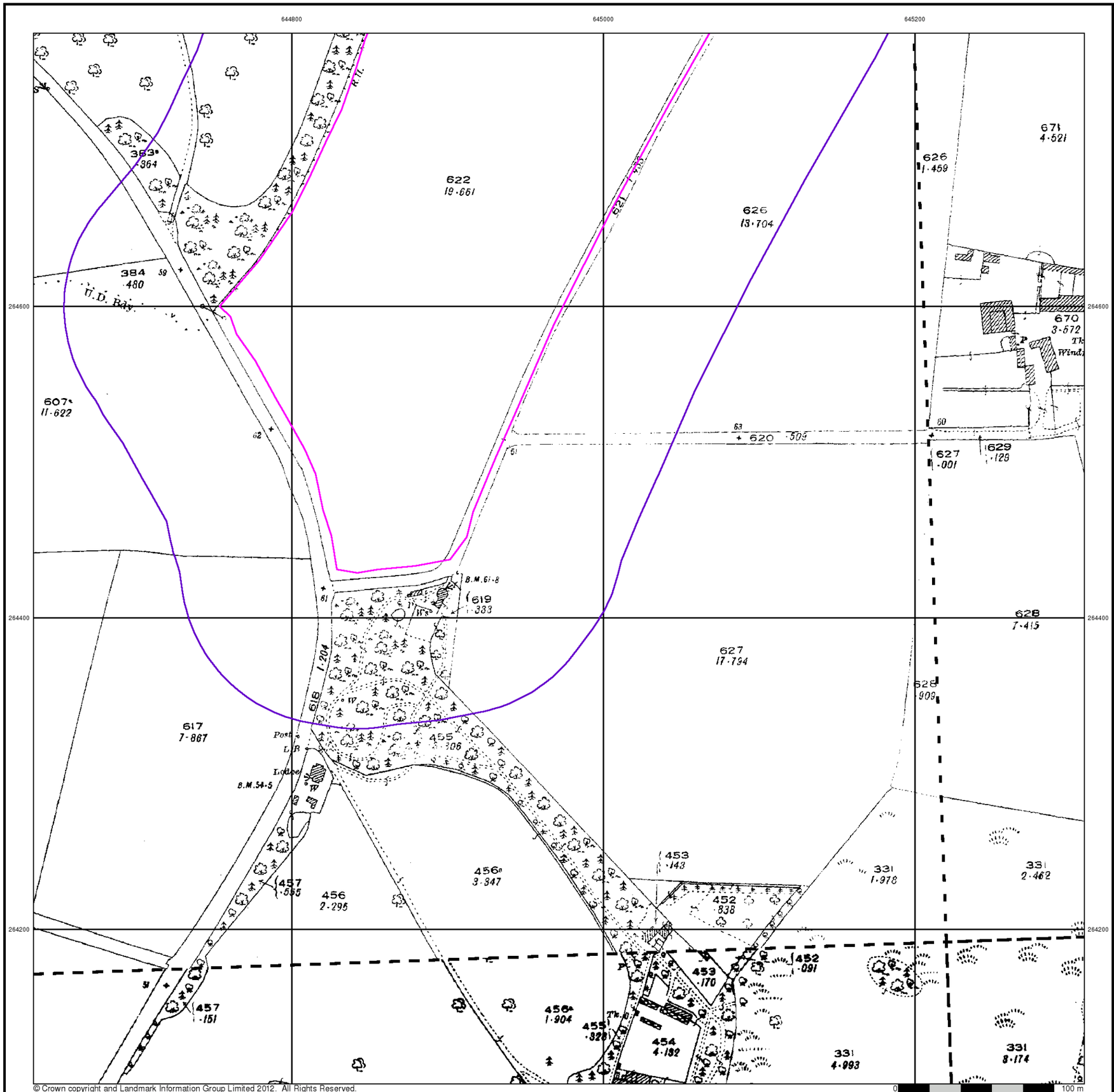
Site Details

[redacted]

Landmark Information Group

[redacted]



amec

Suffolk

Published 1927

Source map scale - 1:2,500

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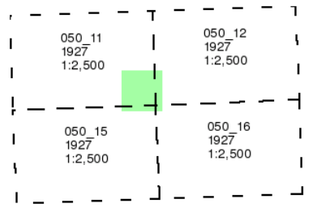
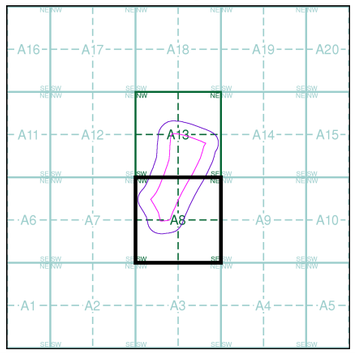
Map Name(s) and Date(s)



Historical Map - Segment A8



Order Details

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[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	A
[redacted]	[redacted]
[redacted]	[redacted]

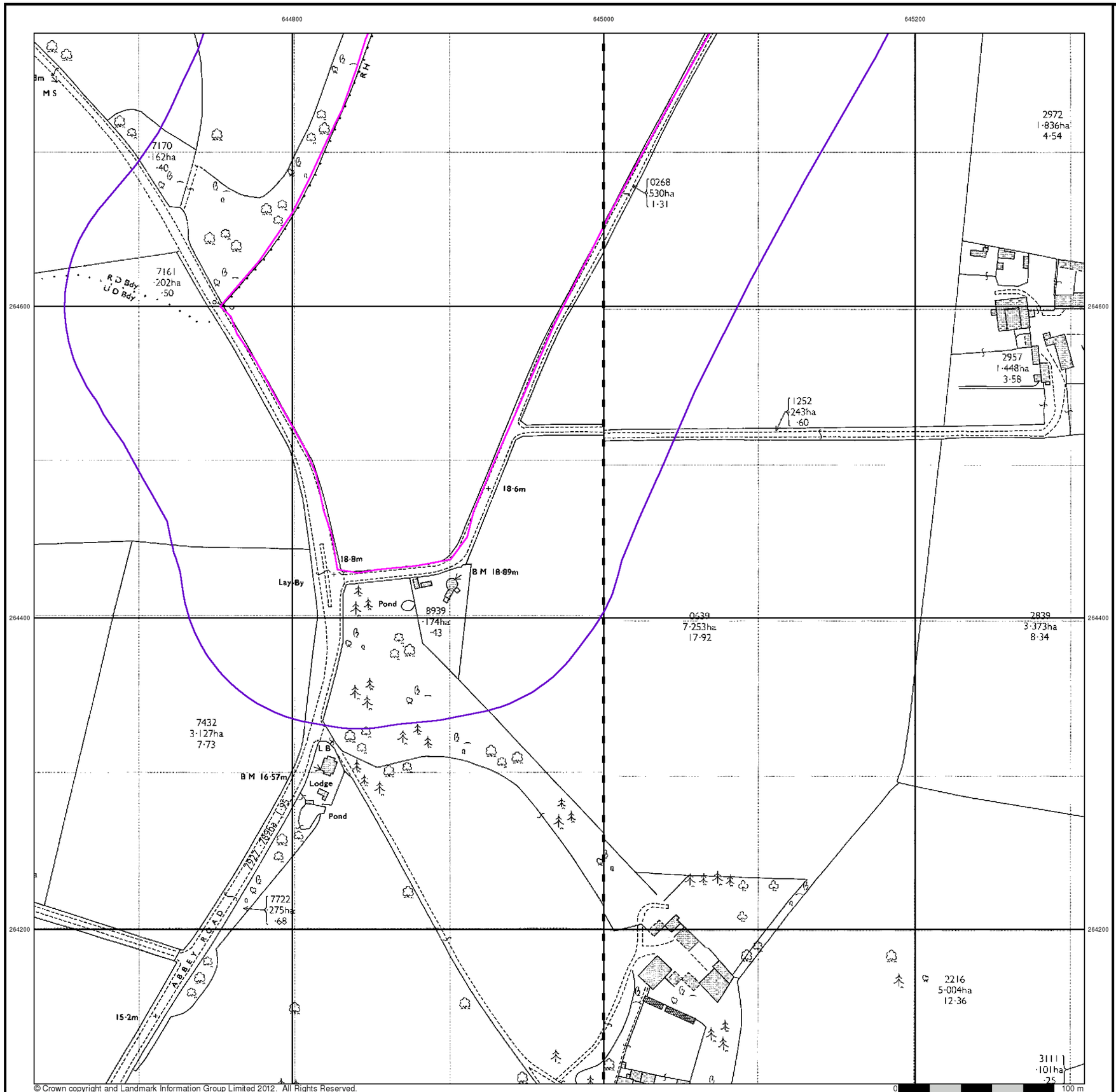
Site Details

[redacted]

Landmark® Information Group

[redacted]

[redacted]



amec

Ordnance Survey Plan

Published 1971

Source map scale - 1:2,500

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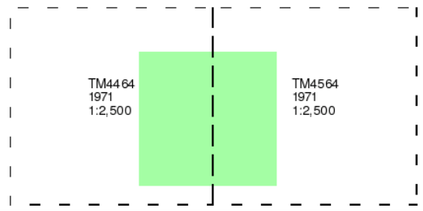
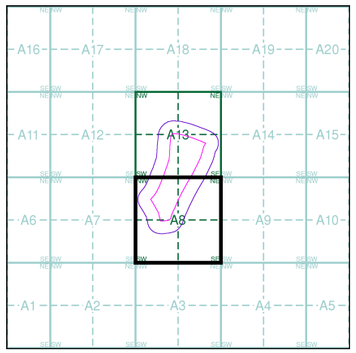
Map Name(s) and Date(s)



Historical Map - Segment A8



Order Details

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	A
[redacted]	[redacted]
[redacted]	[redacted]

Site Details

[redacted]

Landmark Information Group

[redacted]

[redacted]

amec

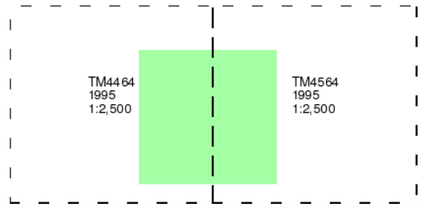
Large-Scale National Grid Data

Published 1995

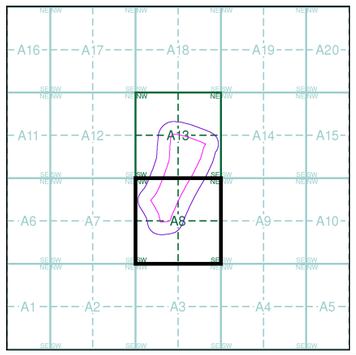
Source map scale - 1:2,500

[illegible]

Map Name(s) and Date(s)



Historical Map - Segment A8



Order Details

[illegible]

Site Details

[illegible]

Landmark Information Group

[illegible]

Historical Mapping Legends

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

Quarry
Gravel Pit
Sand Pit
Clay Pit
Shingle
Refuse Heap
Sloping Masonry
Flat Rock
Marsh
Reeds
Osiers
Rough Pasture
Furze
Wood
Mixed Wood
Brushwood
Orchard
Fir
Ford
Stepping Stones
Ferry
Waterfall
Lock
Trig. Station
507 Altitude at Trig. Station
B.M.325·9 Bench Mark
342 Surface Level
Arrow denotes flow of water
Antiquities (site of)
Cutting
Embankment
Railway crossing Road
Level Crossing
Road crossing Railway
Railway crossing River or Canal
Road over single stream
Road over River or Canal

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)

BP BS	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	Sl.	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

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Rock
Boulders
Cliff
Slopes (Top)
Roofed Building
Glazed Roof Building
Sloping Masonry (Top)
Archway
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
B M Bench Mark
Antiquity (site of)
Cave Entrance
Triangulation Station
Electricity Pylon
E T L Electricity Transmission Line

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

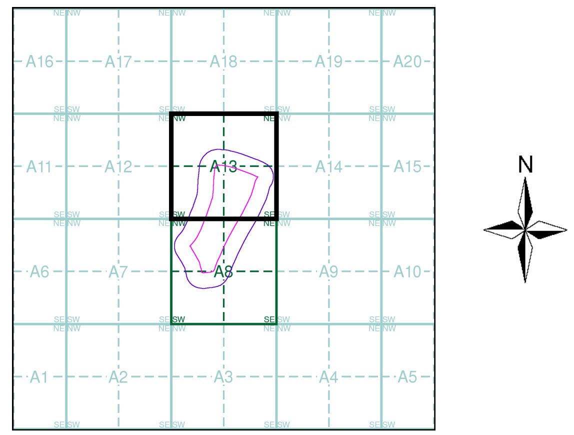
Cliff
Slopes (Top)
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Positioned Boulder
Scree
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
Triangulation Station
Antiquity (site of)
E T L Electricity Transmission Line
Electricity Pylon
BM 231.60m Bench Mark
Buildings with Building Seed
Roofed Building
Glazed Roof Building
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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1971 - 1977	5
Large-Scale National Grid Data	1:2,500	1995	6

Historical Map - Segment A13



Order Details

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Site Details

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Landmark Information Group

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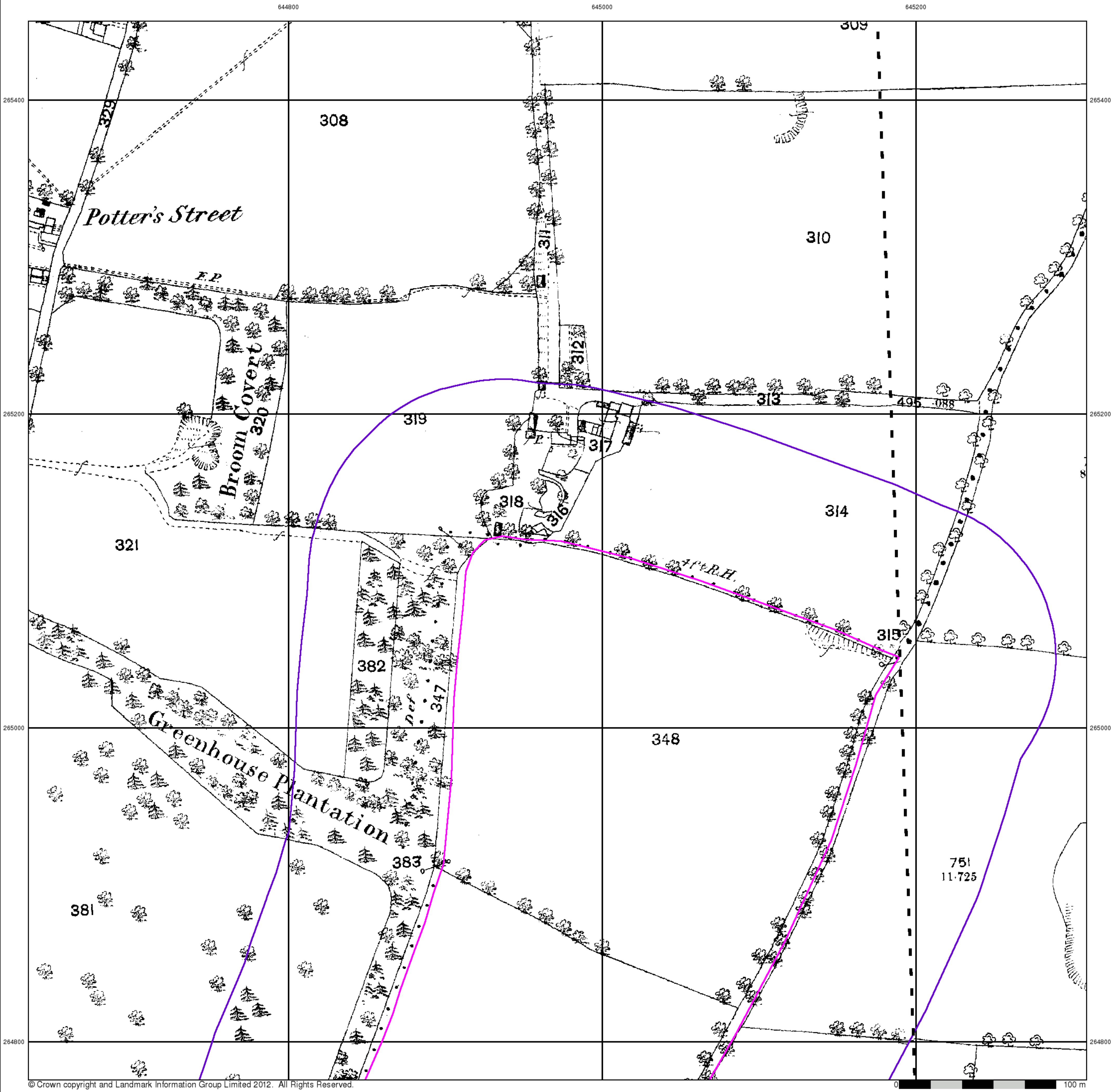
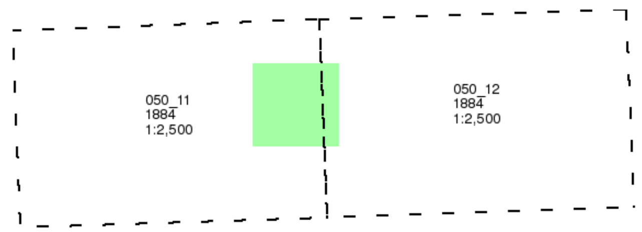


Suffolk

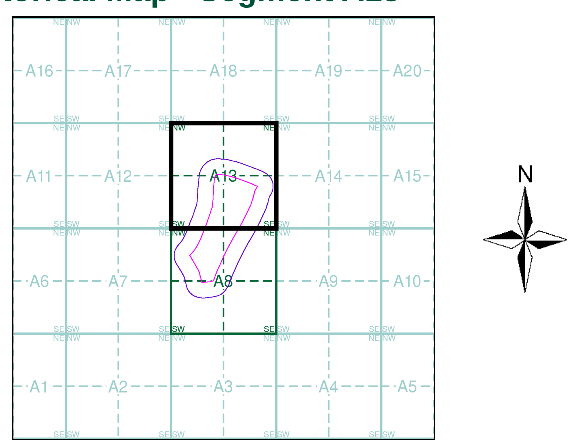
Published 1884

Source map scale - 1:2,500

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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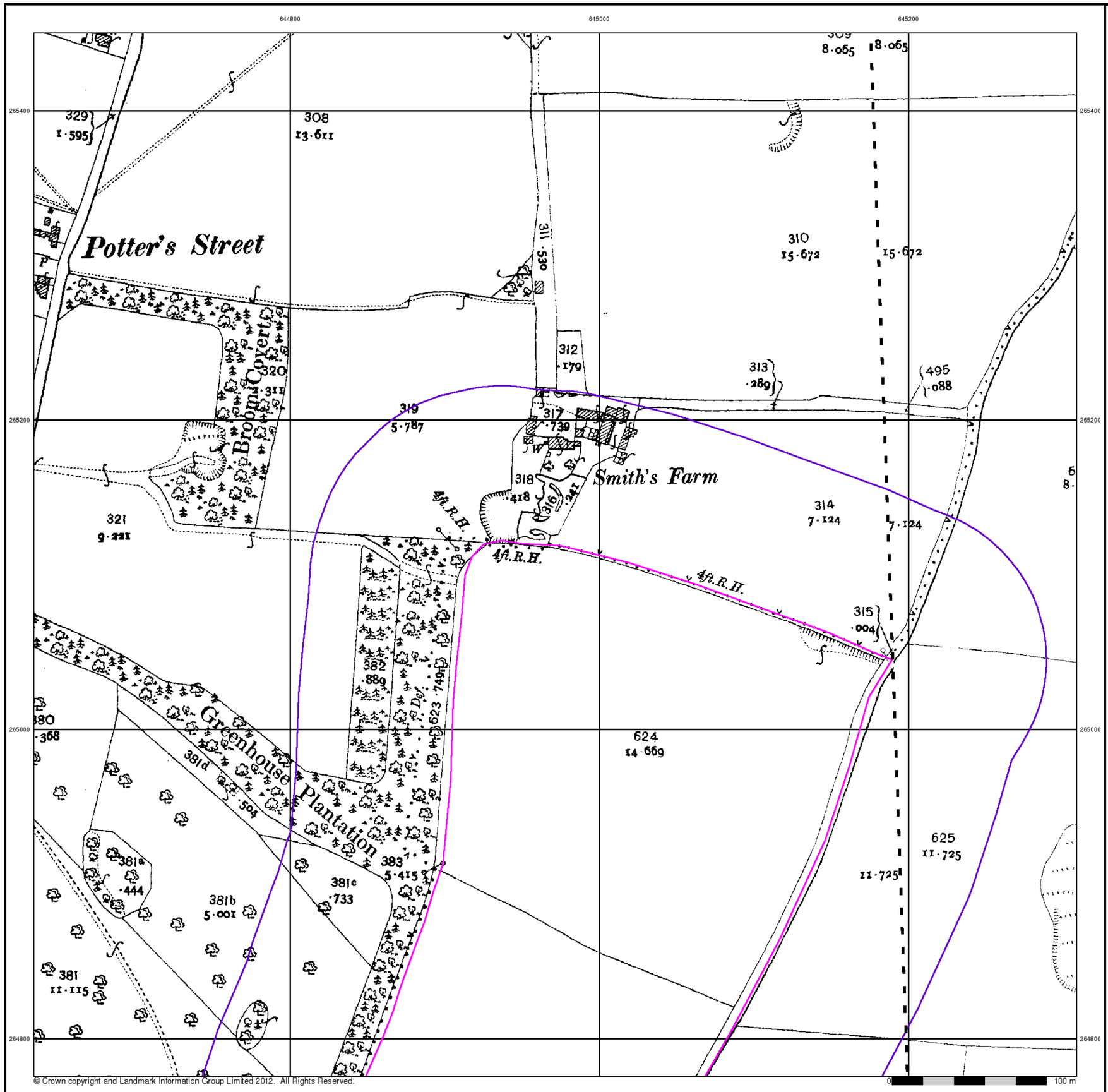
Site Details

Landmark Information Group



amec

Suffolk

Published 1904

Source map scale - 1:2,500

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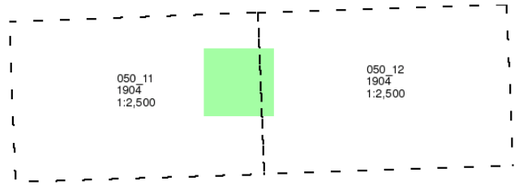
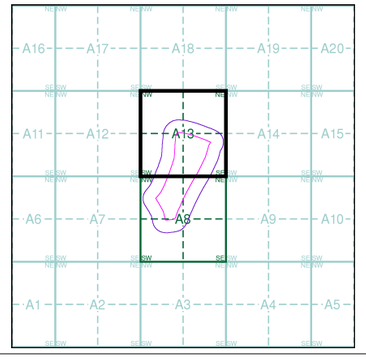
Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Site Details

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Landmark® Information Group

[redacted]

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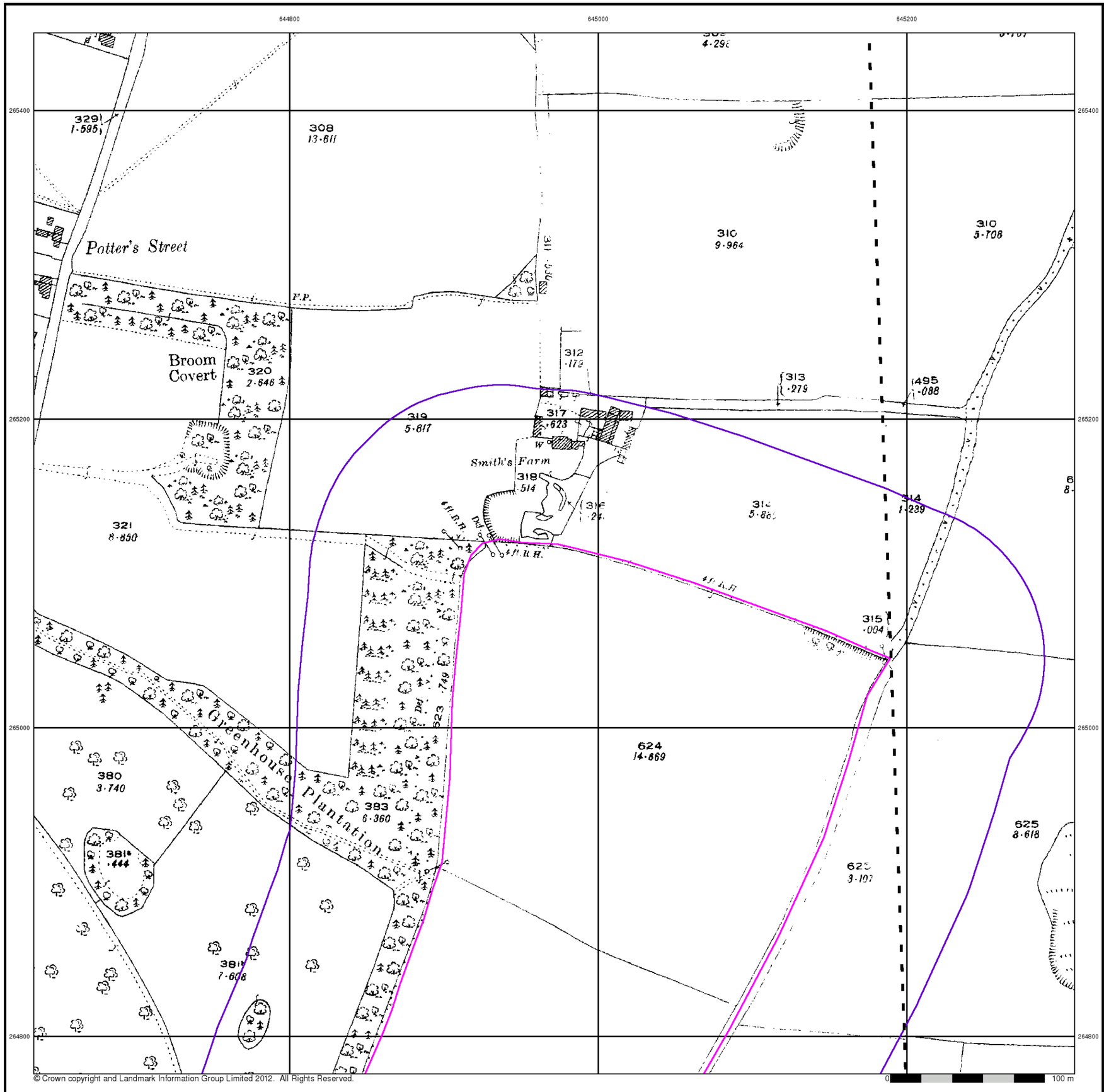


amec

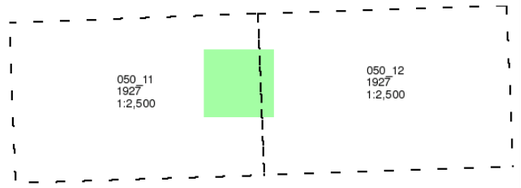
Suffolk

Published 1927

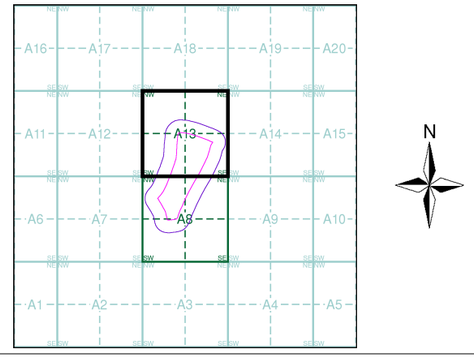
Source map scale - 1:2,500

[redacted]

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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Site Details

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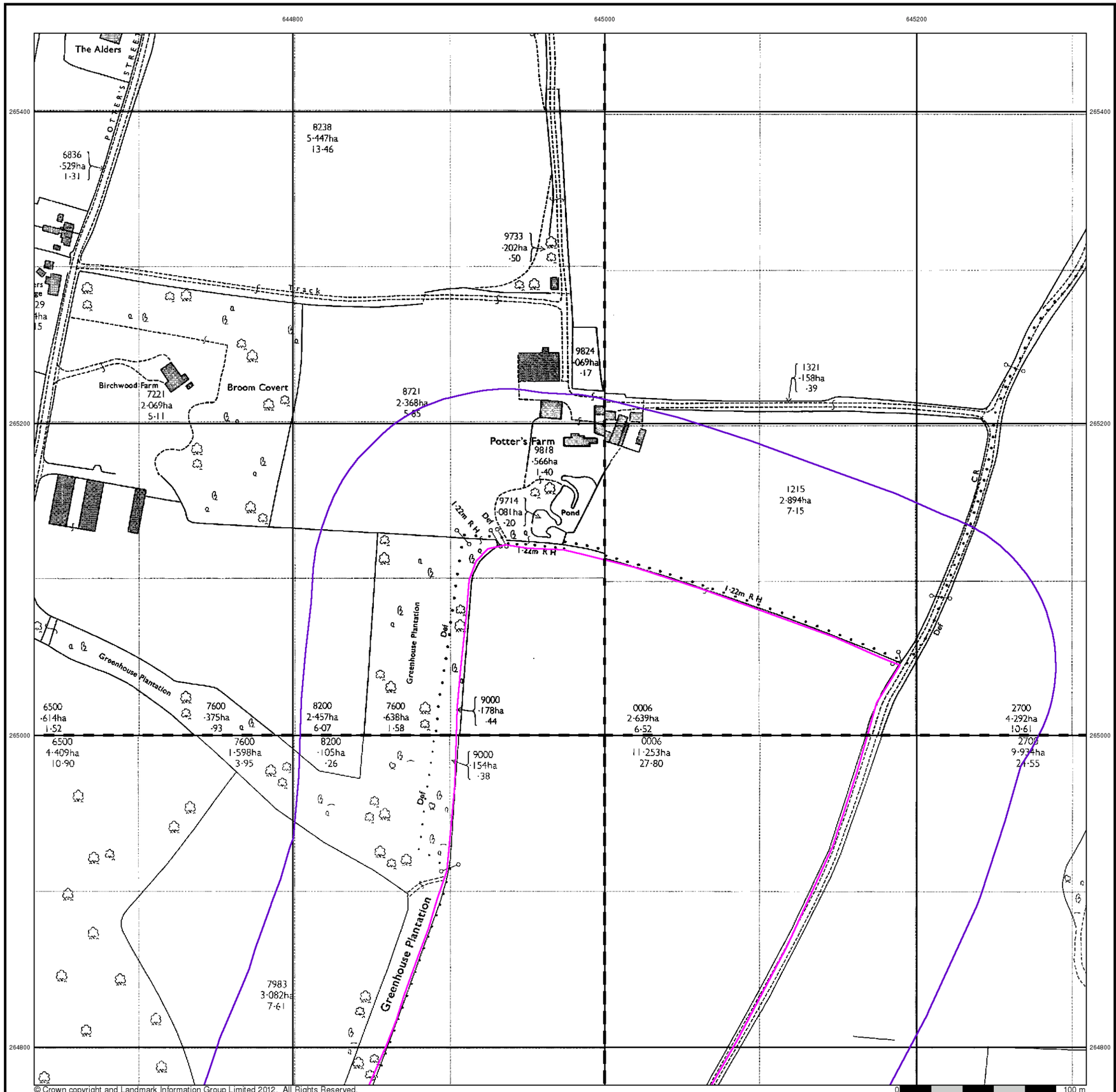
Landmark Information Group

[redacted]



amec

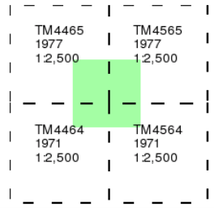
Ordnance Survey Plan

Published 1971 - 1977

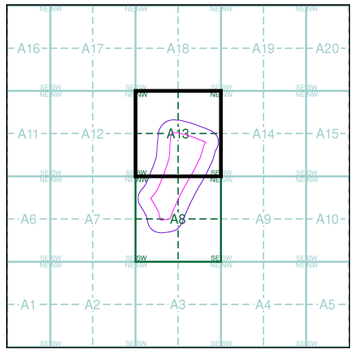
Source map scale - 1:2,500

[redacted]

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

[redacted]

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	A
[redacted]	[redacted]
[redacted]	[redacted]

Site Details

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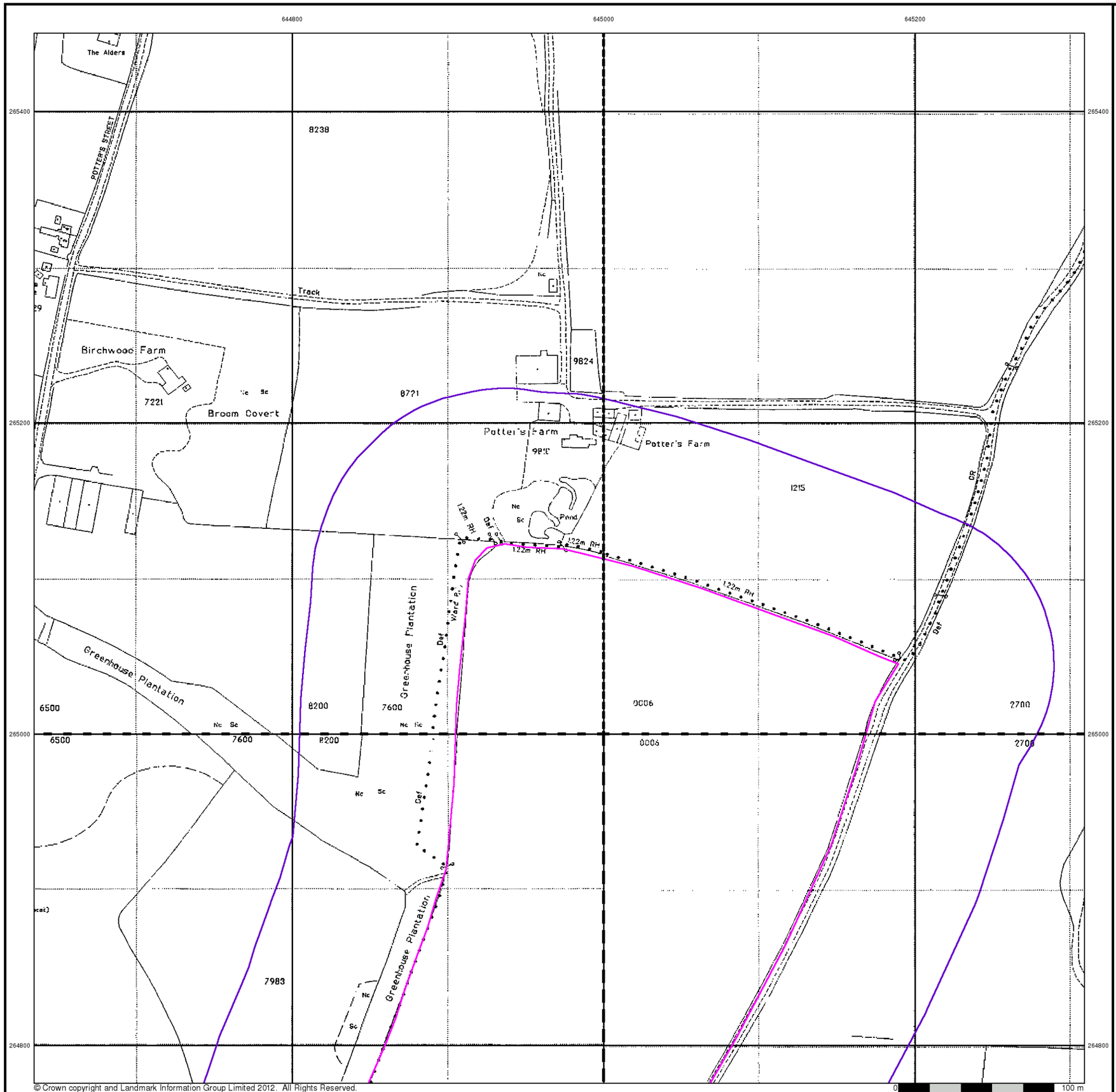


amec

Large-Scale National Grid Data

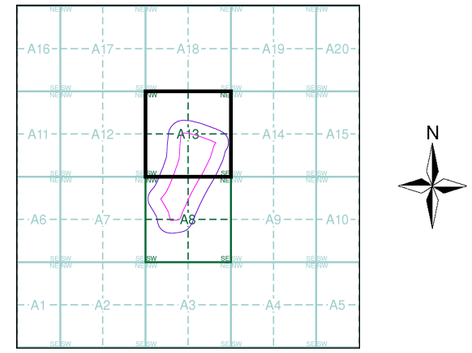
Published 1995

Source map scale - 1:2,500

Map Name(s) and Date(s)

TM4465 1995 1:2,500	TM4565 1995 1:2,500
TM4464 1995 1:2,500	TM4564 1995 1:2,500

Historical Map - Segment A13

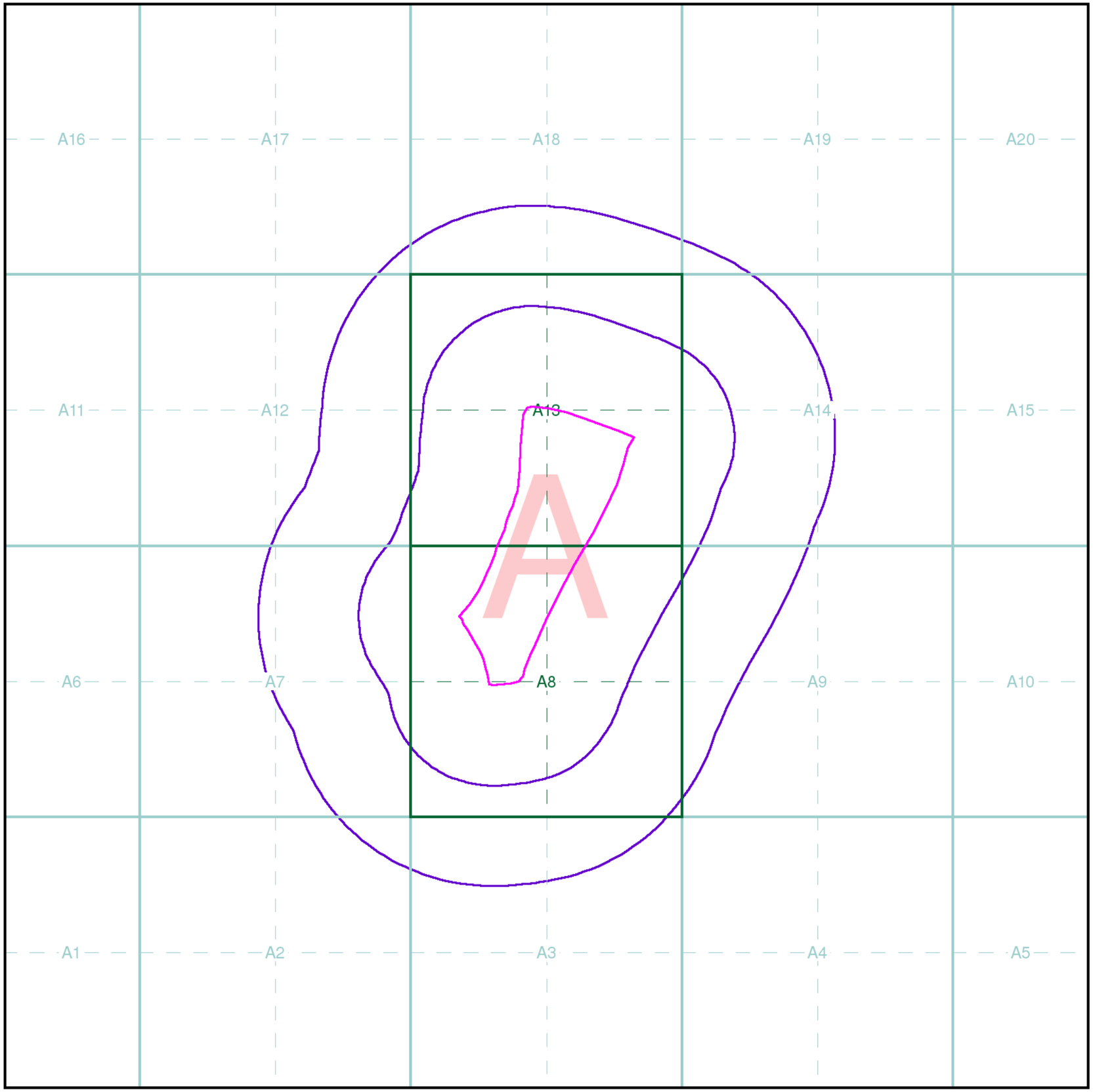


Order Details

A	

Site Details

Landmark Information Group



Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:

Ordnance Survey® Licensed Partner

British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

NATURAL ENGLAND

Envirocheck reports are compiled from 136 different sources of data.

Client Details

Miss D Shankar, AMEC Environment & Infrastructure UK Ltd, Unit 1, Long Barn, Village Road, Nercwys, Mold, Flintshire, CH7 4EW

Order Details

Order Number:	40136387_1_1
Customer Ref:	32623
National Grid Reference:	644960, 264810
Site Area (Ha):	13.92
Search Buffer (m):	500

Site Details

Site at Greenhouse plantation (east), Leiston, Suffolk

Full Terms and Conditions can be found on the following link:
http://www.landmarkinfo.co.uk/Terms/Show/430

Landmark® Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk

Historical Mapping Legends

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

Quarry · Gravel Pit · Sand Pit
Clay Pit · Shingle · Refuse Heap
Sloping Masonry · Flat Rock
Marsh · Reeds · Osiers
Rough Pasture · Furze · Wood
Mixed Wood · Brushwood · Orchard
Fir · Ford · Stepping Stones
Ferry · Waterfall · Lock
Trig. Station · 507 Altitude at Trig. Station
B.M.325·9 Bench Mark · 342 Surface Level
Arrow denotes flow of water · Antiquities (site of)
Cutting · Embankment
Railway crossing Road · Level Crossing · Road crossing Railway
Railway crossing River or Canal · Road over single stream (B.R.) · Road over River or Canal

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)

BP BS	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	Sl.	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

Inactive Quarry, Chalk Pit or Clay Pit · Active Quarry, Chalk Pit or Clay Pit
Rock · Boulders
Cliff · Slopes (Top)
Roofed Building · Glazed Roof Building
Sloping Masonry (Top) · Archway
Non-Coniferous Tree (surveyed) · Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed) · Coniferous Trees (not surveyed)
Orchard Tree · Scrub · Bracken
Coppice, Osier · Reeds · Marsh, Saltings
Rough Grassland · Heath · Culvert
Direction of water flow · B M Bench Mark · Antiquity (site of)
Cave Entrance · Triangulation Station · Electricity Pylon
E T L Electricity Transmission Line

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

Cliff · Slopes (Top)
Rock · Rock (scattered)
Boulders · Boulders (scattered)
Positioned Boulder · Scree
Non-Coniferous Tree (surveyed) · Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed) · Coniferous Trees (not surveyed)
Orchard Tree · Scrub · Bracken
Coppice, Osier · Reeds · Marsh, Saltings
Rough Grassland · Heath · Culvert
Direction of water flow · Triangulation Station · Antiquity (site of)
E T L Electricity Transmission Line · Electricity Pylon
BM 231.60m Bench Mark · Buildings with Building Seed
Roofed Building · Glazed Roof Building

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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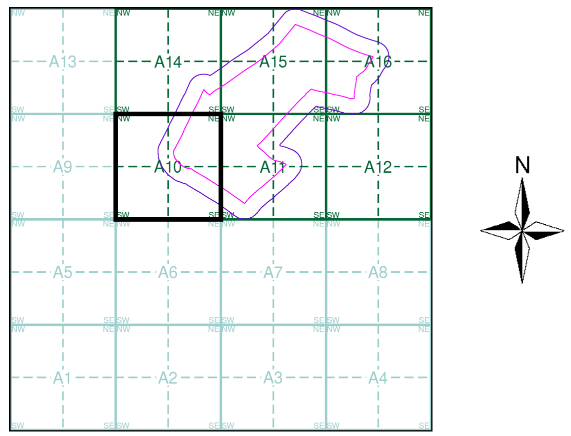
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1971	5
Large-Scale National Grid Data	1:2,500	1995	6

Historical Map - Segment A10



Order Details

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Site Details

[illegible]

Landmark Information Group

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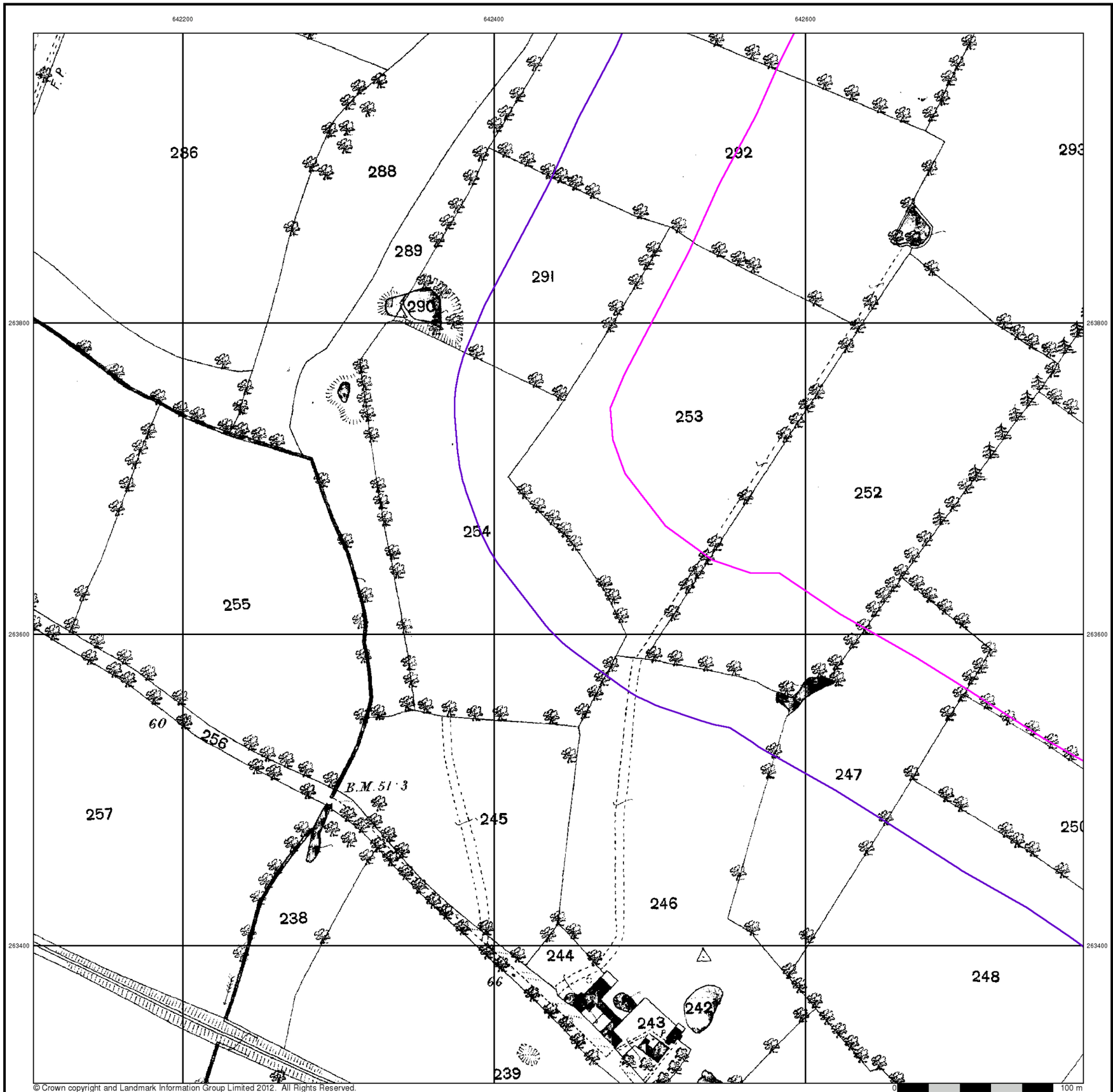


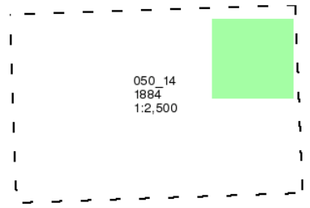
Suffolk

Published 1884

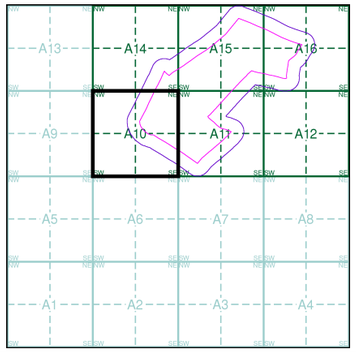
Source map scale - 1:2,500

[illegible]

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

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Site Details

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Landmark Information Group

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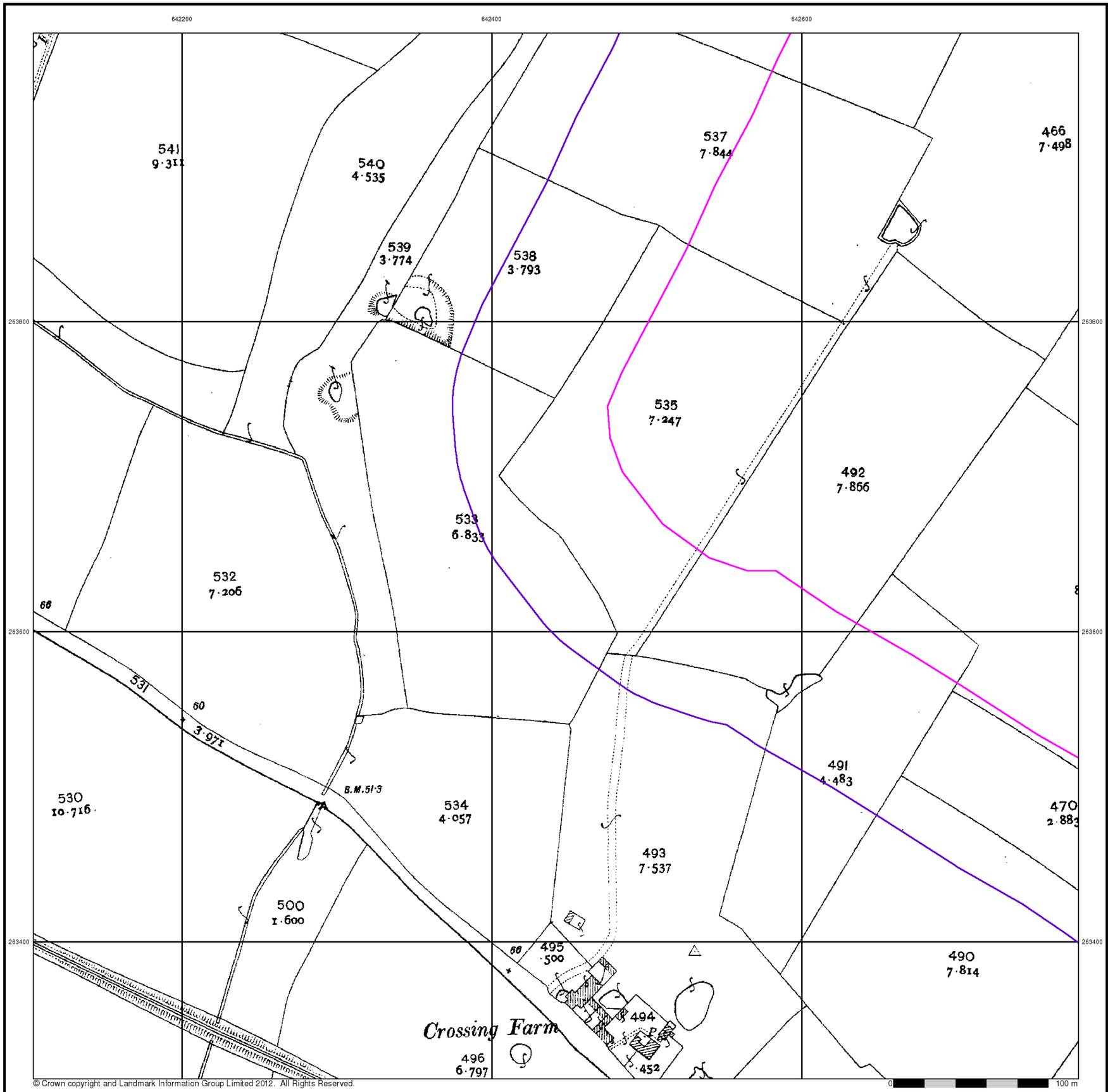


amec

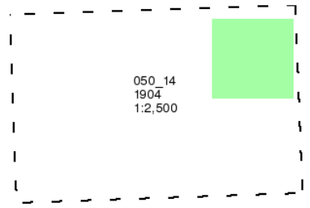
Suffolk

Published 1904

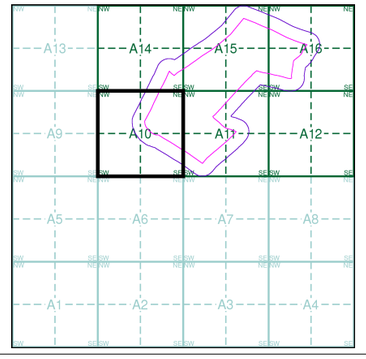
Source map scale - 1:2,500

[redacted]

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

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Site Details

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Landmark® Information Group

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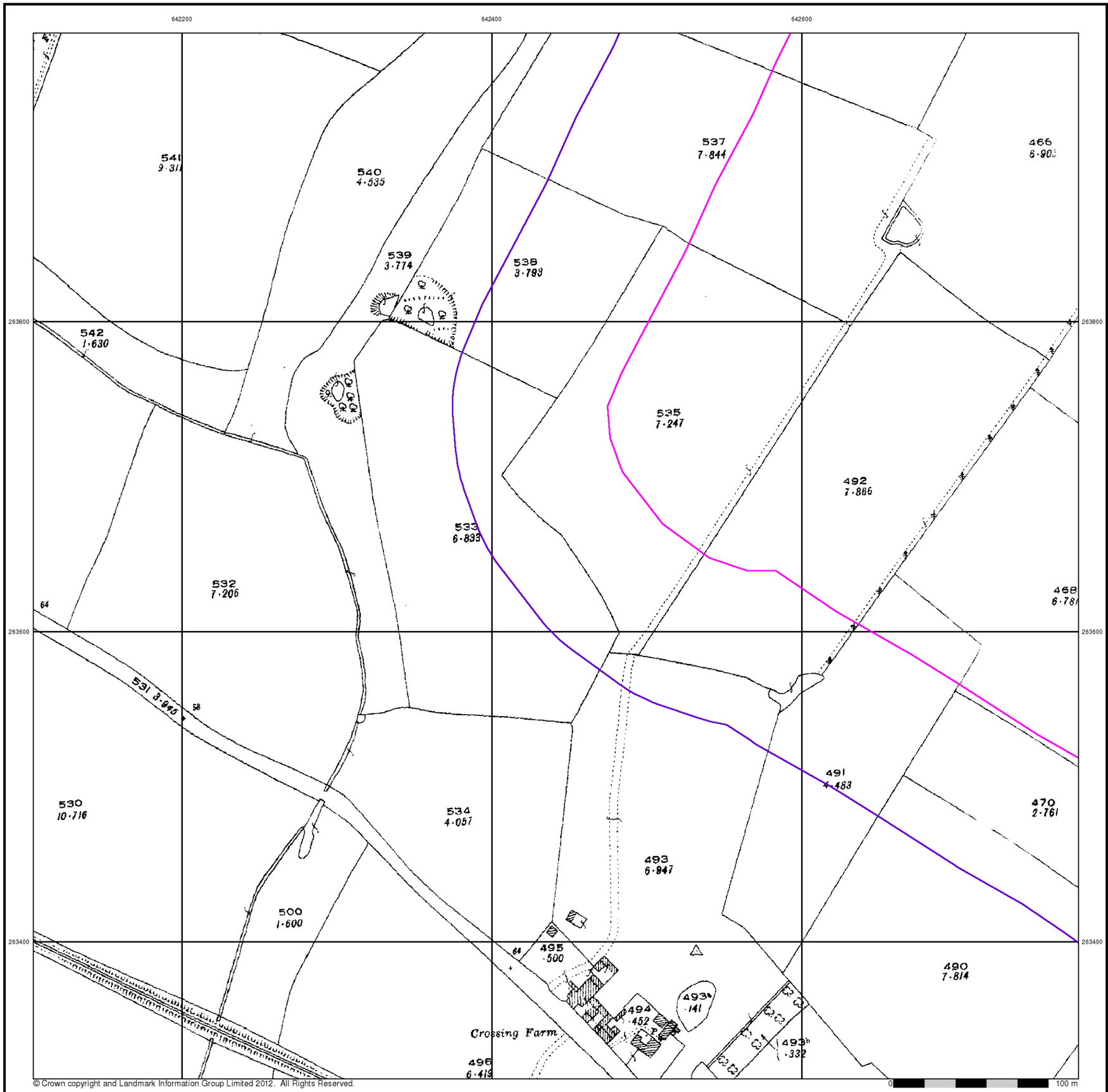

amec

Suffolk

Published 1927

Source map scale - 1:2,500

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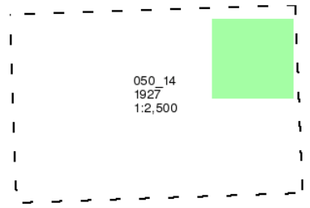
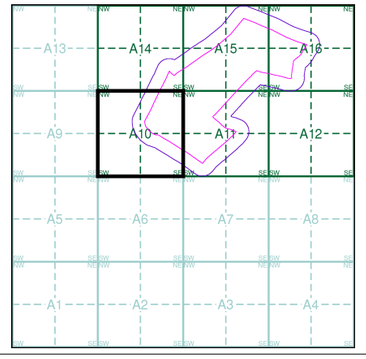
Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

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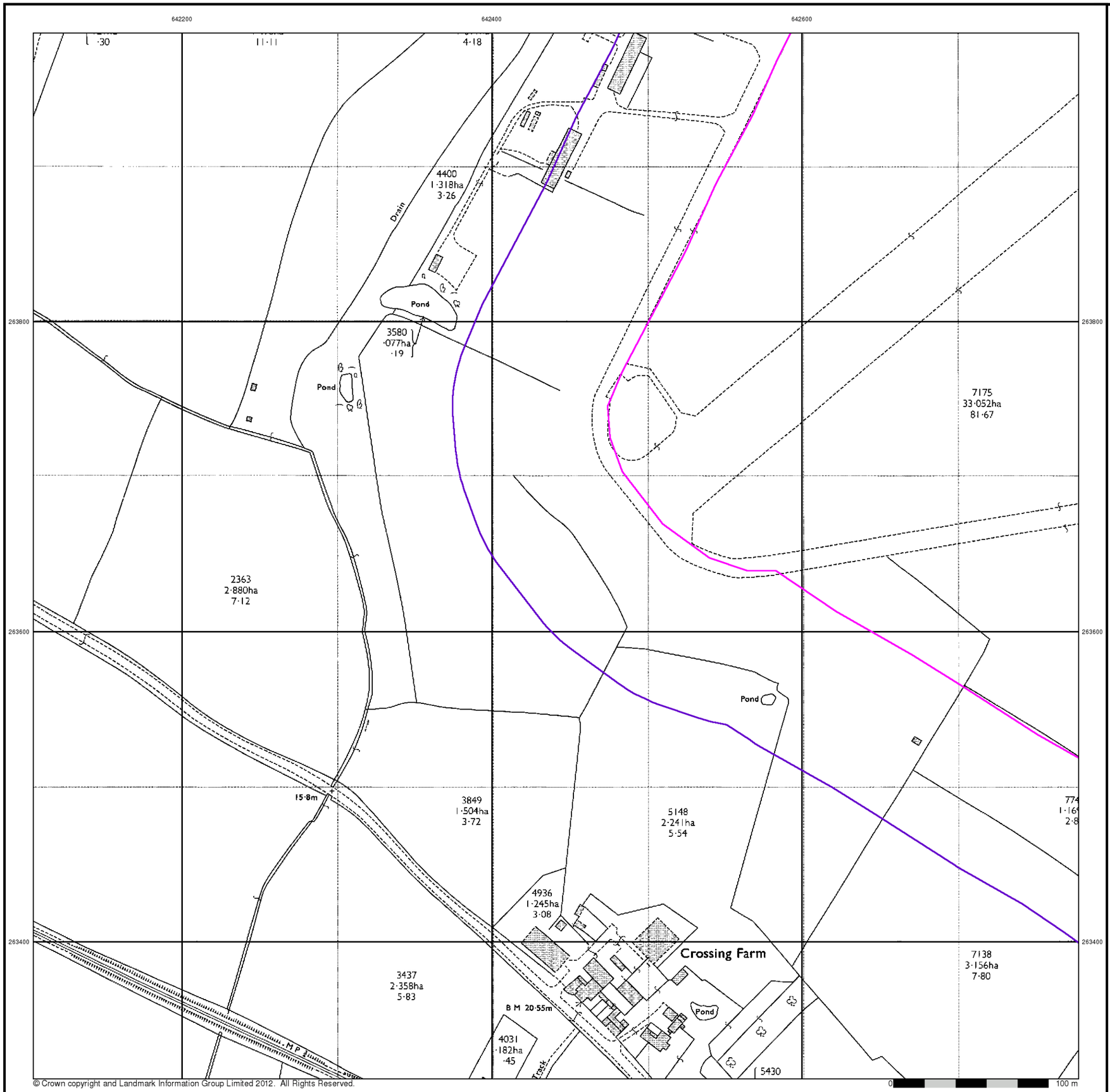
Site Details

[redacted]

Landmark® Information Group

[redacted]



amec

Ordnance Survey Plan

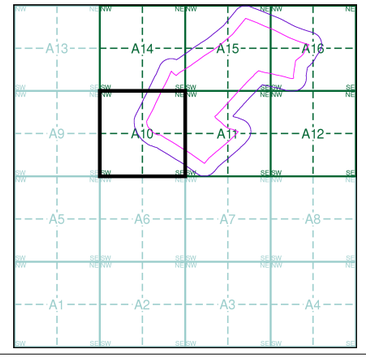
Published 1971

Source map scale - 1:2,500

Map Name(s) and Date(s)

TM4263
1971
1:2,500

Historical Map - Segment A10



Order Details

A

Site Details

Landmark Information Group

amec

Large-Scale National Grid Data

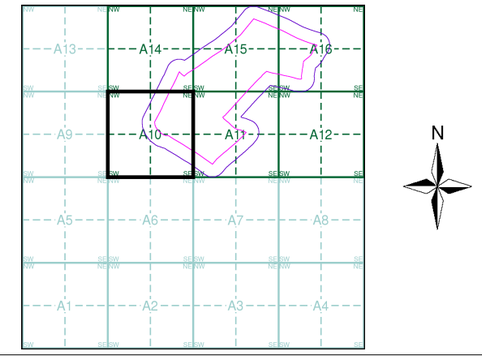
Published 1995

Source map scale - 1:2,500

Map Name(s) and Date(s)

TM4263
1995
1:2,500

Historical Map - Segment A10



Order Details

Site Details

Landmark Information Group

Historical Mapping Legends

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

Quarry — Gravel Pit — Sand Pit

Clay Pit — Shingle — Refuse Heap

Sloping Masonry — Flat Rock

Marsh — Reeds — Osiers

Rough Pasture — Furze — Wood

Mixed Wood — Brushwood — Orchard

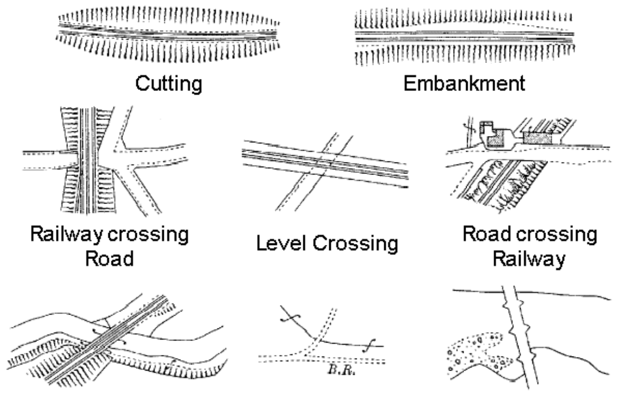
Fir — Ford — Stepping Stones

Ferry — Waterfall — Lock

Trig. Station — 507 Altitude at Trig. Station

B.M.325·9 Bench Mark — 342 Surface Level

Arrow denotes flow of water — Antiquities (site of)



Cutting — Embankment

Railway crossing Road — Level Crossing — Road crossing Railway

Railway crossing River or Canal — Road over single stream — Road over River or Canal

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)

BP BS	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	Sl.	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

Inactive Quarry, Chalk Pit or Clay Pit (or) — Active Quarry, Chalk Pit or Clay Pit

Rock — Boulders

Cliff — Slopes (Top) (Top)

Roofed Building — Glazed Roof Building

Sloping Masonry (Top) — Archway

Non-Coniferous Tree (surveyed) — Coniferous Tree (surveyed)

Non-Coniferous Trees (not surveyed) — Coniferous Trees (not surveyed)

Orchard Tree — Scrub — Bracken

Coppice, Osier — Reeds — Marsh, Saltings

Rough Grassland — Heath — Culvert

Direction of water flow — B M Bench Mark — Antiquity (site of)

Cave Entrance — Triangulation Station — Electricity Pylon

E T L Electricity Transmission Line

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

Cliff — Slopes (Top) (Top)

Rock — Rock (scattered)

Boulders — Boulders (scattered)

Positioned Boulder — Scree

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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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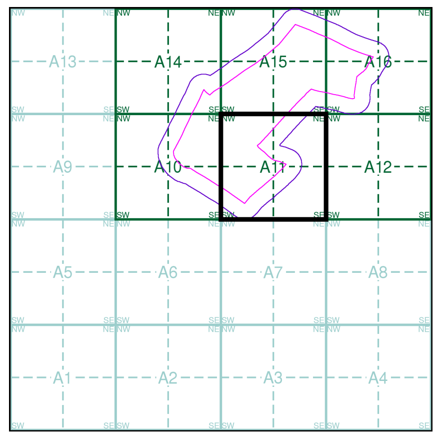
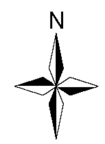
Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1971	5
Additional SIMs	1:2,500	1988	6
Large-Scale National Grid Data	1:2,500	1995	7

Historical Map - Segment A11



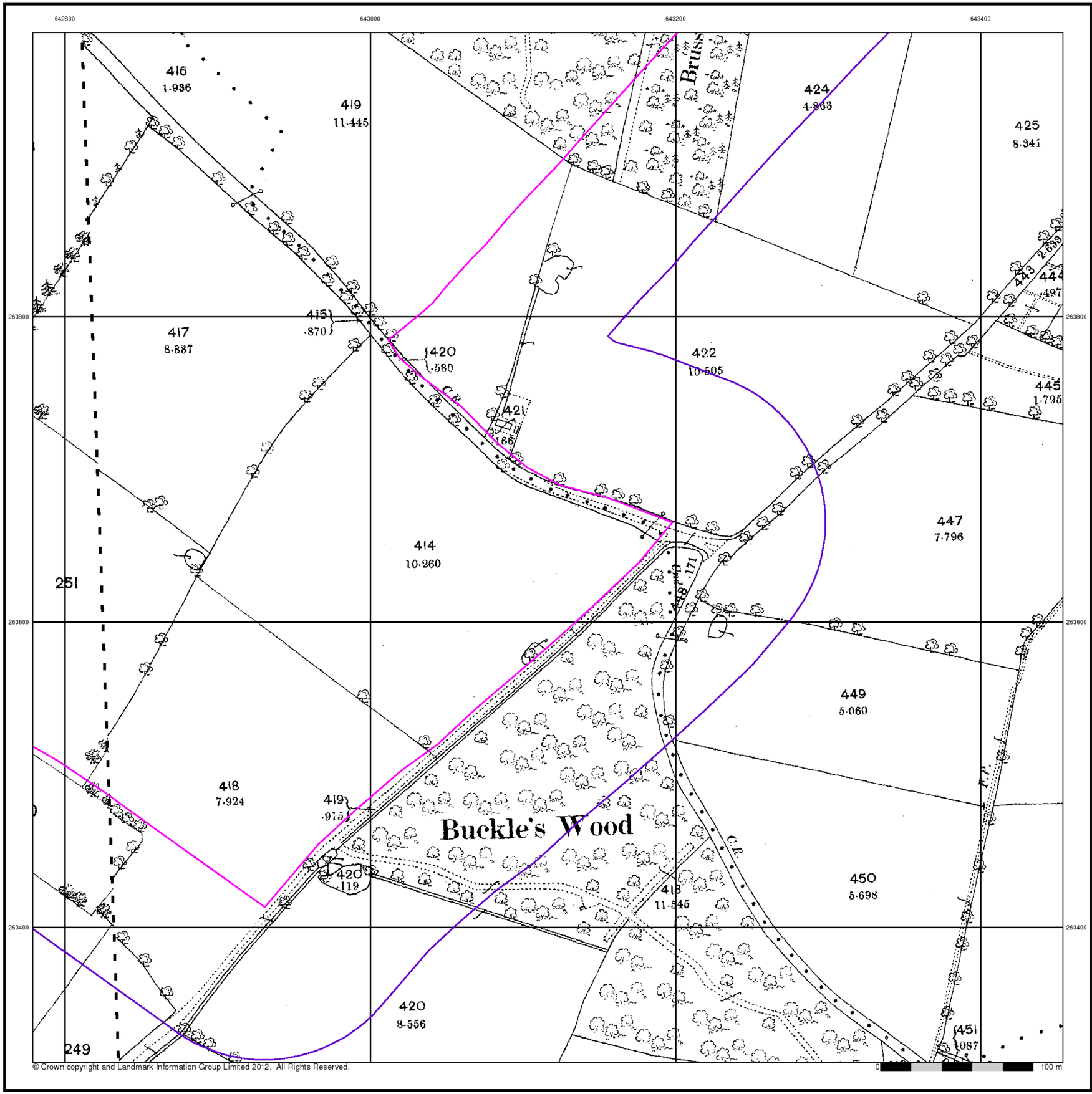


Order Details

A

Site Details

Landmark Information Group



amec

Suffolk

Published 1884

Source map scale - 1:2,500

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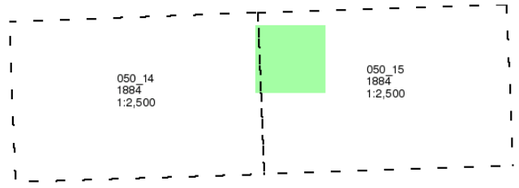
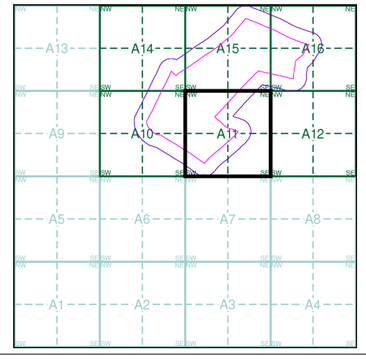
Map Name(s) and Date(s)



Historical Map - Segment A11



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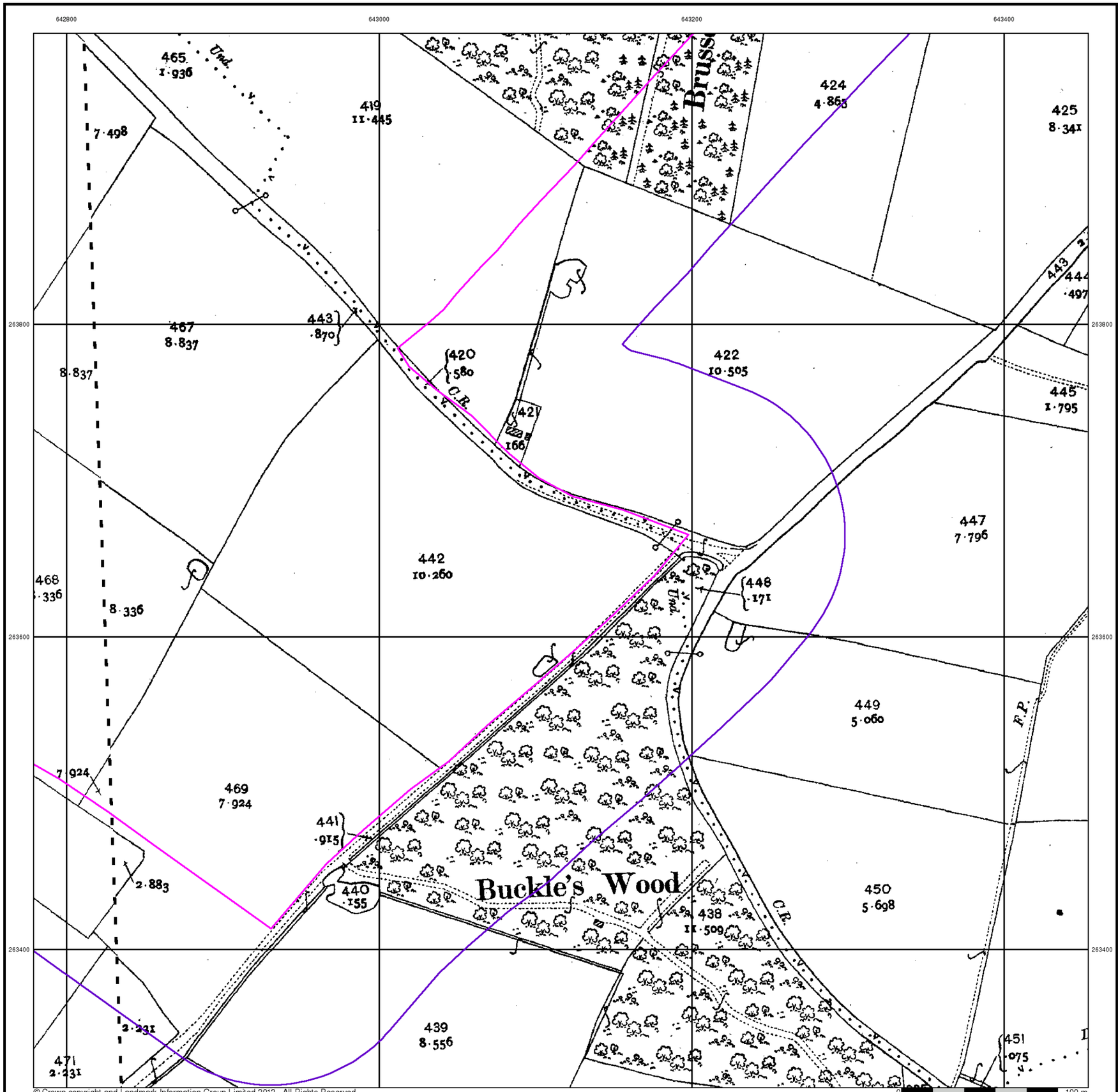

amec

Suffolk

Published 1904

Source map scale - 1:2,500

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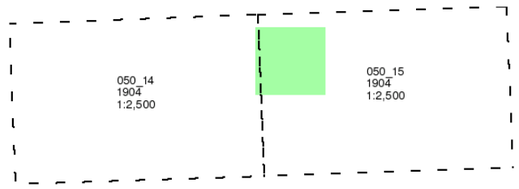
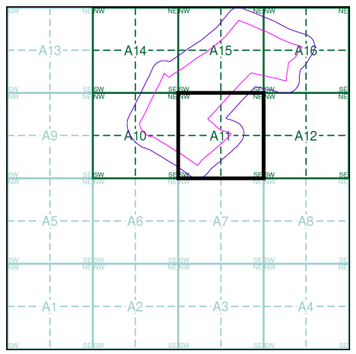
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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Site Details

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Landmark Information Group

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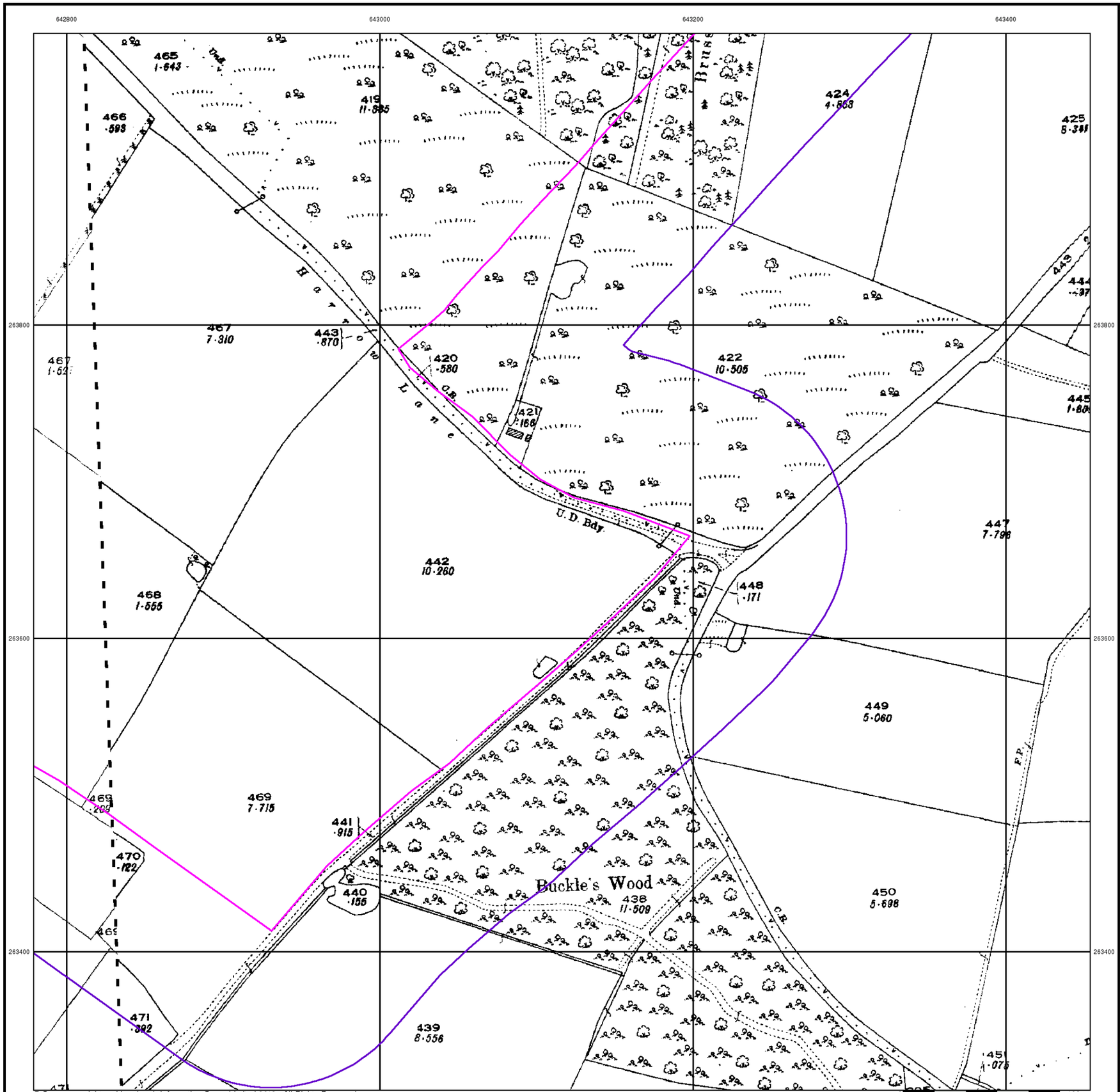

amec

Suffolk

Published 1927

Source map scale - 1:2,500

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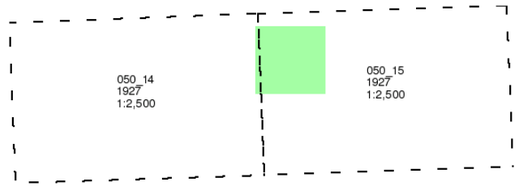
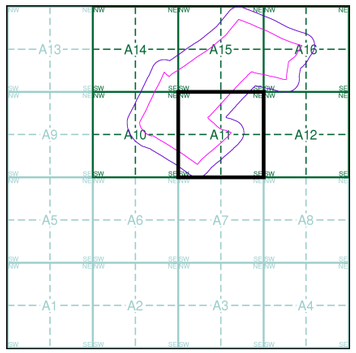
Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

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Site Details

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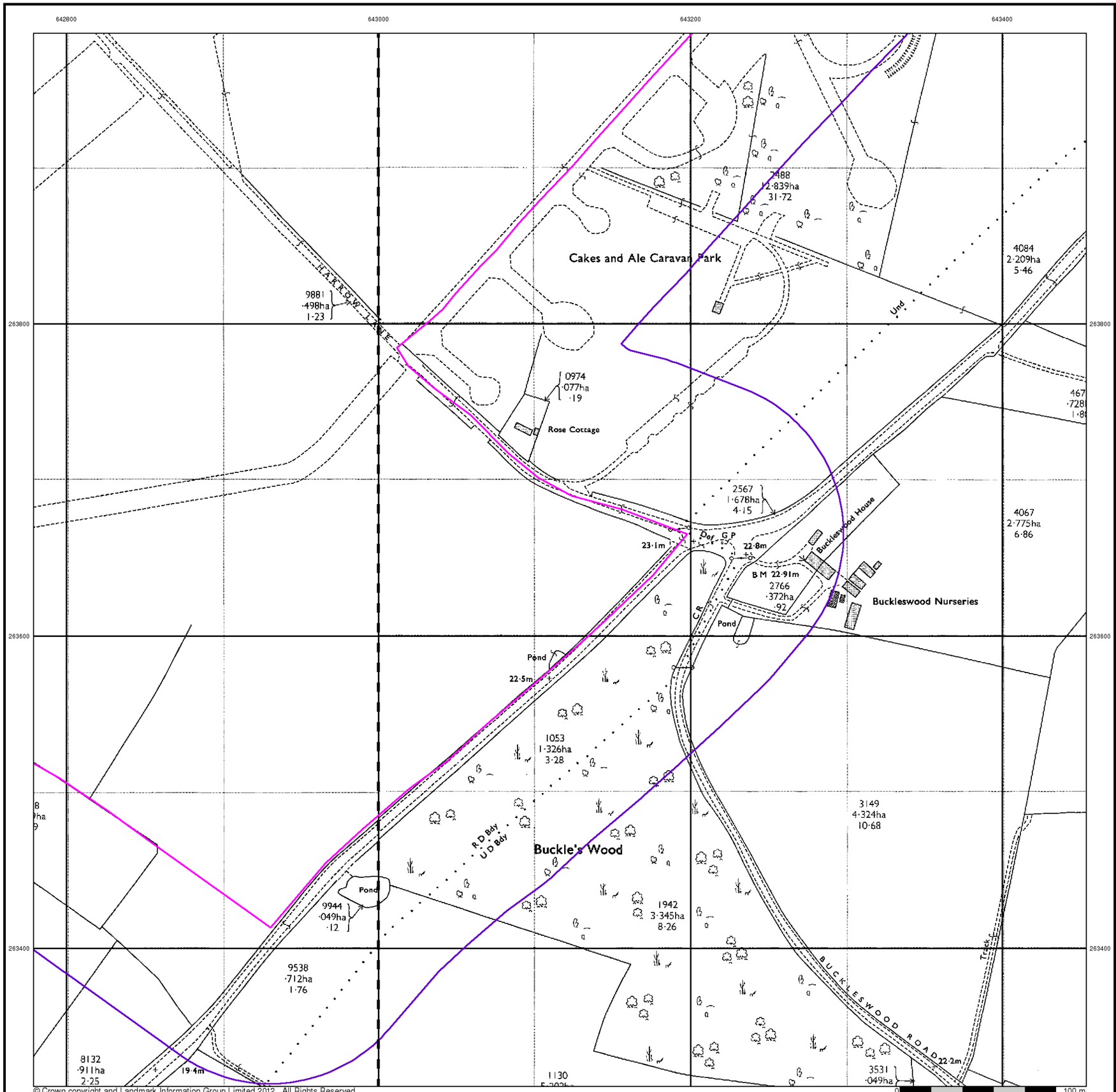
Landmark® Information Group

[redacted]



amec

Ordnance Survey Plan

Published 1971

Source map scale - 1:2,500

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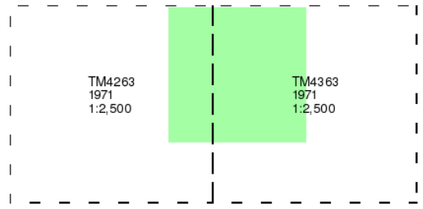
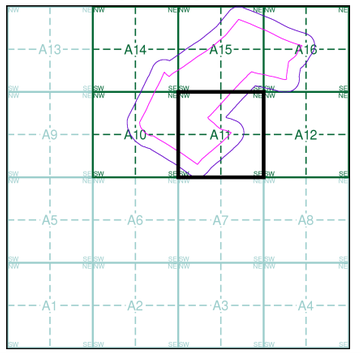
Map Name(s) and Date(s)



Historical Map - Segment A11



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Site Details

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Landmark® Information Group

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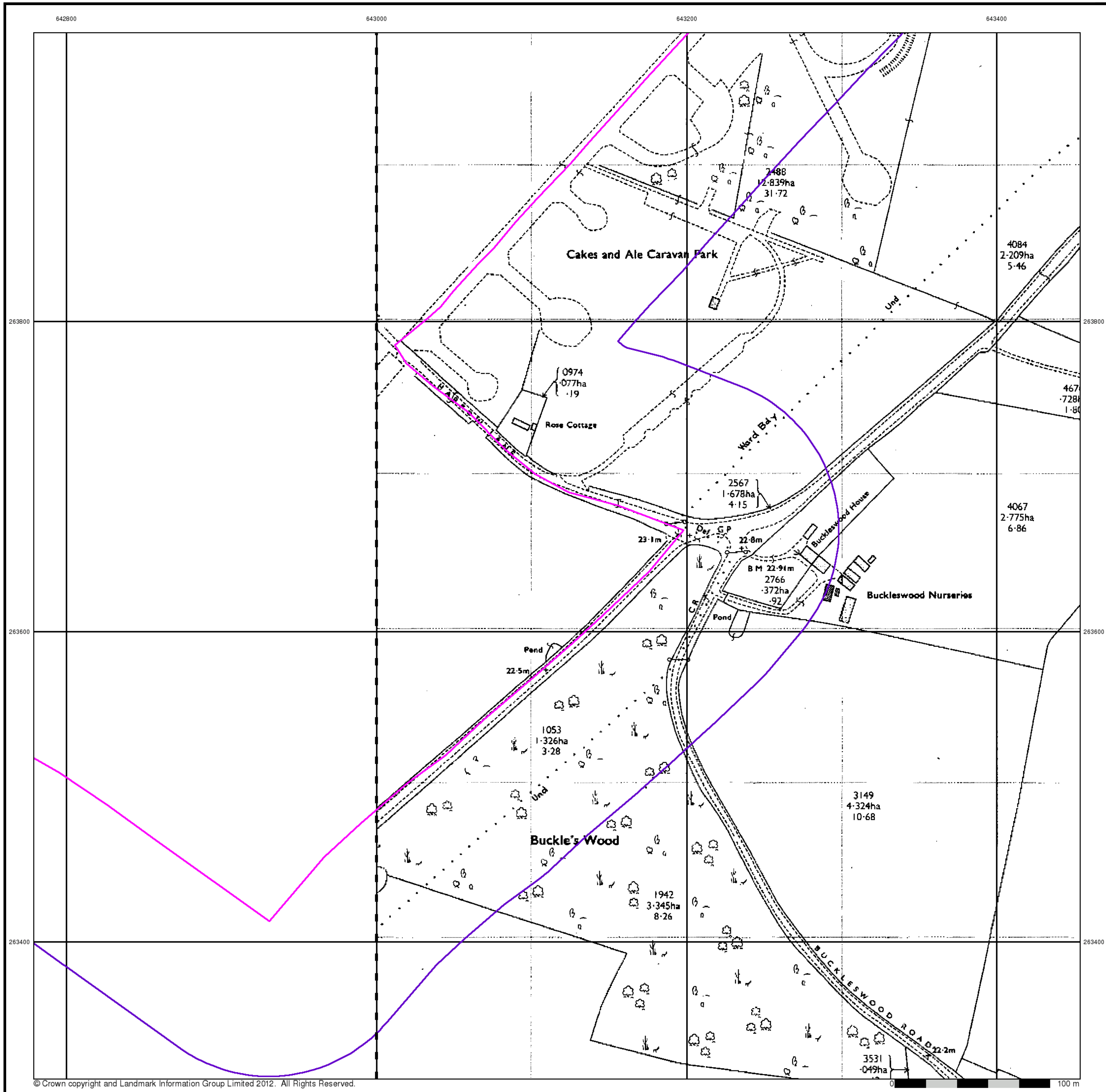
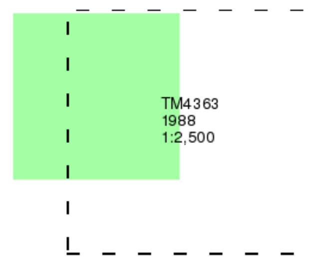


Additional SIMs

Published 1988

Source map scale - 1:2,500

Map Name(s) and Date(s)



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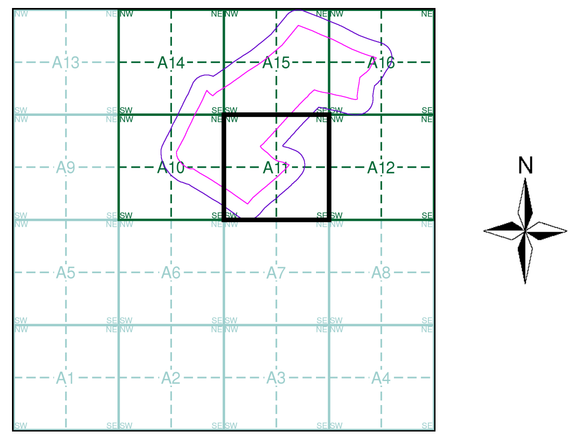


Order Details

A

Site Details

Landmark Information Group

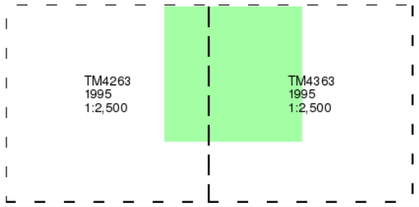
amec

Large-Scale National Grid Data

Published 1995

Source map scale - 1:2,500

Map Name(s) and Date(s)



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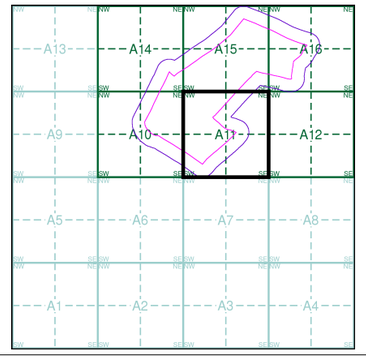

Order Details

A

Site Details

Landmark Information Group

Historical Mapping Legends

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

Quarry | Gravel Pit | Sand Pit
Clay Pit | Shingle | Refuse Heap
Sloping Masonry | Flat Rock
Marsh | Reeds | Osiers
Rough Pasture | Furze | Wood
Mixed Wood | Brushwood | Orchard
Fir | Ford | Stepping Stones
Ferry | Waterfall | Lock

Trig. Station — 507 Altitude at Trig. Station
B.M.325·9 Bench Mark — 342 Surface Level
Arrow denotes flow of water — Antiquities (site of)

Cutting | Embankment
Railway crossing Road | Level Crossing | Road crossing Railway
Railway crossing River or Canal | Road over single stream | Road over River or Canal

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)

BP BS	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

Inactive Quarry, Chalk Pit or Clay Pit | Active Quarry, Chalk Pit or Clay Pit
Rock | Boulders
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Roofed Building | Glazed Roof Building
Sloping Masonry (Top) | Archway
Non-Coniferous Tree (surveyed) | Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed) | Coniferous Trees (not surveyed)
Orchard Tree | Scrub | Bracken
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Direction of water flow | B M Bench Mark | Antiquity (site of)
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Large-Scale National Grid Data 1:2,500 and 1:1,250

Cliff | Slopes (Top)
Rock | Rock (scattered)
Boulders | Boulders (scattered)
Positioned Boulder | Scree
Non-Coniferous Tree (surveyed) | Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed) | Coniferous Trees (not surveyed)
Orchard Tree | Scrub | Bracken
Coppice, Osier | Reeds | Marsh, Saltings
Rough Grassland | Heath | Culvert
Direction of water flow | Triangulation Station | Antiquity (site of)
E T L — Electricity Transmission Line | Electricity Pylon
BM 231.60m Bench Mark | Buildings with Building Seed
Roofed Building | Glazed Roof Building

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
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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
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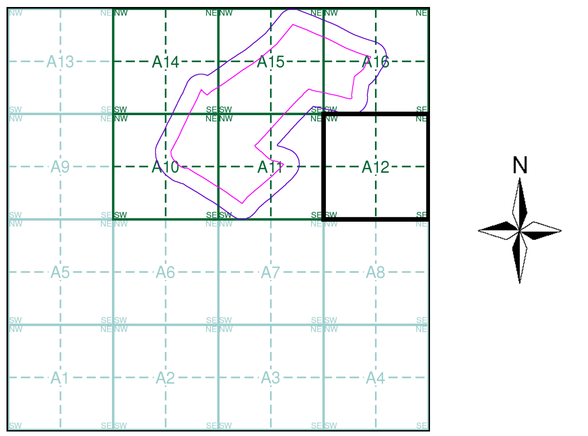
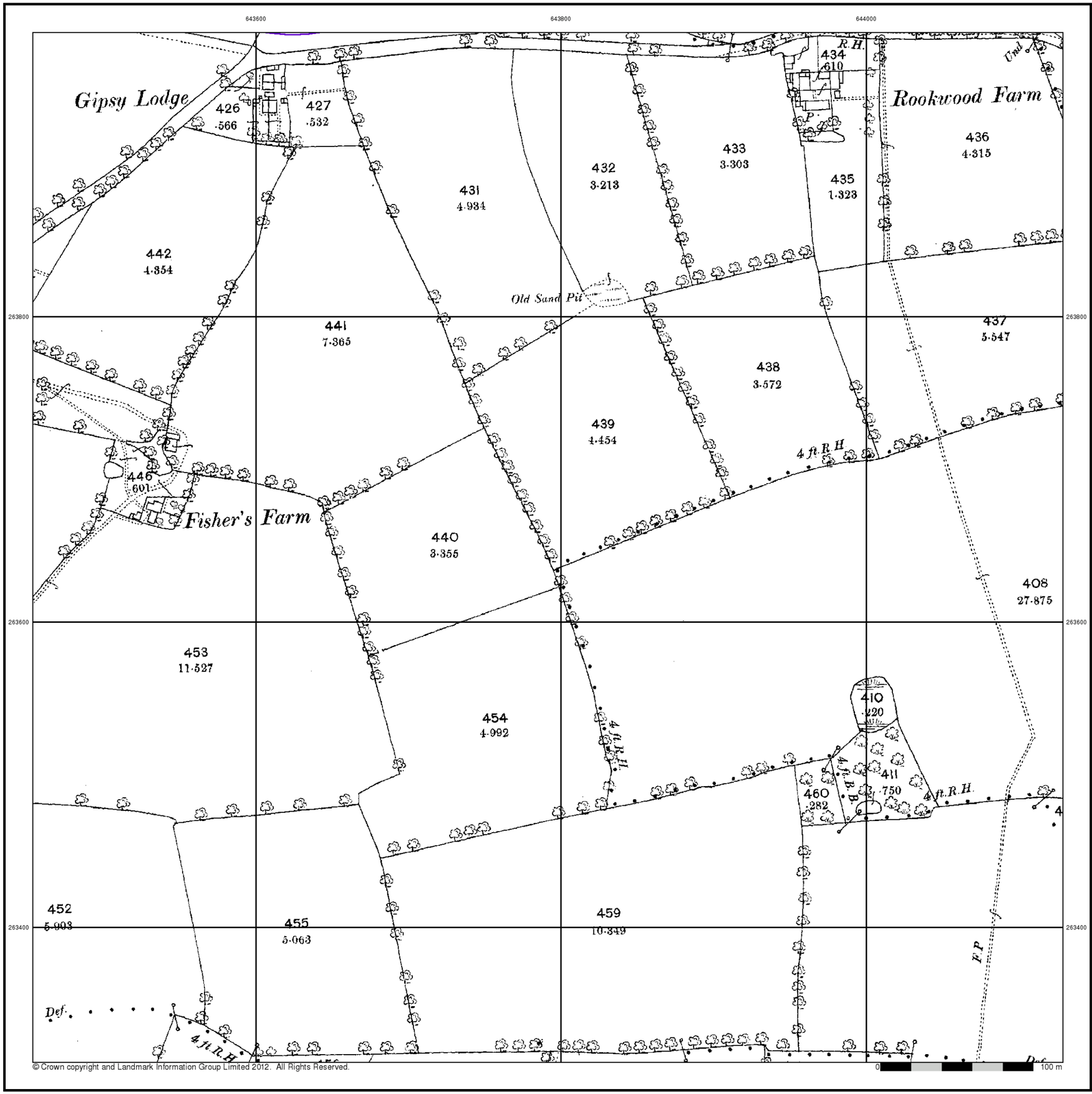
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1970 - 1971	5
Supply of Unpublished Survey Information	1:2,500	1975	6
Additional SIMs	1:2,500	1988 - 1989	7
Large-Scale National Grid Data	1:2,500	1995	8

Historical Map - Segment A12



Order Details

Site Details



amec

Suffolk

Published 1884

Source map scale - 1:2,500

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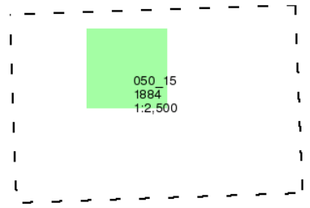
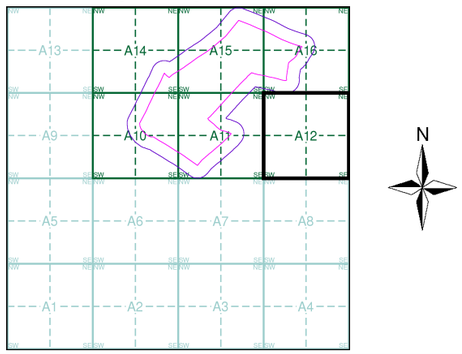
Map Name(s) and Date(s)



Historical Map - Segment A12



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Site Details

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Landmark Information Group

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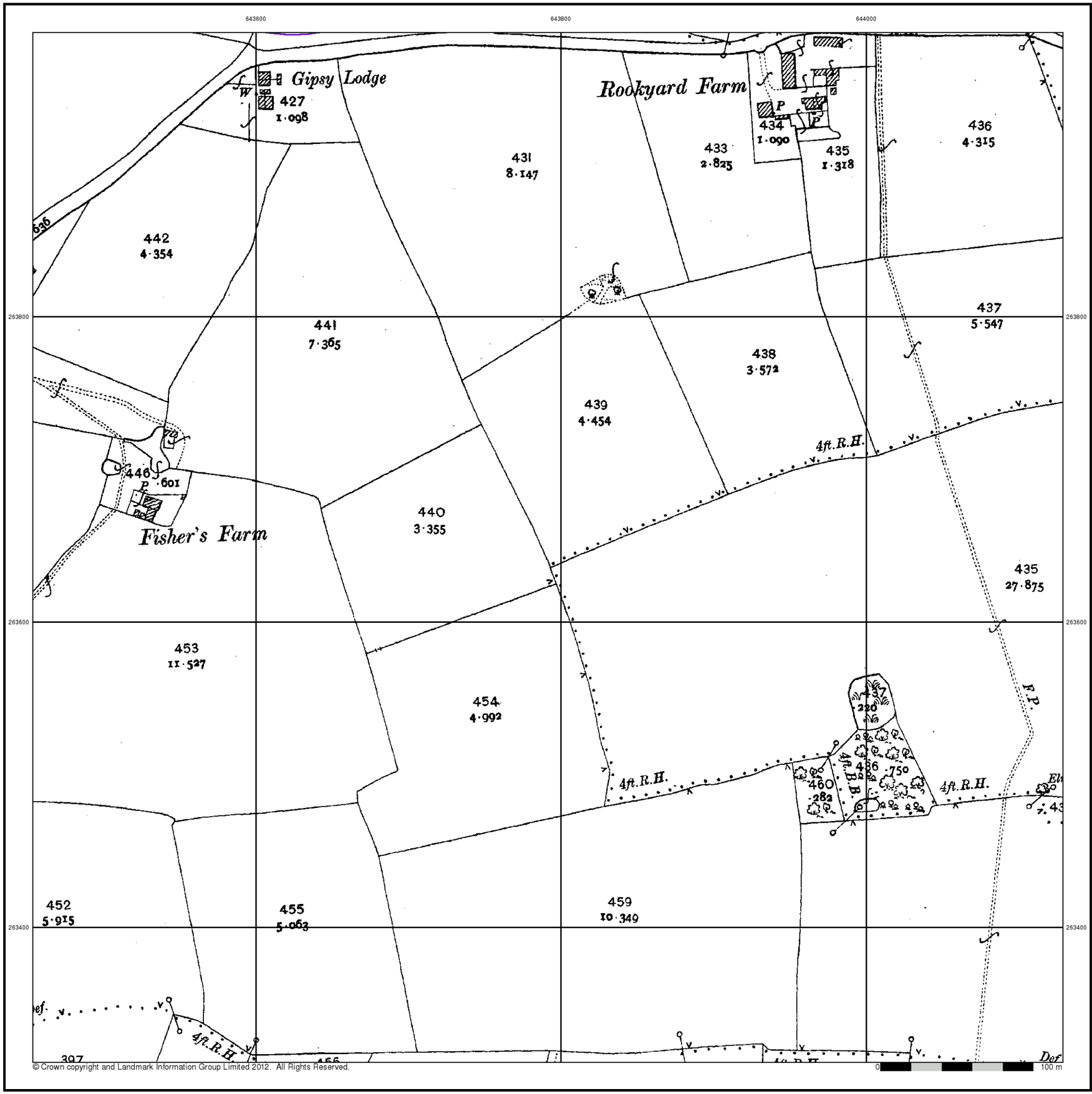

amec

Suffolk

Published 1904

Source map scale - 1:2,500

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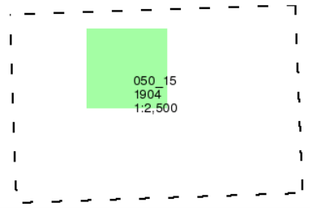
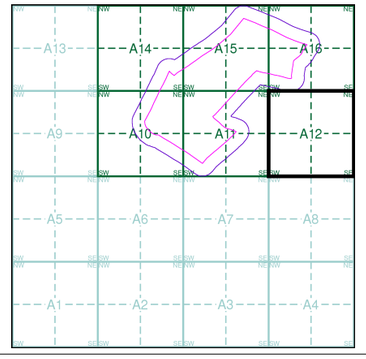
Map Name(s) and Date(s)



Historical Map - Segment A12



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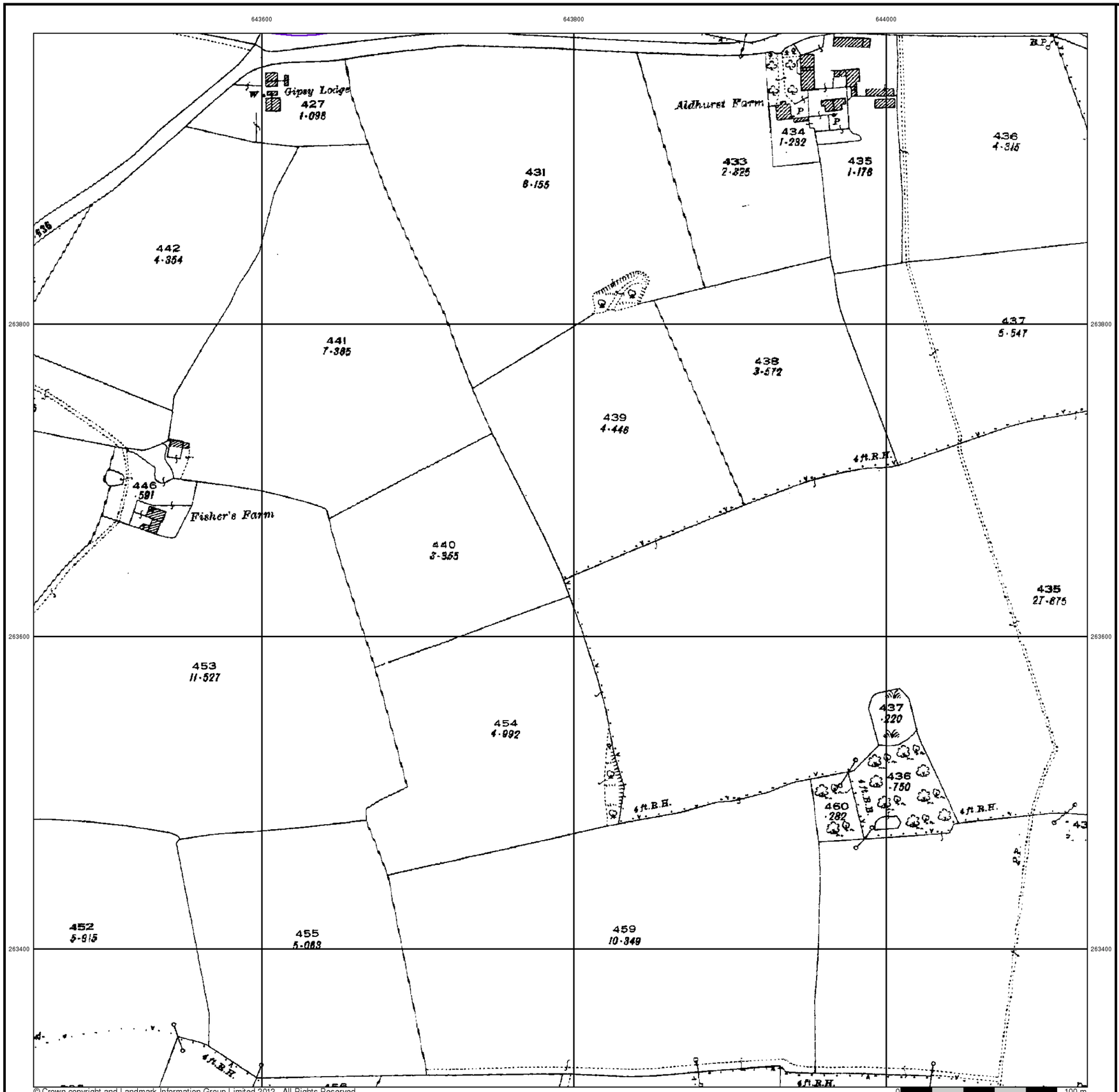

amec

Suffolk

Published 1927

Source map scale - 1:2,500

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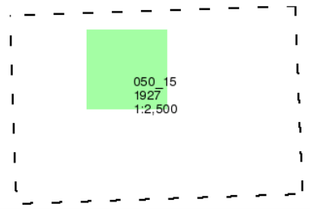
Map Name(s) and Date(s)



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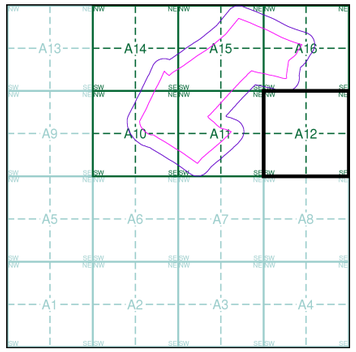

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Landmark Information Group

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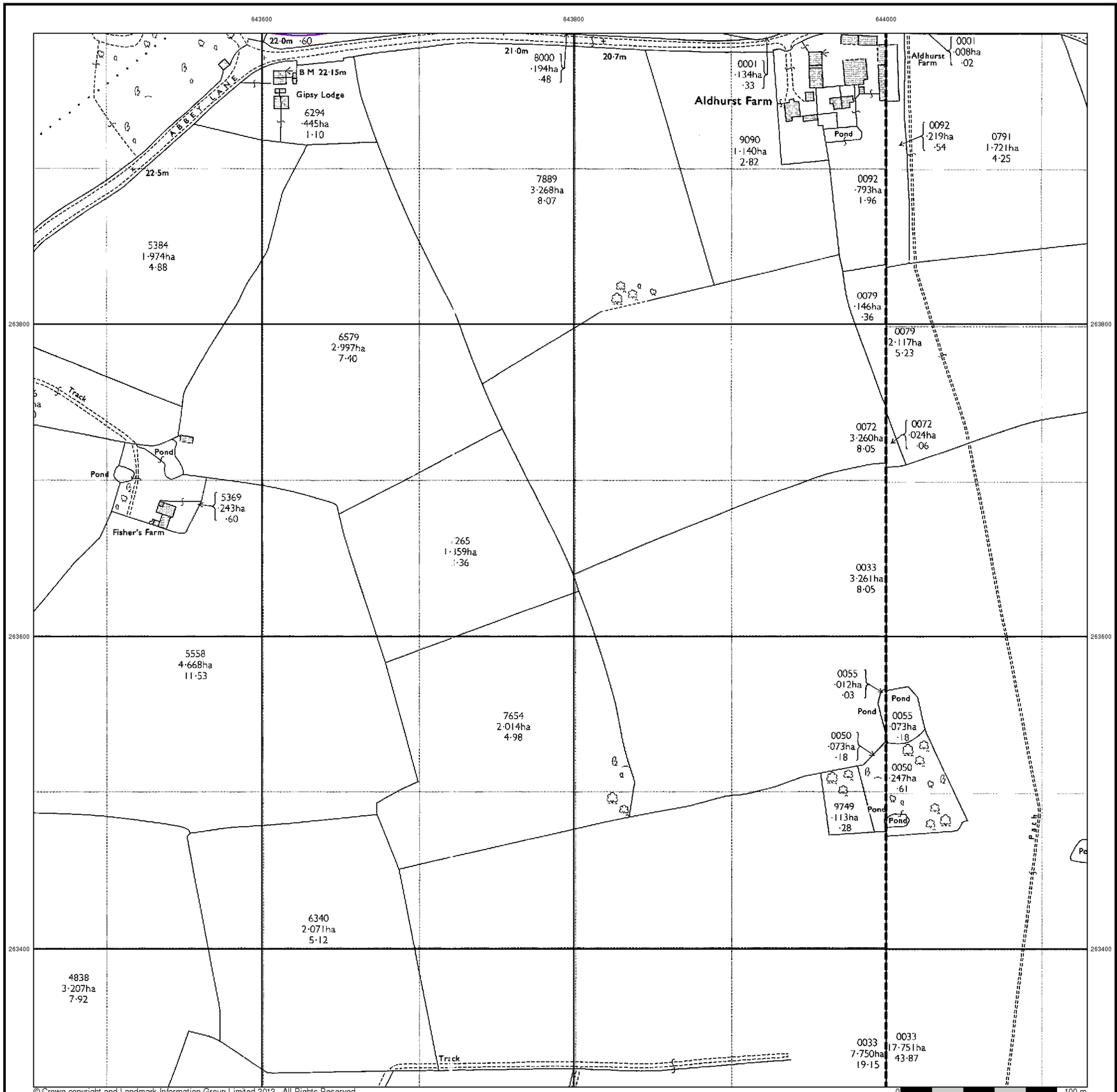

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Ordnance Survey Plan

Published 1970 - 1971

Source map scale - 1:2,500

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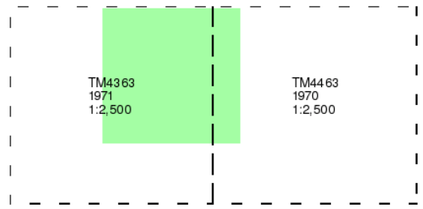
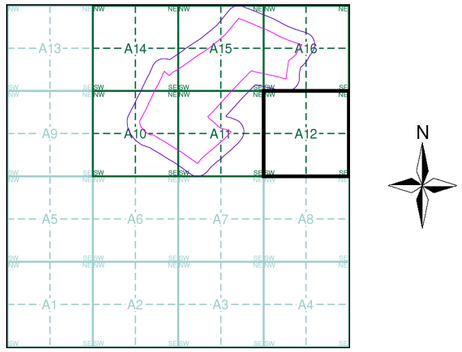
Map Name(s) and Date(s)



Historical Map - Segment A12



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Landmark Information Group

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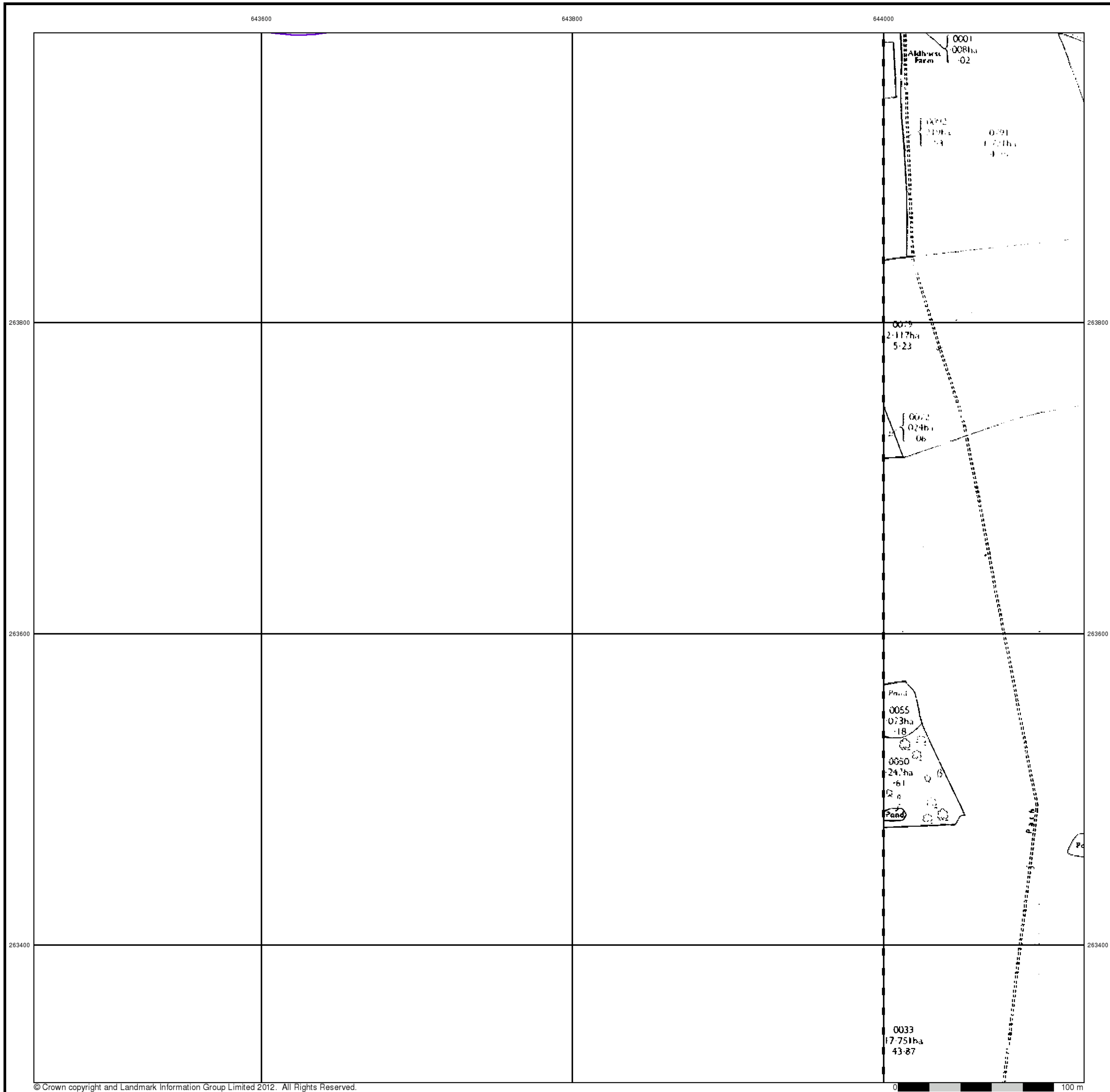
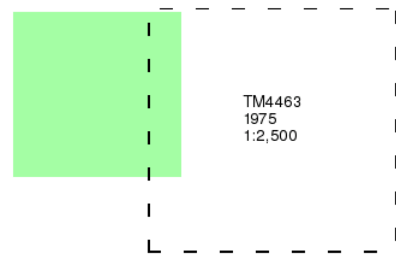


Supply of Unpublished Survey Information

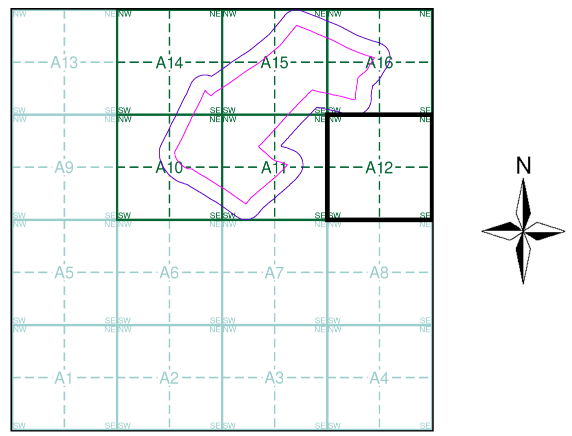
Published 1975

Source map scale - 1:2,500

Map Name(s) and Date(s)

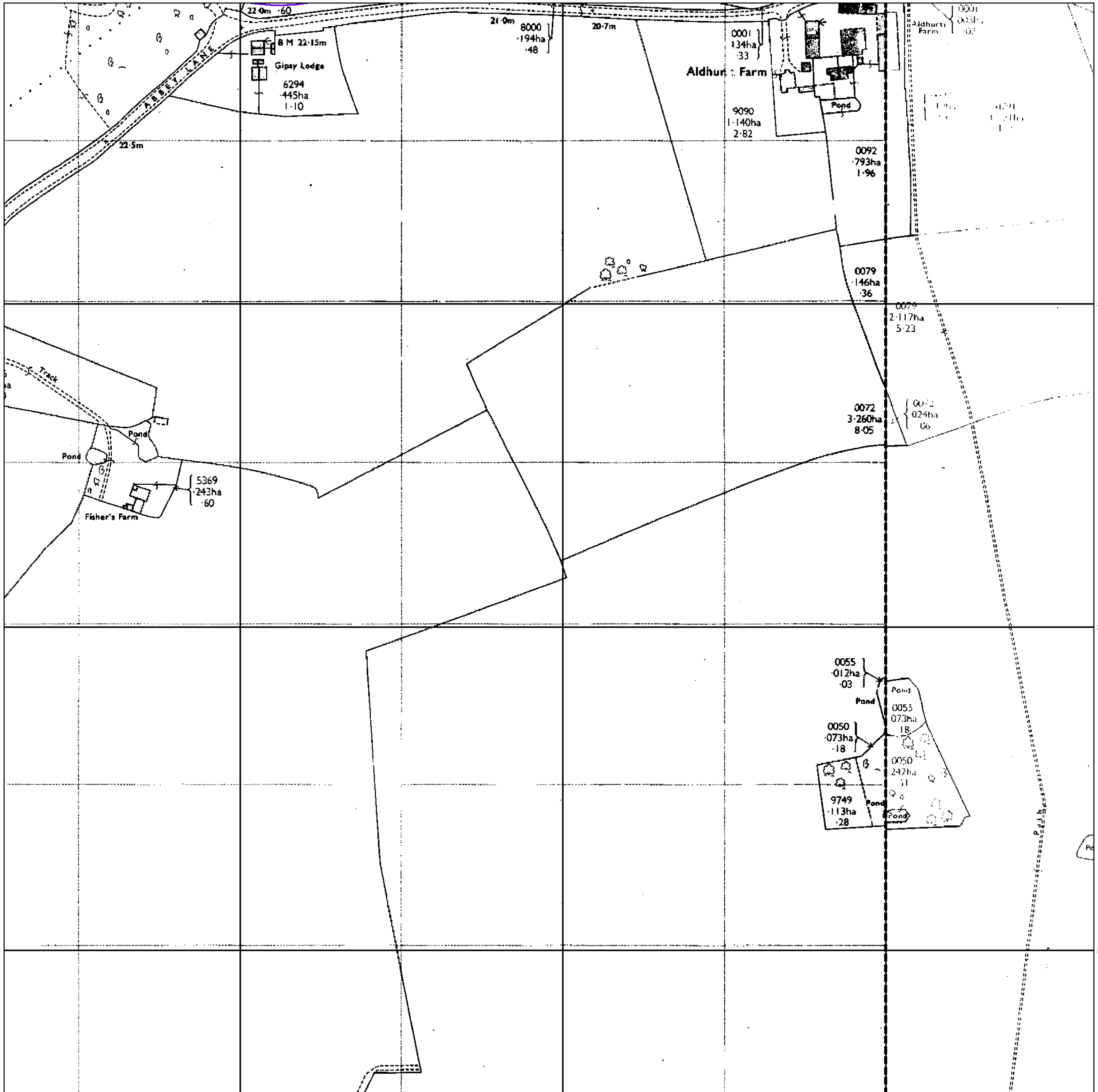


Historical Map - Segment A12



Order Details

Site Details



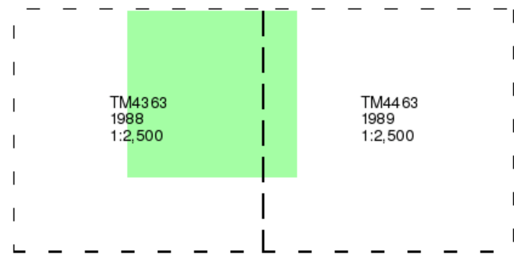
0 100 m

Additional SIMs

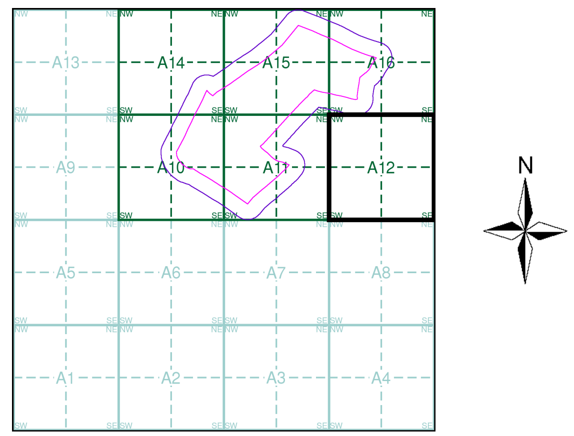
Published 1988 - 1989

Source map scale - 1:2,500

Map Name(s) and Date(s)



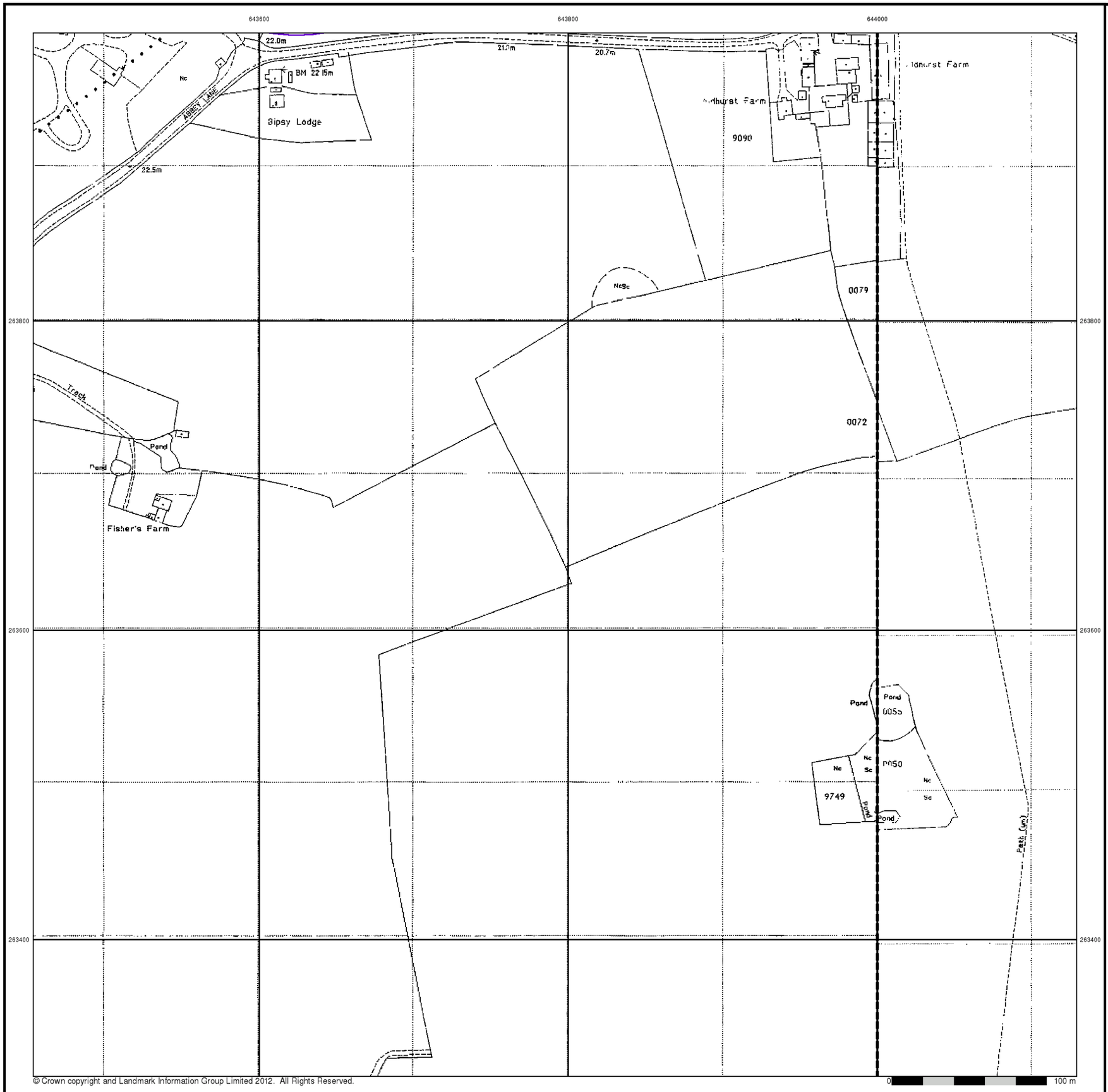
Historical Map - Segment A12



Order Details

A

Site Details



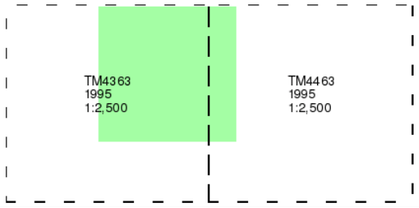
amec

Large-Scale National Grid Data

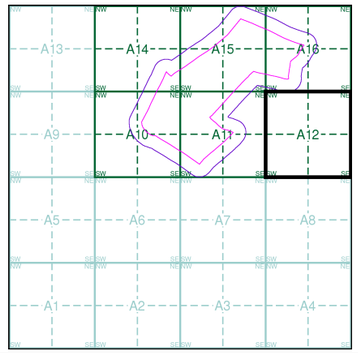
Published 1995

Source map scale - 1:2,500

Map Name(s) and Date(s)



Historical Map - Segment A12



Order Details

A

Site Details

Landmark® Information Group

Historical Mapping Legends

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

Quarry
Gravel Pit
Sand Pit
Clay Pit
Shingle
Refuse Heap
Sloping Masonry
Flat Rock
Marsh
Reeds
Osiers
Rough Pasture
Furze
Wood
Mixed Wood
Brushwood
Orchard
Fir
Ford
Stepping Stones
Ferry
Waterfall
Lock

	Trig. Station	507	Altitude at Trig. Station
B.M.325·9	Bench Mark	342	Surface Level
	Arrow denotes flow of water		Antiquities (site of)

Cutting
Embankment
Railway crossing Road
Level Crossing
Road crossing Railway
Railway crossing River or Canal
Road over single stream
Road over River or Canal

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)

BP BS	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	Sl.	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

Inactive Quarry, Chalk Pit or Clay Pit
Active Quarry, Chalk Pit or Clay Pit
Rock
Boulders
Cliff
Slopes (Top)
Roofed Building
Glazed Roof Building
Sloping Masonry (Top)
Archway
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
B M — Bench Mark
Antiquity (site of)
Cave Entrance
Triangulation Station
Electricity Pylon
E T L — Electricity Transmission Line

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

Cliff
Slopes (Top)
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Positioned Boulder
Scree
Non-Coniferous Tree (surveyed)
Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed)
Coniferous Trees (not surveyed)
Orchard Tree
Scrub
Bracken
Coppice, Osier
Reeds
Marsh, Saltings
Rough Grassland
Heath
Culvert
Direction of water flow
Triangulation Station
Antiquity (site of)
E T L — Electricity Transmission Line
Electricity Pylon
BM 231.60m — Bench Mark
Buildings with Building Seed
Roofed Building
Glazed Roof Building

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)

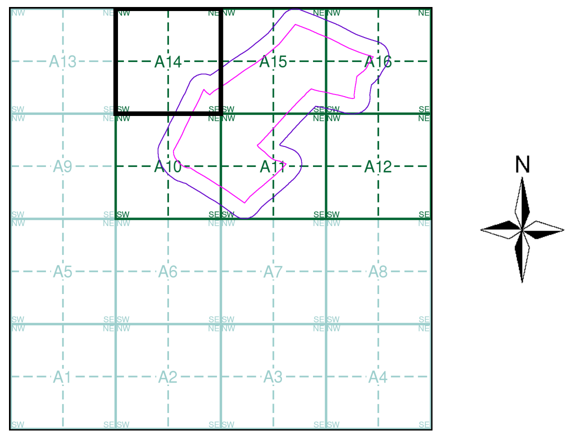
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity 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

amec

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1971	5
Large-Scale National Grid Data	1:2,500	1995	6

Historical Map - Segment A14



Order Details

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Site Details

[illegible]

Landmark Information Group

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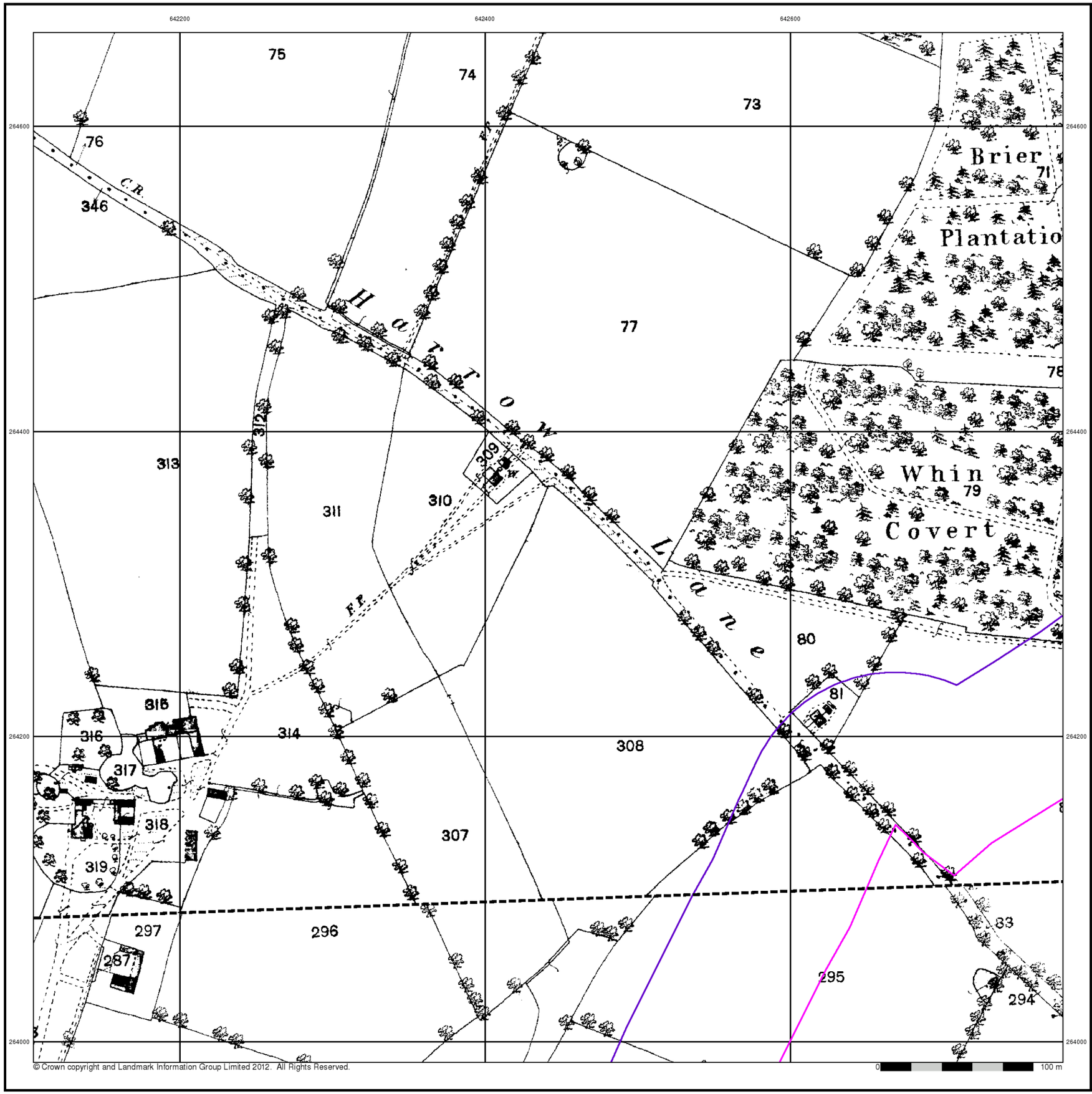

amec

Suffolk

Published 1884

Source map scale - 1:2,500

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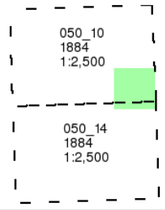
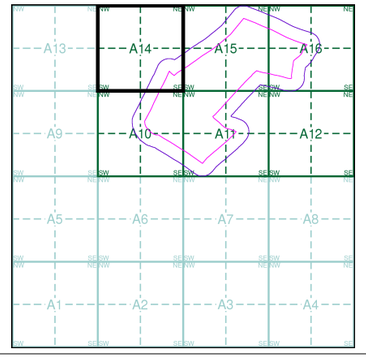
Map Name(s) and Date(s)



Historical Map - Segment A14



Order Details

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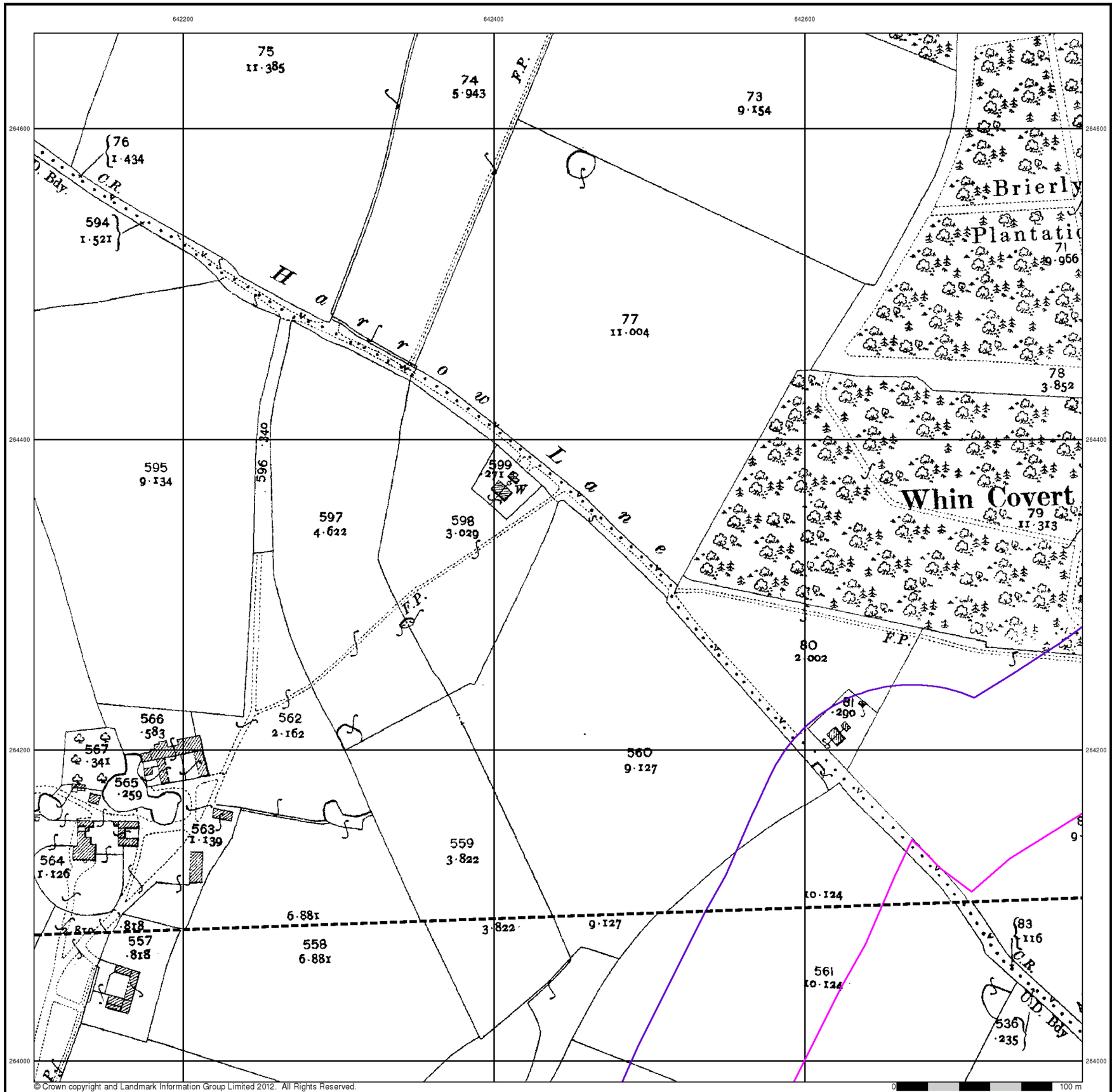
Site Details

[redacted]

Landmark Information Group

[redacted]



amec

Suffolk

Published 1904

Source map scale - 1:2,500

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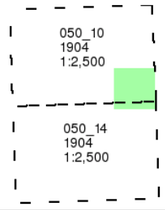
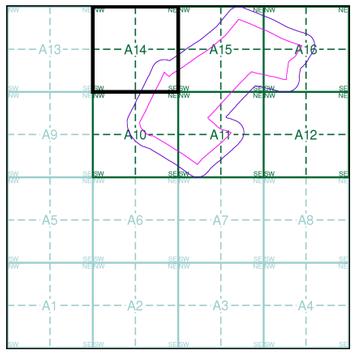
Map Name(s) and Date(s)



Historical Map - Segment A14



Order Details

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Site Details

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Landmark Information Group

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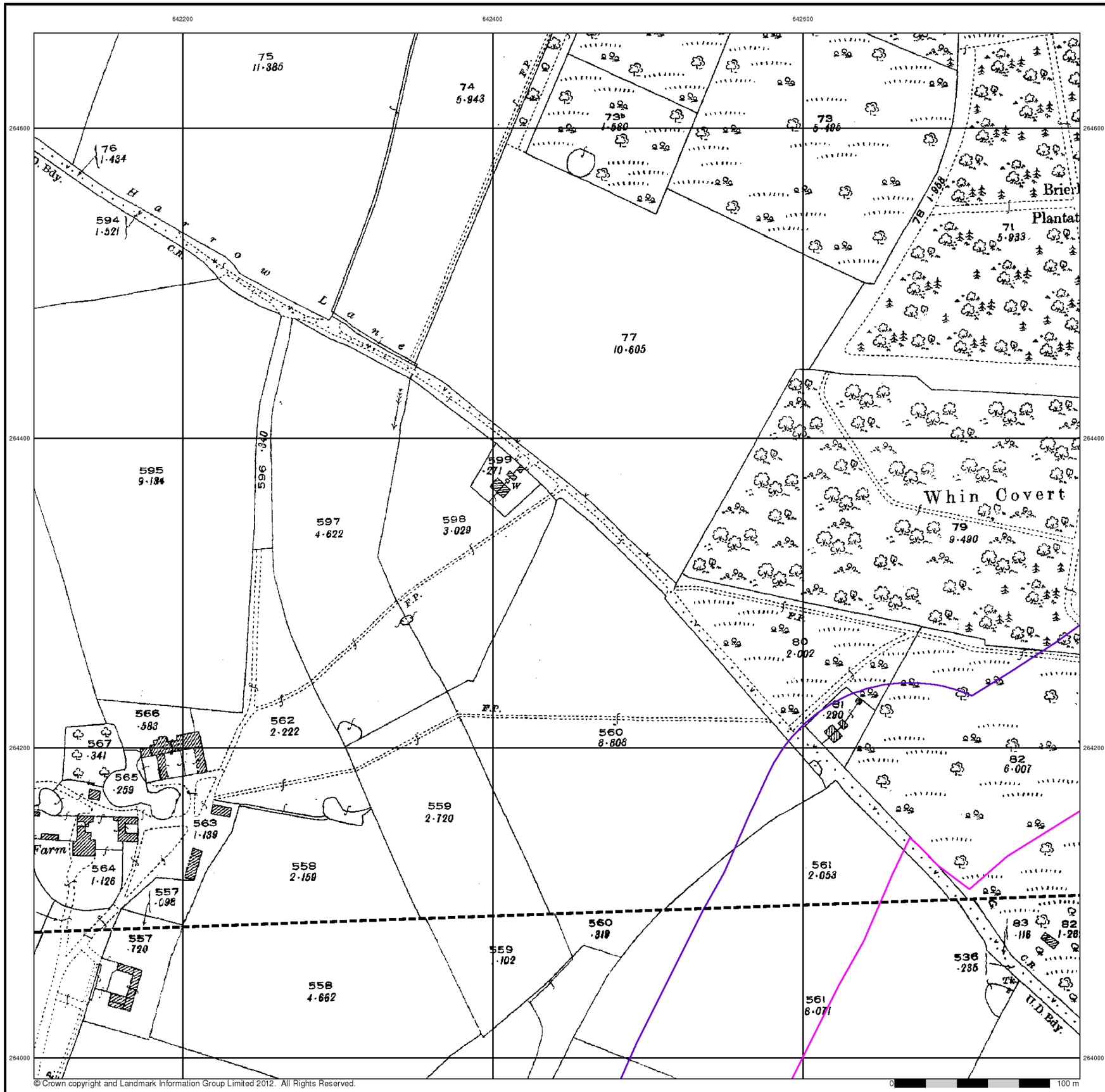

amec

Suffolk

Published 1927

Source map scale - 1:2,500

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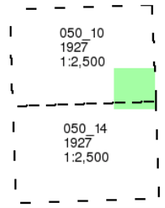
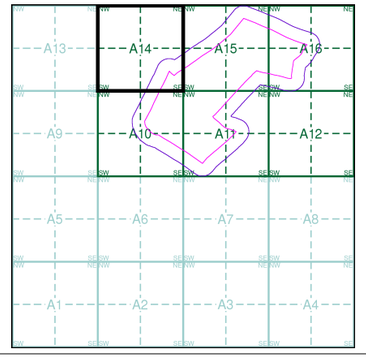
Map Name(s) and Date(s)



Historical Map - Segment A14



Order Details

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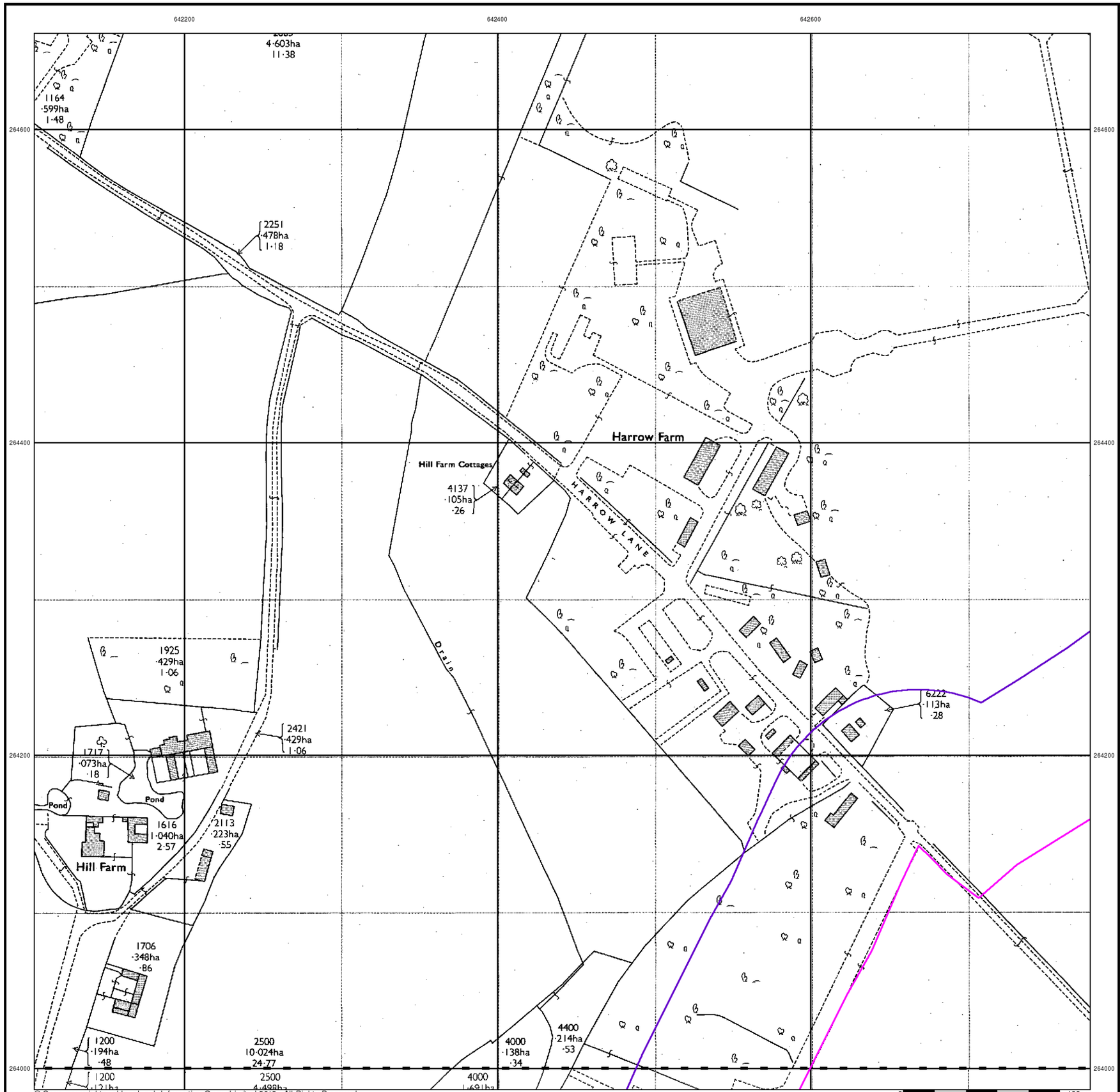
Site Details

[redacted]

Landmark® Information Group

[redacted]



amec

Ordnance Survey Plan

Published 1971

Source map scale - 1:2,500

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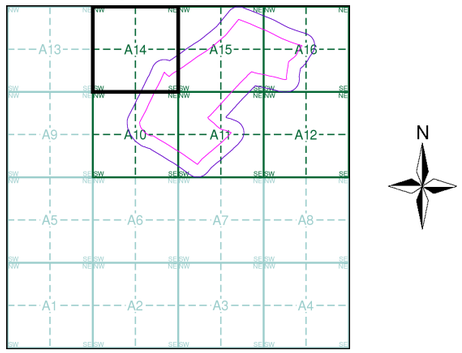
Map Name(s) and Date(s)

TM4264
1971
1:2,500

TM4263
1971
1:2,500

Historical Map - Segment A14



Order Details

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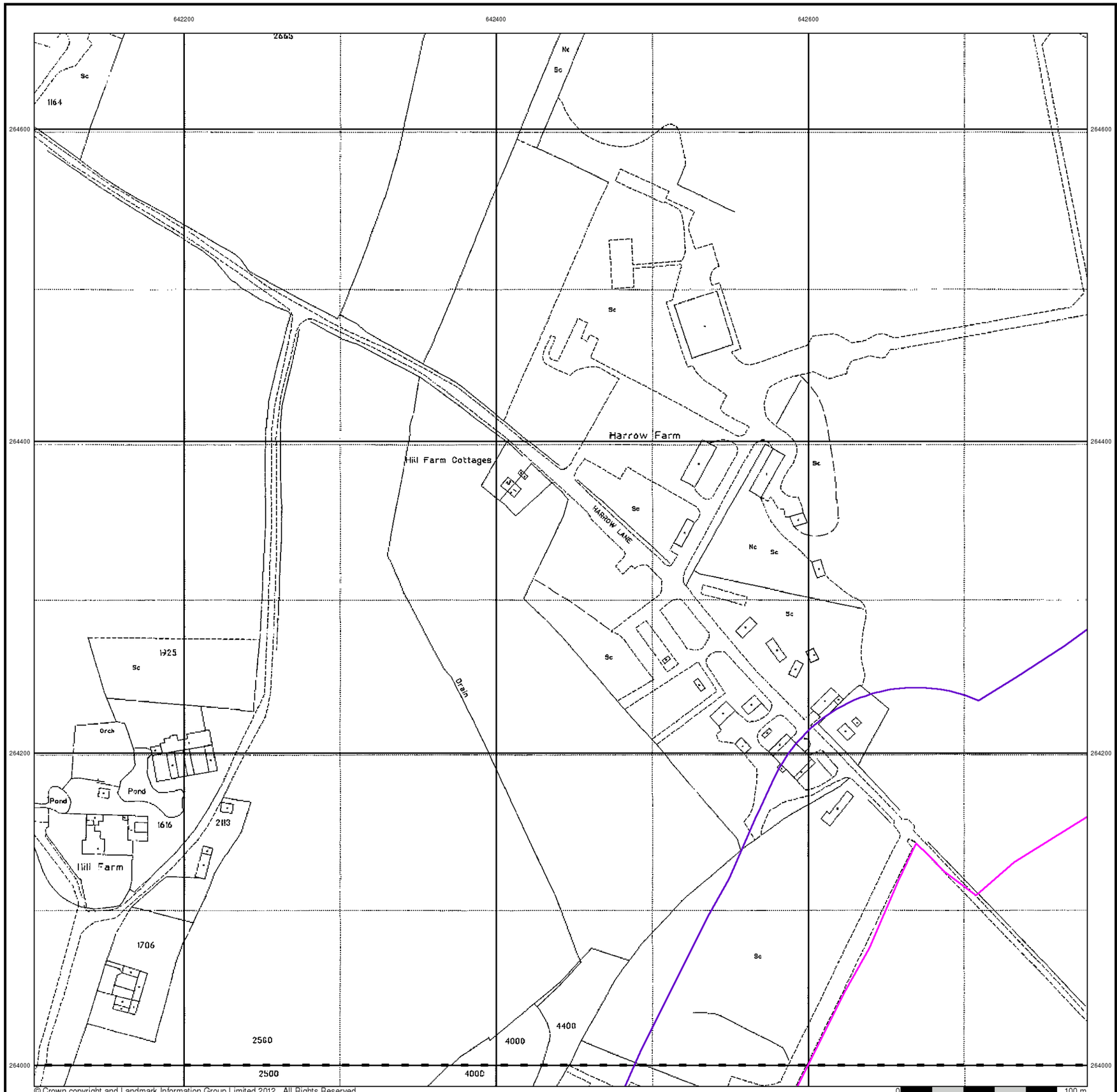
Site Details

[redacted]

Landmark Information Group

[redacted]



amec

Large-Scale National Grid Data

Published 1995

Source map scale - 1:2,500

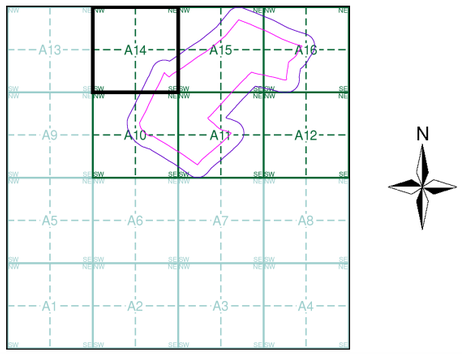
[illegible]

Map Name(s) and Date(s)

TM4264 1995 1:2,500

TM4263 1995 1:2,500

Historical Map - Segment A14



Order Details

[illegible]

Site Details

[illegible]

Landmark Information Group

[illegible]

Historical Mapping Legends

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

Quarry — Gravel Pit — Sand Pit
Clay Pit — Shingle — Refuse Heap
Sloping Masonry — Flat Rock
Marsh — Reeds — Osiers
Rough Pasture — Furze — Wood
Mixed Wood — Brushwood — Orchard
Fir — Ford — Stepping Stones
Ferry — Waterfall — Lock

	Trig. Station	507	Altitude at Trig. Station
B.M. 325·9	Bench Mark	342	Surface Level
	Arrow denotes flow of water		Antiquities (site of)

Cutting — Embankment
Railway crossing Road — Level Crossing — Road crossing Railway
Railway crossing River or Canal — Road over single stream — Road over River or Canal

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)

BP BS	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	*Sl.*	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

Inactive Quarry, Chalk Pit or Clay Pit — Active Quarry, Chalk Pit or Clay Pit
Rock — Boulders
Cliff — Slopes (Top)
Roofed Building — Glazed Roof Building
Sloping Masonry (Top) — Archway
Non-Coniferous Tree (surveyed) — Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed) — Coniferous Trees (not surveyed)
Orchard Tree — Scrub — Bracken
Coppice, Osier — Reeds — Marsh, Saltings
Rough Grassland — Heath — Culvert
Direction of water flow — B M Bench Mark — Antiquity (site of)
Cave Entrance — Triangulation Station — Electricity Pylon
E T L — Electricity Transmission Line

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County & Civil Parish Boundary
Civil Parish Boundary
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L B Bdy — London Borough Boundary
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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

Cliff — Slopes (Top)
Rock — Rock (scattered)
Boulders — Boulders (scattered)
Positioned Boulder — Scree
Non-Coniferous Tree (surveyed) — Coniferous Tree (surveyed)
Non-Coniferous Trees (not surveyed) — Coniferous Trees (not surveyed)
Orchard Tree — Scrub — Bracken
Coppice, Osier — Reeds — Marsh, Saltings
Rough Grassland — Heath — Culvert
Direction of water flow — Triangulation Station — Antiquity (site of)
E T L — Electricity Transmission Line — Electricity Pylon
BM 231.60m — Bench Mark — Buildings with Building Seed
Roofed Building — Glazed Roof Building

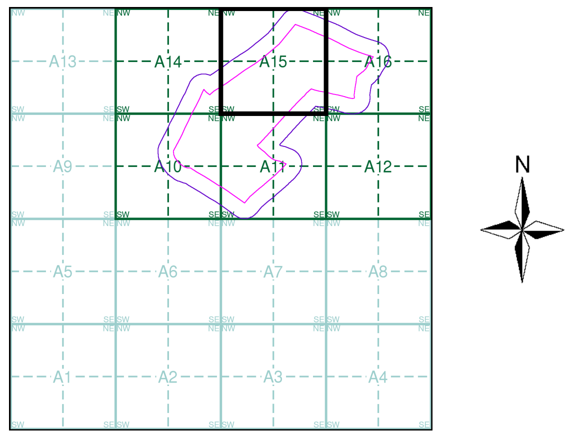
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1971	5
Additional SIMs	1:2,500	1988	6
Large-Scale National Grid Data	1:2,500	1995	7

Historical Map - Segment A15



Order Details

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A

Site Details

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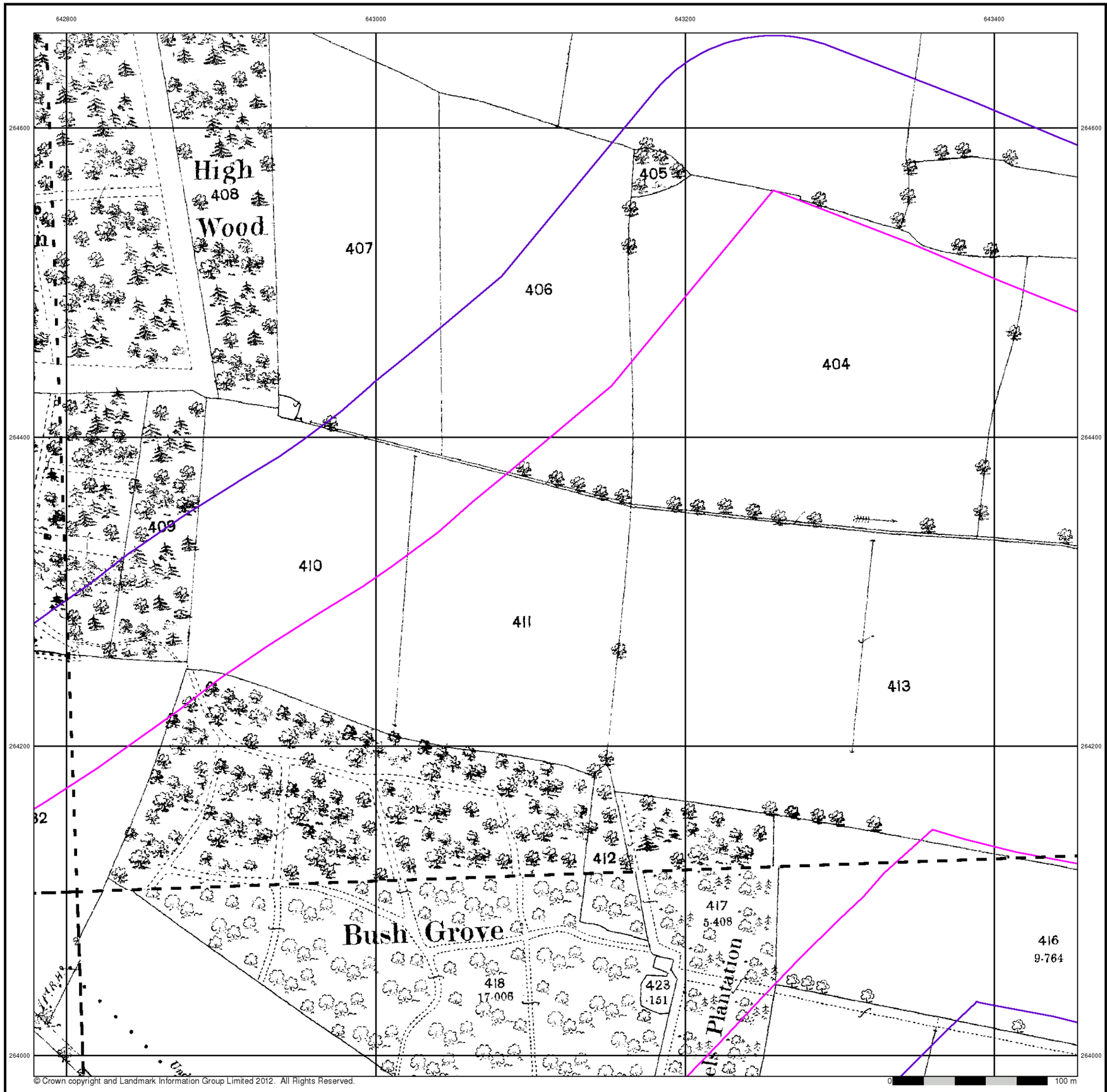


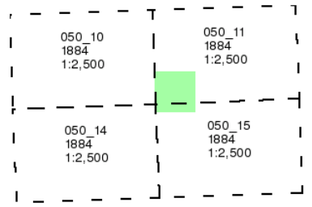
amec

Suffolk

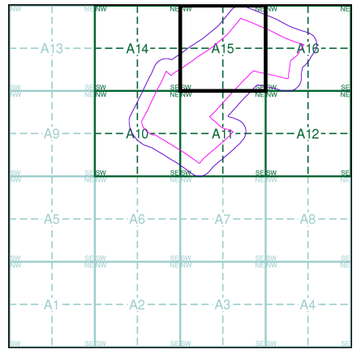
Published 1884

Source map scale - 1:2,500

Map Name(s) and Date(s)



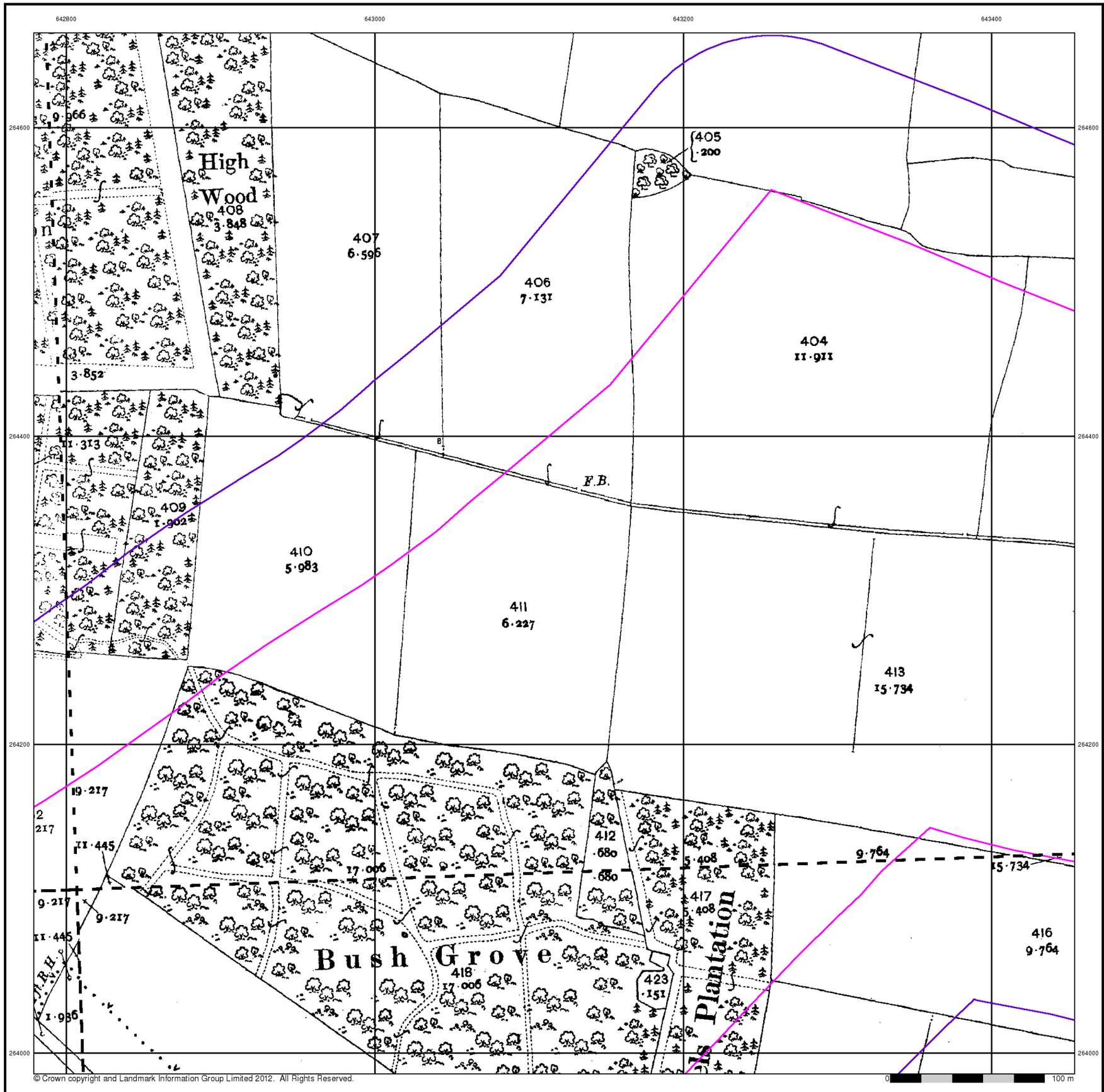
Historical Map - Segment A15



Order Details

Site Details

Landmark Information Group



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amec

Suffolk

Published 1904

Source map scale - 1:2,500

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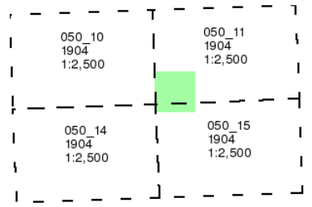
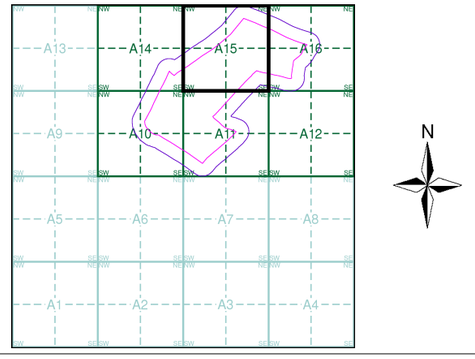
Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

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Site Details

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Landmark Information Group

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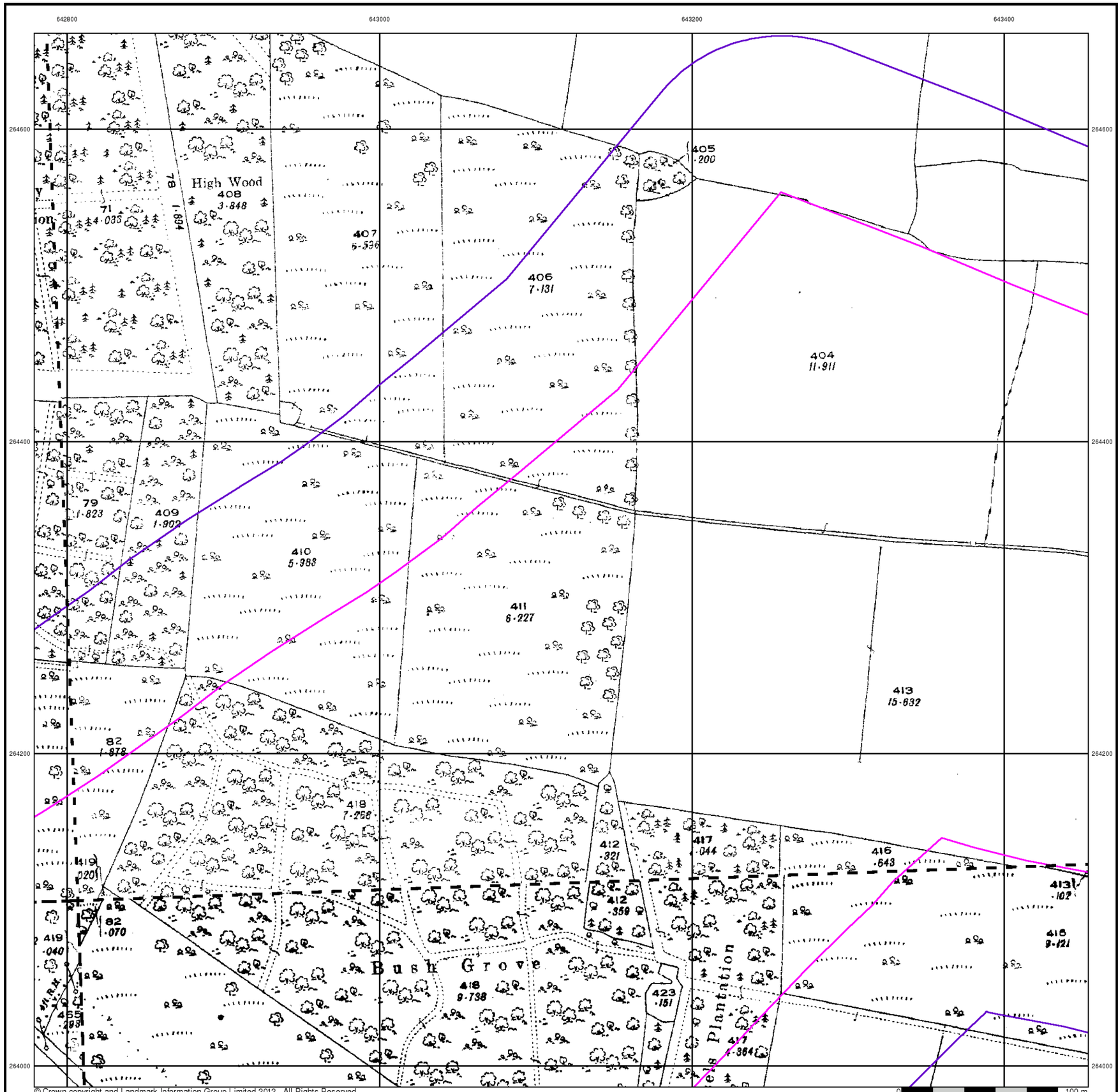

amec

Suffolk

Published 1927

Source map scale - 1:2,500

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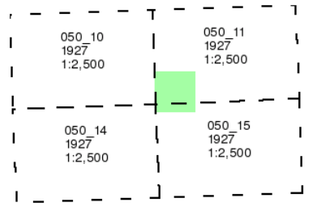
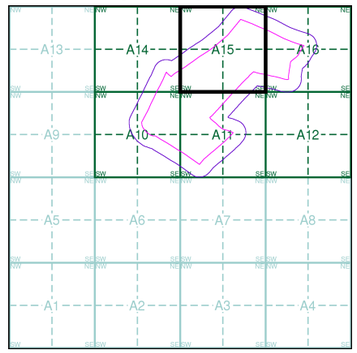
Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

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Site Details

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Landmark Information Group

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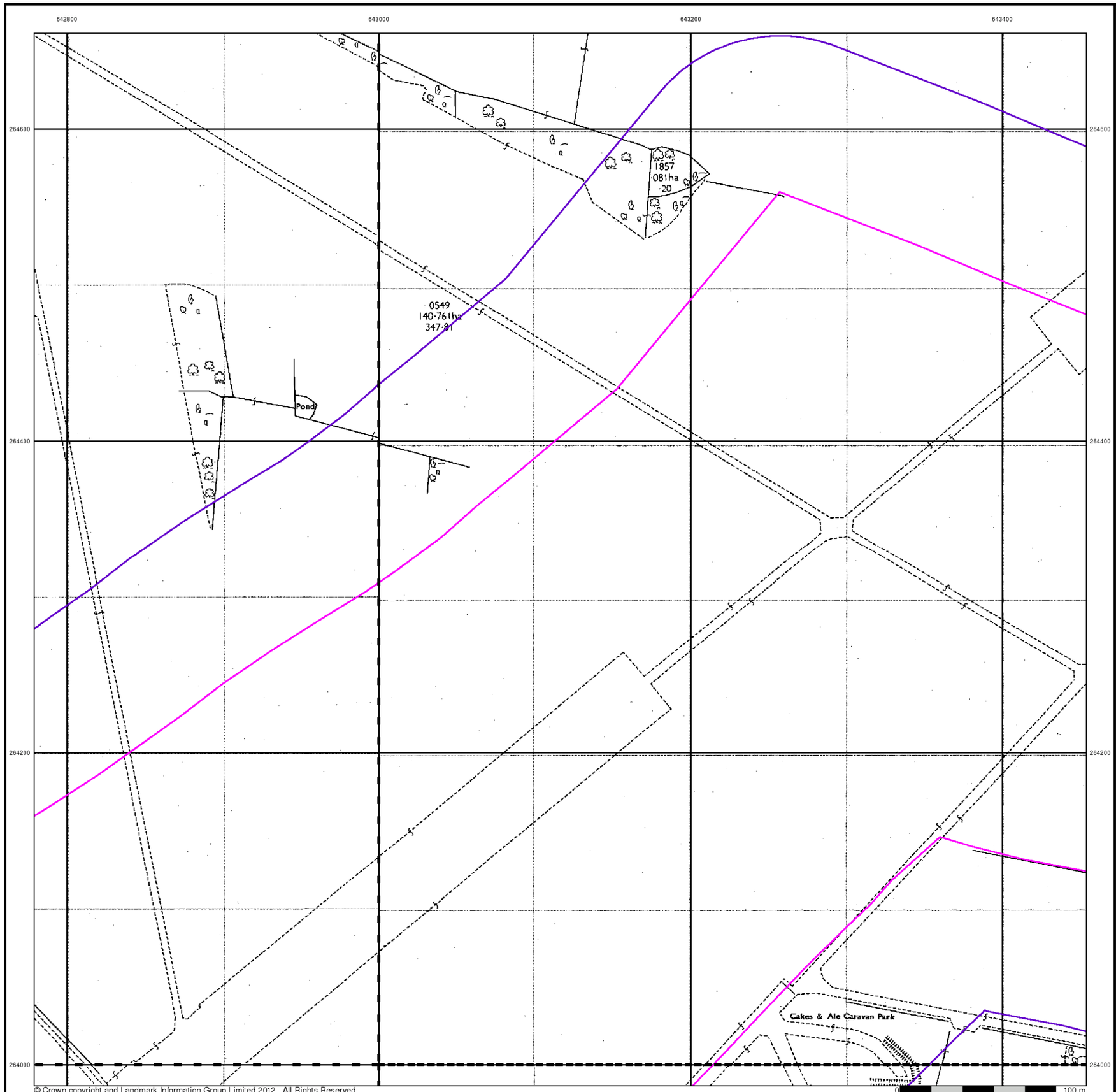

amec

Ordnance Survey Plan

Published 1971

Source map scale - 1:2,500

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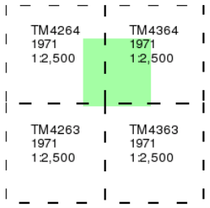
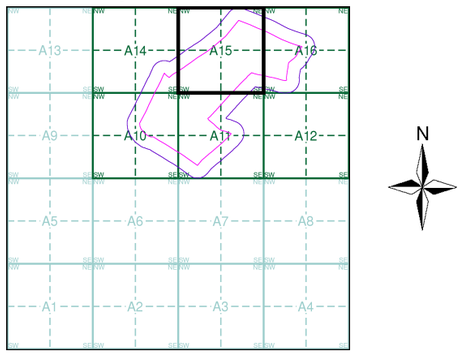
Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

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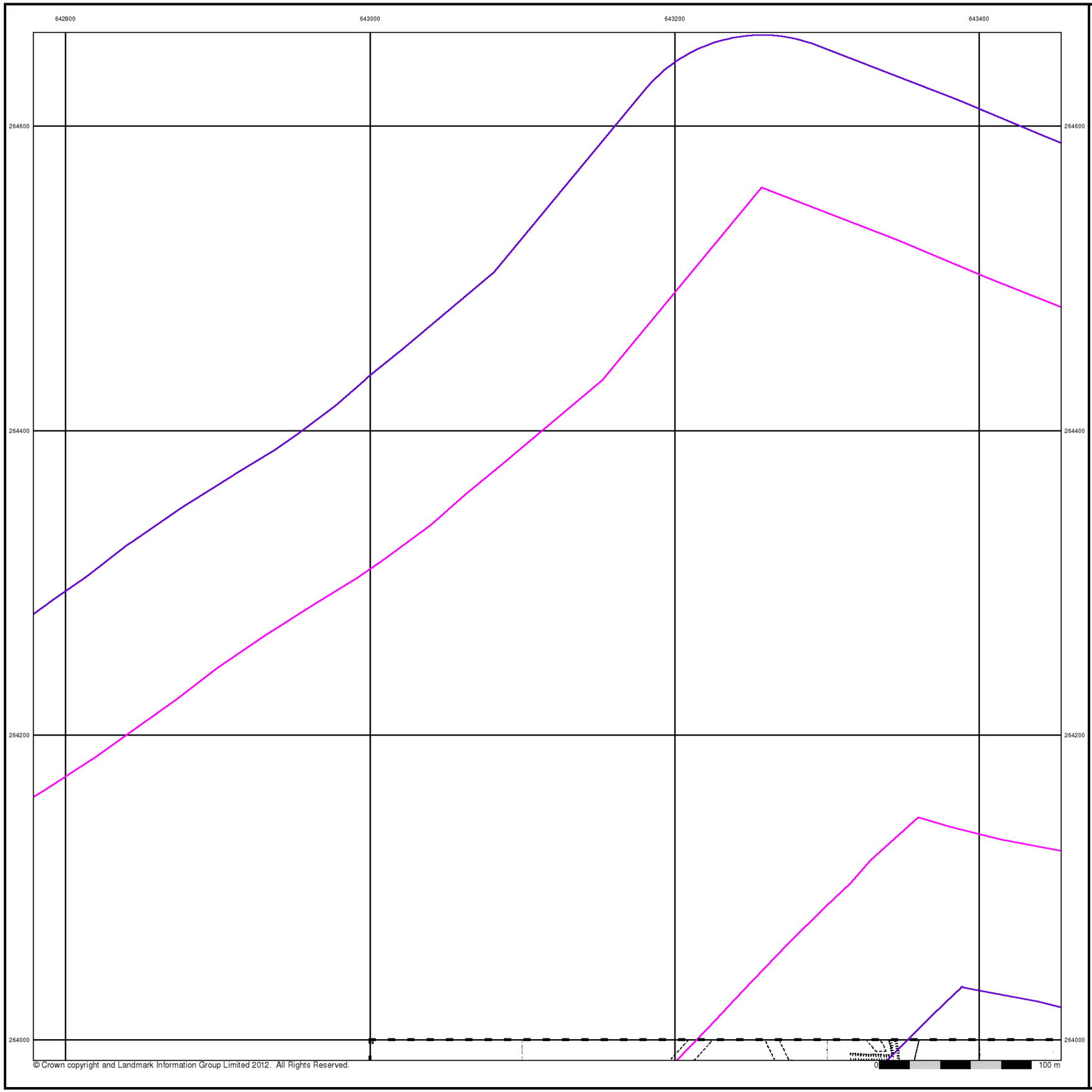
Site Details

[redacted]

Landmark® Information Group

[redacted]

[redacted]



Additional SIMs

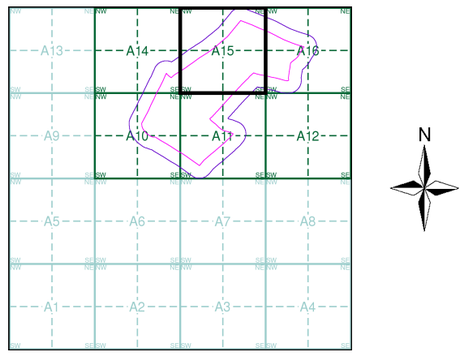
Published 1988

Source map scale - 1:2,500

Map Name(s) and Date(s)

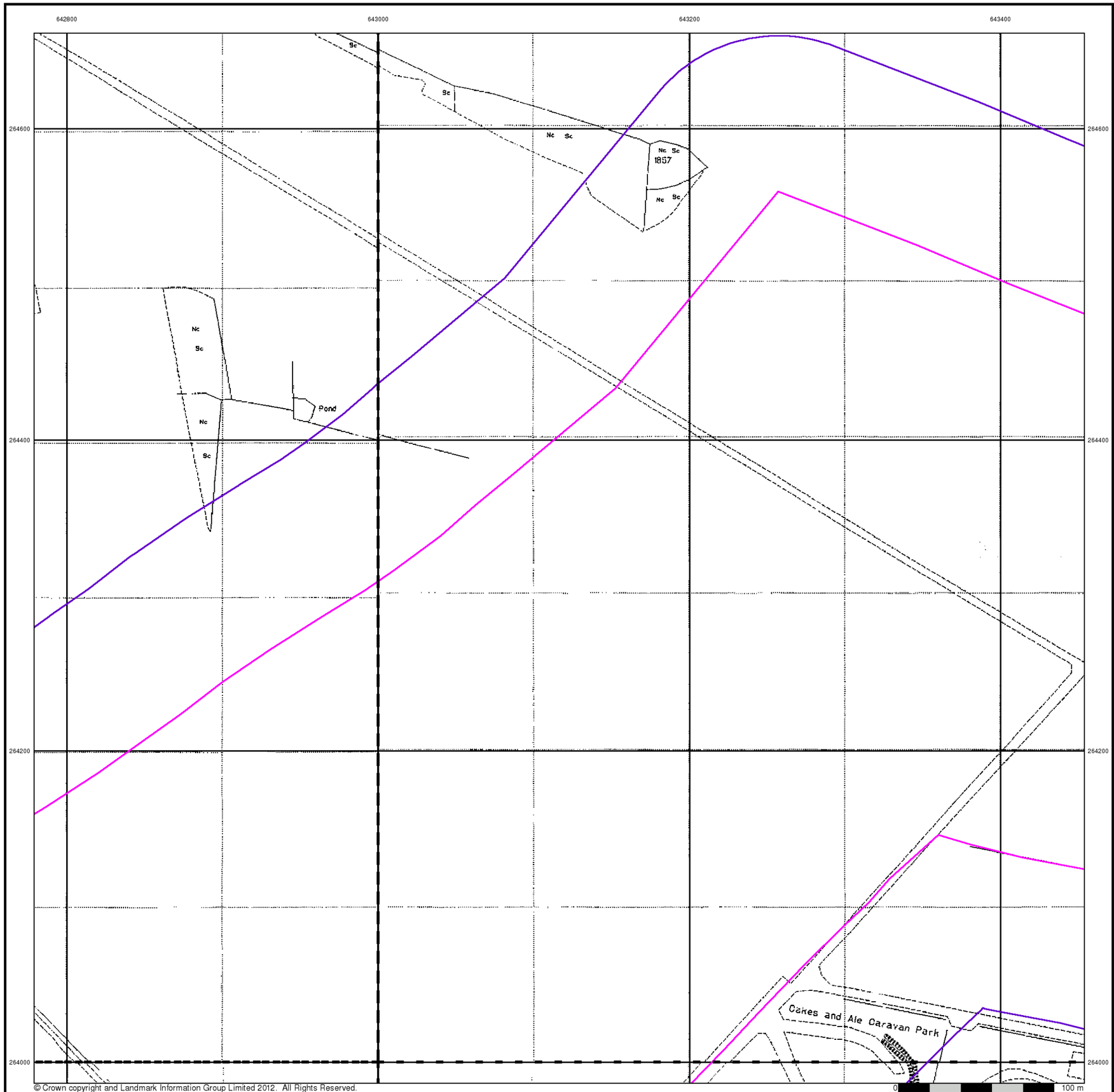
TM4363
1988
1:2,500

Historical Map - Segment A15



Order Details

Site Details



amec

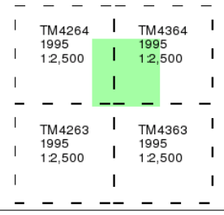
Large-Scale National Grid Data

Published 1995

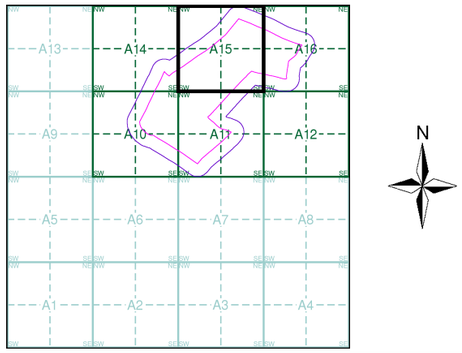
Source map scale - 1:2,500

[illegible]

Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

[illegible]

Site Details

[illegible]

Landmark Information Group

[illegible]

Historical Mapping Legends

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

Quarry — Gravel Pit — Sand Pit

Clay Pit — Shingle — Refuse Heap

Sloping Masonry — Flat Rock

Marsh — Reeds — Osiers

Rough Pasture — Furze — Wood

Mixed Wood — Brushwood — Orchard

Fir — Ford — Stepping Stones

Ferry — Waterfall — Lock

Trig. Station — 507 Altitude at Trig. Station

B.M.325·9 Bench Mark — 342 Surface Level

Arrow denotes flow of water — Antiquities (site of)

Cutting — Embankment

Railway crossing Road — Level Crossing — Road crossing Railway

Railway crossing River or Canal — Road over single stream (B.R.) — Road over River or Canal

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)

BP BS	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	Sl.	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

Inactive Quarry, Chalk Pit or Clay Pit — Active Quarry, Chalk Pit or Clay Pit

Rock — Boulders

Cliff — Slopes (Top)

Roofed Building — Glazed Roof Building

Sloping Masonry (Top) — Archway

Non-Coniferous Tree (surveyed) — Coniferous Tree (surveyed)

Non-Coniferous Trees (not surveyed) — Coniferous Trees (not surveyed)

Orchard Tree — Scrub — Bracken

Coppice, Osier — Reeds — Marsh, Saltings

Rough Grassland — Heath — Culvert

Direction of water flow — B M Bench Mark — Antiquity (site of)

Cave Entrance — Triangulation Station — Electricity Pylon

E T L — Electricity Transmission Line

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

Cliff — Slopes (Top)

Rock — Rock (scattered)

Boulders — Boulders (scattered)

Positioned Boulder — Scree

Non-Coniferous Tree (surveyed) — Coniferous Tree (surveyed)

Non-Coniferous Trees (not surveyed) — Coniferous Trees (not surveyed)

Orchard Tree — Scrub — Bracken

Coppice, Osier — Reeds — Marsh, Saltings

Rough Grassland — Heath — Culvert

Direction of water flow — Triangulation Station — Antiquity (site of)

E T L — Electricity Transmission Line — Electricity Pylon

BM 231.60m — Bench Mark — Buildings with Building Seed

Roofed Building — Glazed Roof Building

Civil parish/community boundary

District boundary

County boundary

Boundary post/stone

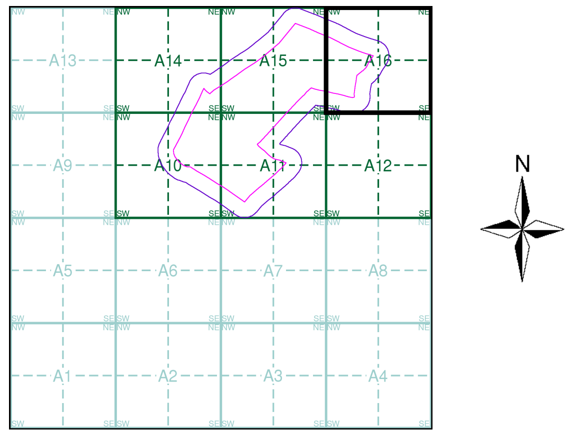
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)

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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:2,500	1884	2
Suffolk	1:2,500	1904	3
Suffolk	1:2,500	1927	4
Ordnance Survey Plan	1:2,500	1970 - 1971	5
Supply of Unpublished Survey Information	1:2,500	1975	6
Additional SIMs	1:2,500	1988 - 1989	7
Large-Scale National Grid Data	1:2,500	1995	8

Historical Map - Segment A16



Order Details

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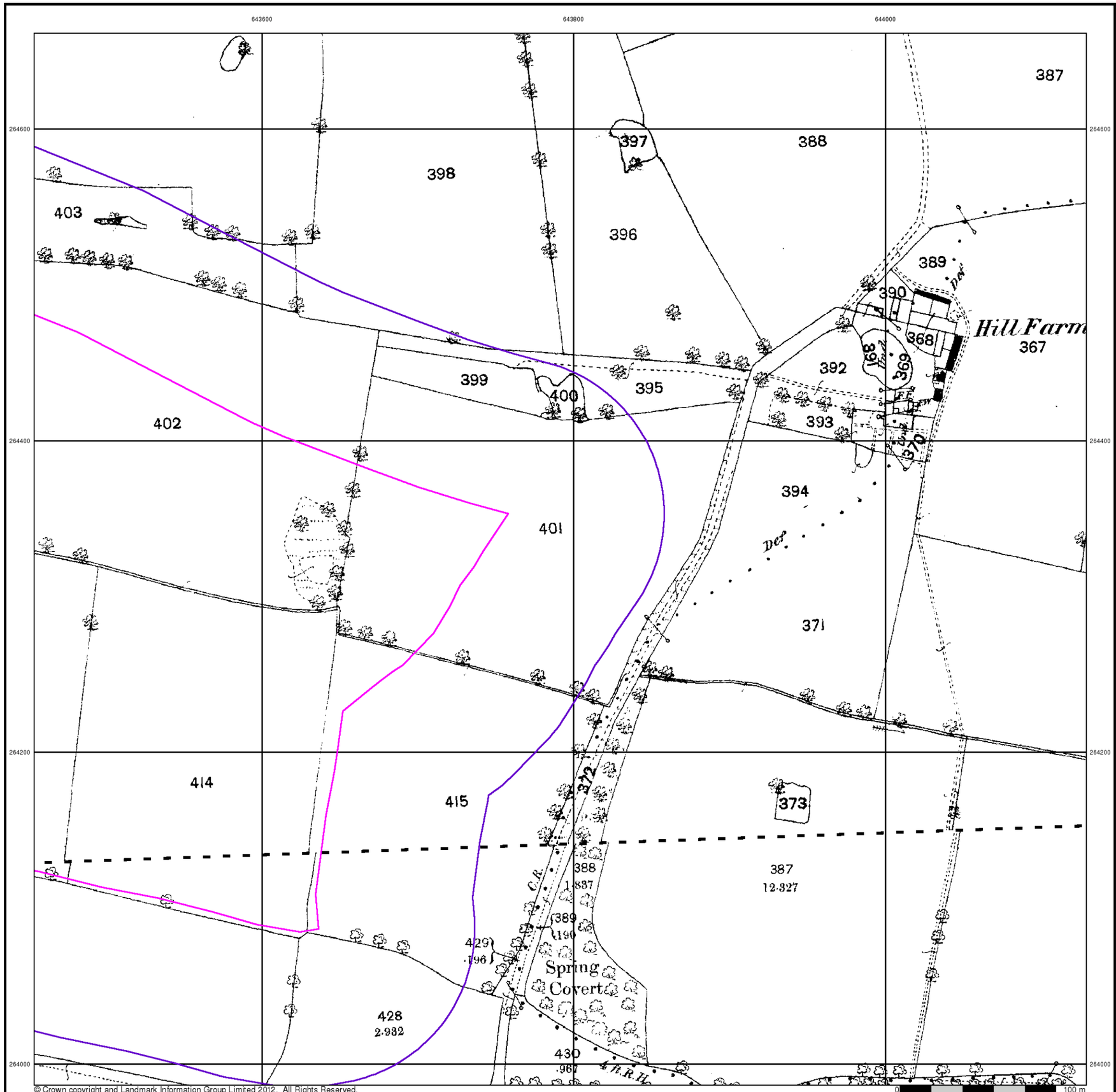


amec

Suffolk

Published 1884

Source map scale - 1:2,500

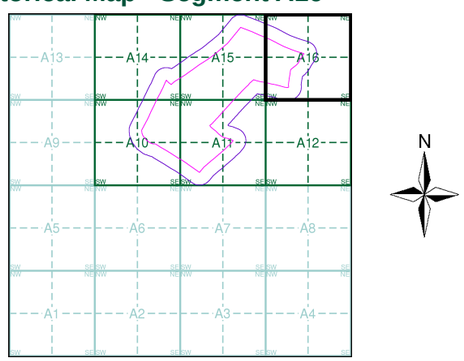
[illegible]

Map Name(s) and Date(s)

050_11
1884
1:2,500

050_15
1884
1:2,500

Historical Map - Segment A16



Order Details

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Site Details

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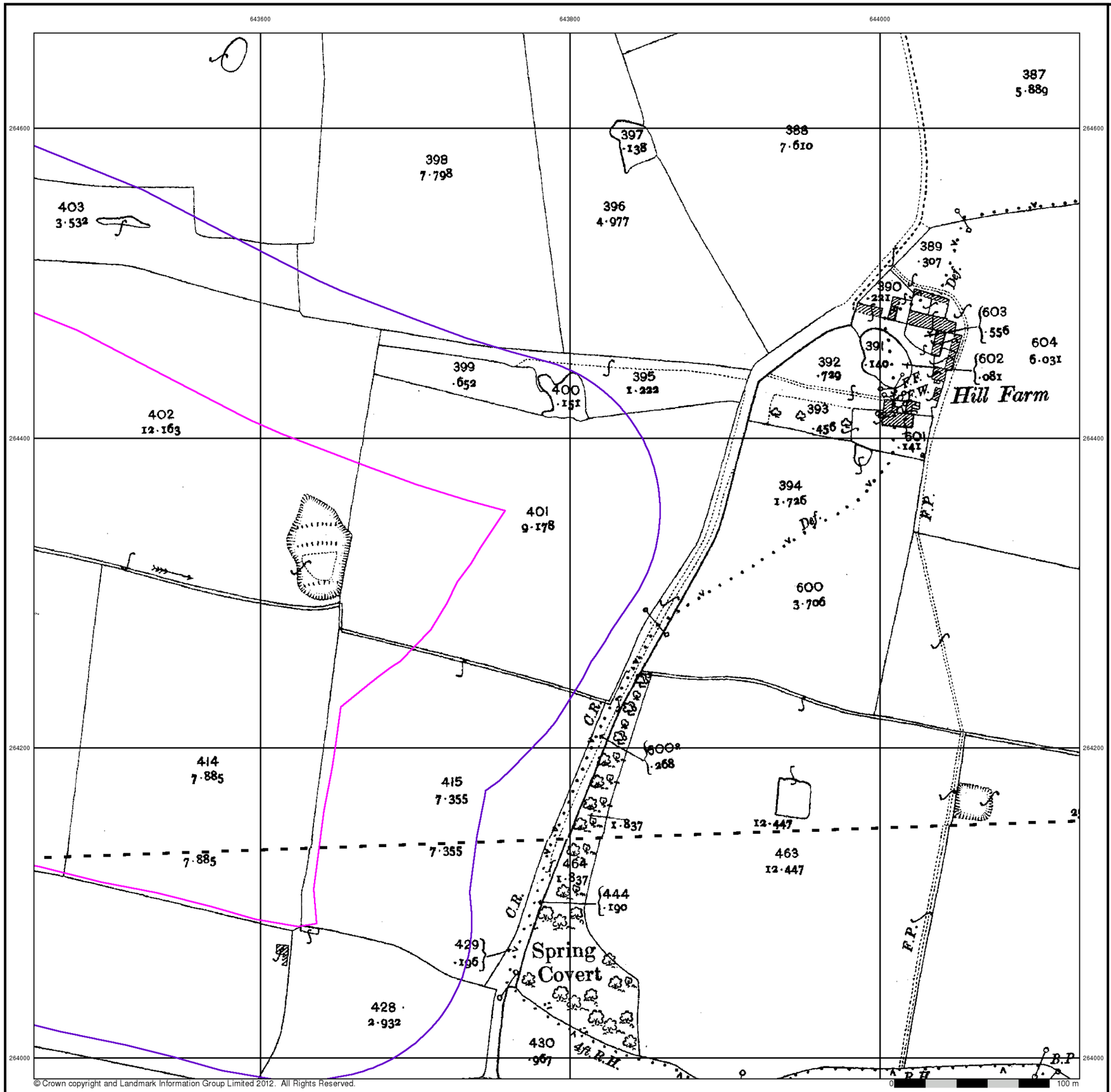
Landmark Information Group

[illegible]



amec

Suffolk

Published 1904

Source map scale - 1:2,500

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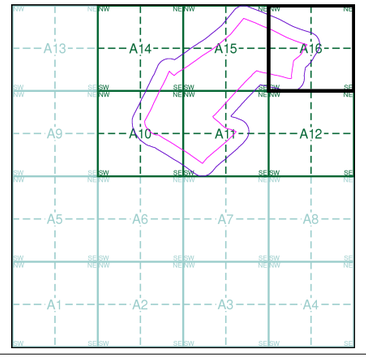
Map Name(s) and Date(s)

050_11
1904
1:2,500

050_15
1904
1:2,500

Historical Map - Segment A16



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Site Details

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Landmark Information Group

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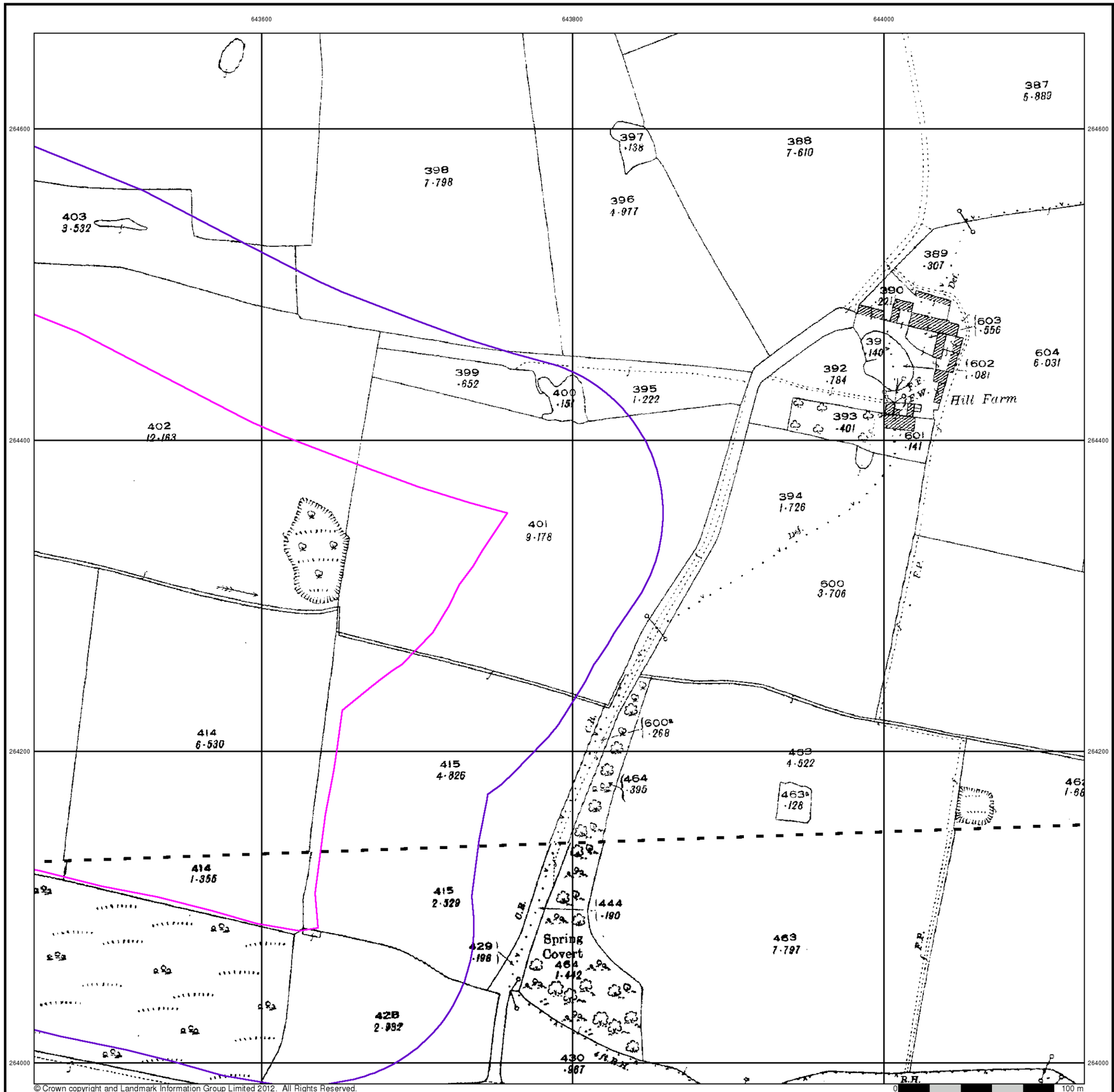

amec

Suffolk

Published 1927

Source map scale - 1:2,500

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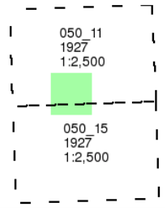
Map Name(s) and Date(s)



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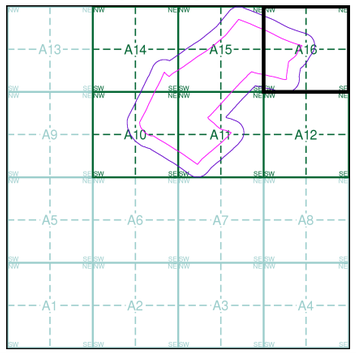

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Site Details

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Landmark Information Group

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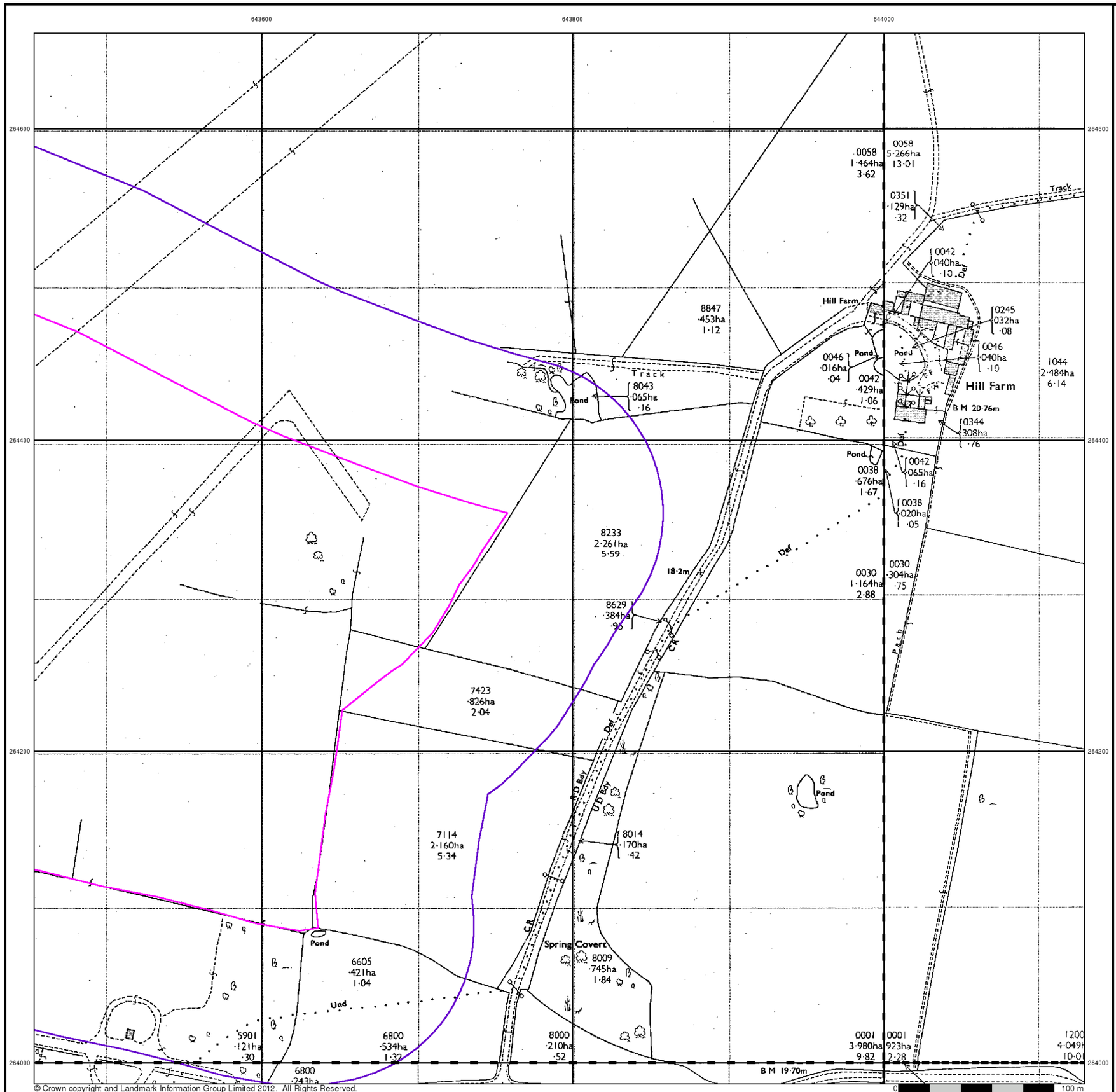

amec

Ordnance Survey Plan

Published 1970 - 1971

Source map scale - 1:2,500

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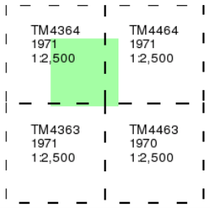
Map Name(s) and Date(s)



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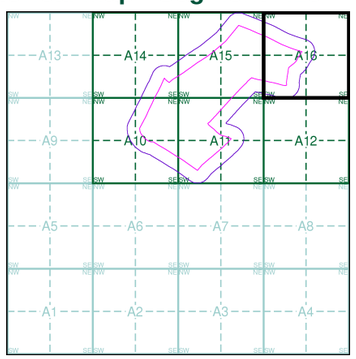

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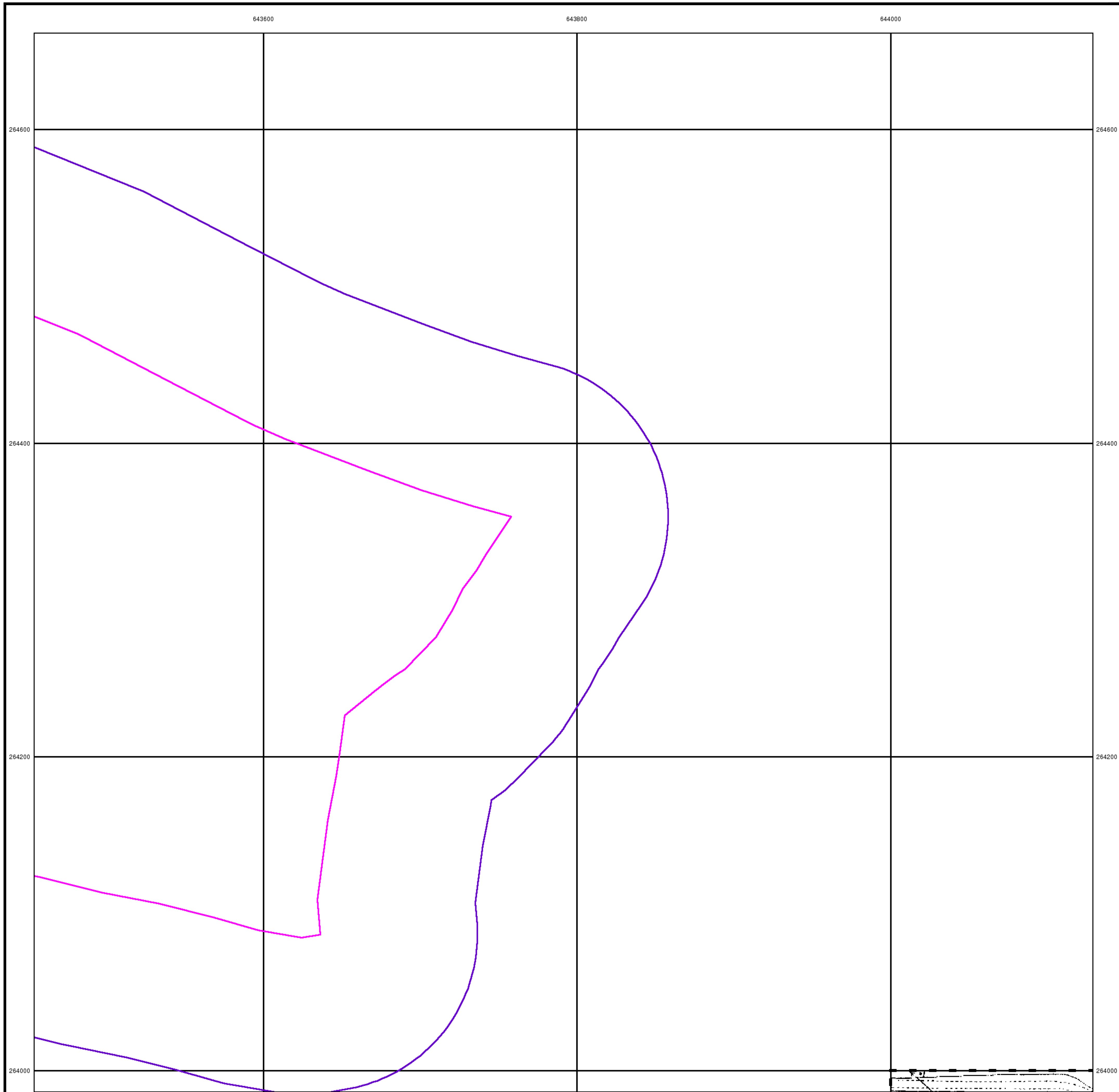
Landmark Information Group

[redacted]

[redacted]

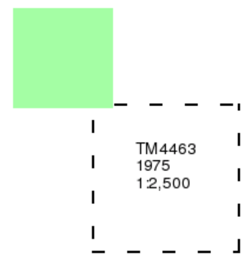


Supply of Unpublished Survey Information

Published 1975

Source map scale - 1:2,500

Map Name(s) and Date(s)



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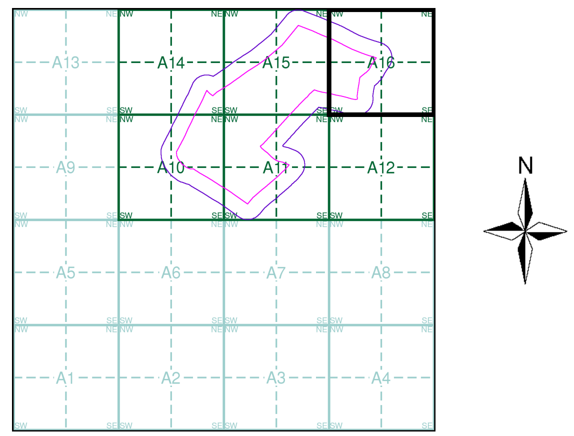

Order Details

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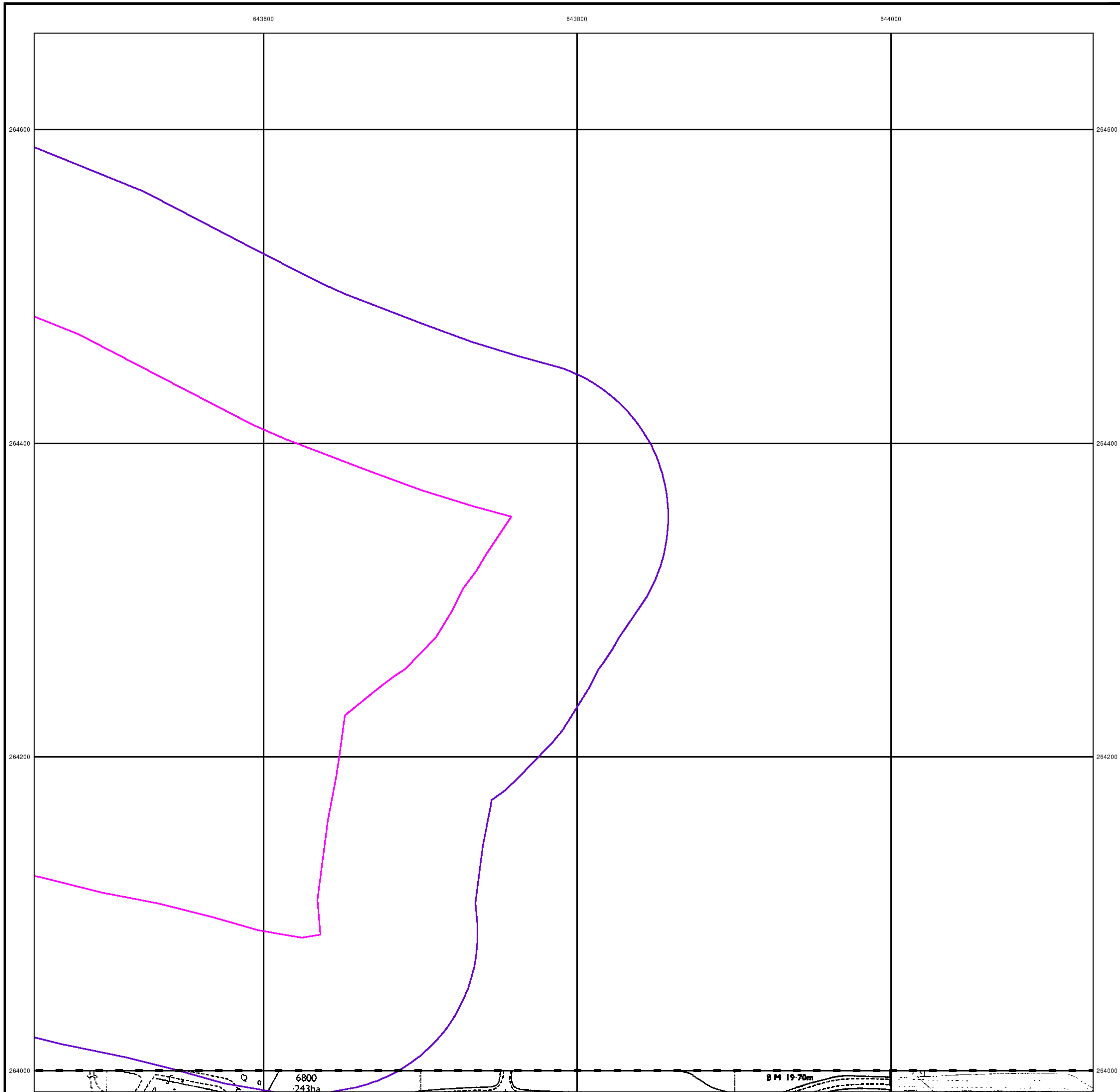
Site Details

Landmark Information Group

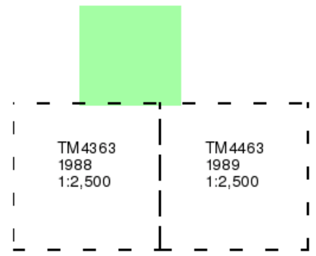


Additional SIMs

Published 1988 - 1989

Source map scale - 1:2,500

Map Name(s) and Date(s)



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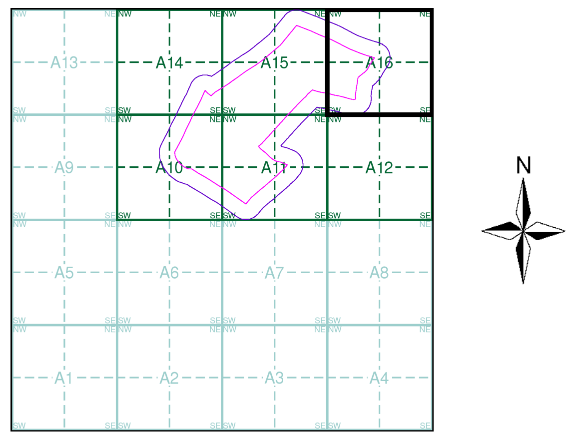

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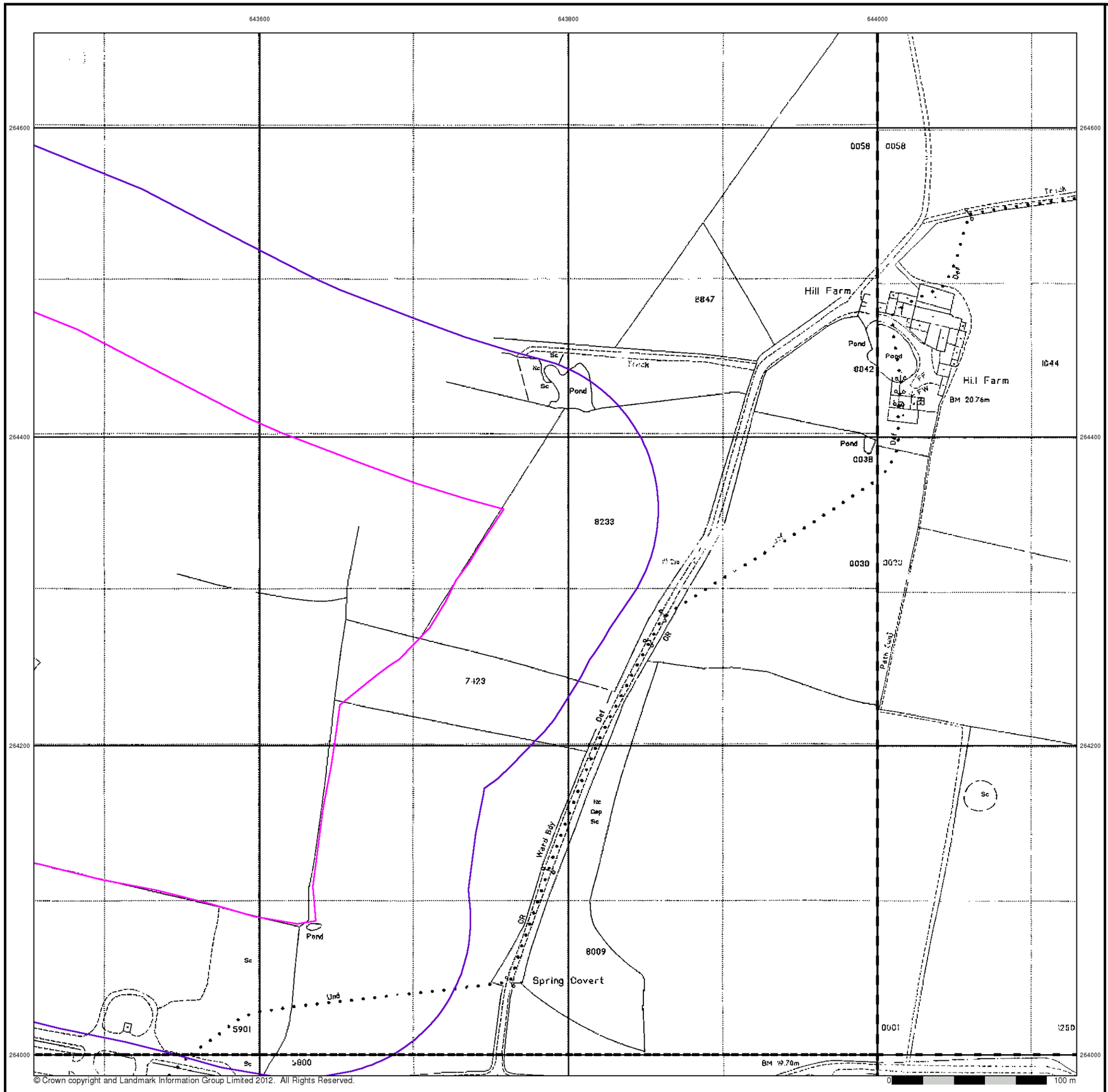
Site Details



amec

Large-Scale National Grid Data

Published 1995

Source map scale - 1:2,500

[illegible]

Map Name(s) and Date(s)

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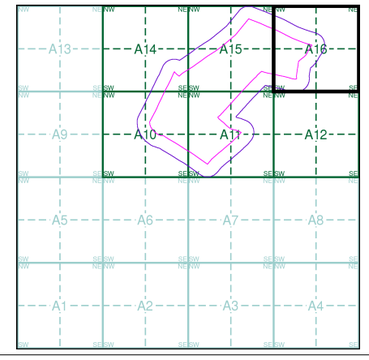
TM4363 1995 1:2,500	TM4463 1995 1:2,500

Historical Map - Segment A16



Order Details

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Site Details

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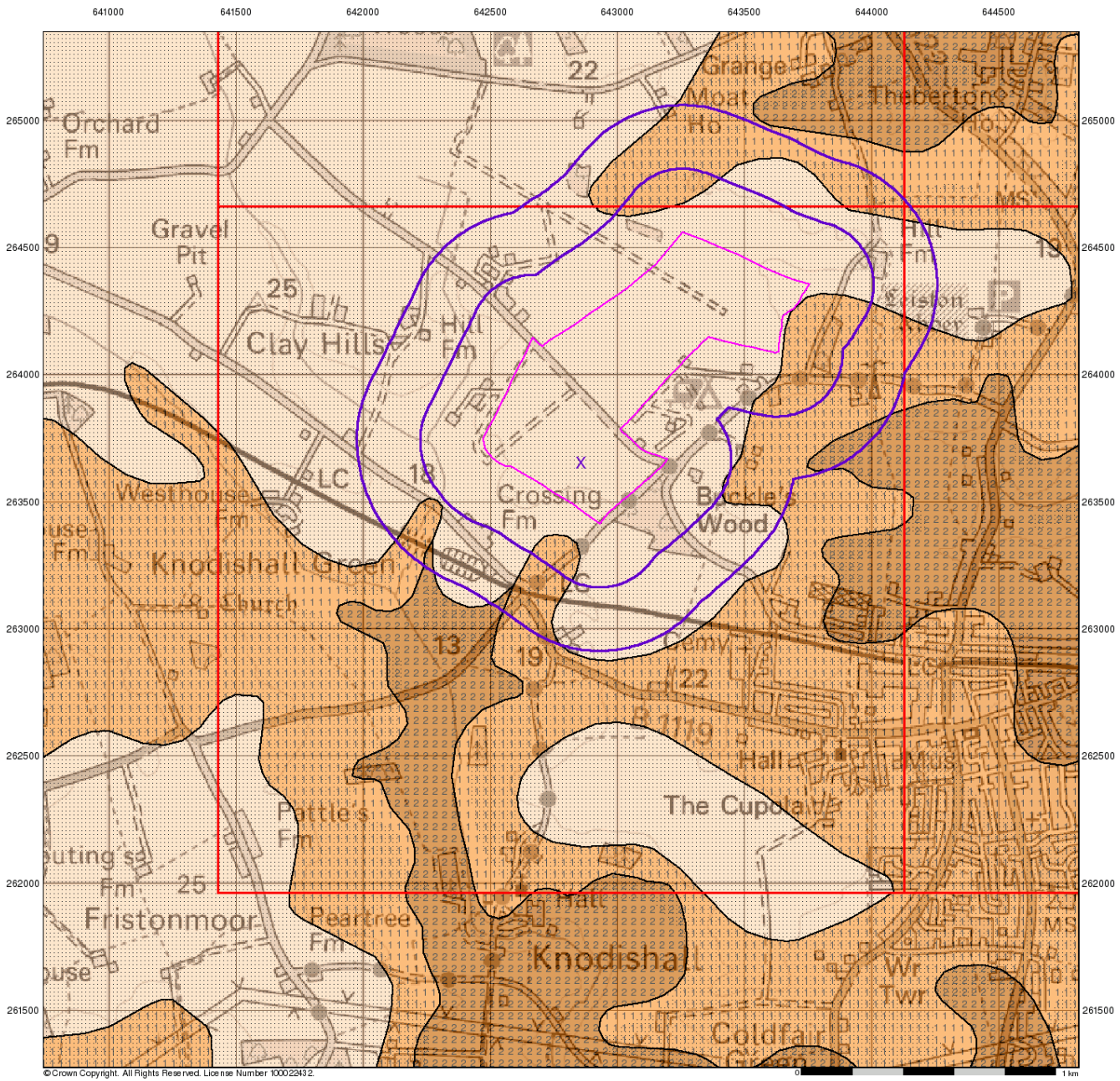
Landmark Information Group

[illegible]



amec

Groundwater Vulnerability

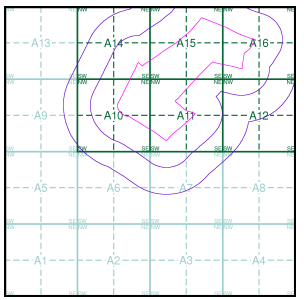
General

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

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice A



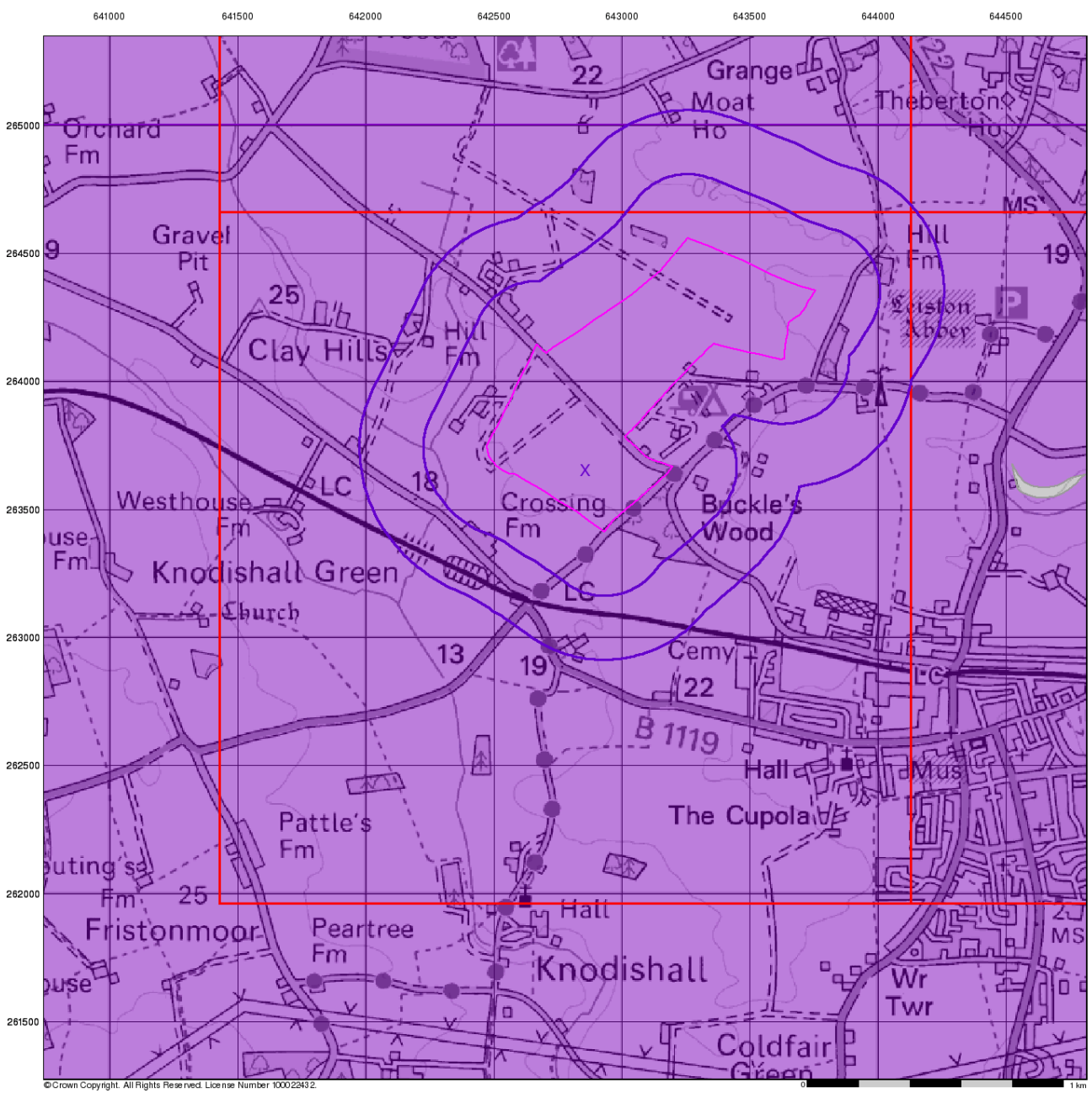
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



Bedrock Aquifer Designation

General

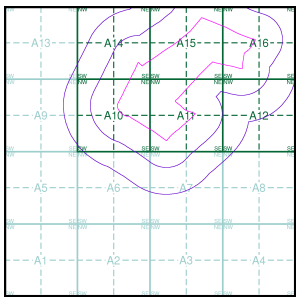
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



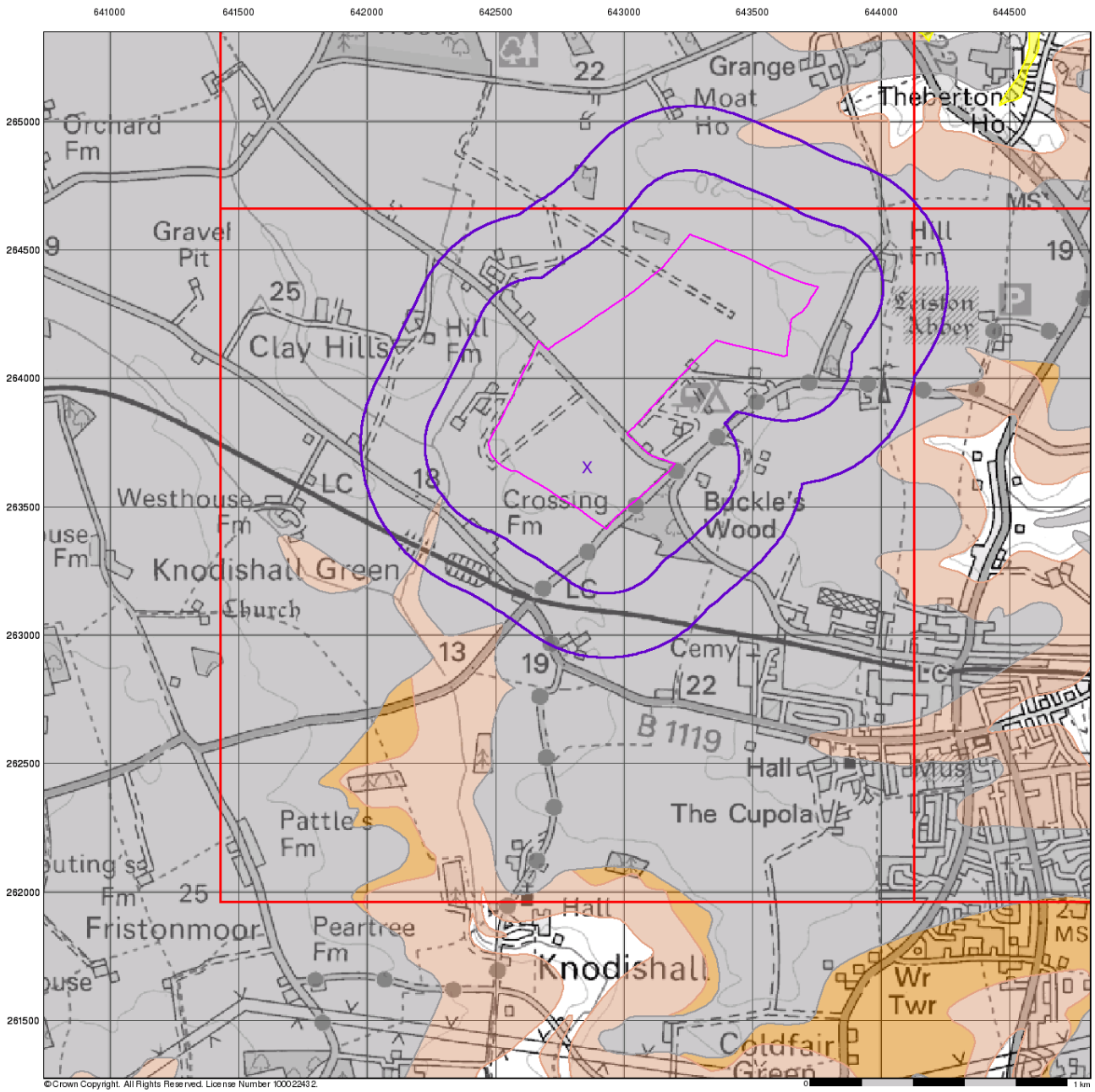
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



amec

Superficial Aquifer Designation

General

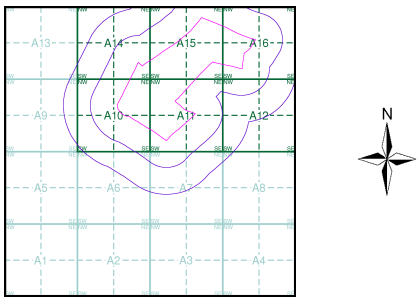
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice A



Order Details

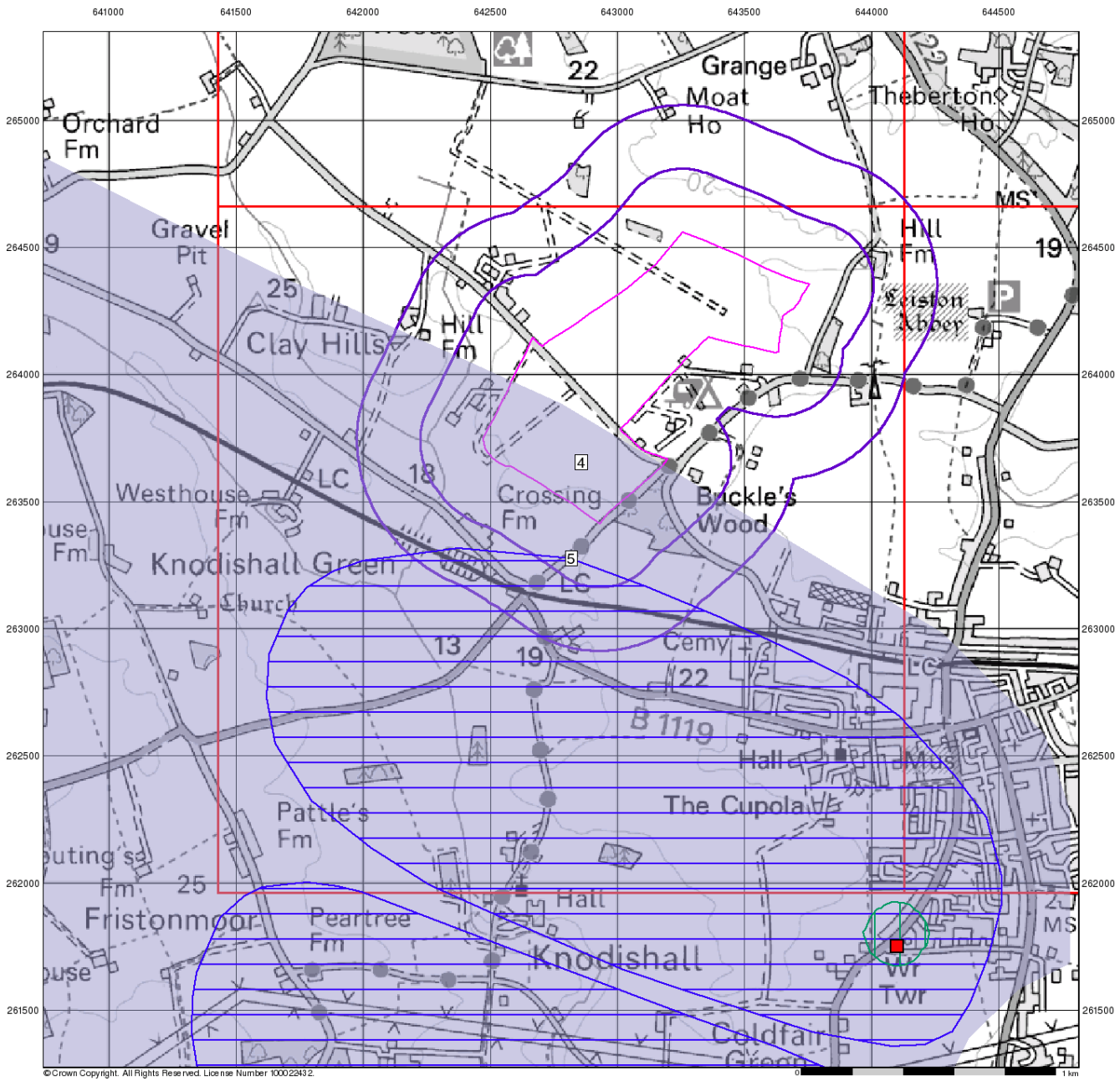
Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

Landmark Information Group

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



amec

Source Protection Zones

General

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

Slice | Map ID

Agency and Hydrological

Source Protection Zone I

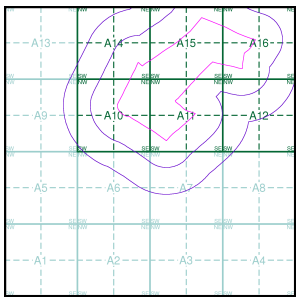
Source Protection Zone II

Source Protection Zone III

Zone of Special Interest

Source Protection Zone Borehole

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

Landmark Information Group

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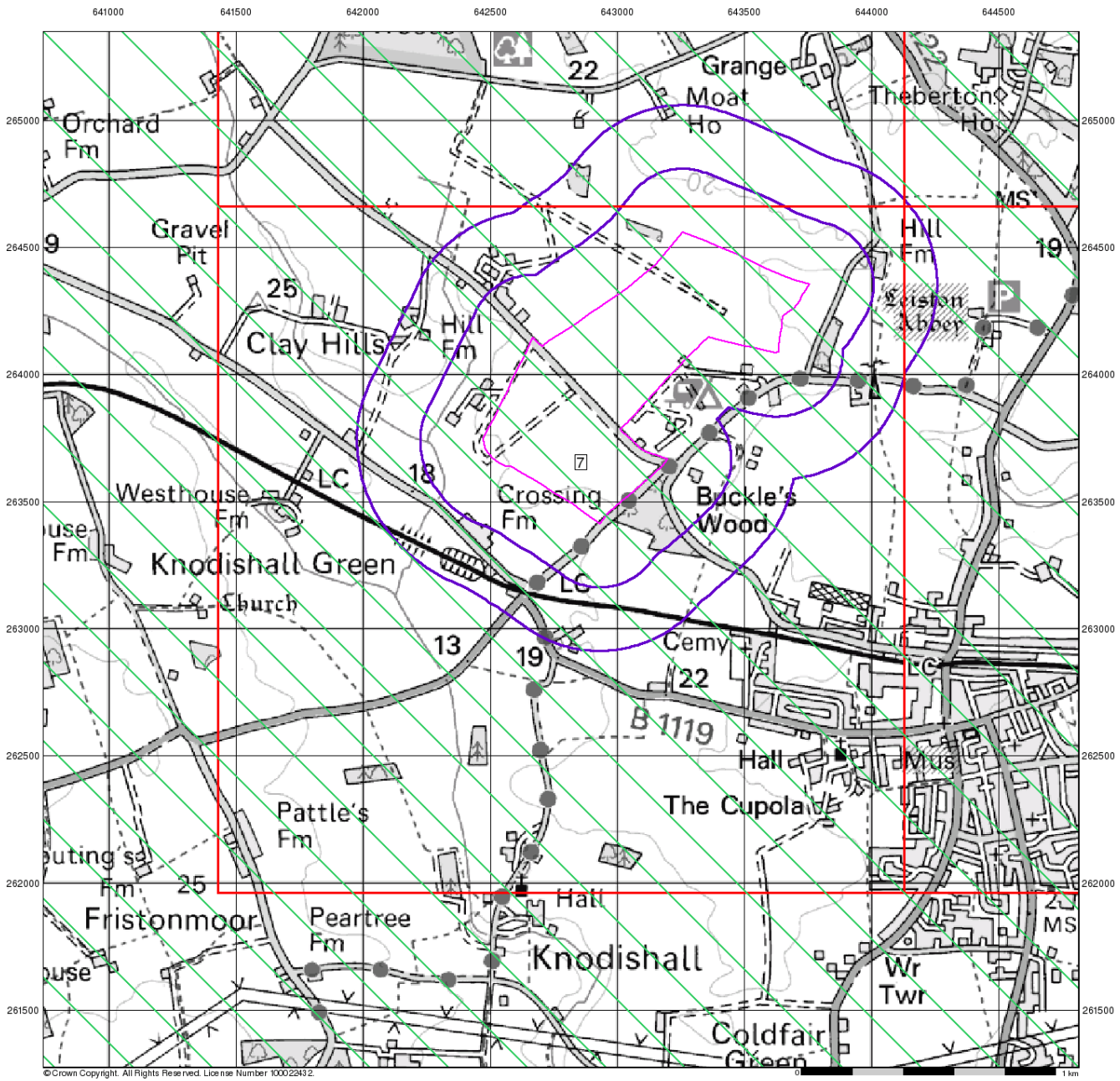
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



Sensitive Land Uses

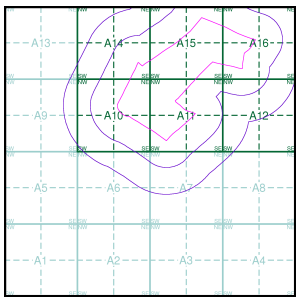
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
40137381_1_1

Customer Reference:
32623

National Grid Reference:
642860, 263650

Slice:
A

Site Area (Ha):
60.79

Search Buffer (m):
500

Site Details:

Site at
Leiston
Suffolk

Client Details:

Miss D Shankar
AMEC Environment & Infrastructure UK Ltd
Unit 1, Long Barn
Village Road
Nercwys
Mold
Flintshire
CH7 4EW

Contents

Report Section	Page Number
Summary	-
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Introduction

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

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

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Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v47.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Agency & Hydrological				
Contaminated Land Register Entries and Notices				
Discharge Consents	pg 1	1		1
Enforcement and Prohibition Notices				
Integrated Pollution Controls				
Integrated Pollution Prevention And Control				
Local Authority Integrated Pollution Prevention And Control				
Local Authority Pollution Prevention and Controls				
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 1	Yes		
Pollution Incidents to Controlled Waters				
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality	pg 1			1
River Quality Biology Sampling Points	pg 1			1
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions	pg 2			(*2)
Water Industry Act Referrals				
Groundwater Vulnerability	pg 2	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 2	Yes	n/a	n/a
Superficial Aquifer Designations	pg 2	Yes	n/a	n/a
Source Protection Zones	pg 2	1	1	
Extreme Flooding from Rivers or Sea without Defences	pg 2		Yes	n/a
Flooding from Rivers or Sea without Defences				n/a
Areas Benefiting from Flood Defences				n/a
Flood Water Storage Areas				n/a
Flood Defences				n/a
Waste				
BGS Recorded Landfill Sites				
Historical Landfill Sites				
Integrated Pollution Control Registered Waste Sites				
Licensed Waste Management Facilities (Landfill Boundaries)				
Licensed Waste Management Facilities (Locations)				
Local Authority Recorded Landfill Sites				
Registered Landfill Sites				
Registered Waste Transfer Sites				
Registered Waste Treatment or Disposal Sites				

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
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				
Geological				
BGS 1:625,000 Solid Geology	pg 5	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 5	Yes	Yes	Yes
BGS Recorded Mineral Sites				
BGS Urban Soil Chemistry				
BGS Urban Soil Chemistry Averages				
Brine Compensation Area			n/a	n/a
Coal Mining Affected Areas			n/a	n/a
Mining Instability			n/a	n/a
Man-Made Mining Cavities				
Natural Cavities				
Non Coal Mining Areas of Great Britain				n/a
Potential for Collapsible Ground Stability Hazards	pg 6	Yes		n/a
Potential for Compressible Ground Stability Hazards	pg 6		Yes	n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 7	Yes		n/a
Potential for Running Sand Ground Stability Hazards	pg 7	Yes	Yes	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 7	Yes	Yes	n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a
Industrial Land Use				
Contemporary Trade Directory Entries	pg 8			1 (*2)
Fuel Station Entries				

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Sensitive Land Use				
Areas of Adopted Green Belt				
Areas of Unadopted Green Belt				
Areas of Outstanding Natural Beauty				
Environmentally Sensitive Areas				
Forest Parks				
Local Nature Reserves				
Marine Nature Reserves				
National Nature Reserves				
National Parks				
Nitrate Sensitive Areas				
Nitrate Vulnerable Zones	pg 9	1		
Ramsar Sites				
Sites of Special Scientific Interest				
Special Areas of Conservation				
Special Protection Areas				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: F L Redhead & Co Property Type: Arable Farming Location: House Farm, Leiston, Suffolk, Ip16 4tw Authority: Environment Agency, Anglian Region Catchment Area: Catchment 29 Unknown Detail Reference: Gwelf50513 Permit Version: 1 Effective Date: 1st April 1999 Issued Date: 19th May 2000 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Agricultural And Surface Discharge Environment: Onto Land Receiving Water: Groundwater **Status: Deemed Groundwater Regulations Authorisation** Positional Accuracy: Located by supplier to within 100m	A10NE (W)	0	1	642600 263700
2	**Discharge Consents** Operator: Mr & Mrs Snowden Property Type: Sewage Disposal Works - Other Location: Crossing Farm, Saxmundham Road, Leiston, Suffolk, Ip16 4tn Authority: Environment Agency, Anglian Region Catchment Area: Kessingland Hundred River Reference: Prenf20839 Permit Version: 1 Effective Date: 1st October 2007 Issued Date: 1st October 2007 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Ditch Trib Of Thorpeness Hndrd **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	A10SE (SW)	297	1	642520 263330
	Nearest Surface Water Feature	A10NE (W)	0	-	642555 263709
	River Quality Name: Thorpeness Hundred GQA Grade: River Quality E Reach: Harrow Fm.Theberton...Coldfair Green Estimated Distance (km): 3.8 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A10SW (W)	343	1	642144 263601
3	**River Quality Biology Sampling Points** Name: Thorpeness Hundred Reach: Harrow Farm Theberton To Coldfair Green Estimated Distance: 3.80 Positional Accuracy: Located by supplier to within 100m Year: 1990 GQA Grade: River Quality Biology GQA Grade B - Good Year: 1995 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2000 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2002 GQA Grade: River Quality Biology GQA Grade B - Good Year: 2003 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2004 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2005 GQA Grade: River Quality Biology GQA Grade A - Very Good Year: 2006 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2007 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2008 GQA Grade: River Quality Biology GQA Grade C - Fairly Good Year: 2009 GQA Grade: River Quality Biology GQA Grade C - Fairly Good	A14NW (NW)	451	1	642300 264400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: F L Readhead Licence Number: 7/35/03/*G/0008 Permit Version: 100 Location: Well At House Fm,Leiston Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Crag; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1965 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A7SW (S)	516	1	642820 262910
	Water Abstractions Operator: L F Geater & Sons Ltd Licence Number: 7/35/03/*G/0025 Permit Version: 100 Location: Bore At West End Nurseries Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Crag; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st May 1993 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A8NE (SE)	982	1	644000 263100
	Groundwater Vulnerability Soil Classification: Soils of Low Leaching Potential - Soils in which pollutants are unlikely to penetrate the soil layer because water movement is largely horizontal or they have large ability to attenuate diffuse pollutants. Lateral flow from these soils contribute to groundwater recharge elsewhere in the catchment Map Sheet: Sheet 33 East Suffolk Scale: 1:100,000	A11NW (W)	0	1	642856 263654
	Drift Deposits Drift Deposit: Low permeability drift deposits occuring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 33 East Suffolk Scale: 1:100,000	A11NW (W)	0	1	642856 263654
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	A11NW (W)	0	2	642856 263654
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A11NW (W)	0	2	642856 263654
4	**Source Protection Zones** Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A11NW (W)	0	1	642856 263654
5	**Source Protection Zones** Name: Leiston Source: Environment Agency, Head Office Reference: An307 Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A7NW (S)	168	1	642822 263274
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A10SW (W)	133	1	642378 263611
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Suffolk County Council - Has supplied landfill data		0	5	642856 263654
	Local Authority Landfill Coverage Name: Suffolk Coastal District Council - Had landfill data but passed it to the relevant environment agency		0	6	642856 263654

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Norwich Crag, Red Crag and Chillesford Clay	A11NW (W)	0	2	642856 263654
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A15SW (N)	0	3	642856 264000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A15SW (NE)	0	3	643000 264000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11NW (W)	0	3	642856 263654
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11NW (E)	0	3	643000 263654
	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: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A10SW (W)	240	3	642302 263545
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16SE (E)	242	3	644000 264000

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: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12NE (E)	374	3	644000 263722
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NW (S)	414	3	642856 263000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NW (S)	420	3	643000 263000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NE (W)	475	3	642000 263654
	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	A11NW (W)	0	2	642856 263654
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A10SW (W)	237	2	642305 263546
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	0	2	642856 263654
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A10SW (W)	237	2	642305 263546
	Potential for Ground Dissolution Stability Hazards No Hazard				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	0	2	642856 263654
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	0	2	642856 263654
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A10SW (W)	237	2	642305 263546
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	0	2	642856 263654
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SW (W)	237	2	642305 263546
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	0	2	642856 263654
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A11NW (W)	0	2	642856 263654

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Contemporary Trade Directory Entries** Name: Dkm Auto Repairs Location: Aldhurst Farm, 2, Leiston, Suffolk, IP16 4TB Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A12NE (E)	340	-	643940 263936
	Contemporary Trade Directory Entries Name: Cleaners4hygiene Location: 81, St. Margarets Crescent, Leiston, Suffolk, IP16 4HP Classification: Car Washing & Polishing Equipment & Supplies **Status: Active** Positional Accuracy: Automatically positioned to the address	A8SW (SE)	909	-	643566 262764
	Contemporary Trade Directory Entries Name: Leiston Cemetery Location: Waterloo Av, Leiston, Suffolk, IP16 4HE Classification: Cemeteries & Crematoria **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A8SW (SE)	924	-	643503 262688

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**Nitrate Vulnerable Zones** Name: Not Supplied Description: NVZ Area Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A11NW (W)	0	4	642856 263654

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Suffolk Coastal District Council - Environmental Health Department	September 2011	Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region	April 2012	Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region	June 2012	Quarterly
Integrated Pollution Controls Environment Agency - Anglian Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - Anglian Region	April 2012	Quarterly
Local Authority Integrated Pollution Prevention And Control Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Local Authority Pollution Prevention and Controls Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	December 2011	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region	June 2012	Monthly
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region	June 2012	Monthly
Registered Radioactive Substances Environment Agency - Anglian Region	April 2012	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	January 2011	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	January 2011	Annually
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Water Abstractions Environment Agency - Anglian Region	April 2012	Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region	April 2012	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Source Protection Zones Environment Agency - Head Office	April 2012	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	May 2012	Quarterly

Agency & Hydrological	Version	Update Cycle
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2012	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	May 2012	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	May 2012	Quarterly
Flood Defences		
Environment Agency - Head Office	May 2012	Quarterly
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Anglian Region - Eastern Area	January 2012	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Local Authority Landfill Coverage		
Suffolk Coastal District Council - Environmental Health Department	May 2000	Not Applicable
Suffolk County Council	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Suffolk Coastal District Council - Environmental Health Department	May 2000	Not Applicable
Suffolk County Council	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	May 2012	Bi-Annually
Explosive Sites		
Health and Safety Executive	June 2012	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Suffolk Coastal District Council	December 2011	Annual Rolling Update
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update
Planning Hazardous Substance Consents		
Suffolk Coastal District Council	December 2011	Annual Rolling Update
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	January 2010	Variable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2012	Bi-Annually
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	August 2011	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	May 2012	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2012	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Outstanding Natural Beauty Natural England	February 2012	Bi-Annually
Environmentally Sensitive Areas Natural England	February 2012	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2012	Bi-Annually
Marine Nature Reserves Natural England	February 2012	Bi-Annually
National Nature Reserves Natural England	February 2012	Bi-Annually
National Parks Natural England	February 2012	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Annually
Ramsar Sites Natural England	February 2012	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2012	Bi-Annually
Special Areas of Conservation Natural England	February 2012	Bi-Annually
Special Protection Areas Natural England	February 2012	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	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
3	**Landmark Information Group Limited** 5 - 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Telephone: 01392 441761 Fax: 01392 441709 Email: cssupport@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk
4	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
5	**Suffolk County Council** St Edmund House, County Hall, Ipswich, Suffolk, IP4 1LZ	Telephone: 01473 583000 Fax: 01473 230240 Website: www.suffolkcc.gov.uk
6	**Suffolk Coastal District Council - Environmental Health Department** Council Offices, Melton Hill, Woodbridge, Suffolk, IP12 1AU	Telephone: 01394 383789 extn 2238 Fax: 01394 385100 Website: www.suffolkcoastal.gov.uk
-	**Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	**Landmark Information Group Limited** The Smith Centre, Henley On Thames, Oxfordshire, RG9 6AB	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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

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 (225) · Instrumental Contour (200)

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)
RD. 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
Sloping Masonry · Pylon · Pole · Electricity Transmission Line

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

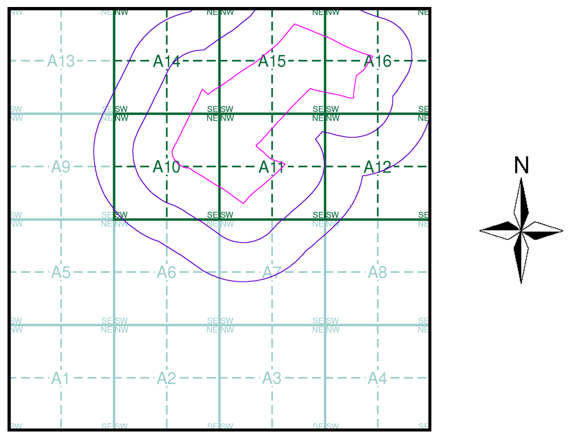
General detail · Underground detail
Overhead detail · Narrow gauge railway
Multi-track railway · Single track railway
County boundary (England only) · Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary · Constituency boundary

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

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Suffolk	1:10,560	1883 - 1885	2
Suffolk	1:10,560	1905	3
Suffolk	1:10,560	1928	4
Suffolk	1:10,560	1938	5
Suffolk	1:10,560	1950 - 1951	6
Ordnance Survey Plan	1:10,000	1958	7
Ordnance Survey Plan	1:10,000	1977	8
10K Raster Mapping	1:10,000	2012	9

Historical Map - Slice A



Order Details

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Site Details

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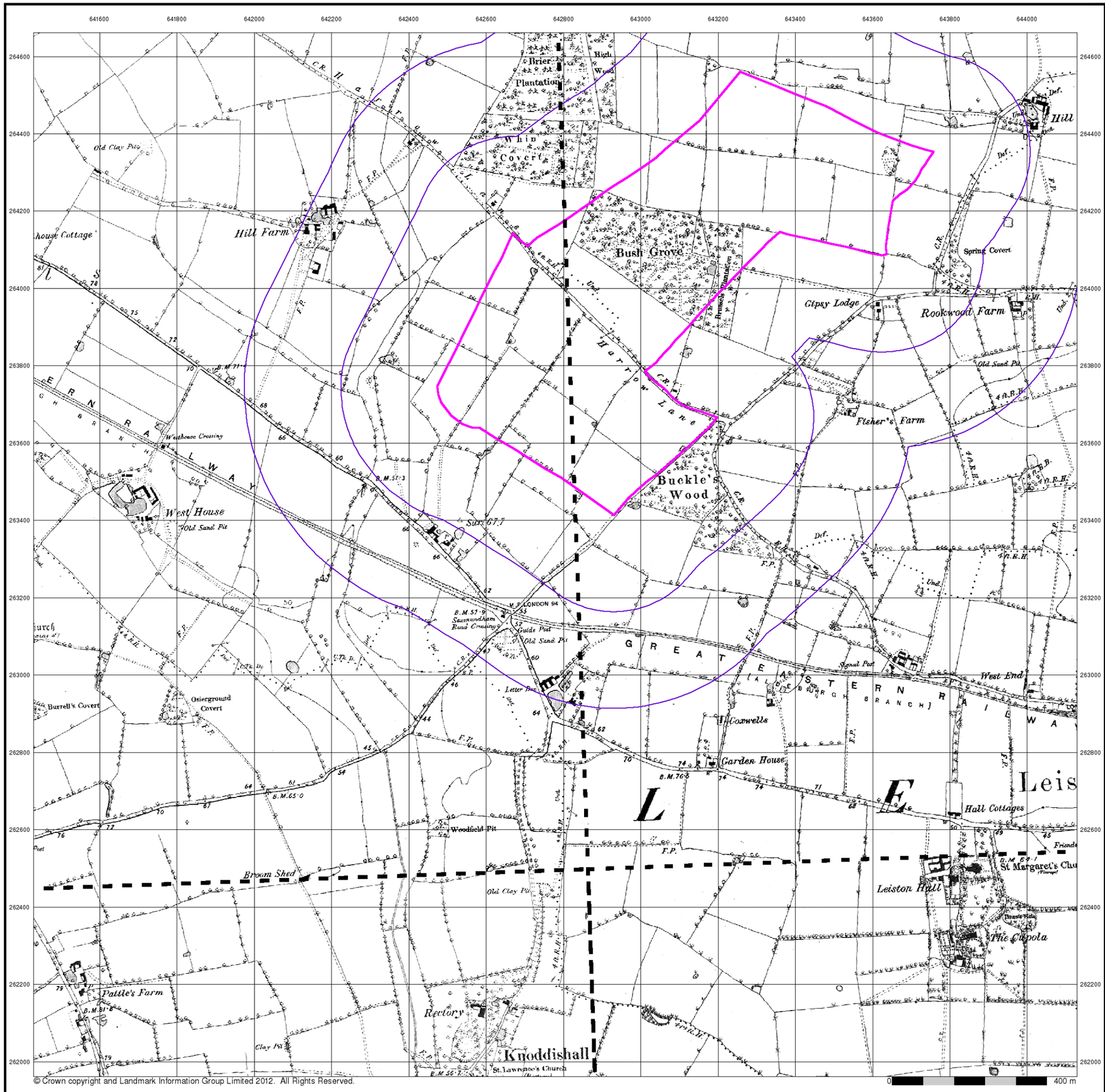

amec

Suffolk

Published 1883 - 1885

Source map scale - 1:10,560

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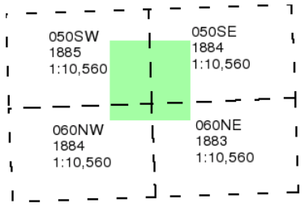
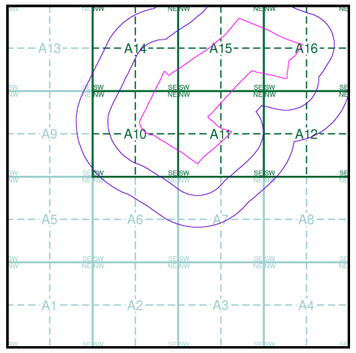
Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

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Site Details

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Landmark Information Group

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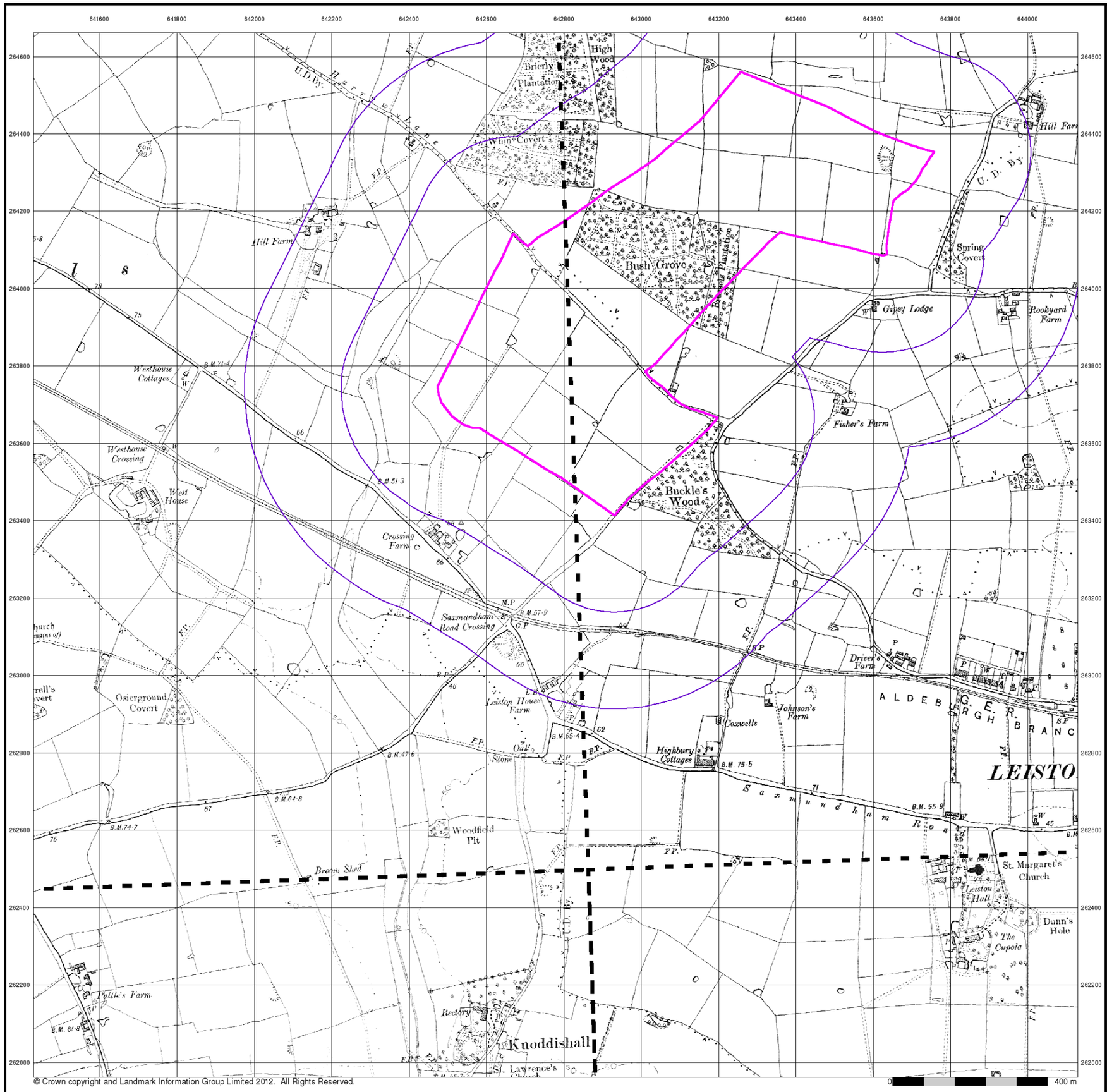

amec

Suffolk

Published 1905

Source map scale - 1:10,560

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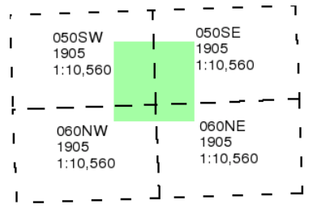
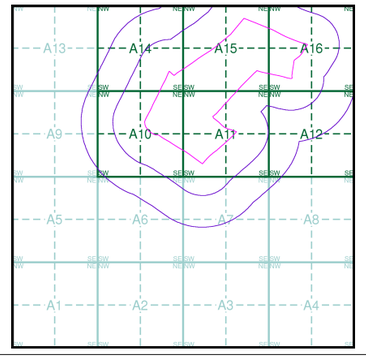


Historical Map - Slice A



Order Details

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Site Details

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Landmark Information Group

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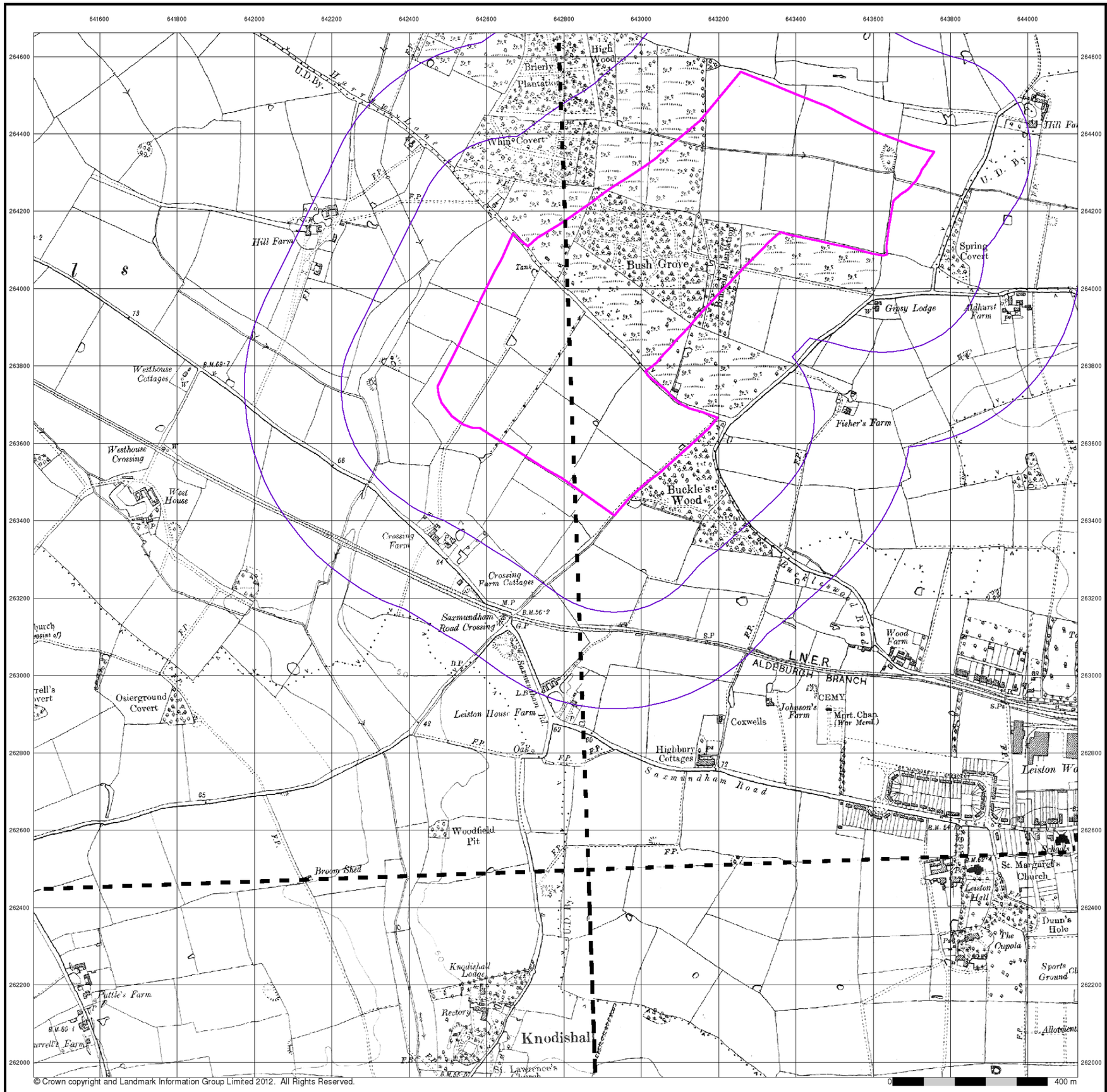

amec

Suffolk

Published 1928

Source map scale - 1:10,560

[illegible]

Map Name(s) and Date(s)

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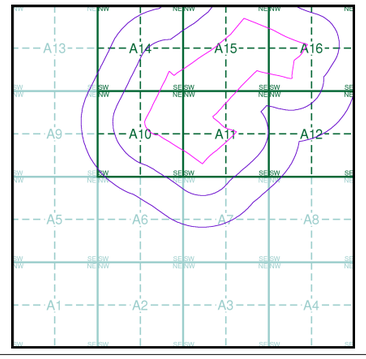
060NW 1928 1:10,560	060NE 1928 1:10,560

Historical Map - Slice A



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[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	A
[illegible]	[illegible]
[illegible]	[illegible]

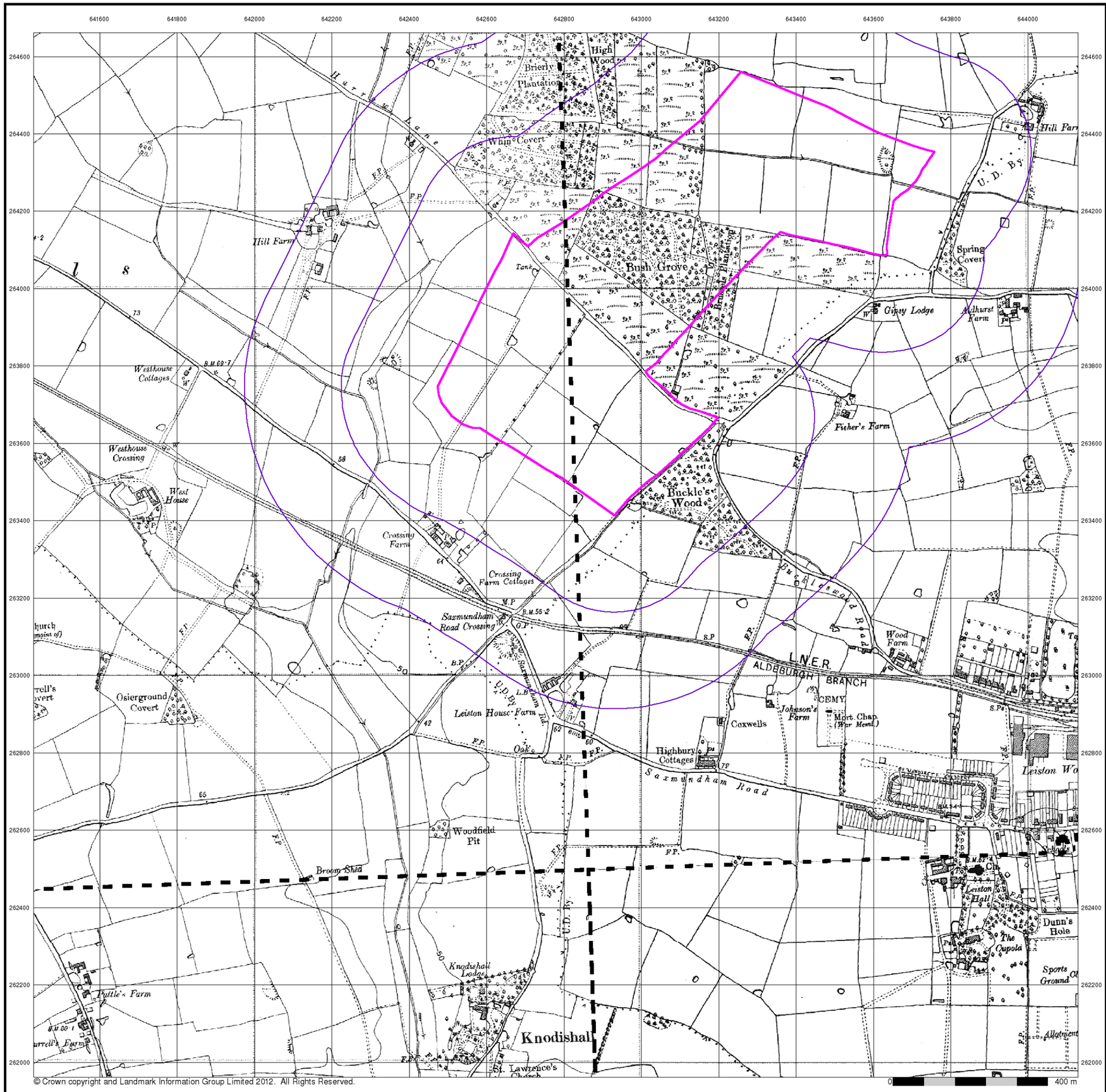
Site Details

[illegible]

Landmark Information Group

[illegible]

[illegible]



amec

Suffolk

Published 1938

Source map scale - 1:10,560

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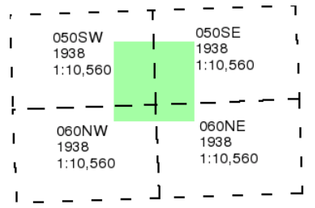
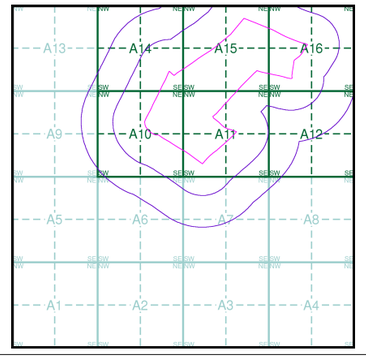


Historical Map - Slice A



Order Details

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Site Details

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Landmark® Information Group

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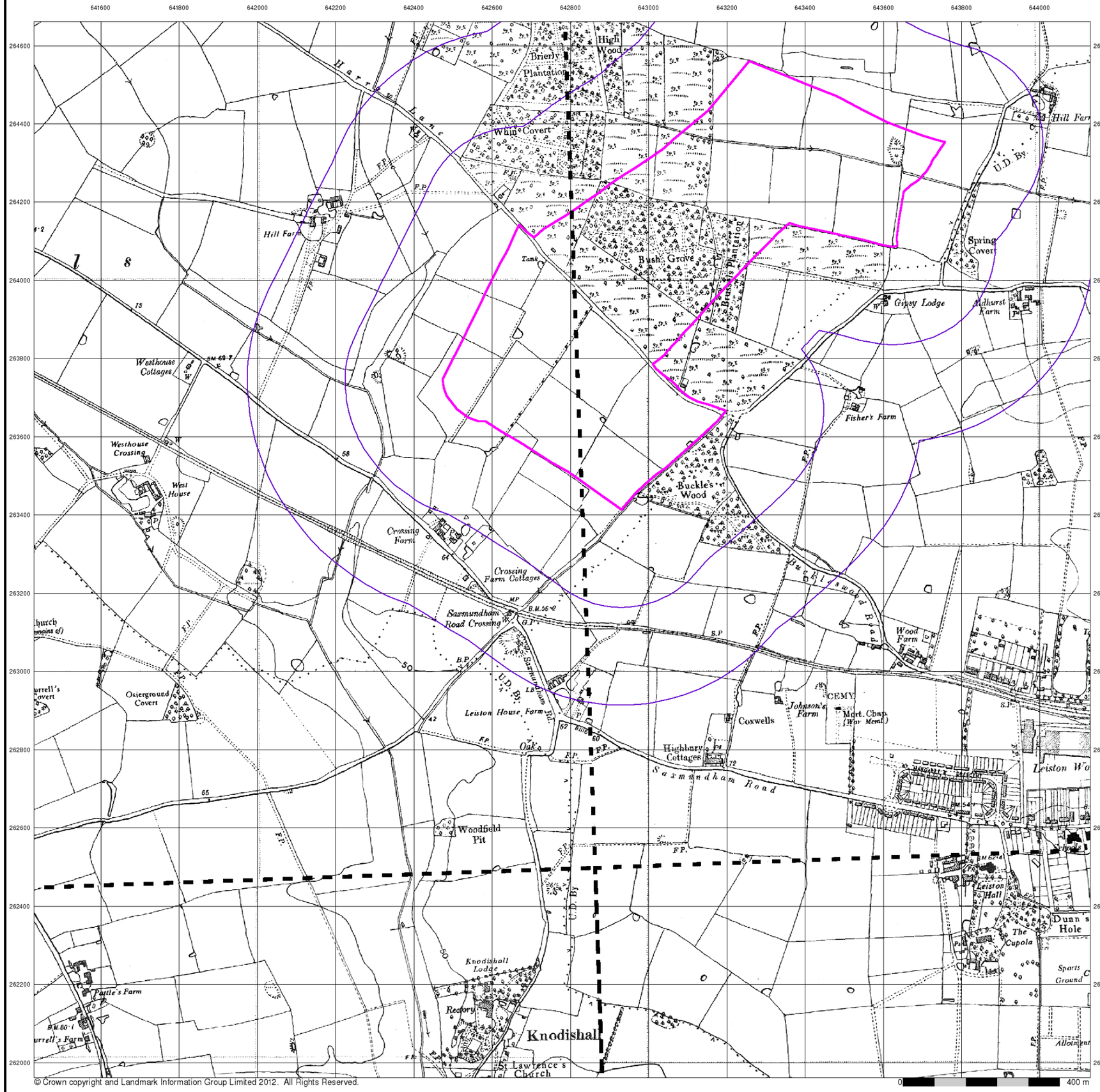


amec

Suffolk

Published 1950 - 1951

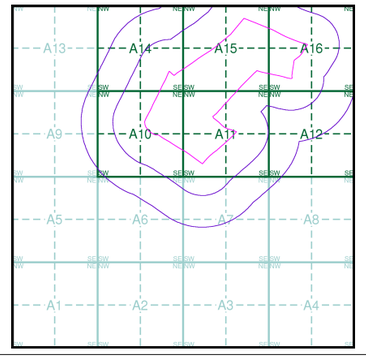
Source map scale - 1:10,560

[redacted]

Map Name(s) and Date(s)

050SW 1951 1:10,560	050SE 1950 1:10,560
060NW 1951 1:10,560	060NE 1951 1:10,560

Historical Map - Slice A



Order Details

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Site Details

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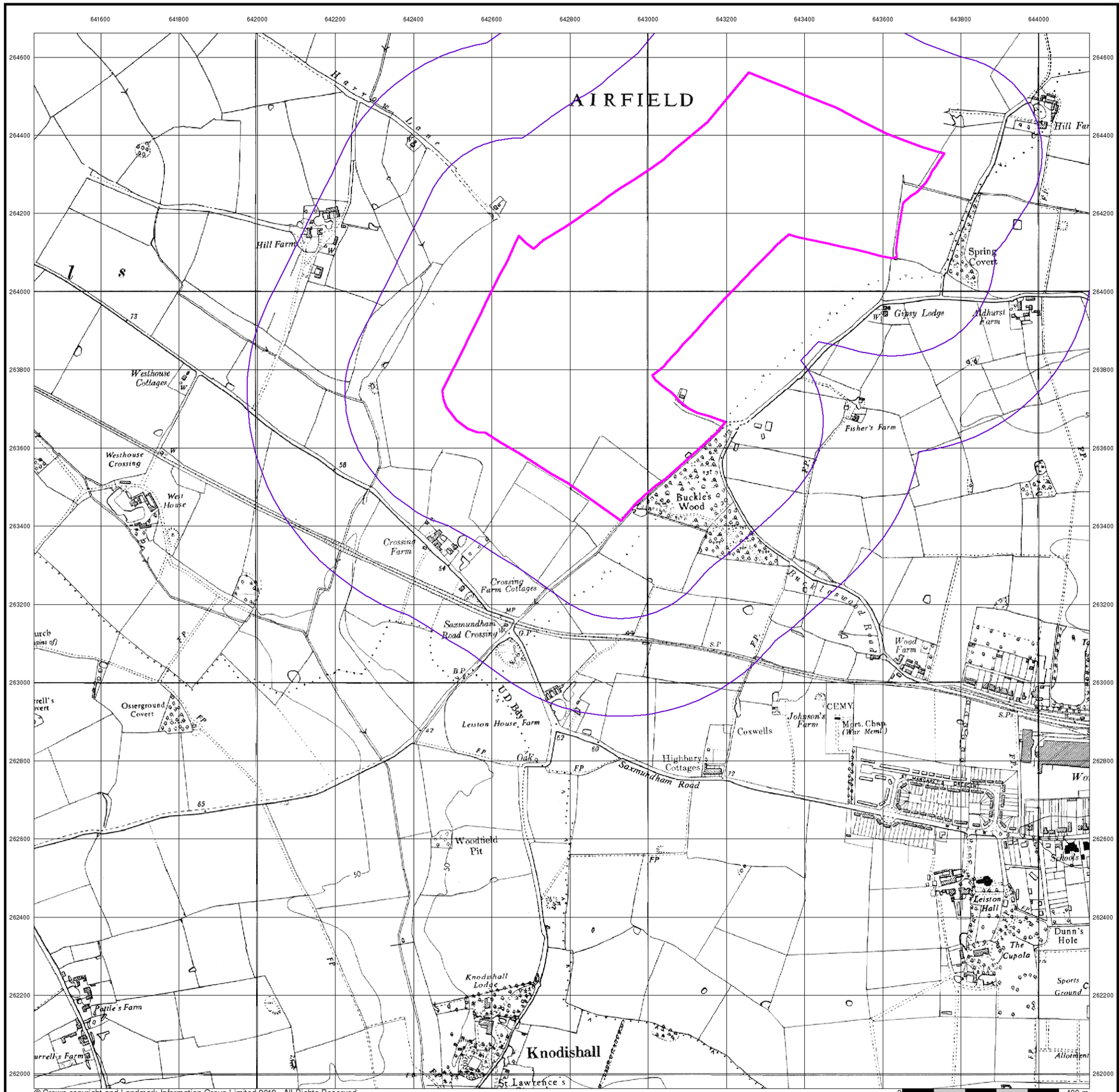
Landmark Information Group

[redacted]



amec

Ordnance Survey Plan

Published 1958

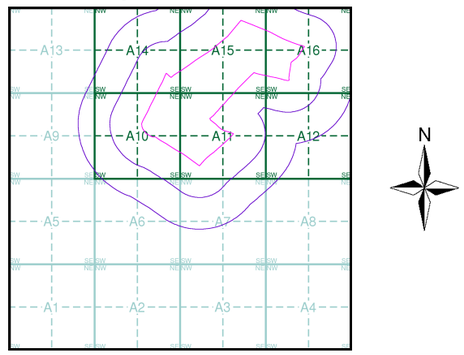
Source map scale - 1:10,000

[illegible]

Map Name(s) and Date(s)

TM46SW
1958
1:10,560

Historical Map - Slice A



Order Details

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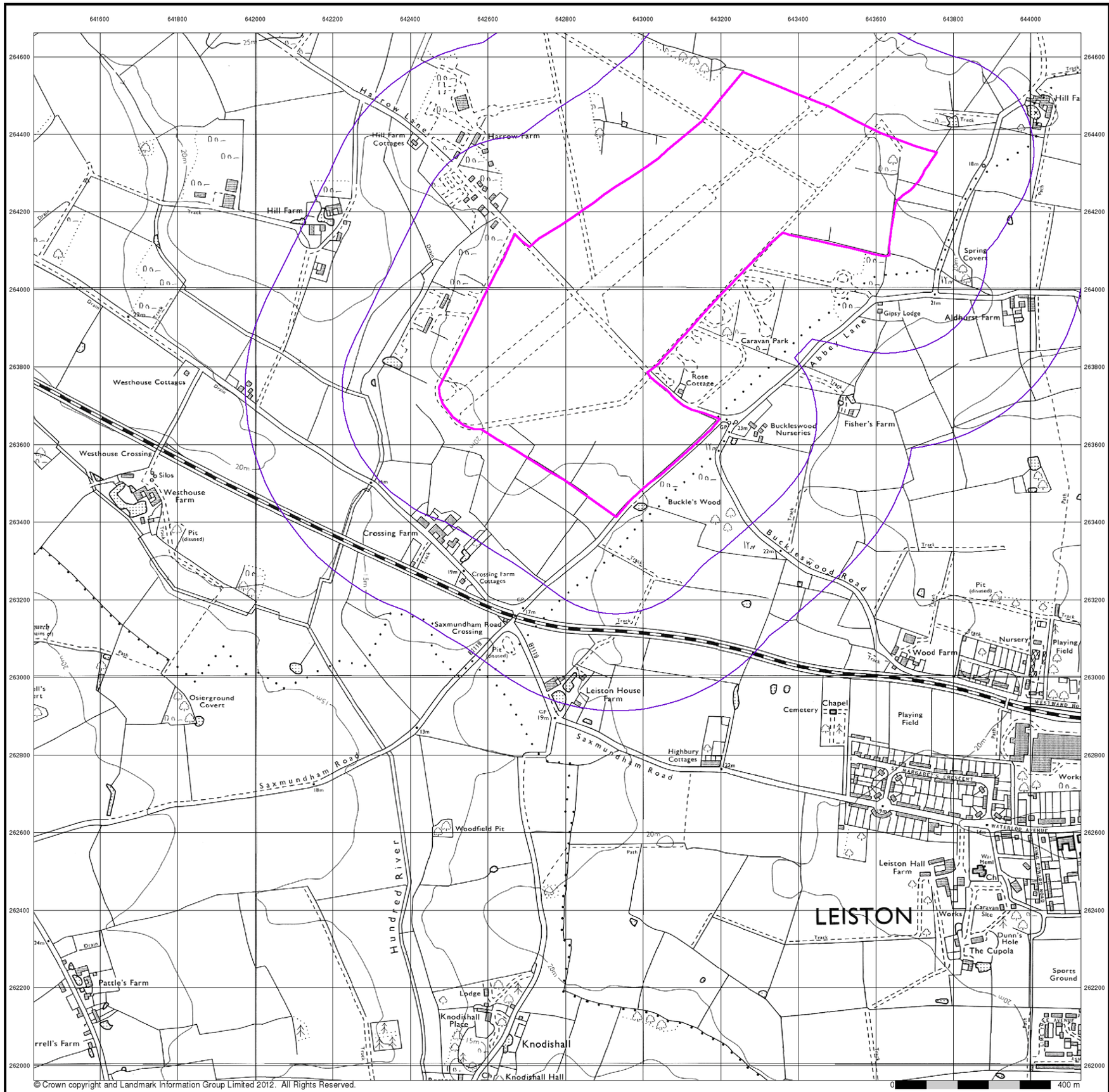
Site Details

[illegible]

Landmark Information Group

[illegible]



amec

Ordnance Survey Plan

Published 1977

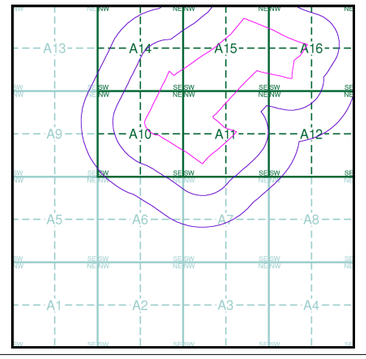
Source map scale - 1:10,000

[redacted]

Map Name(s) and Date(s)

TM46SW
1977
1:10,000

Historical Map - Slice A



Order Details

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Site Details

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Landmark Information Group

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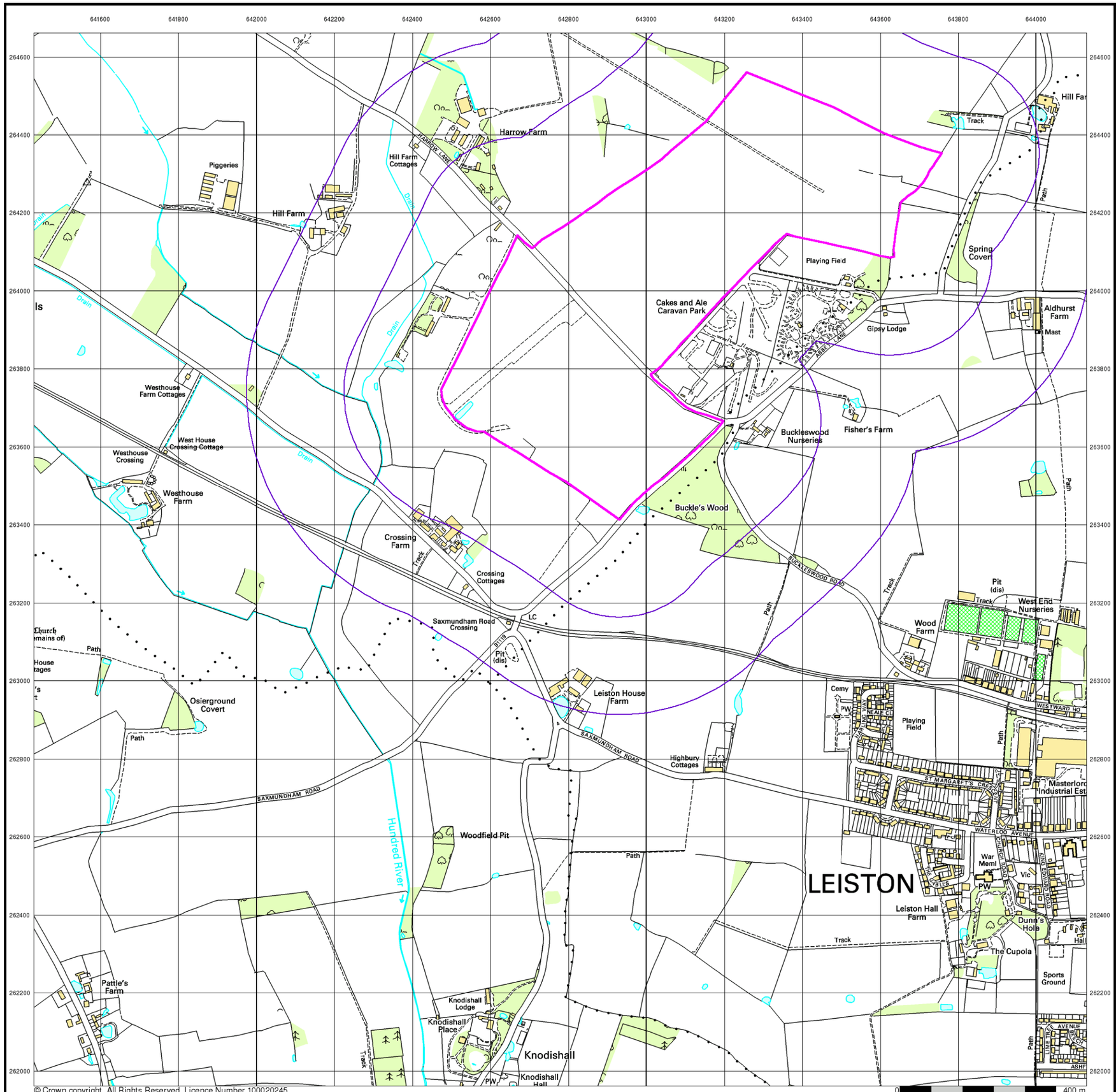


amec

10k Raster Mapping

Published 2012

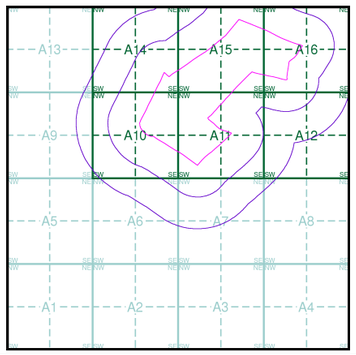
Source map scale - 1:10,000

[redacted]

Map Name(s) and Date(s)

TM46SW
2012
1:10,000

Historical Map - Slice A



Order Details

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Site Details

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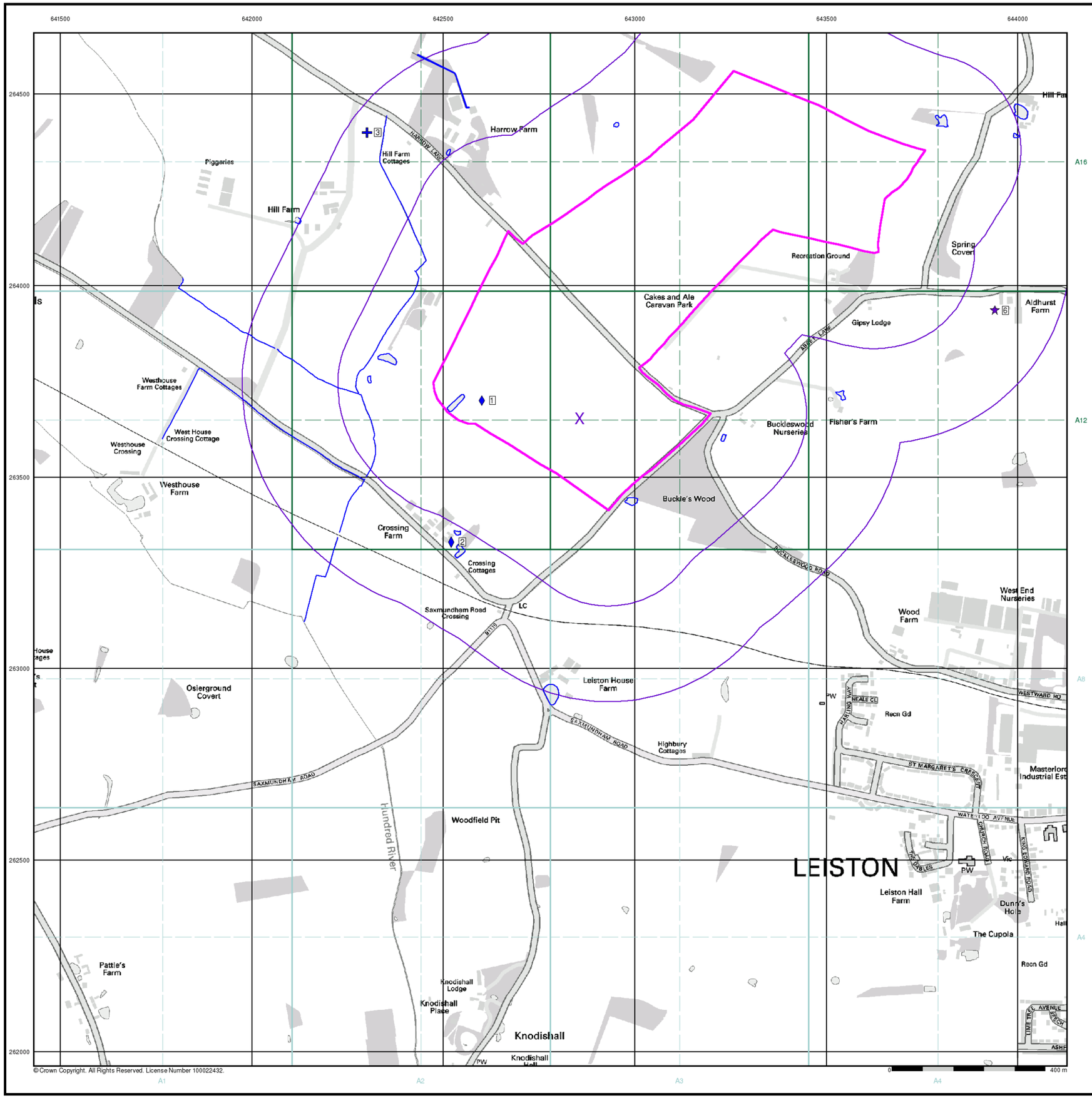
Landmark Information Group

[redacted]



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

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
- 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

Geological

- BGS Recorded Mineral Site

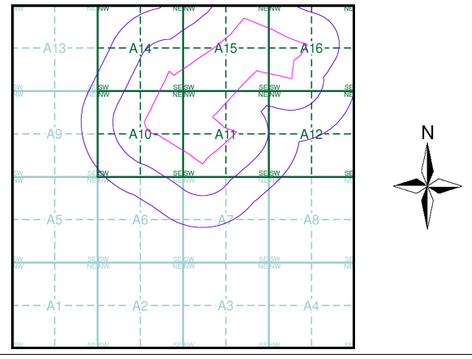
Hazardous Substances

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

Site Sensitivity Map - Slice A



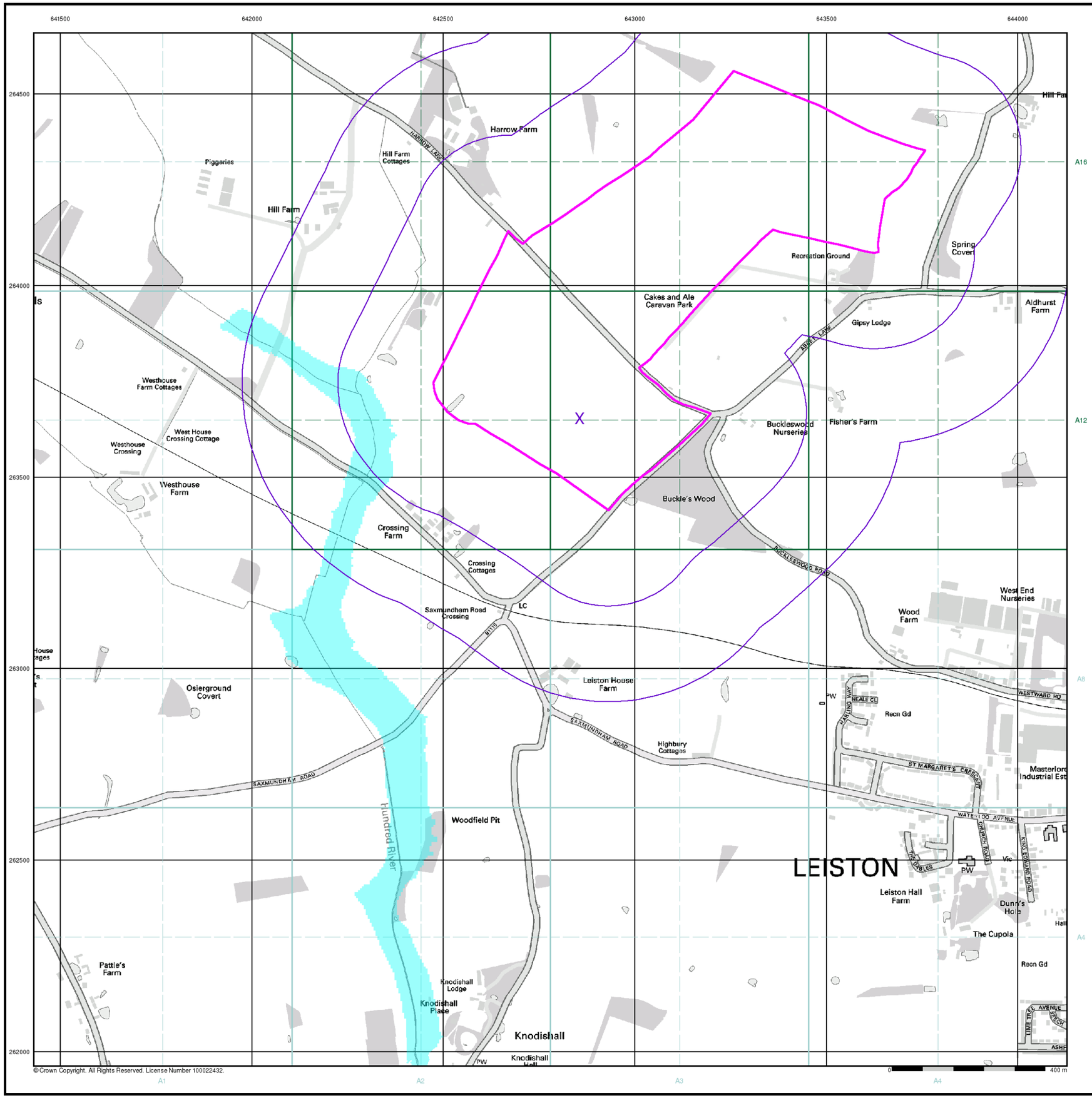
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



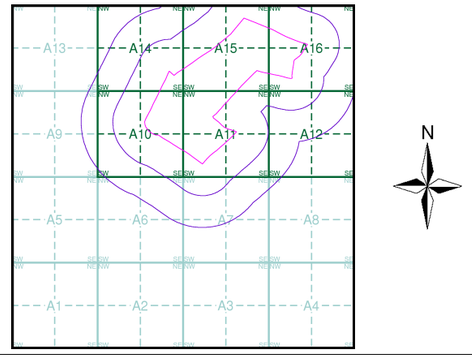
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice A



Order Details

Order Number:	40137381_1_1
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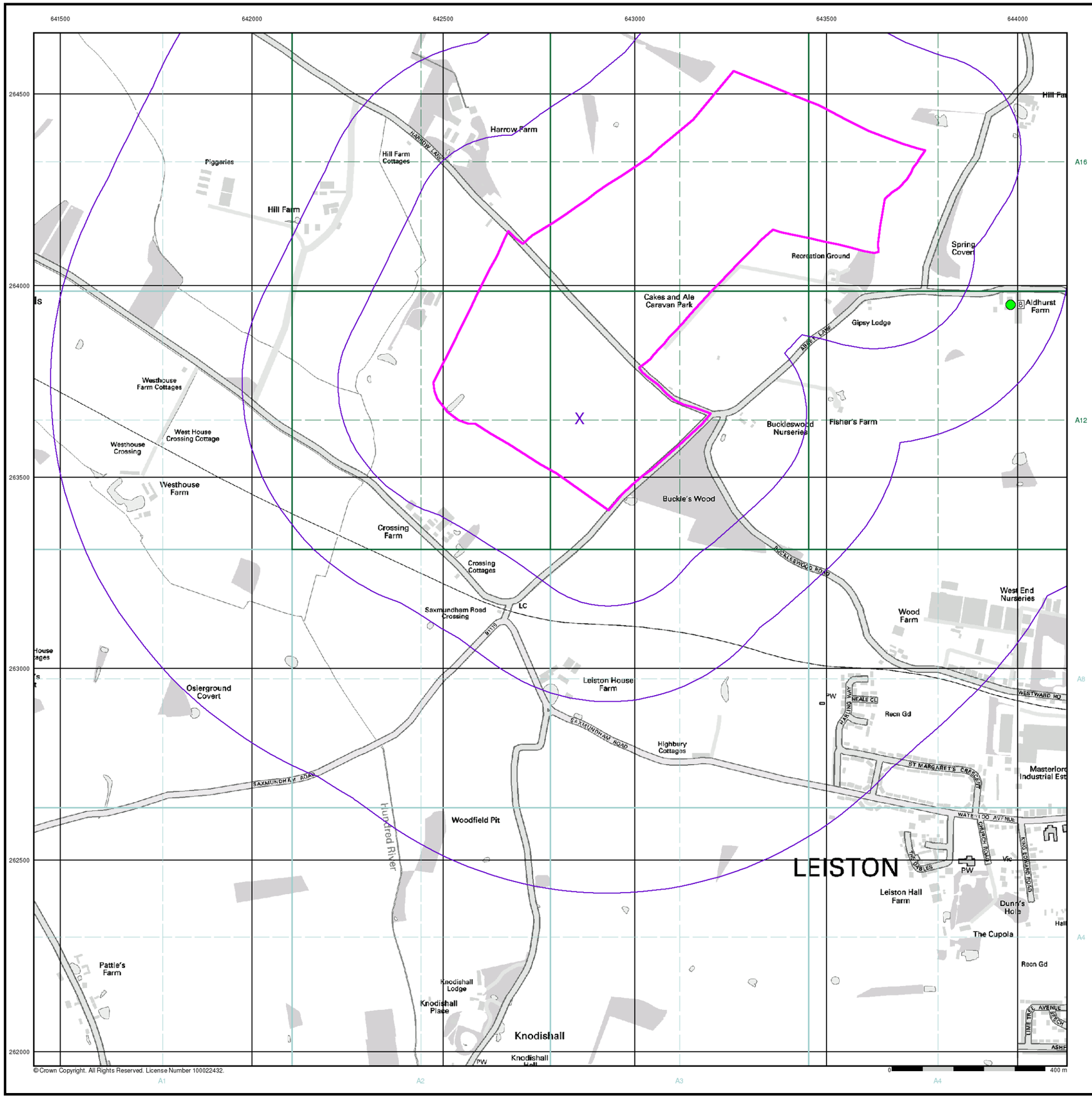
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



General

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

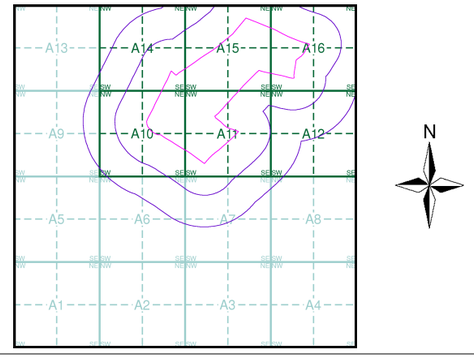
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A



Order Details

Order Number:	40137381_1_1
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National Grid Reference:	642860, 263650
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Search Buffer (m):	500

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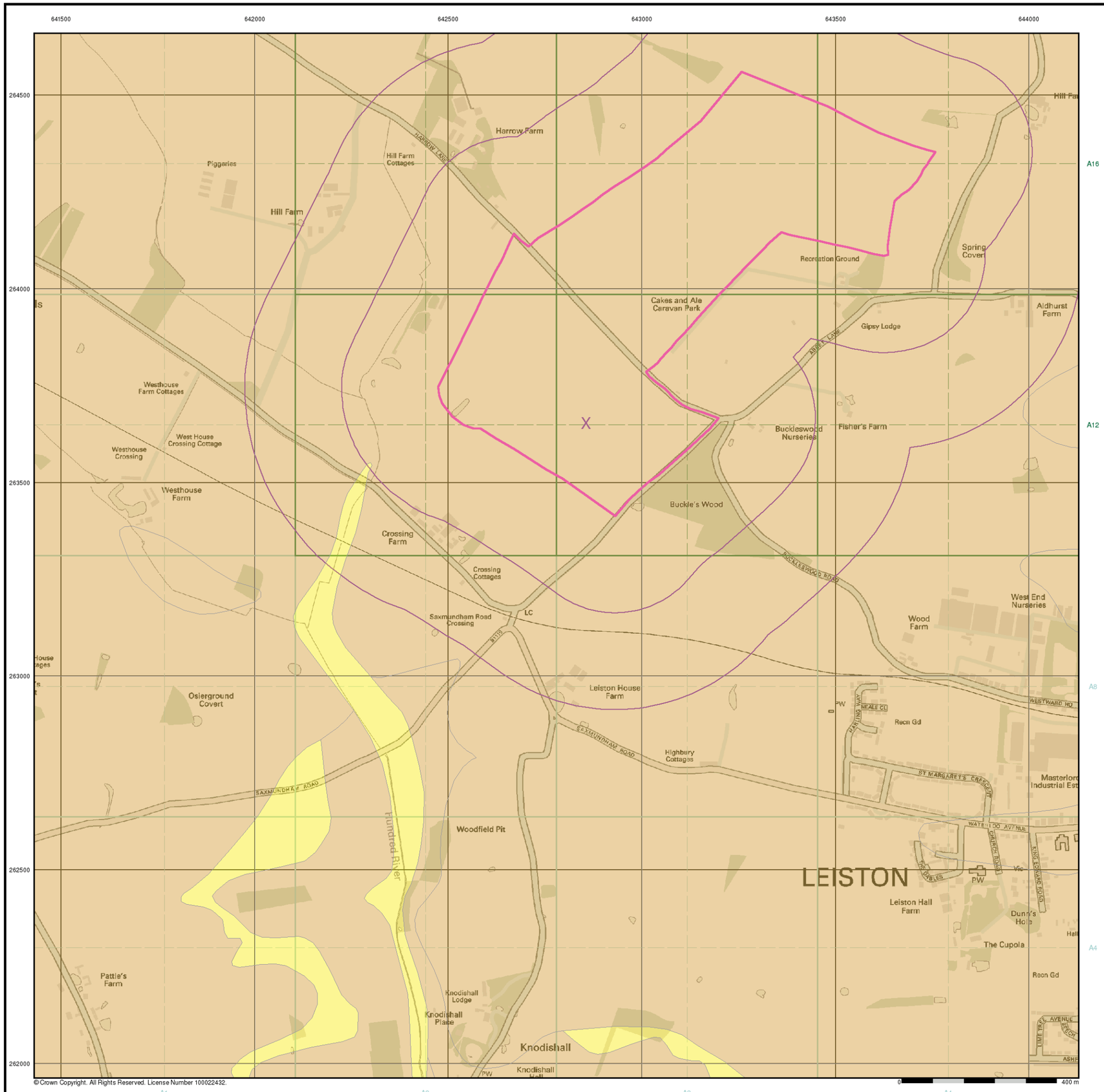
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



General

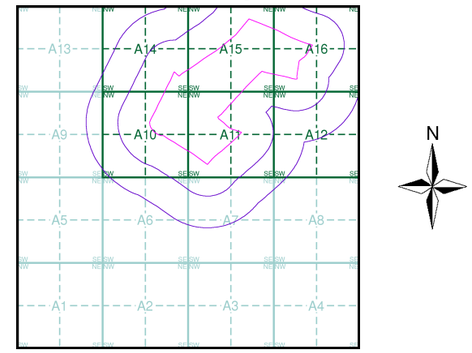
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

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National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

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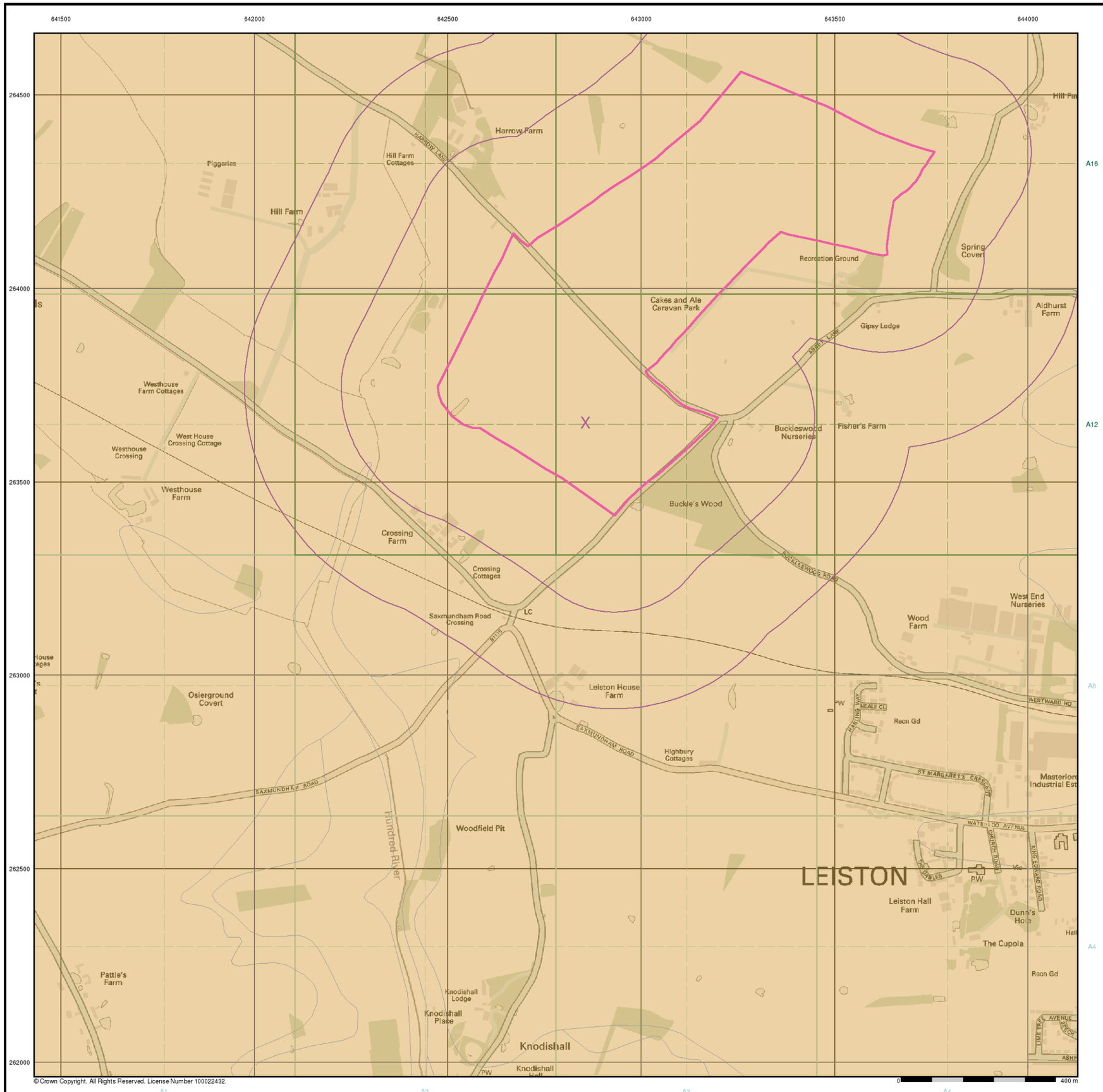


General

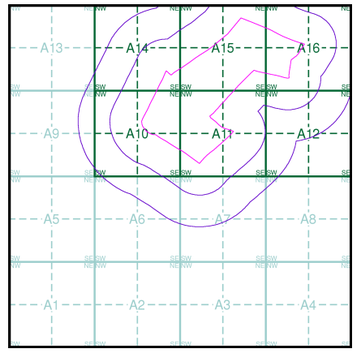
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



Order Details

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National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

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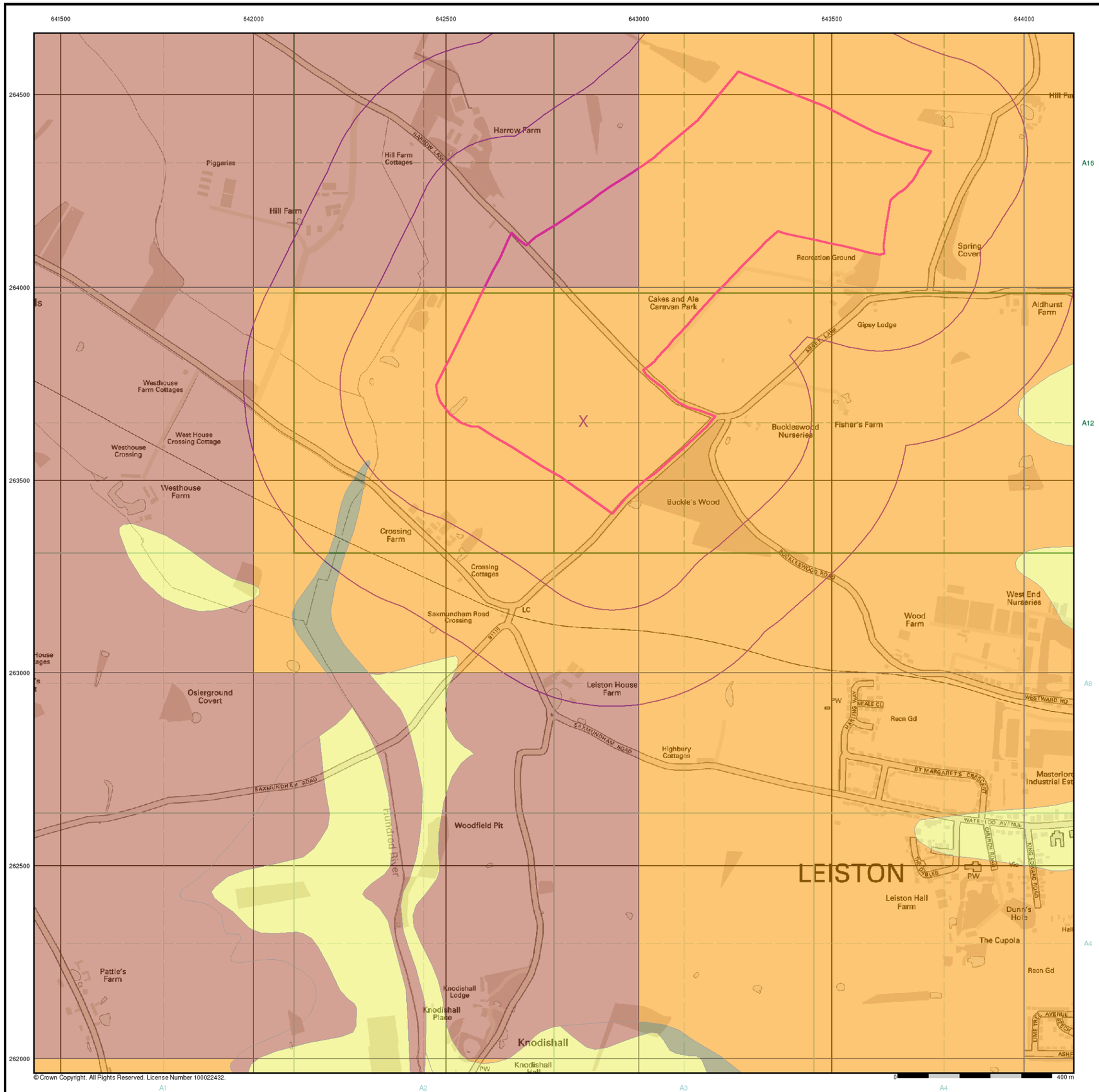


General

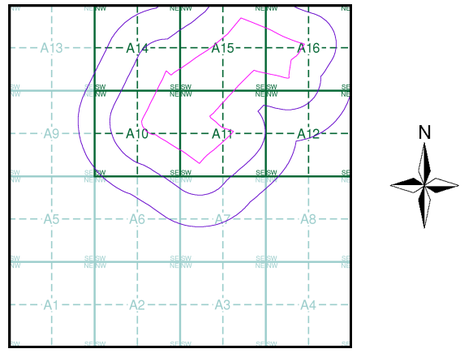
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



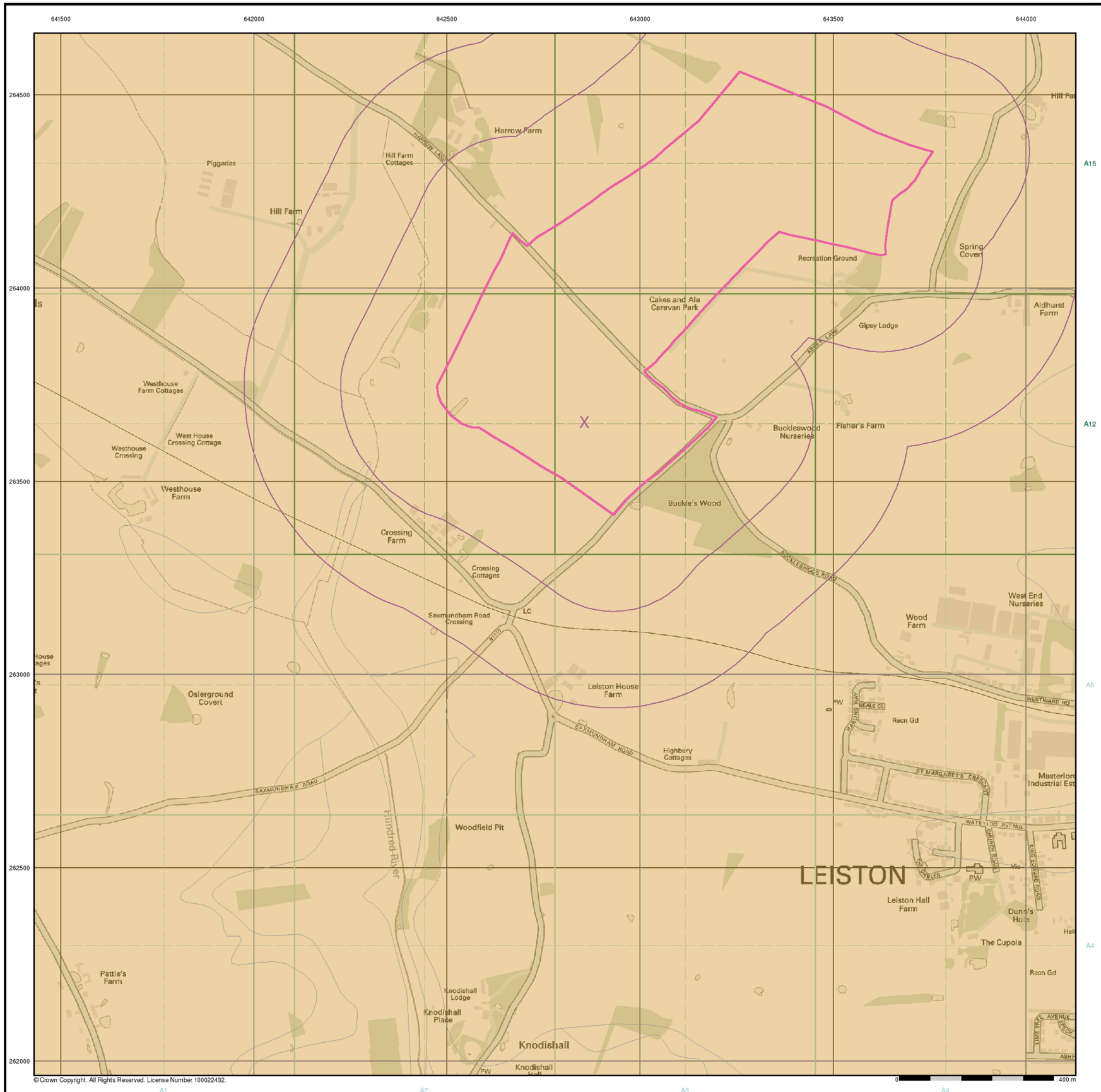
Order Details

Order Details:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



General

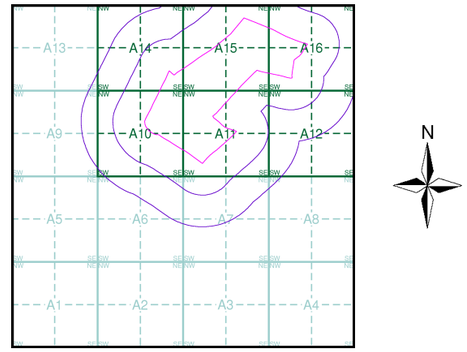
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

- < 150
- 150 - 300
- 300 - 600
- 600 - 900
- > 900

Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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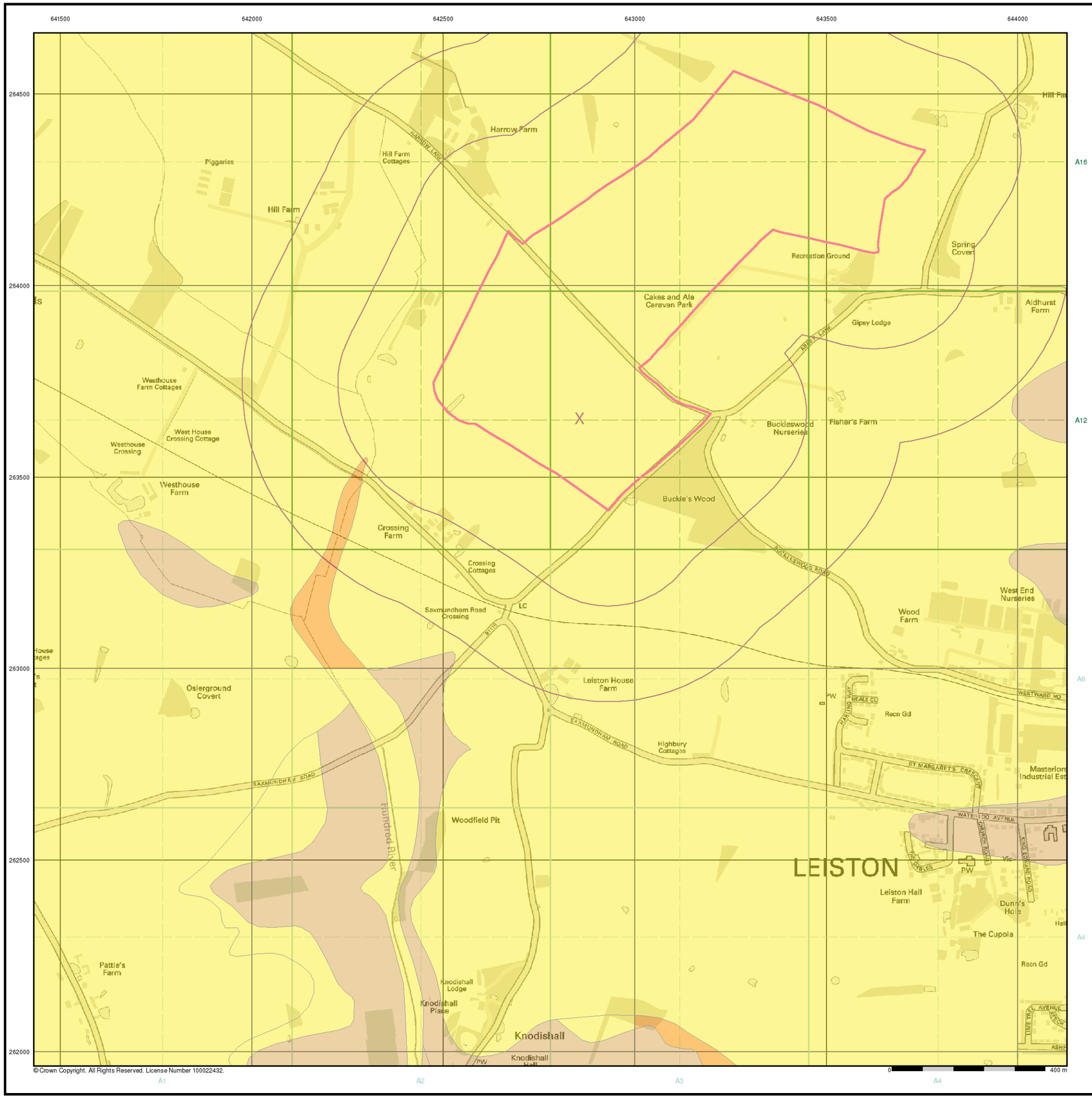
Web: www.envirocheck.co.uk



amec

General

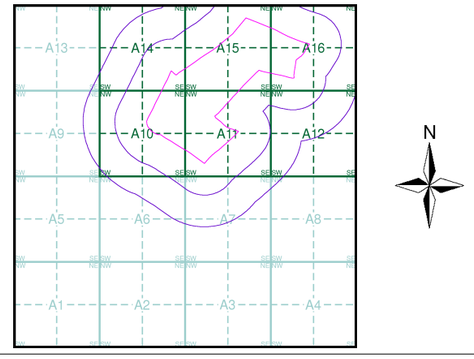
Specified Site | Specified Buffer(s) | X Bearing Reference Point

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



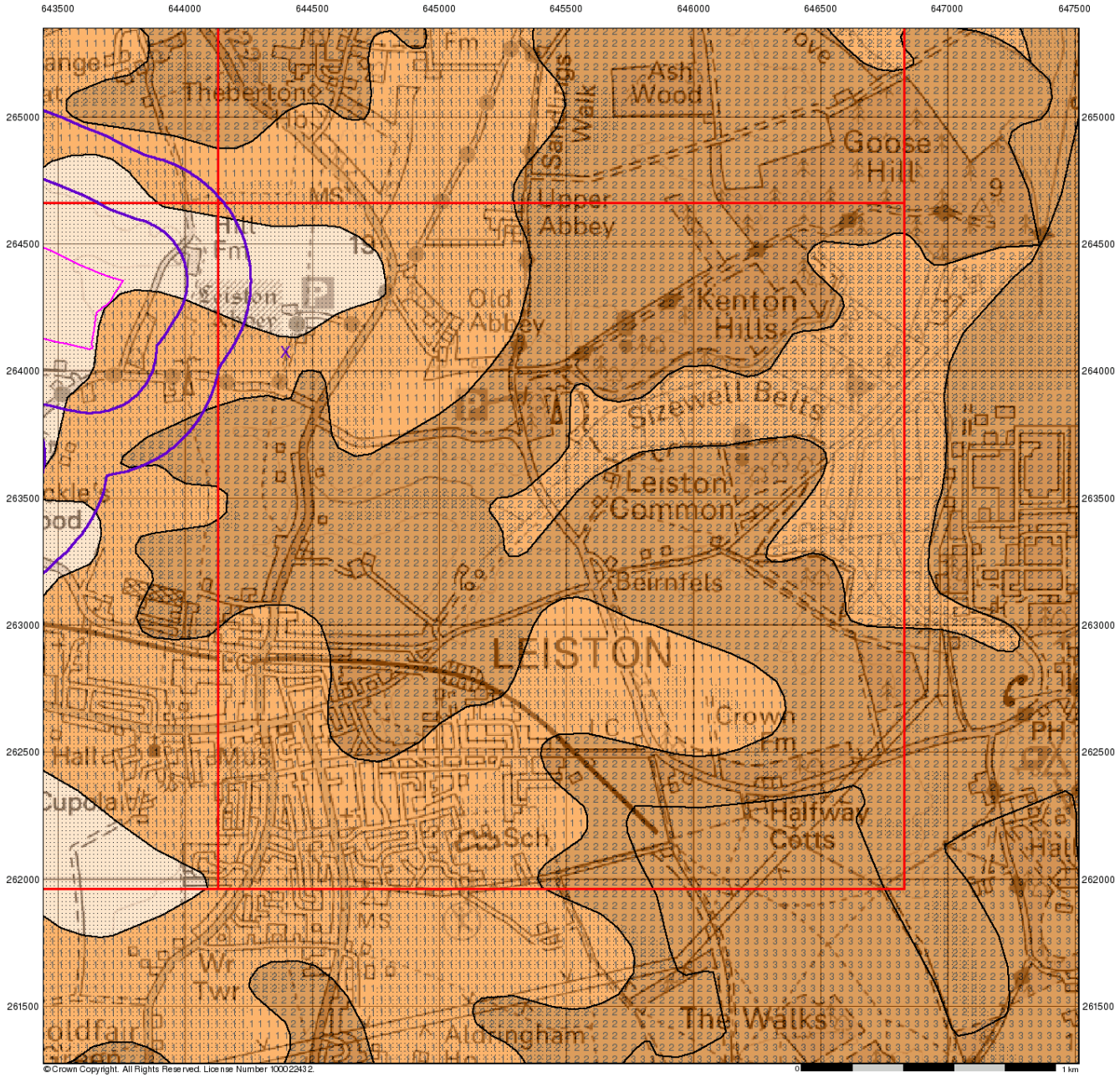
Order Details

Order Details:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	642860, 263650
Slice:	A
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



Groundwater Vulnerability

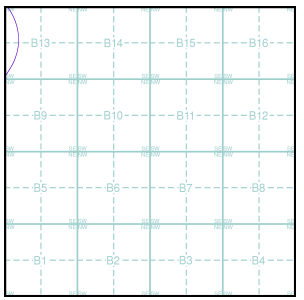
General

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

Agency and Hydrological

Geological Classes	Soil Classes
Major Aquifer (Highly Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Minor Aquifer (Variably Permeable)	High (H) 1, 2, 3, U
	Intermediate (I) 1, 2
	Low
Non Aquifer (Negligibly Permeable)	
Water or Sea	
Drift Deposit	

Site Sensitivity Context Map - Slice B



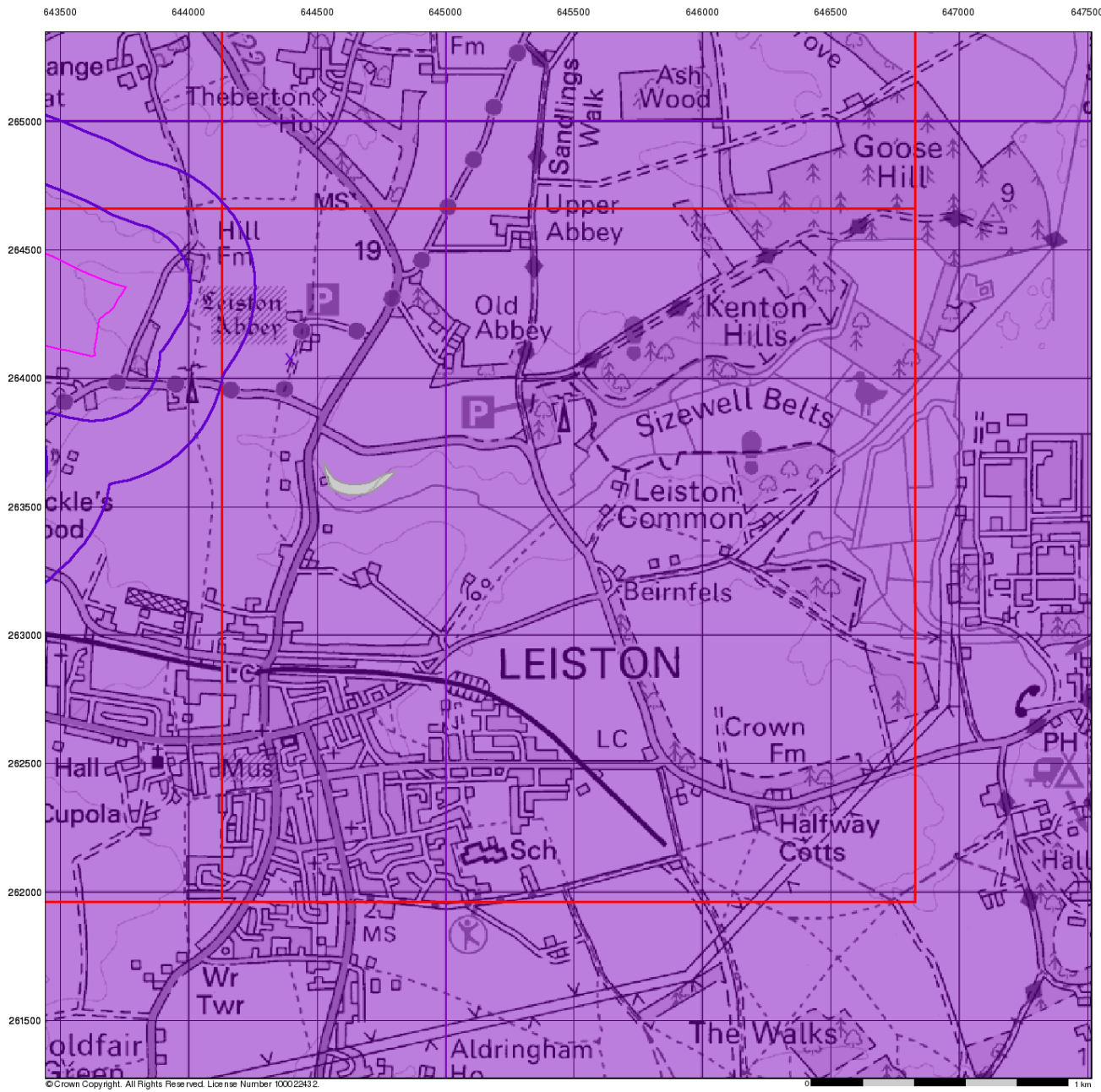
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	644390, 264080
Slice:	B
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



Bedrock Aquifer Designation

General

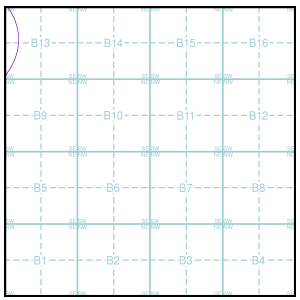
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice B



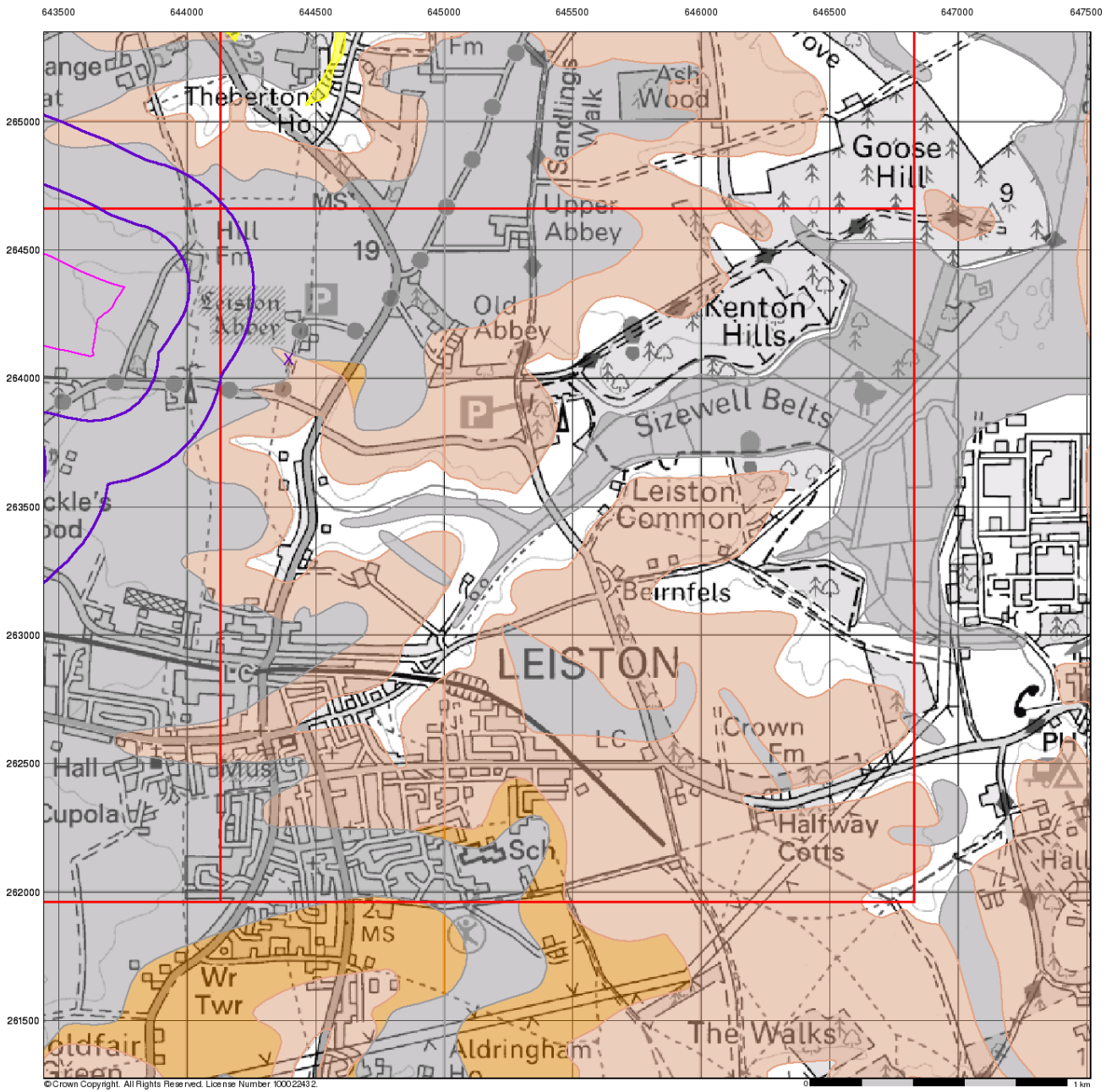
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	644390, 264080
Slice:	B
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



Superficial Aquifer Designation

General

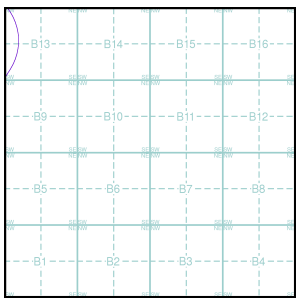
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

- Principal Aquifer
- Secondary A Aquifer
- Secondary B Aquifer
- Secondary Undifferentiated
- Unproductive Strata
- Unknown

Site Sensitivity Context Map - Slice B



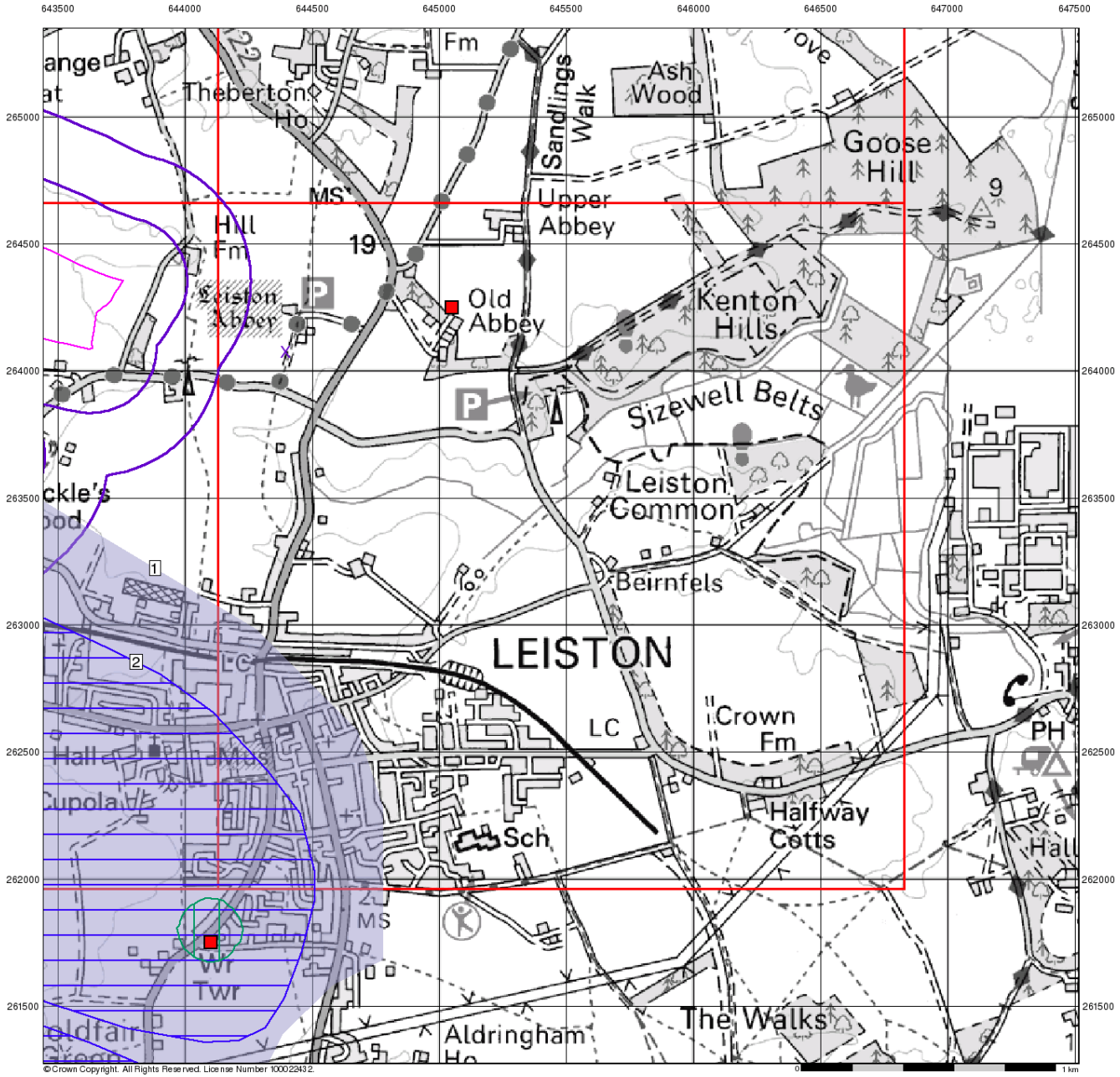
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	644390, 264080
Slice:	B
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



amec

Source Protection Zones

General

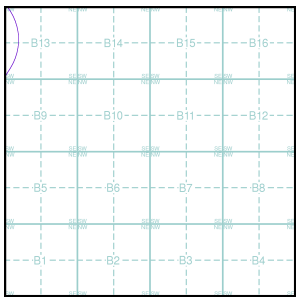
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

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

Site Sensitivity Context Map - Slice B



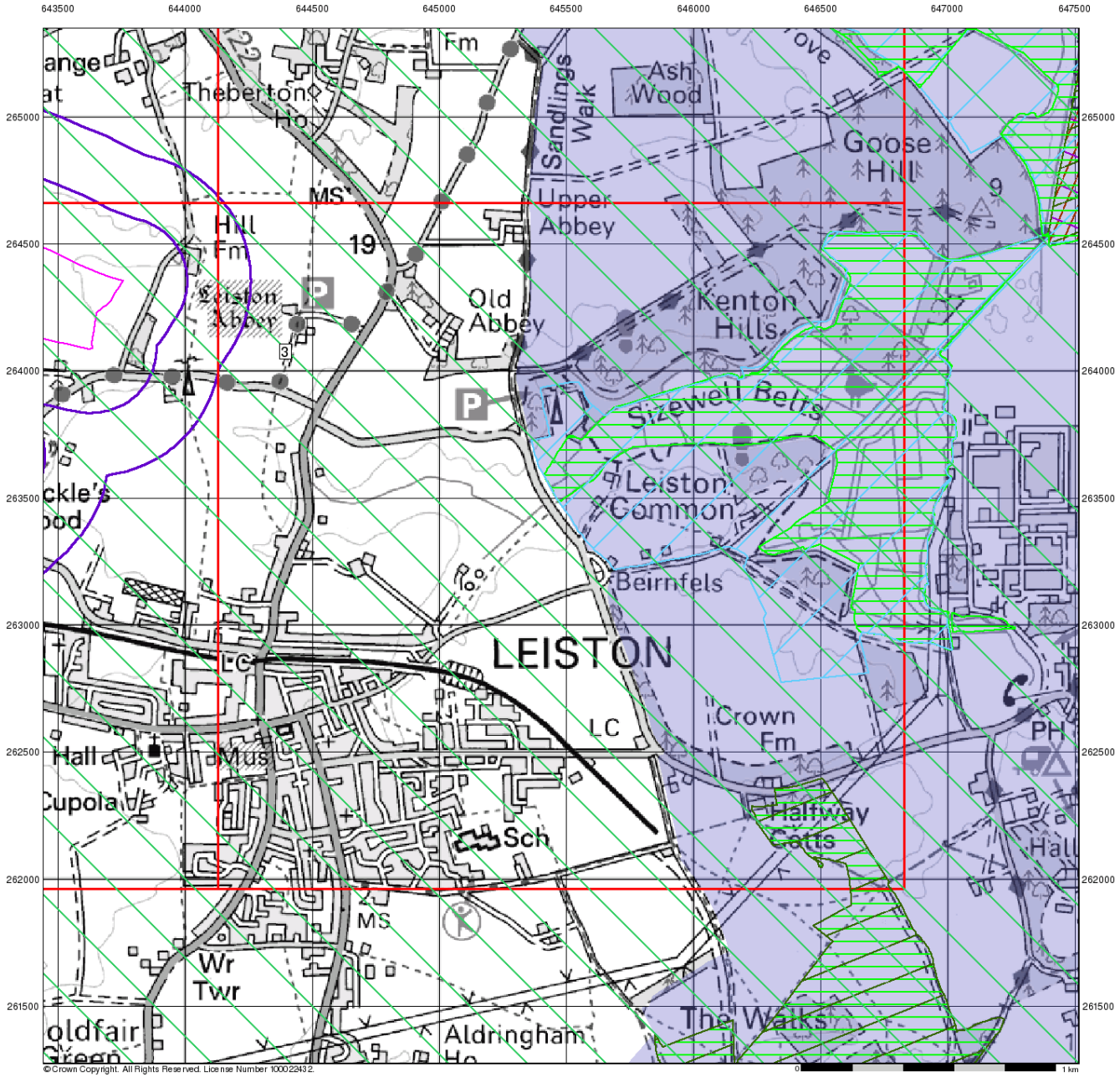
Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	644390, 264080
Slice:	B
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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



Sensitive Land Uses

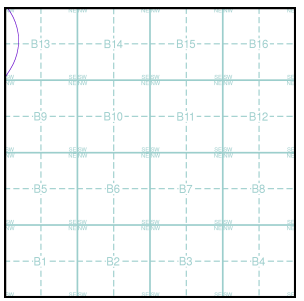
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice B



Order Details

Order Number:	40137381_1_1
Customer Ref:	32623
National Grid Reference:	644390, 264080
Slice:	B
Site Area (Ha):	60.79
Search Buffer (m):	500

Site Details

Site at, Leiston, Suffolk

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

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
40137381_1_1

Customer Reference:
32623

National Grid Reference:
644390, 264080

Slice:
B

Site Area (Ha):
60.79

Search Buffer (m):
500

Site Details:

Site at
Leiston
Suffolk

Client Details:

Miss D Shankar
AMEC Environment & Infrastructure UK Ltd
Unit 1, Long Barn
Village Road
Nercwys
Mold
Flintshire
CH7 4EW

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	2
Hazardous Substances	-
Geological	3
Industrial Land Use	-
Sensitive Land Use	4
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Introduction

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

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

Copyright Notice

Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v47.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Agency & Hydrological				
Contaminated Land Register Entries and Notices				
Discharge Consents				
Enforcement and Prohibition Notices				
Integrated Pollution Controls				
Integrated Pollution Prevention And Control				
Local Authority Integrated Pollution Prevention And Control				
Local Authority Pollution Prevention and Controls				
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 1			Yes
Pollution Incidents to Controlled Waters				
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality	pg 1			1
River Quality Biology Sampling Points				
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions				
Water Industry Act Referrals				
Groundwater Vulnerability	pg 1	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 1	Yes	n/a	n/a
Superficial Aquifer Designations	pg 1	Yes	n/a	n/a
Source Protection Zones	pg 1	1	1	
Extreme Flooding from Rivers or Sea without Defences				n/a
Flooding from Rivers or Sea without Defences				n/a
Areas Benefiting from Flood Defences				n/a
Flood Water Storage Areas				n/a
Flood Defences				n/a
Waste				
BGS Recorded Landfill Sites				
Historical Landfill Sites				
Integrated Pollution Control Registered Waste Sites				
Licensed Waste Management Facilities (Landfill Boundaries)				
Licensed Waste Management Facilities (Locations)				
Local Authority Recorded Landfill Sites				
Registered Landfill Sites				
Registered Waste Transfer Sites				
Registered Waste Treatment or Disposal Sites				

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
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				
Geological				
BGS 1:625,000 Solid Geology	pg 3	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 3		Yes	Yes
BGS Recorded Mineral Sites				
BGS Urban Soil Chemistry				
BGS Urban Soil Chemistry Averages				
Brine Compensation Area			n/a	n/a
Coal Mining Affected Areas			n/a	n/a
Mining Instability			n/a	n/a
Man-Made Mining Cavities				
Natural Cavities				
Non Coal Mining Areas of Great Britain				n/a
Potential for Collapsible Ground Stability Hazards	pg 3	Yes		n/a
Potential for Compressible Ground Stability Hazards				n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 3	Yes		n/a
Potential for Running Sand Ground Stability Hazards	pg 3	Yes		n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 3	Yes		n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a
Industrial Land Use				
Contemporary Trade Directory Entries				
Fuel Station Entries				

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
Sensitive Land Use				
Areas of Adopted Green Belt				
Areas of Unadopted Green Belt				
Areas of Outstanding Natural Beauty				
Environmentally Sensitive Areas				
Forest Parks				
Local Nature Reserves				
Marine Nature Reserves				
National Nature Reserves				
National Parks				
Nitrate Sensitive Areas				
Nitrate Vulnerable Zones	pg 4	1		
Ramsar Sites				
Sites of Special Scientific Interest				
Special Areas of Conservation				
Special Protection Areas				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Nearest Surface Water Feature	B13NW (NW)	458	-	644196 264530
	River Quality Name: Leiston Bk GQA Grade: River Quality F Reach: Leiston...Minsmere Sluice Estimated Distance (km): 4.5 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	B13SW (W)	444	1	644213 264069
	Groundwater Vulnerability Soil Classification: Soils of Low Leaching Potential - Soils in which pollutants are unlikely to penetrate the soil layer because water movement is largely horizontal or they have large ability to attenuate diffuse pollutants. Lateral flow from these soils contribute to groundwater recharge elsewhere in the catchment Map Sheet: Sheet 33 East Suffolk Scale: 1:100,000	B13SW (N)	0	1	644398 264134
	Drift Deposits Drift Deposit: Low permeability drift deposits occuring at the surface and overlying Major and Minor Aquifers are head, clay-with-flints, brickearth, peat, river terrace deposits and marine and estuarine alluvium Map Sheet: Sheet 33 East Suffolk Scale: 1:100,000	B13SW (W)	0	1	644395 264077
	Bedrock Aquifer Designations Aquifer Desination: Principal Aquifer	B13SW (W)	0	2	644395 264077
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	B13SW (N)	0	2	644403 264099
1	**Source Protection Zones** Name: Various Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	(SW)	0	1	643883 263223
2	**Source Protection Zones** Name: Leiston Source: Environment Agency, Head Office Reference: An307 Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	(SW)	168	1	643806 262854
	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
	Local Authority Landfill Coverage Name: Suffolk County Council - Has supplied landfill data		0	6	644395 264077
	Local Authority Landfill Coverage Name: Suffolk Coastal District Council - Had landfill data but passed it to the relevant environment agency		0	7	644395 264077

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Norwich Crag, Red Crag and Chillesford Clay	B13SW (W)	0	2	644395 264077
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	B13SW (N)	242	3	644403 264096
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	B13SW (S)	374	3	644389 264000
	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	B13SW (W)	0	2	644395 264077
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13SW (W)	0	2	644395 264077
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13SW (W)	0	2	644395 264077
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13SW (W)	0	2	644395 264077
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B13SW (N)	0	2	644403 264099
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B13SW (W)	0	2	644395 264077
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	B13SW (W)	0	2	644395 264077

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Nitrate Vulnerable Zones** Name: Not Supplied Description: NVZ Area Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	B13SW (W)	0	5	644395 264077

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Suffolk Coastal District Council - Environmental Health Department	September 2011	Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region	April 2012	Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region	June 2012	Quarterly
Integrated Pollution Controls Environment Agency - Anglian Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control Environment Agency - Anglian Region	April 2012	Quarterly
Local Authority Integrated Pollution Prevention And Control Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Local Authority Pollution Prevention and Controls Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements Suffolk Coastal District Council - Environmental Health Department	December 2011	Annual Rolling Update
Nearest Surface Water Feature Ordnance Survey	December 2011	Quarterly
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region	September 1999	Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region	June 2012	Monthly
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region	June 2012	Monthly
Registered Radioactive Substances Environment Agency - Anglian Region	April 2012	Quarterly
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	January 2011	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	January 2011	Annually
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Water Abstractions Environment Agency - Anglian Region	April 2012	Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region	April 2012	Quarterly
Groundwater Vulnerability Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits Environment Agency - Head Office	January 1999	Not Applicable
Bedrock Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Superficial Aquifer Designations British Geological Survey - National Geoscience Information Service	September 2011	Annually
Source Protection Zones Environment Agency - Head Office	April 2012	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	May 2012	Quarterly

Agency & Hydrological	Version	Update Cycle
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2012	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	May 2012	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	May 2012	Quarterly
Flood Defences		
Environment Agency - Head Office	May 2012	Quarterly
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - Anglian Region - Eastern Area	January 2012	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Eastern Area	April 2012	Quarterly
Local Authority Landfill Coverage		
Suffolk Coastal District Council - Environmental Health Department	May 2000	Not Applicable
Suffolk County Council	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Suffolk Coastal District Council - Environmental Health Department	May 2000	Not Applicable
Suffolk County Council	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Eastern Area	March 2003	Not Applicable
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	May 2012	Bi-Annually
Explosive Sites		
Health and Safety Executive	June 2012	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Suffolk Coastal District Council	December 2011	Annual Rolling Update
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update
Planning Hazardous Substance Consents		
Suffolk Coastal District Council	December 2011	Annual Rolling Update
Suffolk County Council - Environment and Transport	February 2006	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	January 2010	Variable
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	April 2012	Bi-Annually
Brine Compensation Area Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Mining Report Service	August 2011	As notified
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	As notified
Industrial Land Use	**Version**	**Update Cycle**
Contemporary Trade Directory Entries Thomson Directories	May 2012	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2012	Quarterly

Sensitive Land Use	Version	Update Cycle
Areas of Outstanding Natural Beauty Natural England	February 2012	Bi-Annually
Environmentally Sensitive Areas Natural England	February 2012	Annually
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2012	Bi-Annually
Marine Nature Reserves Natural England	February 2012	Bi-Annually
National Nature Reserves Natural England	February 2012	Bi-Annually
National Parks Natural England	February 2012	Bi-Annually
Nitrate Sensitive Areas Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Annually
Ramsar Sites Natural England	February 2012	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2012	Bi-Annually
Special Areas of Conservation Natural England	February 2012	Bi-Annually
Special Protection Areas Natural England	February 2012	Bi-Annually