

# Millbrook Power Project

## Preliminary Environmental Information Report

### Technical Appendices

On behalf of **Millbrook Power Ltd**



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## **Contents**

### **Appendix 1 Project Glossary**

### **Appendix 2 Legislation and Policy**

#### **2.6 – Air Quality**

#### **2.7 – Noise and Vibration**

#### **2.8 – Ecology**

#### **2.9 – Water Quality and Resources**

#### **2.10 – Ground Conditions**

#### **2.11 – Landscape and Visual Impact**

#### **2.12 – Traffic and Transport**

#### **2.13 – Archaeology and Cultural Heritage**

#### **2.14 – Socio-economics**

### **Appendix 7 – Noise and Vibration**

#### **7.1 – Noise Terminology**

### **Appendix 8 – Ecology**

#### **8.1 – Phase 1 Habitat Report**

#### **8.2 – Invertebrate Report**

#### **8.3 – Herpetofauna Interim Report**

#### **8.4 – Breeding Birds Report**

#### **8.5 – Bats and Water Voles Interim Report**

### **Appendix 10 – Ground Conditions**

#### **10.1 – PBA Phase 1 Ground Conditions Report**

## **Appendix 11 – LVIA**

### **11.1 – Photomontages**

## **Appendix 12 – Traffic and Transport**

### **12.1 – Public Rights of Way – CBC**

### **12.2 – Public Rights of Way - BBC**

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## Appendix 1. Project Glossary

Above Ground Installation (AGI)	The Above Ground Installation incorporates the minimum offtake connection (MOC) facility, which would be owned by National Grid, and a Pipeline Inspection Gauge (PIG) Trap Facility (PTF), owned by Millbrook Power Limited. It forms part of the Gas Connection and is located within the Gas Connection Opportunity Area.
Above Ordnance Datum (AOD)	Ordnance Datum is the vertical datum used by Ordnance Survey as the basis for deriving height of ground level on maps. Topography may be described using the level in comparison to 'above' ordnance datum.
Access Road	The proposed purpose built access road from Green Lane to the Generating Equipment Site. It is located within the Power Generation Plant Site.
agriculture	<p>Section 336(1) of the Town and Country Planning Act 1990 defines agriculture as including:</p> <ul style="list-style-type: none"> <li>• Horticulture, fruit growing, seed growing, dairy farming;</li> <li>• The breeding and keeping of livestock (including any creature kept for the production of food, wool, skins or fur, or for the purpose of its use in the farming of land);</li> <li>• The use of land as grazing land, meadow land, osier land, market gardens and nursery grounds; and</li> <li>• The use of land for woodlands where that use is ancillary to the farming of land for other agricultural purposes.</li> </ul>
Agricultural Land Classification (ALC)	The ALC provides a method for assessing the quality of farmland to enable informed choices to be made about its future use within the planning system.
air pollutants	Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects on humans, animals, vegetation and/or materials.
Air Quality Management Area (AQMA)	A defined area by virtue of Section 82(3) of the Environment Act 1995, where it appears that the air quality objectives prescribed under the UK Air

	Quality Strategy will not be achieved. In these areas, a Local Authority must designate Air Quality Management Areas, within which an Action Plan can be proposed to secure improvements in air quality so that prescribed air quality objectives can be achieved.
Air Quality Sensitive Receptors	People, property or designated sites for nature conservation that may be at risk from exposure to air pollutants that could potentially arise as a result of the Project.
amenity	The preferable features of a location which contribute to its overall character and the enjoyment of residents or visitors.
Applicant	Millbrook Power Limited.
aquiclude	An impermeable body of rock or stratum of sediment that acts as a barrier to the flow of groundwater.
Area of Outstanding Natural Beauty (AONB)	An area designated by Natural England as such under the National Parks and Access to the Countryside Act 1949 by virtue of being a precious landscape whose distinctive character and natural beauty are so outstanding that it is in the nation's interest to safeguard them.
Archaeological Desk Based Assessment	An assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate.
archaeological interest	Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.
Balance of Plant	All infrastructure required to support the Gas Turbine Generators within the Generating Equipment Site and includes: stacks, electrical banking compound, water tanks; administration/workshop/control building and gas receiving station.
baseline	Environmental conditions at specific periods of time, present on, or near a site, against which

	future changes may be measured or predicted.
BBC	Bedford Borough Council
Best Available Technique (BAT)	The most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole.
biodiversity	Abbreviated form of 'biological diversity' referring to variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part.
Biodiversity Action Plan (BAP)	Plans which set specific, measurable, achievable, realistic and time bound conservation targets for species and habitats. The UK BAP is the UK Government's response to the Convention on Biological Diversity (CBD) signed in 1992. More information is available at <a href="http://www.ukbap.org.uk">www.ukbap.org.uk</a> .
British Standards (BS)	The display of a British Standard number shows that the manufacturer claims to have made the produce in accordance with British Standard. A standard is a published document that contains a technical specification or other precise criteria designed to be used consistently as a rule or definition. Standards are designed for voluntary use and do not impose any regulations. However, laws and regulations may refer to certain standards and make compliance with them compulsory. Sometimes BS will be accompanied by the letters EN and/or ISO. These mean that the standard was developed as a European (EN) or International (ISO) standard and then adopted by the UK as a British Standard.
Carbon Capture Readiness (CCR)	A large-scale source (emitter) of CO <sub>2</sub> which could and is intended to be retrofitted with CCS technology when the necessary regulatory and economic drivers are in place.
Carbon Capture and Storage (CCS)	The process of capturing waste carbon dioxide from large point sources, such as fossil fuel power plants, transporting it to a storage site, and depositing it where it will not enter the atmosphere.
Carbon Monoxide (CO)	A colourless, odourless and tasteless gas that is



	produced from the partial oxidation of carbon containing compounds.
CBC	Central Bedfordshire Council
Combined Cycle Gas Turbine (CCGT)	Gas plant technology system comprising Gas Turbine(s) fuelled by natural gas, a Heat Recovery Steam Generator(s) utilising heat from the Gas Turbine exhaust gases, and a steam turbine plant with associated condensing system.
Combined Heat and Power (CHP)	A cogeneration power station capable of supplying power to the National Grid and also heat to local heat users (such as industry or leisure) through a direct connection to waste heat/steam produced as part of the combustion process.
Conceptual Site Model (CSM)	The objective of constructing a Conceptual Site Model is to record all the potential pollutant linkages between the source of contamination and the receptors, i.e. the reasonably possible ways in which the receptors may experience exposure and consequent adverse effects.
Conservation Area	An area of special environmental or historical importance that is protected from changes by law by statutory designation.
Construction Environmental Management Plan (CEMP)	Strategic document setting out best practice methods to minimise environmental impacts (including dust) during construction.
consultation	Procedures for assessing public, landowner and statutory consultee opinion about a plan or major development proposal including seeking the views of affected neighbours or others with an interest in the Project or affected land.
contamination	Where land has been affected by contamination, it may present a risk to humans, ecosystems, water quality and property.
County Wildlife Site (CWS)	County Wildlife Sites known nationally as Local Sites, are considered to be of value for wildlife in a county context. While they do not receive statutory protection, they are given some protection through the planning system.
Covanta RRF Project	The proposed Resource Recycling Facility (RRF) to be developed by Covanta Rookery South Limited to the north of the Generating Equipment Site and for which Covanta Rookery South Limited was granted a DCO consent pursuant to the PA 2008 in the autumn of 2011.

cropmarks	A mark that is produced by the effect of underlying archaeological or geological features influencing the growth of a particular crop.
Cultural Heritage	The legacy of physical artefacts and intangible attributes of a group or society inherited from past generations, maintained in the present and bestowed for the benefit of future generations. Cultural heritage includes both physical culture (such as buildings, monuments, landscapes, books, works of art and artefacts) as well as intangible culture (such as folklore, traditions, language and knowledge).
Cumulative effects	The summation of effects that result from changes caused by a development in conjunction with other reasonably foreseeable development that is either consented but not yet constructed or is in the process of seeking consent.
Design and Access Statement (DAS)	A report accompanying and supporting a planning application. It provides a framework for applicants to explain how a proposed design is an appropriate response to the site and its setting, and demonstrate that it can be adequately accessed by prospective users.
Desk Based Assessment (DBA)	Research based primarily on database, report and internet data gathering methods.
Development Consent Order (DCO)	A Development Consent Order (DCO) is made by the Secretary of State (SoS) pursuant to the Planning Act 2008 (PA 2008) to authorise a Nationally Significant Infrastructure Project (NSIP).
Development Consent Order Application (DCO Application)	The Application for a DCO made to the SoS under section 37 of the PA 2008 in respect of the Project, required pursuant to section 31 of the PA 2008 because the Project constitutes an NSIP under section 14(1)(a) and section 15 PA 2008 by virtue of being an onshore generating station in England or Wales of 50 MW capacity or more.
Development Plan Documents (DPD)	Development plan documents (DPD) include the core strategy, allocations, proposals map and action area plans for an area.
dust	Fine particles of solid materials capable of being re-suspended in air and settling only slowly under the influence of gravity where it may cause nuisance.
EA	The Environment Agency

Ecological Impact Assessment (EclA)	A recommended procedure for the ecological component of Environmental Impact Assessment.
effect	The consequence of an impact on the environment.
Electrical Connection	The new electrical connection to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS) for distribution to homes and businesses. It includes a new substation, two new electrical circuits and up to two sealing end compounds (SECs) to connect the substation to the Generating Equipment and the existing 400 kV network. The Electrical Connection is located within the Electrical Connection Opportunity Area.
Electrical Connection Opportunity Area	The area being investigated for the location of the Electrical Connection.
emission	A material that is expelled or released to the environment. Usually applied to gaseous or odorous discharges to the atmosphere.
Environmental Impact Assessment (EIA)	A systematic means of assessing a development project's likely significant environmental effects undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
EIA Regulations	For this project the relevant EIA regulations are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 as amended.
Environmental Statement (ES)	Statutory report summarising the findings of an environmental impact assessment.
European Protected Species (EPS)	European Protected Species are animals and plants that receive protection under the Conservation of Habitats and Species Regulations 2010, in addition to the Wildlife and Countryside Act 1981 (as amended).
Examining Authority (ExA)	Planning Inspector(s) responsible for conducting the examination of, and recommendation as to a decision on, the Application for Development Consent on behalf of the SoS.
features (landscape feature or element)	A component part of the landscape (e.g. hedgerow, wood, stream)

findspot	Location of individual or groups of archaeological artefacts.
Flood Risk Assessment (FRA)	A desk based study which considers the contributing factors and predicts / quantifies the risk of flooding to and from a proposed development and also identifies a water level in the event of flooding.
Flood Zone	<p>An area identified, through modelling, that is at risk of flooding from rivers or the sea, to varying levels of magnitude and frequency. There are four classifications for flood zones as defined in the National Planning Policy Framework (NPPF):</p> <ul style="list-style-type: none"> <li>• Zone 1: Low probability (less than 1 in 1000 annual probability of river or sea flooding in any year);</li> <li>• Zone 2: Medium probability (between 1 in 100 and 1 in 1000 annual probability of river flooding or between 1 in 200 and 1 in 1000 annual probability of sea flooding in any year);</li> <li>• Zone 3a: High probability (1 in 100 or greater annual probability of river flooding in any year or 1 in 200 or greater annual probability of sea flooding in any given year); and</li> <li>• Zone 3b: High probability (functional flood plain. Essentially the 1 in 20 or greater annual probability of flooding in any given year).</li> </ul>
Gas Connection	A new underground gas Pipeline connection and Above Ground Installation (AGI) to bring natural gas to the Generating Equipment from the Gas National Transmission System (NTS). There are currently two remaining Gas Connection options which are being taken forward through the PEIR. Gas Connection Route Corridor Option 1, the preferred option and Gas Connection Route Corridor Option 2.
Gas Connection Opportunity Area	The area being investigated for specific route corridor options for the Gas Connection.
Gas Turbine Generators	Between one and five Simple Cycle Gas Turbine (SCGT) generators (as proposed in the Power Generation Plant) which utilise the combustion of gas and air to generate hot gases that are routed across turbine blades, which generate rotational forces that turn an electrical generator. The exhaust gases are discharged directly to the stack without

	providing heat for a secondary steam cycle. Each Gas Turbine Generator may constitute one or two gas turbines venting to a single stack. The Gas Turbine Generators form part of the Generating Equipment and are located within the Generating Equipment Site.
Generating Equipment	Gas Turbine Generators and balance of plant which are located on the Generating Equipment Site.
Generating Equipment Site	The site where the Generating Equipment is located.
groundwater	Water occurring in the ground which can be reasonably attributed to relatively geologically recent recharge and which can be reasonably considered to be wholesome (potable) unless it has been contaminated (altered) by anthropogenic activity.
Guidelines for Landscape and Visual Impact Assessment (GLVIA)	The third edition of Guidelines for Landscape and Visual Impact Assessment (GLVIA3) was published on the 17th April 2013 by the Landscape Institute and Institute of Environmental Management and Assessment.
habitat	The environment in which populations or individual species live or grow.
Heavy Goods Vehicle (HGV)	A mechanically propelled road vehicle that is of a construction primarily suited for the carriage of goods or burden of any kind and designed or adapted to have a maximum weight exceeding 3,500 kilograms when in normal use and travelling on a road laden.
Hectare (ha)	A unit of area (10,000 m <sup>2</sup> / 2.471 acres).
heritage asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets identified by the local planning authority (including local listing).
historic environment	All aspects of the environment resulting from the interaction between people and places through time including all surviving physical remains of past human activity, whether visible, buried or submerged, and landscaped and planted or managed flora. Those elements of the historic environment that hold significance are called heritage assets.

Historic Environment Record (HER)	The repository for all archaeological and historical information relating to a county or district.
hydrology	The movement, and distribution of water throughout the earth.
impact	A physical or measurable change to the environment attributable to the Project.
Institute of Environmental Management and Assessment (IEMA)	An environmental professional body.
Joint Nature Conservancy Committee	A public body that advises the UK Government and devolved administrations on UK-wide and international nature conservation.
Key Ecological Receptor	Receptor of key ecological value which may be affected by the Project.
kilometre (km)	Measurement of distance (1000 metres).
kilovolt (kV)	Measurement of the amount of electric potential energy.
landscape assessment	An umbrella term for description, classification and analysis of the landscape.
landscape character	The distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement.
landscape effects	Change in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be positive or negative.
Landscape Character Assessment (LCA)	The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscapes distinctive. The process results in the production of a Landscape Character Assessment
Landscape and Visual Impact Assessment (LVIA)	A tool used to identify and assess the likely significant of the effects of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity.

Laydown Area	The area required during construction for storing materials and equipment. It is located within the Power Generation Plant Site.
Listed Building	The Secretary of State compiles a list of buildings of special architectural or historic interest for the guidance of local planning authorities in the exercise of their planning functions under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the Town and Country Planning Act 1990. Buildings are graded as follows: <ul style="list-style-type: none"> <li>• Grade I – Buildings of exceptional interest;</li> <li>• Grade II* - Particularly important buildings of more than special interest; and</li> <li>• Grade II – Buildings of special interest.</li> </ul>
Local Development Plan (LDP)	The set of documents and plans that sets out the local authority's policies and proposals for the development and use of land in their area.
Low Level Restoration Scheme (LLRS)	The LLRS for Rookery South Pit (assuming no additional proposed developments prior to its completion) aims to restore the pit base to low intensity agricultural land, with a ditch system draining water to a large attenuation pond and pit stabilisation works.
Local Nature Reserve (LNR)	A site of importance for wildlife, geology, education or public enjoyment. Some are also nationally important Sites of Special Scientific Interest. Local Nature Reserves must be controlled by the local authority through ownership, lease or agreement with the owner.
Local Plan	A detailed district or borough-wide land-use plan, prepared and adopted by a local planning authority, which is part of the statutory development plan. Consists of a written statement which sets out the local planning authority's development control policies and proposals for land use and transport over a period of about 10 years and an Ordnance Survey-based proposals map. This document may be relevant and important in the Secretary of State's decision making process as to whether or not to make a Development Consent Order for a project.
magnitude	A combination of the scale, extent and duration of an effect.
metre (m)	Measurement of length.

Millbrook Power Limited (MPL)	A special purpose vehicle which has been established by Watt Power Limited (WPL) to develop the Project.
mitigation measures	Actions proposed to prevent, reduce and where possible offset significant adverse effects arising from the whole or specific elements of a development.
millimetre (mm)	Measurement of size.
Minimum Offtake Connection (MOC)	A connection that offtakes gas directly from the National Transmission System. The MOC forms part of the AGI and therefore the Gas Connection. It is located within the Gas Connection Opportunity Area.
National Grid	National Grid's principal operations are the ownership and operation of regulated electricity and gas infrastructure networks in the UK and the US, serving around 19 million consumers directly and many more indirectly.
National Grid Electricity Transmission System (NETS)	A high-voltage electric power transmission network connecting power stations and major substations and ensuring that electricity generated anywhere in England, Scotland and Wales can be used to satisfy demand elsewhere.
National Park	A national park is an area statutorily designated for its special landscape rich in character and distinctiveness, wildlife history and heritage.
National Policy Statement (NPS)	Overarching policy designated under the PA 2008 concerning the planning and consenting of NSIPs in the UK.
National Transmission System (NTS)	A network of gas pipelines throughout the United Kingdom that supply gas to large industrial customers from natural gas terminals situated on the coast, and also gas distribution companies which lead indirectly to homes.
Nationally Significant Infrastructure Project (NSIP)	The Project constitutes a Nationally Significant Infrastructure Project (NSIP) by virtue of s.14(1)(a) and s.15 of the PA 2008 which include within the definition of a NSIP any onshore generating station in England or Wales of 50 MW capacity or more.
Nitrous Oxides (NO <sub>x</sub> )	Gases produced during combustion, including nitric oxide (NO) and nitrogen dioxide (NO <sub>2</sub> ).
noise	Noise defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of



	<p>sound, if added together will result in an increase in level of 3 dB i.e 50 dB + 50 dB = 53 dB. Increases in continuous sound are perceived in the following manner:</p> <ul style="list-style-type: none"> <li>• 1 dB increase – barely perceptible</li> <li>• 3 dB increase – just noticeable</li> <li>• 10 dB increase – perceived as twice as loud</li> </ul>
Noise Sensitive Receptor (NSR)	Principally houses (existing or for which planning consent is being sought / has been given) and any building used for long-term residential purposes (such as a nursing home).
Non-Technical Summary (NTS)	A report which briefly describes the main points discussed in the Environmental Statement in a clear manner, without the use of technical jargon and phraseology.
particulate matter	Solid particles or liquid droplets suspended or carried in the air.
peaking plant	Peaking plants are operated when there is a Stress Event.
Planning Inspectorate (PINS)	The work of PINS includes <b>examining</b> national infrastructure planning under the Planning Act 2008 process; processing planning and enforcement appeals; holding examinations into local plans and community infrastructure levy charging schedules on behalf of the SoS.
Phase 1 Habitat Survey	An ecological survey technique that provides a standardised system to record vegetation and wildlife habitats. It enables a basic assessment of habitat type and its potential importance for nature conservation.
photomontage	A type of visualisation or illustration that is based on photographs and that simulates the likely appearance of a proposed development in the photographic view. Photomontages are used as illustrations of the professional judgement of a landscape professional as to the significance of the effect of a project on landscape and visual receptors.
PIG Trap Facility (PFT)	PIG traps allow PIGs to be inserted into and removed from a pipeline which is to undergo a “pigging” programme and which is likely to be under pressure. The PFT forms part of the AGI and therefore the Gas Connection. It is located within

	the Gas Connection Opportunity Area.
Pipeline Inspection Gauge (PIG)	Means a device to perform various maintenance operations on a pipeline.
Pipeline	The new underground gas pipeline connection proposed as part of the Gas Connection which is located within the Gas Connection Opportunity Area.
Planning Act 2008 (PA 2008)	UK legislation which passes responsibility for examining development consent order applications for NSIPs to the Planning Inspectorate, who will examine applications and make recommendations for a decision by the relevant Secretary of State (the Secretary of State for Energy and Climate Change in the case of energy NSIP applications).
Preliminary Environmental Information Report (PEIR)	The report that provides information referred to in Part 1 of Schedule 4 of the EIA Regulations (information for inclusion in Environmental Statements) which has been compiled by the Applicant; and is reasonably required to assess the environmental effects of the development (and of any associated development).
Power Generation Plant	A SCGT gas fired 'peaking' power generating plant capable of providing up to 299 MW comprising: the Generating Equipment; Access Road; and temporary Laydown Area. It will be located within the Power Generation Plant Site.
Power Generation Plant Site	The site in which the Power Generation Plant will be located.
Project	The Power Generation Plant, Electrical Connection and Gas Connection located on the Project Site.
Project Site	The entire area covered by or required in order to deliver the Project.
Public Right of Way (PROW)	A right of passage by the public over the surface of the land without impediment. Public Rights of Way include public footpaths, bridleways and byways open to all traffic as well as Restricted Byways.
receptor	A component of the natural, created or built environment such as a human being, water, air, a building, or a plant that has the potential to be affected by the Project.
Reciprocating Gas Engine (RGE)	An engine that employs the expansion of hot gases to push a piston within a cylinder, converting the linear movement of the piston into the rotating

	movement of a crankshaft to generate power.
Red Line Boundary	The boundary of the Project Site, denoted by a red line on figures.
Registered Parks and Gardens	A register of historic parks and gardens held by English Heritage for parks and gardens of particular historic importance.
residual effects	Those effects of a development that remain following the implementation of mitigation measures.
Restricted Byways	Rights of way along which it is legal to travel by any mode (including on foot, bicycle, horse-drawn carriage etc.) but excluding 'mechanically propelled vehicles'.
Rochdale Envelope	The Rochdale Envelope allows for a project to evolve over a number of years, within clearly defined parameters. The EIA takes account of the need for such evolution within those parameters, and reflects the likely significant effects of such a flexible project in the ES.
Route Management Strategy	Strategy to set out an appropriate route for construction traffic to avoid impacts on sensitive roads such as villages.
Scheduled Monument	A building included in the Schedule of Monuments compiled under Section 1 of the Ancient Monuments, and Archaeological Area Act 1979. Scheduled Monuments have statutory protection under this Act (Section 2) and an application for Scheduled Monument Consent must be made to the Secretary of State for Culture, Media and Sport if work to a Scheduled Monument is proposed.
scoping	An exercise undertaken pursuant to regulation 8 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 to determine the topics to be addressed within the Environmental Statement.
Scoping Opinion	The Scoping Opinion for the proposed Project issued by PINs dated July 2014
Scoping Report	The Scoping Report for the proposed Project prepared by the Applicant and dated June 2014
screening	Consideration as to whether an environmental impact assessment is required for a project.
Secretary of State (SoS)	The decision maker for a NSIP application and head of a government department.

Simple Cycle Gas Turbine (SCGT)	Gas plant technology system comprising Gas Turbine(s) fuelled by natural gas. The hot exhaust gases are routed directly to the stack without passing through a secondary steam turbine. The generating technology used for the Power Generation Plant.
Site of Special Scientific Interest (SSSI)	A site statutorily notified under the Wildlife and Countryside Act 1981 (as amended) as being of special nature conservation or geological interest. SSSIs include wildlife habitats, geological features and landforms.
Special Area of Conservation (SAC)	Areas of protected habitats and species as defined in the European Union's Habitats Directive (92/43/EEC).
Special Protection Area (SPA)	Sites classified in accordance with Article 4 of the EC Birds Directive (79/409/EEC) which came into force in April 1979. They are classified for rare and vulnerable birds (as listed on Annex 1 of the Directive), and for regularly occurring migratory species.
Special Purpose Vehicle (SPV)	A legal entity created to fulfil the specific purpose of developing projects.
species	A group of interbreeding organisms that seldom or never interbreed with individuals in other such groups, under natural conditions; most species are made up of subspecies or populations.
stack	The structure by which the exhaust gases and waste heat are emitted to the atmosphere. The height of the structure would be between 30m-35m and would contain a silencer to reduce noise emissions. The exhaust gases would be subject to emissions control abatement.
Statement of Community Consultation (SoCC)	A statement describing how the promoter (Applicant) proposes to consult the local community about the Project.
stress event	A surge in demand for electricity associated with a particular event (e.g. where many people across the country boil kettles following the end of a popular television programme) or where there is a sudden drop in power being generated from plants which are constantly operational (e.g. a sudden outage).
Sustainable Drainage System (SuDS)	Sustainable management practices designed to control the rate and quality of surface water runoff into receiving waters, e.g. the use of swales and

	wetlands as buffers, as opposed to conventional drainage practices.
topography	The natural or artificial features, level and surface form of the ground surface.
Transport Assessment (TA)	A quantitative assessment of the transport effects of construction and operational phases of the Project.
United Kingdom (UK)	The territory of the United Kingdom.
visual amenity	The value of a particular area or view in terms of what is seen.
visual effect	Change in the appearance of the landscape from available viewpoints as a result of development.
Watt Power Limited (WPL)	Watt Power Limited was established to develop flexible gas fired generation assets to support the UK Government's drive to a low carbon economy. WPL has set up Millbrook Power Limited, a Special Purpose Vehicle to develop the Project.
Written Scheme of Investigation (WSI)	An archaeological method statement, describing known and potential archaeological features and deposits and proposes a scheme for exploring them.
Zone of Theoretical Visibility (ZTV)	Areas from which a specified element of a development may be visible.

## Appendix 2. Policy and Guidance

### 2.6 – Air Quality

#### The Air Quality Strategy

The Air Quality Strategy (2007) establishes the policy framework for ambient air quality management and assessment in the UK. The primary objective is to ensure that everyone can enjoy a level of ambient air quality which poses no significant risk to health or quality of life. The Strategy sets out the National Air Quality Objectives (NAQOs) and Government policy on achieving these objectives.

The relevant NAQOs for Local Air Quality Management (LAQM) are prescribed in the Air Quality (England) Regulations 2000 and the Air Quality (Amendment) (England) Regulations 2002. The objectives for the protection of human health are summarised, as appropriate to the Project, in Table 2-6.1.

**Table 2.6.1: Air Quality Objectives for the protection of human health**

Pollutant	Averaging Period	Objective ( $\mu\text{g}/\text{m}^3$ )	Number of permitted exceedences
Nitrogen Dioxide ( $\text{NO}_2$ )	1 hour	200	18
	Annual	40	-
Carbon Monoxide	8-hour rolling	10,000	-

Where an objective is unlikely to be met, the local authority must designate an Air Quality Management Area (AQMA) and draw up an Air Quality Action Plan (AQAP) setting out the measures it intends to introduce in pursuit of the objectives within its AQMA.

The Local Air Quality Management Technical Guidance 2009 (LAQM.TG(09); Defra, 2009) issued by the Department for Environment, Food and Rural Affairs (Defra) for Local Authorities provides advice as to where the NAQOs apply. These include outdoor locations where members of the public are likely to be regularly present for the averaging period of the objective (which vary from 15 minutes to a year). Thus, for example, annual mean objectives apply at the façades of residential properties, whilst the 24-hour objective (for PM10) would also apply within the garden. They do not apply to occupational, indoor or in-vehicle exposure.

#### EU Limit Values

The Air Quality Standards Regulations 2010 implements the European Union's Directive on ambient air quality and cleaner air for Europe (2008/50/EC), and

includes limit values for NO<sub>2</sub>. These limit values are numerically the same as the NAQO values but differ in terms of compliance dates, locations where they apply and the legal responsibility for ensuring that they are complied with. The compliance date for the NO<sub>2</sub> EU Limit Value was 1 January 2010, five years later than the date for the NAQO.

Directive 2008/50/EC consolidated the previous framework directive on ambient air quality assessment and management and its first three daughter directives. The limit values remained unchanged, but it now allows Member States a time extension for compliance, subject to European Commission (EC) approval. Despite many areas of the UK not being compliant with the annual average NO<sub>2</sub> limit value, the UK has decided not to seek an extension to the compliance date for this pollutant. This was on the basis that it could not be guaranteed that the UK would be compliant by the latest date allowable under the Directive (1 January 2015).

The Directive limit values are applicable at all locations except:

- Where members of the public do not have access and there is no fixed habitation;
- On factory premises or at industrial installations to which all relevant provisions concerning health and safety at work apply; and
- On the carriageway of roads; and on the central reservations of roads except where there is normally pedestrian access.

### **Industrial Emissions Directive (IED)**

Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) (IED) recast seven directives related to industrial emissions, in particular Directive 2008/1/EC of 15 January 2008 concerning integrated pollution prevention and control (the Integrated Pollution Prevention and Control (IPPC) Directive) and Directive 2001/80/EC of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants (the Large Combustion Plant Directive (LCPD)), into a single legislative instrument to improve the permitting, compliance and enforcement regimes adopted by Member States.

The IPPC Directive laid down measures to prevent or, where that is not practicable, to reduce emissions in the air, water and land introducing ELVs and BAT. The LCPD prescribed ELVs for NO<sub>x</sub>, SO<sub>2</sub> and PM<sub>10</sub>.

The IED makes provisions for the continuation of the requirements and principles of the IPPC Directive and the LCPD and introduces new, more stringent, ELVs with full compliance required by 1st January 2016.

The LCPD and IPPC Directives are implemented in England and Wales by the Environmental Permitting (England and Wales) Regulations 2010 (the EP Regulations).

## Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency will control and regulate the Generating Equipment with respect to the emissions to air from the stacks via an Environmental Permit that will be required for the Generating Equipment. The Environmental Permit will include specific ELVs to apply to the Generating Equipment for the relevant pollutants considered within the IED. Such limits will be based on the associated emissions levels (AEL) of recognised BAT as per current EA guidance notes and the existing EU IPPC 'Reference Document on Best Available Techniques for Large Combustion Plant' (2006) and the draft update of this document, 'Best Available Techniques Reference Documents for the Large Combustion Plants' (2013) (together, "BREF Notes").

## The Habitats Directive

The European Habitats Directive (92/43/EEC) sets out the legal framework requiring EU member states to protect habitat sites supporting vulnerable and protected species, as listed within the Directive. This Directive is transposed into UK law by the Conservation of Habitats and Species Regulations 2010 (as amended) and requires protection of ecological sites including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Across the UK, site-specific critical levels (which relate to airborne pollutant concentrations at ground level) and critical loads (which relate to deposition of materials to soils) have been set for a variety of protected habitats and species in order to allow the quantitative assessment of the condition of ecologically sensitive sites and thus the protection of such sites by the relevant competent authorities.

## The Ambient Air Quality Directive

The Ambient Air Quality Directive sets ambient air quality guidelines for NO<sub>x</sub> for the protection of ecosystems. This imposes a long-term (annual average) limit for NO<sub>x</sub> of 30 µg/m<sup>3</sup> (critical level). In terms of the limit for the protection of ecosystems, it is important to define the areas in which the limit is to be achieved. Directive 2008/50/EC states that sampling points to determine concentrations should be:

- 20 km from an agglomeration (which is defined as an area with a population of more than 250 000); or
- At least 5 km from other built-up areas, industrial installations or motorways or major roads with traffic counts of more than 50 000 vehicles per day;
- Representative of air quality in a surrounding area of at least 1,000 km<sup>2</sup>.

This is mirrored in the Air Quality Standards Regulations 2010.

## The Countryside and Rights of Way Act 2000

Improved provisions for the protection and management of SSSIs (in England and Wales) were introduced by the Countryside and Rights of Way (CROW) Act 2000. If



a development is “likely to damage” a SSSI, the CROW act requires that a relevant conservation body (i.e. Natural England) is consulted. The CROW act also provides protection to local nature conservation sites, which can be particularly important in providing ‘stepping stones’ or ‘buffers’ to SSSIs and European sites. In addition, the Environment Act (1995) and the Natural Environment and Rural Communities Act (2006) both require the conservation of biodiversity.

### National Policy Statements

NPS EN-1 explains the generic air emissions impacts with regard to energy infrastructure. Specific considerations for fossil fuel generating stations are provided in the NPS for Fossil Fuel Generating Infrastructure (EN-2). The NPSs for Gas and Oil Pipelines (EN-4) and Electricity Networks Infrastructure (EN-5) provide specific considerations potentially relevant to the Gas Connection and Electrical Connection respectively.

### Other National and Local Policy

Whilst the PA 2008 is clear as to the primacy of the relevant NPS, other national and local planning policy may be considered important and relevant by the SoS in the determination of an energy NSIP.

The NPPF states (paragraph 7) that the planning system should perform a number of roles in delivering sustainable development including an environmental role “contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy.”

The Bedford Borough Council Core and Rural Issues Plan (2021)<sup>1</sup> aims to promote and guide sustainability practices at the borough.

The “Policy CP26 Climate Change and Pollution” states that:

“The Council will require development to:

- Minimise the emissions of pollutants into the wider environment; and
- Have regard to cumulative impacts of development proposals on air quality, in particular to relation to air quality management areas.”

The Bedford Borough Council Air Quality Action Plan 2007<sup>2</sup> (amended as of July 2008) sets out the actions that the Council is taking and intending to take to improve the air quality in the borough. This Action plan builds upon previous policies namely the Corporate Plan, the Community Plan and the Local Development Framework. The measures include improvement to the road network and traffic management;

<sup>1</sup> Available at: [http://www.bedford.gov.uk/environment\\_and\\_planning.aspx](http://www.bedford.gov.uk/environment_and_planning.aspx)

<sup>2</sup> Available at: <http://www.hertsbedsair.net/>

reduce road congestion, especially in areas near declared AQMAs and reducing emissions from non-transport related sources, among others.

The Development Strategy for Central Bedfordshire 2014<sup>3</sup> builds upon The Local Plan adopted in 2004. It establishes the policy framework for new developments in the District.

The “Policy 44 Protection from the Environmental Pollution” stipulates that:

“Development proposals which are likely to cause, pollution or are likely to be exposed to potential unacceptable levels of pollution or land instability sources of pollution will not be permitted unless it can be demonstrated that measures can be implemented to minimise impacts to a satisfactory level which protects health, environmental quality and amenity”

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<sup>3</sup> Available at:

[http://www.centralbedfordshire.gov.uk/Images/DS%20PUBLICATION%20FINAL\\_260614\\_FOR%20WEB\\_tcm6-55496.pdf](http://www.centralbedfordshire.gov.uk/Images/DS%20PUBLICATION%20FINAL_260614_FOR%20WEB_tcm6-55496.pdf)

## 2.7 – Noise and Vibration

### NPS EN-1 ‘Overarching National Policy Statement for Energy’

Section 5.11 of NPS EN-1 sets out the requirements for assessing and mitigating noise and vibration from NSIPs in the energy sector. It also sets out the approach the SoS should adopt when considering noise assessments.

It advises that operational noise from the a development and the proximity to noise sensitive premises, quiet areas or sites designated for ecological reasons are likely to determine the impact of noise.

Where noise impacts are likely, a noise assessment should be undertaken in line with details listed in the NPS.

Noise and vibration should be assessed using relevant British Standards (e.g. BS 4142, BS 6472, BS 8233 and BS 5228) and other guidance, including the other NPS’s.

NPS EN-1 advises the IPC that the project should:

“Demonstrate good design through selection of the quietest cost-effective plant available; containment of noise within buildings wherever possible; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission.”

The proposal should meet the following aims before the IPC grants consent:

“Avoid significant impacts on health and quality of life from noise,

Mitigate and minimise other adverse impacts on health and quality of life from noise,

Where possible, contribute to improvements to health and quality of life through the effective management and control of noise.”

### NPS EN-5 ‘National Policy Statement for Electricity Networks Infrastructure’

NPS EN-5 advises that high voltage transmission lines generate noise when the conductor surface electrical stress exceeded the inception level for corona discharge activity. This can be caused when surface contamination on a conductor or accidental damage occurs during transport or installation.

It goes on to advise that highest noise levels are generated by a line during rain but that contamination may accumulate after a prolonged spell of dry weather. Surface grease can also cause noticeable noise if substandard grease is used during manufacture or the conducted has been overheated by carrying excessive electric load.

Substation equipment such as transformers, quadrature boosters, mechanically switched capacitors and discharges on overhead line fittings such as spacers,

insulators and clamps can also cause audible noise. Whether the noise can be heard outside of the substation depends on, for example, transformer type and level of noise attenuation present.

NPS EN-5 advises that British Standards (e.g. BS 4142) is suitable for assessment of dry weather conditions but not during rain. It therefore advises use of “an alternative noise assessment method such as the one developed by National Grid as described in report TR(T)94,1993”.

### **National Planning Policy Framework, 2012**

In respect of noise the NPPF states that:

“The planning system should contribute to and enhance the natural and local environment by... preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of... noise pollution”.

- It sets out four aims for planning policies and decisions:
- “Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development,
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions,
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established,
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”

The NPPF sets out a maximum noise level for mineral extraction of 55 dB LAeq,1h. During consultation the Public Protection Officer at CBC advised that this noise level is used as a construction noise limit. However, as the construction work is short term in nature an alternative limit has been proposed based on guidance within BS 5228-1.

### **Noise Policy Statement for England, 2010**

NPSE seeks to clarify the underlying principles and aims in existing policy documents, legislation and guidance that relate to noise. It also sets out the long term vision of Government noise policy: “to promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development”.

The NPSE clarifies that noise should not be considered in isolation of the wider benefits of a scheme or development, and that the intention is to minimise noise and noise effects as far as is reasonably practicable having regard to the underlying principles of sustainable development.

It sets out three aims, which can be summarised as:

- “Avoid significant adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development,
- Mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development,
- Where possible, contribute to the improvement of health and quality of life through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development.”

### **Planning Practice Guidance, 2014**

The PPG “provides answers to a number of questions and reiterates the guidance within the NPPF and NPSE”. It states that “noise needs to be considered when new developments may create additional noise and when new developments would be sensitive to the prevailing acoustic environment”.

It provides advice regarding how to determine the impact of noise, including whether or not a significant adverse effect or adverse effect “is occurring or likely to occur” and whether or not a “good standard of amenity can be achieved”.

The PPG also provides guidance regarding what factors influence whether noise could be a concern, including:

- Source and absolute level of the noise;
- Time of day,
- Number and pattern of noise events (for non-continuous sound),
- Frequency content of the noise,
- General character (“i.e. whether or not the noise contains particular tonal characteristics or other particular features”), and
- Local topology and topography.

Additionally, “when relevant”, the cumulative impact of multiple sources along with the extent to which the noise source is intermittent and of limited duration.

The PPG also provides advice on how the adverse effects of noise can be mitigated which are broadly in line with measures outlined in NPS EN-1.

### Relevant British Standards and Guidance

A variety of different standards have been considered for the noise assessment of the Project. These standards relate to the methodology used for noise monitoring and data collection, noise and vibration assessment for operational impacts and noise and vibration assessment for construction impacts.

It is necessary to consider a range of standards given the nature of the Project (e.g. potential to generate noise and vibration from a range of sources and impact on a range of receptors during construction, decommissioning and operation).

#### BS 4142:1997 Method for rating industrial noise affecting mixed residential and industrial areas, 1997

BS 4142 sets out a method for determining the level of noise of an industrial nature, together with procedures for assessing whether the noise is likely to give rise to complaints from people living nearby.

A revision to BS 4142:1997 is currently in progress. However, the method in the current standard subtracts the background level (LA90,T) from the 'rating level', (LAR,Tr) which is calculated by adjusting the noise source (with a 5 dB penalty) for a character correction where the noise:

- Contains a distinguishable, discrete, continuous note,
- Contains distinct impulses,
- Is irregular enough to attract attention.

#### BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites Part 1 Noise, 2014

BS 5228-1 provides recommendations for the prediction and control of noise from construction and other open sites where construction activities are carried out.

#### BS 5228-2:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites Part 2 Vibration, 2014

BS 5228-2 provides advice on the human response to construction vibration. Table A2.1 provides the BS 5228-2 guidance.

**Table 2.7.1: Human Responses to Vibration**

Vibration Level (mm s <sup>-1</sup> )	Description
0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At

	lower frequencies, people are less sensitive to vibration.
0.30	Vibration might just be perceptible in residential environments
1.0	It is likely that vibration at this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents
10	Vibration is likely to be intolerable for any more than a very brief exposure to this level

## 2.8 – Ecology

### Legislation

- Conservation of Habitats and Species Regulations 2010 (as amended)
- Wildlife and Countryside Act 1981(as amended)
- The Natural Environmental and Rural Communities Act 2006

### National Policy Context

- National Policy Statement for Energy EN-1
- National Policy Statement for Renewable Energy Infrastructure EN-3
- National Planning Policy Framework
- UK Post-2010 Biodiversity Framework

### Local Planning Policy Context

- Bedford Borough, Central Bedfordshire and Luton Borough Councils: Minerals and Waste Local Plan Strategic Sites and Policies (adopted January 2014)
- Central Bedfordshire Council Core Strategy and Development Management Policies
- Bedford Borough Council Core Strategy & Rural Issues
- The Forest of Marston Vale Forest Plan 2000



## 2.9 – Water Quality and Resources

### National Policy Statements

In relation to hydrological considerations of Energy NSIPs, NPS EN-1 requires that:

- Where the Project is likely to have effects on the water environment, the applicant should undertake an assessment of the existing status of, and impacts of the development on, water quality, water resources and physical characteristics of the water environment;
- An application should be accompanied by a Flood Risk Assessment (FRA) for energy projects of 1ha or greater in Flood Zone 1 and all energy projects in Flood Zone 2 and 3;
- Pre-application discussions are undertaken with the Environment Agency and other bodies;
- Any requirements for sequential testing are satisfied;
- Priority is given to the use of Sustainable Drainage Systems (SuDS).

The NPPF and the accompanying Planning Practice Guidance sets out the Government's national policy on development and flood risk and seeks to provide clarity on what is required at regional and local levels to ensure that flood risk is taken into account at all stages in the planning process, to avoid inappropriate development in areas at risk of flooding and to direct development away from areas at highest risk. The NPPF outlines a risk based approach to the planning process and requires that the Sequential Test is used to guide the decision making process by steering development to areas with the lowest probability of flooding where feasible.

The NPPF requires that the spatial planning process should consider the possible impacts of climate change and contingency allowances are provided to enable impacts to be considered over the lifetime of the development.

### The Water Resources Act

The Water Resources Act 1991 (WRA) came into effect in 1991 and replaced the corresponding sections of the Water Act 1989.

The WRA sets out the responsibilities of the Environment Agency in relation to water pollution, resource management, flood defence, fisheries and, in some areas, navigation. The WRA regulates discharges to controlled waters, namely rivers, estuaries, coastal waters, lakes and groundwater. Discharge to controlled waters is only permitted with the consent of the Environment Agency. Similarly, a licence is required to abstract from controlled waters.

## **Water Environment (Water Framework Directive) (England and Wales) Regulations (DEFRA, 2003)**

These regulations transpose the EU Water Framework Directive (WFD) into national law. The Directive is a wide-ranging piece of European legislation that establishes a new legal framework for the protection, improvement and sustainable use of surface waters, coastal waters and groundwater across Europe in order to:

- Promote sustainable water use;
- Contribute to the mitigation of floods and droughts;
- Prevent deterioration and enhance status of aquatic ecosystems, including groundwater;
- Reduce pollution.

Water management has historically been co-ordinated according to administrative or political boundaries. The WFD promotes a new approach based upon management by river basin - the natural geographical and hydrological unit. River basin management plans include clear objectives in respect of water quality and pollution control and a detailed account of how objectives are to be met within a prescribed timeframe.

## **Land Drainage Act 1991**

The Act consolidates various enactments relating to Internal Drainage Boards and the functions of these Boards and local authorities in relation to land drainage. Amongst other matters, the Act sets out provisions and powers in respect of the control of flow of watercourses and watercourse restoration/improvement work.

## **The Environmental Permitting (England and Wales) Regulations 2010**

The Regulations as amended provide the regulatory framework under which discharges to controlled water and other emissions to the environment are controlled.

## **The Surface Waters Plan - Plan for Strategic Management of Surface Waters and their Local Environment in the Forest of Marston Vale (Bedfordshire and River Ivel Internal Drainage Board and the Forest of Marston Vale, June 2002)**

This document was prepared to promote a series of policies that will encourage an integrated and sustainable approach to the management of surface waters in the context of major development in the area, including

- An integrated approach to flood risk management, surface water drainage and the water environment;
- Promote government guidance such as PPS25, providing a framework for the site specific Flood Risk Assessments to be produced in support of planning applications;

- Implementation of strategic solutions to surface water drainage and flood risk that are sustainable and offer opportunities for environmental and recreational gains.

It should be noted that Rookery Pit lies outside of the Bedfordshire and River Ivel Internal Drainage Board's area of jurisdiction. However, Mill Brook, which flows along the western side of the Pit, outfalls to Stewartby Lake located just to the west, which is a water body maintained by the Bedfordshire and River Ivel Internal Drainage Board.

## 2.10 – Ground Conditions

### Legislation - Soils

The protection and conservation of the soil and groundwater environment is covered within a variety of legislative and policy frameworks.

UK legislation on contaminated land is principally contained in Part 2A of the Environmental Protection Act, 1990, as amended by the Environment Act 1995. The Statutory Guidance that accompanies the Act has recently been revised and was issued by DEFRA in April 2012 (Department of Environment, Food and Rural Affairs Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance).

Contaminated Land for the purpose of Part 2A is defined as: “...any land which appears to the local authority in whose area it is situated to be in such condition, by reason of substances in, on or under land that: (i) Significant harm is being caused or there is significant possibility of such harm being caused; or (ii) Pollution of controlled waters is being, or is likely to be, caused.”

The principle of risk assessment underlies the determination of whether these definitions apply in the identification of contaminated land. Risk assessment is carried out via ‘source-pathway-receptor’ principles to evaluate the potential for pollutant linkages and to identify unacceptable risk. The application of risk assessment techniques to the management of contaminated land is set out in the technical framework presented in the Environment Agency Model Procedures for the Management of Contaminated Land (CLR11).

Following the review of the contaminated land regime including public consultation, revised Statutory Guidance was issued and the Contaminated Land (England) (Amendment) Regulations 2012 (SI 2012/263) and the Contaminated Land Statutory Guidance for England 2012 came into force on 6th April 2012. This revised Statutory Guidance while still taking a precautionary approach allows regulators to make quicker decisions about whether or not land is contaminated under Part 2A preventing costly remediation Power Generation Plant being undertaken unnecessarily. It also offers better protection against potential health impacts by concentrating on the sites where action is actually needed.

### Legislation - Groundwater

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the Water Framework Directive 2000/60/EC (WFD) are the main European legislation in place to protect groundwater. The Water Framework Directive (WFD) (2000) aims to protect and enhance the quality of surface freshwater, groundwaters and dependent eco systems, estuaries and coastal waters.

Controlled waters are also protected by Part 2A of the Environmental Protection Act 1990.

The Environment Agency has a remit to prevent or reduce the risk of water pollution, wherever possible, and to ensure that it gets cleaned up if pollution occurs that might lead to effects on ecosystems or people. A regulatory regime supporting this policy has been introduced by the Water Resources Act 1991 (as modified by the Environment Act 1995), and the Environmental Permitting Regulations 2010.

### **National Planning Policy Framework**

The NPPF sets out to prevent both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. It also requires that unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location.

For planning purposes, the NPPF requires that the assessment of risks arising from contamination and remediation requirements should be considered on the basis of the current environmental setting, the current land use, and the circumstances of its proposed new use.

National Planning Practice Guidance (NPPG) was introduced on the 6th March 2014 by the DCLG in relation to “Land affected by contamination” and “Water supply, wastewater and water quality”. The guidance sets out both the statutory regime and phased approach that should be adopted in the determination and assessment of risk.

National Planning Practice Guidance was also introduced on the 6th March 2014 by the DCLG in relation to “Land Stability”. The guidance sets out both the statutory regime and phased approach that should be adopted in the determination and assessment of risk.

### **Local Policy**

Reference has also been made to regional and local planning policies, including the following:

- Bedfordshire Minerals and Waste Local Plan policies GE1 and GE20 require applications to provide details regarding impact on water resources and its quality.
- Central Bedfordshire’s Local Development Framework draft Design Guide – Requires developers to carry out contaminated land surveys in order to demonstrate how any existing contamination can be mitigated (if present).
- Central Bedfordshire Council (CBC) Core Strategy policy CS13: Climate Change considers measures to take account of climate change, such as; contributions to waste minimisation; and, provisions to limit any adverse effects on water quality. Policy CS18: Biodiversity and Geological Conservation, supports the designation, management, and protection of geology.

- CBC Core Strategy policy DM3: High Quality Development, requires all proposals for new development to comply with the current guidance on waste management, water and airborne pollution.
- Bedford Borough Council (BBC) Core Strategy policy CP21: Designing in Quality, requires new development to mitigate against the effects of any pollution including from water and land contamination.
- BBC Core Strategy policy CP26: Climate Change and Pollution, requires that any potentially polluting developments and the location of sensitive developments in proximity to existing sources of pollution are material planning considerations. This position is supported in the Borough's Climate Change and Pollution SPD.

### Guidance

There are numerous technical guidance documents on the assessment and management of contamination including Contaminated Land Report CLR 11 (EA 2004).

A summary of the guidance relating to the protection of groundwater resources is presented in the publication by the Environment Agency (EA) entitled 'Groundwater Protection: Principles and Practice (GP3)' (EA, 2012).

## 2.11 – LVIA

### NPS

National policy seeks to protect and enhance environmental quality specifically for new energy infrastructure through NPS EN-1. It recognises that nationally significant infrastructure projects will have effects on the landscape and that the scale of such projects means they may be visible within many miles of the site of the proposed infrastructure.

Section 5.9 of NPS EN-1 requires, “The applicant’s assessment should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and character. The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on local amenity, and nature conservation”.

With regard to landscape impacts, NPS EN-1 states, “Landscape effects depend on the existing character of the local landscape, its current quality, how highly it is valued and its capacity to accommodate change. All of these factors need to be considered in judging the impact of a project on landscape. Virtually all nationally significant infrastructure projects will have effects on landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.”

With reference to visual impact NPS EN-1 states, “All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites. The [Secretary of State] will have to judge whether the visual effects on sensitive receptors ..... outweigh the benefits of the project. The [Secretary of State] should ensure applicants have taken into account the landscape and visual impacts of visible plumes from chimney stacks and / or cooling assembly”.

### NPPF

Twelve core planning principles are set out in paragraph 17 of the NPPF, and those of relevance to LVIA include:

- “Take account of the different roles and character of different areas, promoting the vitality of our main urban areas, protecting the Green Belts around them, recognising the intrinsic character and beauty of the countryside and supporting thriving rural communities within it”; and
- “Conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations...”.

## Regional and Local Policy

The Central Bedfordshire Core Strategy and Development Management Policy, adopted November 2009 (Central Bedfordshire Council, 2009), is the key policy document, providing the framework against which to assess planning applications in the area. It provides objectives, spatial strategy and development management policies for the period 2001 – 2026, those relevant to landscape and visual issues are:

- Policy CS14: High Quality Development;
- Policy CS15: Heritage;
- Policy CS16: Landscape and Woodland; and
- Development Management Policy DM14: Landscape and Woodland.

The Central Bedfordshire Development Strategy, pre-submission draft 2014 (Central Bedfordshire Council, 2014a), is currently being developed. Policy relevant to landscape and visual issues is:

- Policy 58: Landscape.

The Forest of Marston Vale: Forest Plan (The Forest of Marston Vale, 2000). The Forest of Marston Vale is one of 12 Community Forests within England. The Forest Plan is a non-statutory document which sets out proposals for developing the forest over a 30 year period. It includes a landscape assessment, and identifies four landscape zones, with specific proposals.



## 2.12 – Traffic and Transport

### National Policy Statement for Energy (NPS EN-1)

Section 5.13 of NPS EN-1 sets out the transport-related assessment requirements for NSIPs, including:

- The need to submit a transport assessment where a project is likely to have significant transport implications;
- The need to prepare a travel plan, where appropriate; and
- The need to provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking and to mitigate transport impacts.

This section of NPS – EN-1 also states that, subject to appropriate mitigation being provided for transport impacts identified in accordance with the relevant DfT guidance, “... then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure.”

In addition, it states that, where mitigation is needed, possible demand management measures must be considered before new transport infrastructure, but that the IPC should have regard to the cost effectiveness of demand management measures as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures.

### Local Transport Plans

The Local Transport Plan (LTP) establishes a strategic approach through which to deal with key transport issues, objectives, and interventions. Two Local Transport Plans are relevant to the Proposed Development: Central Bedfordshire Council and Bedford Borough Council.

Central Bedfordshire Council’s LTP3 considers the period between April 2011 and March 2026. In Section 6, the LTP identifies a series of objectives, including:

- Increasing the ease of access to employment by sustainable modes;
- Reducing the impact of commuting trips on local communities; and
- Minimising the negative impacts of freight trips on local communities.

Bedford Borough Council’s LTP3 is published as a series of supporting strategy documents, and considers the period between April 2011 and March 2021. It identifies a series of actions and objectives, including:

- Increasing the number of trips undertaken by active travel modes for all purposes; and

- Ensuring that freight delivery routing, controls and infrastructure are considered as an integral part of planning proposals for Bedford Borough.

### **Guidance for Transport Assessment**

The Department for Transport published 'Guidance on Transport Assessment' in March 2007 to provide guidance on determining when an assessment is required, its content and the stages in the preparation of transport assessments and statements.

All current policy emphasises the value of early discussions in relation to transport assessments. This ensures that all parties have a better understanding of, and reach a consensus on, the key issues to be addressed in respect of a particular development proposal. The issues agreed in such pre-application discussions should indicate the level and scope of assessment that will be required.

The key issues to be addressed during any pre-application consultations include the following:

- planning policy context of development proposal;
- catchments or study area for the proposed development;
- assessment years – year of opening and horizon year(s);
- assessment of public transport capacity, walking/cycling capacity and the road network capacity;
- person trip generation and trip distribution methodologies and/or assumptions;
- measures to promote sustainable travel; and
- mitigation measures (where applicable) – scope and implementation strategy.

### **Circular 02/13 - 'The Strategic Road Network and the Delivery of Sustainable Development - 2007'**

Circular 02/2013 sets out the role of the Highways Agency in engaging with communities and developers to deliver sustainable development and economic growth.

Paragraph 9 sets out the broad policy aims of the circular as it relates to development proposals, stating that:

“Development proposals are likely to be acceptable if they can be accommodated within the existing capacity of a section (link or junction)...or they do not increase demand for use of a section that is already operating at over-capacity levels, taking account of any travel plan, traffic management and/or capacity enhancement measures that may be agreed”.

However, with reference to decision making regarding developments, paragraph 9 goes on to state:

“However, development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe”.

## 2.13 – Archaeology and Cultural Heritage

### Ancient Monuments and Archaeological Areas Act 1979

Scheduled Monuments are designated by the Secretary of State for Culture, Media and Sport on the advice of English Heritage as selective examples of nationally important archaeological remains. Under the terms of Part I Section 2 of the Ancient Monuments and Archaeological Areas Act 1979 (the “1979 Act”), it is an offence to demolish, destroy, damage, remove, repair, flood or tip on a Scheduled Monument either above or below ground without first obtaining permission (Scheduled Monument Consent) from the Secretary of State. This Act does not allow for the protection of the setting of Scheduled Monuments.

### Planning (Listed Buildings and Conservation Areas) Act 1990

When considering whether to grant planning permission for development which affects a listed building or its setting, Section 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990 (the “1990 Act”) places a statutory duty on a local planning authority [LPA] or, as the case may be, the Secretary of State to “have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses” (para. 66(1)).

Section 72 of the 1990 Act places a general duty on planning authorities in the exercise of planning functions with respect to any buildings or other land in a conservation area, stating that “special attention shall be paid to the desirability of preserving or enhancing the character or appearance of that area” (para. 72 (1)). There is no specific reference to the setting of Conservation Areas in the 1990 Act.

### Planning and Compulsory Purchase Act 2004

Under Section 38 (6) of the Planning and Compulsory Purchase Act 2004 (the “2004 Act”), “If regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the determination must be made in accordance with the plan unless material considerations indicate otherwise” (para. 36 (6)).

Relevant Planning Policy for cultural heritage is presented in the National Policy Statement for Energy [NPS EN-1]. It is also contained within the National Planning Policy Framework [NPPF] and the associated Planning Practice Guidance [PPG]. Policies relevant to the proposed development are also presented in the adopted Development Plans for the host authorities and other Local Development Framework Documents [LDF’s].

### Other Guidance

For a proposed development in England, the government and professional guidance relating to the process of identifying the significance of heritage assets and their settings and undertaking assessments of direct and indirect effects on heritage assets also includes:

- Scheduled Monuments – Identifying, protecting, conserving and investigating nationally important archaeological sites under the Ancient Monuments and Archaeological Areas Act 1979 (DCMS 2010b);
- Principles of Selection for Listing Buildings (DCMS 2010a);
- Conservation Principles – Policies and Guidance for the Sustainable Management of the Historic Environment (English Heritage 2008);
- Seeing the History in the View – A Method for Assessing Heritage Significance in Views (English Heritage 2011a);
- The Setting of Heritage Assets (English Heritage 2011b); and
- Standard and Guidance for Historic Environment Desk-based Assessments (Institute for Archaeologists 2012).

## 2.14 – Socio-economics

### National Policy Statements

NPS EN-1 acknowledges “the construction, operation and decommissioning of energy infrastructure may have socio-economic impacts at local and regional levels”. At paragraph 4.2.2 it states that in addition to an ES prepared in accordance with the European Environmental Impact Assessment Directive “the IPC will find it helpful if the applicant sets out information on the likely significant social and economic effects of the development, and show how any likely significant negative effects would be avoided or mitigated. This could include employment, equality, community cohesion and well-being.”

Paragraph 5.12.3 states that where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of relevant socio-economic impacts, which may include: creation of jobs and training opportunities; provision of additional local services and improvements to local infrastructure including provision of educational and visitor facilities; effects on tourism; and the impacts of a changing influx of workers during different phases.

Paragraph 5.12.7 further notes that in making a decision on energy NSIPs the SoS may attribute limited weight to assertions of socio-economic impact that are not supported by evidence and may take into account mitigation such as planning obligations and particular options as to phasing the development in relation to impacts.

NPS EN-2, Paragraph 1.72 details the benefits of a low carbon economy including the likely “positive effects on the Economy and Skills, and Health and Well-being as secondary benefits and positive effects in the medium/long term on climate change.”

While only a number of the impacts raised in the NPSs are considered likely to be relevant to the Project, the socio-economic assessment may also consider any relevant positive provisions the developer has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise as well as any options for phasing development in relation to the Socio-Economic Impacts, to enable them to be considered by the SoS for the purposes of decision-making.

### Other National and Local Policy

While the Planning Act 2008 is clear as to the primacy of the relevant NPS, other national and local planning policies can be considered important and relevant by the SoS in the determination of an energy NSIP.

The NPPF has sustainable development at its core, stating that the policies in paragraphs 18-219 taken as a whole constitute the Government’s view of what sustainable development in England means in practice for the planning system. It recognises that sustainable development has three dimensions: economic, social

and environmental, and these dimensions are reflected in the 12 ‘Core planning principles’. Those of relevance to socio-economic impact assessment are:

- Proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth. Plans should take account of market signals, such as land prices and housing affordability, and set out a clear strategy for allocating sufficient land which is suitable for development in their area, taking account of the needs of the residential and business communities; and
- Take account of and support local strategies to improve health, social and cultural wellbeing for all, and deliver sufficient community and cultural facilities and services to meet local needs.

These underpin the 13 ways of ‘delivering sustainable development’, the most relevant to this Socio-Economic Impact assessment being listed below:

- Building a strong, competitive economy (1);
- Supporting a prosperous rural economy (3); and
- Promoting healthy communities (8).

In relation to (1) it is stated that “the Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore significant weight should be placed on the need to support economic growth through the planning system” (paragraph 19). Paragraph 21 further states that “investment in business should not be over-burdened by the combined requirements of planning policy expectations. [Local] Planning policies should recognise and seek to address potential barriers to investment, including a poor environment or any lack of infrastructure, services or housing”.

In relation to (3) paragraph 28 states that “planning policies should support economic growth in rural areas in order to create jobs and prosperity by taking a positive approach to sustainable new development. To promote a strong rural economy, local and neighbourhood plans should support the sustainable growth and expansion of all types of business and enterprise in rural areas (...)”.

In Promoting Healthy Communities (8), paragraphs 69 and 70 note that (local) planning policies and decisions should develop a shared vision with communities of the environment and facilities they wish to see, and take an integrated approach to the location of economic uses of land.

HM Government’s 2012 Gas Generation Strategy, prepared by the Department of Energy & Climate Change (DECC), highlights that gas-fired power stations are

relatively cost effective and quick to build. It states that these plants can “offer employment opportunities throughout the country”.

HM Government’s UK Low Carbon Transition Plan: National Strategy for Climate and Energy, also prepared by DECC states, “Coal and gas will remain important to ensure our electricity supply is reliable and secure as we move towards greater dependence on intermittent renewable sources like wind”.

The Central Bedfordshire Economic Development Plan (November 2011) outlines CBC’s plan to reach its full economic potential. Central Bedfordshire aims to create 27,000 new jobs by 2026. This will be achieved by “attracting new industries and businesses to the area in addition to new jobs created by population growth” (p4). It states, “Central Bedfordshire is to be recognised as a place truly open for business” (p4).

The Central Bedfordshire Economic Development plan “focuses on creating the right conditions to attract, retain and grow business to provide more employment opportunities and support our residents to access and benefit from such opportunities” (p5).

The Central Bedfordshire Core Strategy and Development Management Policies (Adopted November 2009) provides a long term vision for development in the area up to 2026. The Project Site is located in the North Marston Vale Strategic Area which is allocated for significant housing, employment and regeneration uses. One of the main challenges identified in this document is the provision of jobs and the strategy outlines the aim to provide additional jobs for the increasing population.

Bedford Growth Plan (2014) – Stimulating Economic Growth provides a framework for promoting economic development. This document proposes that a new growth plan is required to allow faster delivery of jobs growth. Two aims which are of relevance to this Project are to “bring forward employment sites faster” and “regenerate older industrial estates” (p12). One of the main aims is to attract private sector investment to the area.

Shaping Bedford Borough’s Economy (2011-2014) sets out the vision for Bedford to be “A Thriving Borough with a stronger local economy delivering higher levels of sustainable growth and employment for the benefit of the Borough’s existing and future residents”.

The strategy seeks a change in direction towards private sector led employment growth. Priority 2 is “directed to support private sector business growth to offset the decline in the public sector and deliver the required overall future growth in employment”. There is a need to attract higher paid jobs to the area.



## Appendix 7. Noise and Vibration

### 7.1 – Acoustics Terminology

The acoustic terms used in this report are as follows:

**dB** : Decibel - Used as a measurement of sound pressure level. It is the logarithmic ratio of the noise being assessed to a standard reference level.

**dBA** : The human ear is more susceptible to mid-frequency noise than the high and low frequencies. To take account of this when measuring noise, the 'A' weighting scale is used so that the measured noise corresponds roughly to the overall level of noise that is discerned by the average human. It is also possible to calculate the 'A' weighted noise level by applying certain corrections to an un-weighted spectrum. The measured or calculated 'A' weighted noise level is known as the dBA level.

Because of being a logarithmic scale noise levels in dBA do not have a linear relationship to each other. For similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

**L<sub>10</sub> & L<sub>90</sub>**: If a non-steady noise is to be described it is necessary to know both its level and the degree of fluctuation. The L<sub>n</sub> indices are used for this purpose, and the term refers to the level exceeded for n% of the time, hence L<sub>10</sub> is the level exceeded for 10% of the time and as such can be regarded as the 'average maximum level'. Similarly, L<sub>90</sub> is the average minimum level and is often used to describe the background noise.

It is common practice to use the L<sub>10</sub> index to describe traffic noise, as being a high average, it takes into account the increased annoyance that results from the non-steady nature of traffic noise.

**L<sub>eq</sub>** : The concept of L<sub>eq</sub> (equivalent continuous sound level) has up to recently been primarily used in assessing noise in industry but seems now to be finding use in defining many other types of noise, such as aircraft noise, environmental noise and construction noise.

L<sub>eq</sub> is defined as a notional steady sound level which, over a stated period of time, would contain the same amount of acoustical energy as the actual, fluctuating sound measured over that period (e.g. 1 hour).

The use of digital technology in sound level meters now makes the measurement of L<sub>eq</sub> very straightforward.

$L_{max}$  :  $L_{max}$  is the maximum sound pressure level recorded over the period stated.  $L_{max}$  is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the  $L_{eq}$  noise level.

## **Appendix 8. Ecology**

### **8.1 – Phase 1 Habitat Report**

**Millbrook Power Project**  
Phase 1 Habitat Survey Report

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**Contents**

1 Summary ..... 2

2 Introduction..... 3

3 Methods..... 4

4 Results and Interpretation ..... 5

5 References ..... 10

Appendix 1: Figures..... 11

Appendix 2: Relevant Desk Study Results ..... 12

Appendix 3: Target Notes ..... 16

Appendix 4: Photographs ..... 20

# 1 Summary

- 1.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.
- 1.2 MPL commissioned BSG Ecology to undertake a Phase 1 Habitat Survey of the Project Site (the 'Survey Site'). The purpose of the survey was to inform and support an application for Development Consent for the Power Generation Plant. A supporting desk study and literature review was also conducted, which covered the Project Site and land up to 5km for statutory designated sites, and 2 km for non-statutory designated sites from the Survey Site.
- 1.3 The desk study undertaken in support of this assessment identified the presence of seven nationally designated Sites of Special Scientific Interest (SSSI) within a 5 km radius of the Survey Site. The closest of these is Cooper's Hill SSSI located approximately 550 m to the south-east of the south-eastern corner of the Survey Site. This site is designated for its extensive heathland situated on acidic soil. In addition, there are six Local Nature Reserves (LNRs) within a 5 km radius of the Survey Site, four of which are also designated as SSSIs. The closest LNR, which is not also a SSSI is Flitwick Wood LNR located approximately 3.3 km to the south of the Survey Site. This site comprises an area of ancient woodland supporting a diverse botanical assemblage.
- 1.4 A total of 12 non-statutory designated CWSs are present within a 2 km radius of the Survey Site. The closest of these is Rookery Clay Pit CWS, which covers a proportion of the northern extremity of the Survey Site within the area also known as Rookery South Pit. The Rookery Clay Pit CWS consists of three large pools with associated reedbed, sparse ephemeral/short perennial vegetation and rank neutral grassland in the north-western corner. It is understood that habitats within Rookery South Pit (which occupies the southern half of the Rookery Clay Pit CWS) is currently the subject of an ongoing Low Level Restoration Scheme (LLRS) by the landowner. Towards the end of 2014, the base of Rookery South Pit it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS. .
- 1.5 The Phase 1 Habitat Survey found the Survey Site to predominantly comprise intensively managed arable land. Other habitats present included plantation broadleaved and mixed woodland, scrub, neutral grassland, improved grassland, tall ruderal vegetation, ephemeral / short perennial vegetation, swamp, standing water (ponds), running water (ditches) and species-poor hedgerows.
- 1.6 There are several habitats across the Survey Site which may be considered to meet the criteria for being Habitats of Principal Importance (HPI) (s. 41; NERC Act 2006). These include all hedgerows within the Survey Site and the open mosaic habitats (on previously developed land) contained within the Rookery Clay Pit CWS.



## 2 Introduction

- 2.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.

### Site Description

- 2.2 The Project Site, as identified in the Project Scoping Report comprises the Power Generation Plant Area within Rookery South Pit, and the Gas and Electrical Connection Areas which extend from The Rookery into the surrounding agricultural land to the south and east. The approximate centre of the Project Site lies at grid reference 501373, 240734, which is situated between Bedford and Milton Keynes.
- 2.3 The Survey Site covers the red-line boundary of the Project Site as reported in the Project Scoping Report, as illustrated on Figure 2. The main habitats within the Survey Site are arable fields, delineated by hedgerows, ditches and minor roads and lanes. To the north, an area of land exists that is in the process of being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. This area presently includes sparsely vegetated ground, swamp and bare earth. Towards the end of 2014, the base of Rookery South Pit it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS. .

### Description of Project

- 2.4 The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical capacity of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the Power Generation Plant to the existing National Grid Gas (NGG) National Transmission System (NTS). It will connect to the National Grid Electrical Transmission System (NETS) via underground cable or overhead lines.
- 2.5 BSG Ecology was appointed as the ecological consultant to undertake a preliminary ecology survey, which included a desk study and initial Extended Phase 1 Habitat Survey. This identified the need to undertake a suite of Phase 2 surveys in order to fully assess the nature conservation value of the Project Site, including an update of the Phase 1 Habitat Survey, conducted at an appropriate time of year. These baseline surveys will be included in an appendix to an ecology chapter of an Environmental Statement, which will be submitted, as an integral part of the application for Development Consent.

### Aims of Study

- 2.6 The aims of the Phase 1 Habitat Survey were to:
- Identify and characterise any statutory and non-statutory sites within 5 km and 2 km radii from the Survey Site boundary, respectively.
  - Identify whether any Habitats of Principal Importance (S. 41; NERC Act 2006) are present within the Survey Site, and if present, to describe their condition and coverage.
- 2.7 This report updates the preliminary Ecological Appraisal for the Survey Site (BSG Ecology, 2014) with the main focus being on the identification and characterisation of designated sites and description of habitats within the Survey Site. Recommendations for protected and otherwise notable species of animal were made in the preliminary Ecological Appraisal. Accordingly, separate (Phase 2) surveys have been completed, and reports produced for mammals, herpetofauna (reptiles and amphibians), breeding birds and invertebrates. These were conducted synchronous to the present Phase 1 Habitat Survey.

### 3 Methods

#### Desk Study

- 3.1 Existing ecological information for the Survey Site and its surrounding area was requested from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC). Information on statutory designated sites was requested covering the Survey Site and land up to 5 km from the Survey Site boundary, and information regarding non-statutory designated sites was requested covering the Survey Site and land up to 2 km from the Survey Site boundary.

#### Phase 1 Habitat Survey

- 3.2 Habitats within the Survey Site were identified and described following standard Joint Nature Conservation Committee (JNCC) Phase 1 habitat survey methodology as detailed in the Phase 1 Habitat Survey Handbook (JNCC, 2010). This uses a system of codes to describe different habitat types based on the dominant vegetation present, which are recorded through the preparation of habitat maps and target notes. All plant names in this report follow *The New Flora of British Isles* (Stace, 2010).
- 3.3 An initial field survey to map and describe habitats was undertaken by Stephen Foot MCIEEM and Dr Jessica Frame MCIEEM on 25<sup>th</sup> February 2014, this was subsequently updated by Dr Jim Fairclough MCIEEM following several visits to the Survey Site in late spring and summer, the last of these visits being on 30 July 2014.
- 3.4 It should be noted that species lists derived from the target notes are not necessarily an exhaustive inventory of all species occurring at a site. They are intended to illustrate the character of habitats present, general species richness of a particular area, and draw attention to any species that may be considered uncommon or unusual.
- 3.5 During the survey the presence of any invasive species of plant (listed on Schedule 9 of the Wildlife and Countryside Act 1981, as amended) was recorded. .

#### Limitations to Methods

- 3.6 There are no limitations to the survey conducted. The initial survey was undertaken in February 2014, which is outside the optimal period for Phase 1 Habitat Survey. However, the present survey was conducted across several survey visits during the optimal survey season (late spring and summer), providing confidence that any plants or habitats of conservation concern would have been identified.

## 4 Results and Interpretation

### Desk Study

#### **Statutory Designated Sites**

- 4.1 There are seven nationally designated Site of Special Scientific Interest (SSSI) located within 5 km of the Survey Site boundary. The closest of these is Cooper's Hill SSSI located approximately 550m to the south-east of the south-eastern corner of the Survey Site. This site is designated for its extensive heathland situated on acidic soil. .
- 4.2 There are also six Local Nature Reserves (LNRs) within a 5 km radius of the Survey Site; four of which are also designated as SSSIs. The closest LNR, which is not also a SSSI is Flitwick Wood LNR located approximately 3.3 km to the south of the Survey Site. This site comprises an area of ancient woodland supporting a diverse botanical assemblage..
- 4.3 All statutory designated sites present within a 5 km radius of the Survey Site are outlined in Table 1 in Appendix 2, and locations of these are shown on Figures 1a and 1b (Appendix 1), based on data provided by the BRMC.

#### **Non-statutory Designated Sites**

- 4.4 A total of 17 non-statutory designated County Wildlife Sites (CWSs) (including Cooper's Hill CWS which overlaps with Cooper's Hill SSSI) are present within a 2 km radius of the Survey Site. The closest of these is Rookery Clay Pit CWS, which covers a proportion of the northern part of the Survey Site. The pit consists of three large pools (one of which is in the process of being drained) with associated reedbed (swamp), marshy grassland, scrub and unimproved neutral grassland. A patchy mosaic of sparse ephemeral/short perennial vegetation and bare ground is also present throughout the site. A broadleaved plantation is present forming a band through the centre of the Rookery Clay Pit CWS.
- 4.5 Two Roadside Nature Reserves (RNRs) are also present within the study area. Marston Bypass RNR, and Cooper's Hill RNR. The closest of these is Marston Bypass RNR, which is located approximately 0.7 km to the west of the Survey Site and consists of a road verge sown with wildflower seeds.
- 4.6 The remaining sites are described in Table 2 in Appendix 2 with their locations shown in Figure 1b (produced and provided by the BRMC). Where there is overlap of a non-designated site with a statutory designated site (see above), the description for the statutory designated site takes precedence. A single Local Geological Site (LGS), Quest Pit LGS, which is not of nature conservation importance, lies approximately 1 km north east of the Survey Site.

#### **Habitats**

- 4.7 The majority of the Survey Site comprised intensively managed agricultural land, characterised by large arable fields, grass-covered field margins and fairly recent, species-poor, yet intact hedgerows (dominated by hawthorn *Crataegus monogyna*). Occasional wooded plantations of fairly recent origin (less than 30 years old) were located across the Survey Site. To the north of the Survey Site is land within the Rookery Clay Pits CWS. The parts of the Survey Site within the CWS included an access track that was a mosaic of bare ground with ephemeral vegetation and scrub at varying density; and a large depression (the southern pit) that comprised a patchy mosaic of bare ground, ephemeral vegetation and swamp vegetation in the form of drying reedbed dominated by stunted common reed *Phragmites australis*.
- 4.8 The following broad habitat types were recorded within the Survey Site during the survey:
- Arable;
  - Plantation woodland;
  - Scrub and tall ruderal vegetation;

- Neutral grassland;
- Improved grassland;
- Ephemeral / short perennial vegetation;
- Swamp (reedbed)
- Standing water (ponds);
- Running water (wet ditches); and
- Species-poor hedgerows (some with standard trees).

4.9 The distribution of these habitats is shown on Figure 2 (Appendix 1) with summary descriptions given below. Dominant or characteristic flora is described, together with notes on the relative abundance of floral species within the context of each habitat parcel. Target Notes (TNs) referred to in the text below and on Figure 2 are provided in Appendix 3 with photographs provided in Appendix 4.

#### **Arable**

4.10 The majority of the Survey Site comprised intensively managed arable farmland. Field margins were up to 4 m wide, but generally species poor and appeared to have been sown with grasses that permit infrequent vehicular access along the margins without 'cutting up' the ground. Photograph 1 shows a typical arable field margin, located on the eastern side of the railway.

#### **Plantation Woodland**

4.11 There were a number of parcels of plantation woodland within the Survey Site. One of the larger and more structurally diverse parcels is located towards the north of the Survey Site adjacent to the Rookery Clay Pit CWS (TN 1 & Photograph 2). This semi-mature plantation woodland contained a mix of deciduous and coniferous species, including alder *Alnus glutinosa*, pedunculate oak *Quercus robur*, ash *Fraxinus excelsior*, field maple *Acer campstre* and silver birch *Betula pendula*. The core of the woodland had a dense canopy and therefore a sparse shrub layer and ground flora.

4.12 Another area of plantation woodland, immediately south of South Pilling Farm (TN 2) was also of note. This block of plantation woodland comprised broadleaved species and was also semi-mature. Planted poplar *Populus sp.* was abundant (locally dominant) within the canopy, and occasional Lombardy poplar *Populus nigra "italica"* lined the western edge, which is also delineated by a ditch and hedgerow with hawthorn and crack willow *Salix fragilis*. The shrub layer was relatively dense and included frequent hawthorn *Crataegus monogyna* with occasional field maple *Acer campestre* and wych elm *Ulmus glabra*. The ground flora of this woodland parcel, similar to others, was sparse.

4.13 Other parcels of plantation woodland had similar properties to those described, although plantations to the south and east of the Survey Site tended to be used for pheasant rearing, so had characteristically poor ground floras attributed to the foraging activity of game birds. One exception was an area of recently planted broadleaved woodland, at TN 3, between Millbrook Road and the railway line. The young trees are establishing on what is presently unimproved neutral grassland characterised by coarse grasses and common fleabane *Pulicaria dysenterica*.

#### **Scrub and Tall Ruderal Vegetation**

4.14 Scattered scrub was represented across the Survey Site in varying amounts, especially in association with edges of plantation woodland (e.g. TNs 1, 2 and 3). More dense stands of continuous scrub were associated with the railway corridor running north-south, through the centre of the Survey Site, and the sides of the access track to the north west (TN4). Hawthorn, blackthorn *Prunus spinosa*, elder *Sambucus nigra* and bramble *Rubus fruticosus agg.* were the main species that comprised the scrub habitat, although young silver birch and alder were locally abundant along the access track (Photograph 3).

- 4.15 Tall ruderal vegetation, including common nettle *Urtica dioica*, hogweed *Heracleum sphondylium* cleavers *Galium aparine* and tall willowherbs (e.g. great willowherb *Epilobium hirsutum* and rosebay willowherb *Chamerion angustifolium*) were found in varying proportions with the scrub. The most extensive area of tall ruderal vegetation was on the edge of plantation woodland, bordering a large arable field to the far south west of the Survey Site.

#### **Neutral Grassland**

- 4.16 The neutral grassland habitat category is generally reserved for areas of grassland that are barely managed (unimproved) or show a lack of intensive management (semi-improved) and are characterised by grassland vegetation of neutral soils. Such grasslands are often (but not always) relatively species-rich. The best example of neutral grassland in the Survey Site was that to the south east corner of the Rookery Clay Pit CWS (see TN 5 and Photograph 4). This area was on raised ground (elevated above the pit), was species-rich and was being invaded by scrub. Typical species included agrimony *Agrimonia eupatoria*, bird's-foot-trefoil *Lotus corniculatus*, St John's-wort's *Hypericum sp.* and yellow oat-grass *Trisetum flavescens*.
- 4.17 Several arable field margins, particularly in the northern and western parts of the Survey Site (TN 8 and Photograph 5), and along the railway corridor showed evidence of semi-improved and unimproved neutral grassland, and were of slightly greater value than their species-poor counterparts further east and south across the Survey Site. Typical species of these margins, which were between 1 to 2 m wide, were red fescue *Festuca rubra*, false oat-grass *Arrhenatherum elatius*, common fleabane, creeping buttercup *Ranunculus repens*, wild carrot *Daucus carota*, bramble, cow parsley *Anthriscus sylvestris*, hogweed and great willowherb.
- 4.18 Two other prominent areas of neutral grassland included an area within the wooded glade to the west of the Survey Site (TN 2), and in association with the young broadleaved plantation adjacent to the railway and Millbrook Road (TN3).

#### **Improved Grassland**

- 4.19 One area of improved grassland, characterised by rye-grass *Lolium perenne*, was located to the west of the Survey Site. This was a small sheep grazed pasture immediately south of South Pilling Farm.

#### **Ephemeral / Short Perennial Vegetation**

- 4.20 The access track in the north-west of the Survey Site (see TN4 and Photographs 3 and 6) included the most interesting areas of ephemeral vegetation within the Survey Site. An extensive range of plants associated with the track was found here, albeit as a mosaic with other habitat types (e.g. tall ruderal vegetation, scrub, neutral grassland, bare earth); especially at the far north, close to the gateway where the target note (TN 4) is positioned.
- 4.21 Other extensive areas of ephemeral vegetation were located around the south western part of the Rookery Clay Pit CWS, and extending into an arable field (dissected by a ditch) that had been set aside (see Photographs 7, 8 and 9). Here the ephemeral vegetation was characterised by bristly oxtongue *Helminthotheca echioides*, sow-thistles *Sonchus sp.*, scentless mayweed *Tripleurospermum inodorum*, common fleabane and, in damper soils, encroaching wood small-reed *Calamagrostis epijegos*.

#### **Swamp (reedbed)**

- 4.22 Part of the Survey Site (to the north) encroaches onto Rookery Clay Pit CWS, most notably the southern pit. Here the vegetation comprised a patchy mosaic of bare ground, ephemeral vegetation and swamp vegetation in the form of drying reedbed dominated by stunted common reed *Phragmites australis*. This land is being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner and is due to be completed by December 2014. The most extensive areas of reedbed, dominated by healthier common reed, at a lower gradient were recognised as 'swamp' under the Phase 1 Habitat classification, and other plants recorded here are provided at TN 6.

### **Standing water**

- 4.23 There were three ponds within the Survey Site (see TN 7 and Photograph 9). These are located to the east and are positioned centrally in arable fields. The ponds themselves were mature, yet still with plenty of open water and marginal vegetation. This included species such as reedmace *Typha latifolia* which was dominant in two of the ponds, and broad-leaved pondweed *Potamogeton natans*, which was a dominant aquatic plant in one of the ponds.

### **Running water**

- 4.24 A network of wet and damp (seasonally wet) ditches was present across the Survey Site. The ditches had steep sided earth banks and were quite shallow, with water depths ranging between just a few cm to 50 cm in depth. Aquatic and marginal macrophytes were relatively limited largely because of the heavy shading to most of the ditches from hedgerows running parallel to the ditch, and also due to them becoming periodically dry in summer / early autumn.
- 4.25 The ditch described at TN 8, at the centre of the Survey Site (see Photograph 5), had the most interest, primarily due to the open aspect of the ditch, especially along the section that ran east – west.

### **Species-poor hedgerows**

- 4.26 The majority of hedgerows across the Survey Site were of a uniform structure, being intensively managed (approximately 2 m in height and 1.5 m in width); and species-poor, being dominated by hawthorn. Other woody plants were to be found in the hedgerows, although none were found frequently enough for any hedgerow to merit designation as ‘species-rich’, and as such, none are likely to meet the criteria required to be ‘Important’ under the Hedgerow Regulations, 1997. The occasionally occurring woody species included: blackthorn, field maple *Acer campestre*, willow *Salix sp.*, English elm *Ulmus procera*, wild privet *Ligustrum vulgare*, ash, hazel, elder, dog rose, bramble and ivy *Hedera helix*. The ground flora associated with the hedgerows was limited to coarse grasses, cow parsley, cleavers, common nettle, ivy and lords and ladies *Arum maculatum*.
- 4.27 A small number of hedgerows, especially those near to TN 1 and TN 2 were unmanaged and were up to 3 m in height, although the composition of woody species remained similar.

### **Other habitats**

- 4.28 Other habitats of limited ecological significance within the Survey Site included hard-standing (roads, surfaced tracks and pedestrian access) and the railway line running north –south, that splits the Survey Site down the centre.

### **Invasive, non-native species**

- 4.29 New Zealand pigmyweed *Crassula helmsii* was the only invasive, non-native species listed on Schedule 9, Part II of the Wildlife and Countryside Act 1981 (as amended) that was recorded during the survey. This was confined to the Rookery Clay Pits CWS (southern pit).

### **Habitats of Principal Importance**

- 4.30 There were several habitats across the Survey Site which may be considered in relation to whether they merited inclusion as Habitats of Principal Importance (HPI) (s. 41; NERC Act 2006). These are discussed below, with reference to the relevant habitat description, provided by JNCC (BRIG, 2008).

### **Arable field margins**

- 4.31 All field margins were established as grassland strips providing vehicular (4 x 4) access. None of these margins specifically provided benefits for wildlife, and as such are not considered to meet the requirements for this HPI.

### Hedgerows

- 4.32 All hedgerows mapped within the Survey Site were over 20 m long and predominantly comprise native plants. Accordingly, these are classified as HPIs.

### Ponds

- 4.33 On vegetative characteristics alone, the three ponds within the Survey Site do not merit classification as HPIs. This is on the basis that the ponds did not support a diverse plant community. .

### Open mosaic habitats on previously developed land

- 4.34 Taken together, the habitats across the northern part of the Survey Site, which lie within the Rookery Clay Pits CWS, merit inclusion under this HPI. All of the following criteria are met:
- The area of open mosaic habitat is at least 0.25 ha in size. The area of land within the Survey Site that is within the CWS far exceeds this amount;
  - There is a known history of disturbance at the site (notably clay extraction);
  - The site contained some vegetation, in this case, ephemeral / short perennial, tall ruderal, scrub, neutral grassland and swamp habitat types;
  - The site contained unvegetated, loose bare substrate and vegetated pools were present, principally in the southern pit; and
  - The site showed spatial variation, forming a mosaic of one or more of the early successional communities, plus bare substrate, within 0.25 ha. The access road and southern pit all included mosaics of habitat, with bare substrate being a feature at both.

### Lowland mixed deciduous woodland

- 4.35 The areas of planted woodland across the Survey Site displayed some characteristics of the HPI; however, given their age and general structure (e.g. sparse ground flora and often managed through game keeping interests), it is unlikely that these woodlands can be classified as this priority habitat type. Despite this, the planted woodland blocks do have intrinsic value and are likely to provide habitat for a range of species.

## 5 References

BSG Ecology (2014) *Millbrook Power Project, Bedfordshire. Ecological Appraisal.*

Joint Nature Conservation Committee (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit.*

BRIG (ed. Ant Maddock) (2008) *UK Biodiversity Action Plan; Priority Habitat Descriptions. (Updated Dec 2011).* JNCC, Peterborough.

Stace, C. A. (2010) *New Flora of the British Isles, Third Edition.* Cambridge University Press, Cambridge.



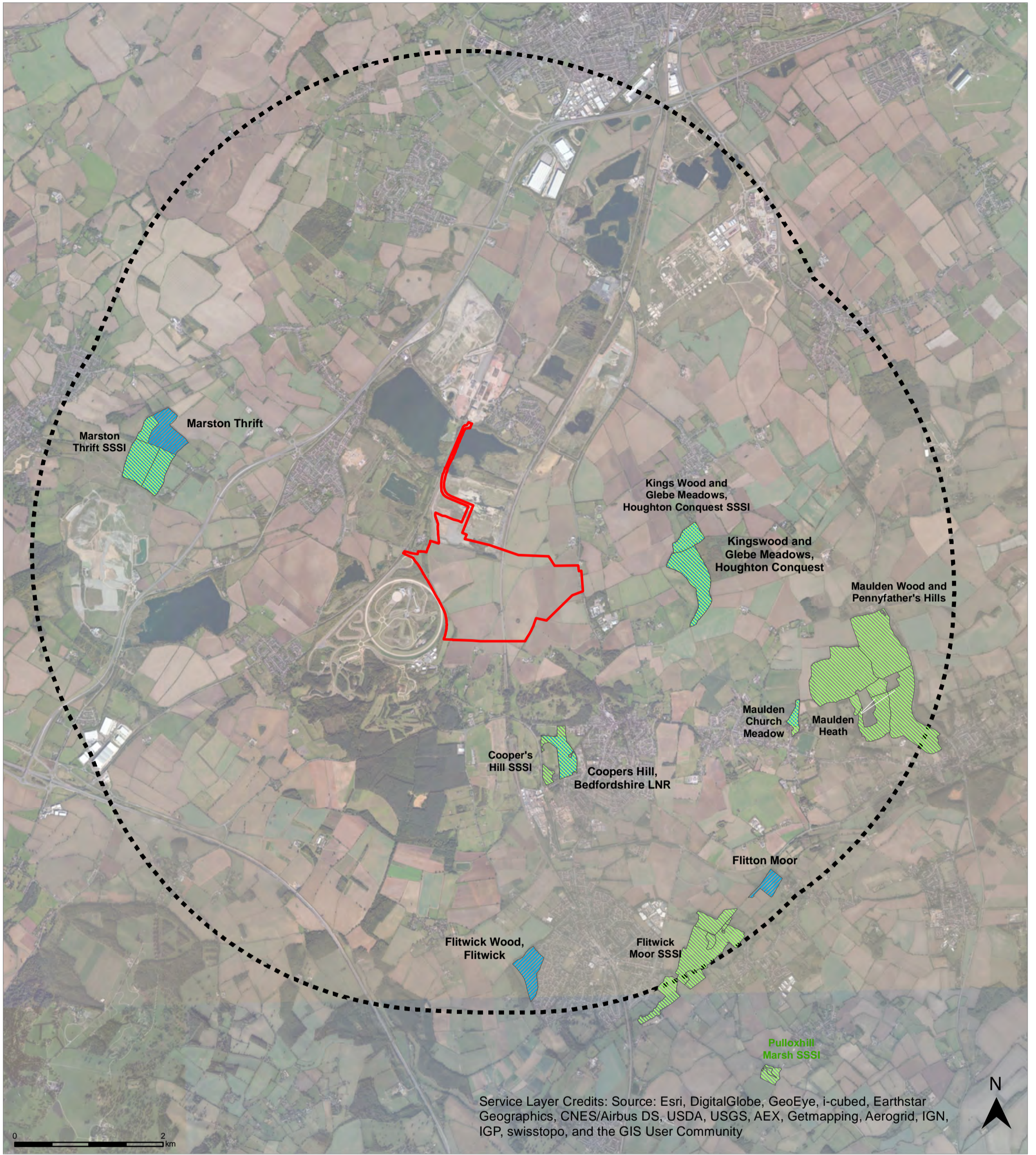
## Appendix 1: Figures

Figure 1a: Statutory Designated Sites within a 5 km radius of the Site.

Figure 1b: Statutory and Non-statutory Designated Sites within a 2 km radius of the Site

Figure 2: Phase 1 Habitat Survey Map

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PROJECT TITLE  
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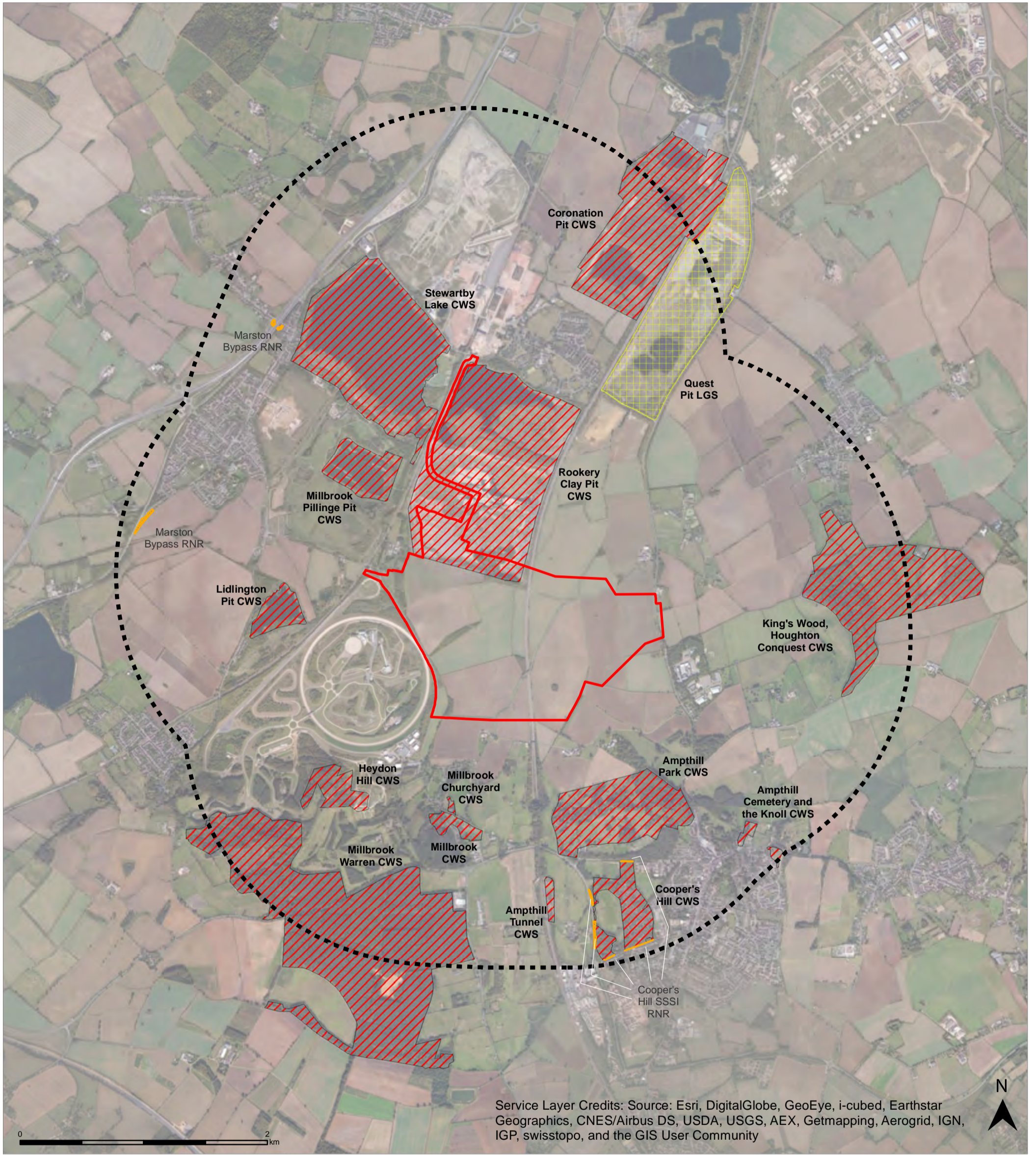
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Statutory designated sites within 5km of site

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DRAWN: COH  
CHECKED: IJF  
APPROVED: IJF  
SCALE: 1:50,000  
STATUS: FINAL

LEGEND

-  The Project Site
-  5km search area
-  Site of Special Scientific Interest (SSSI)
-  Local Nature Reserves (LNR)

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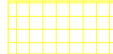
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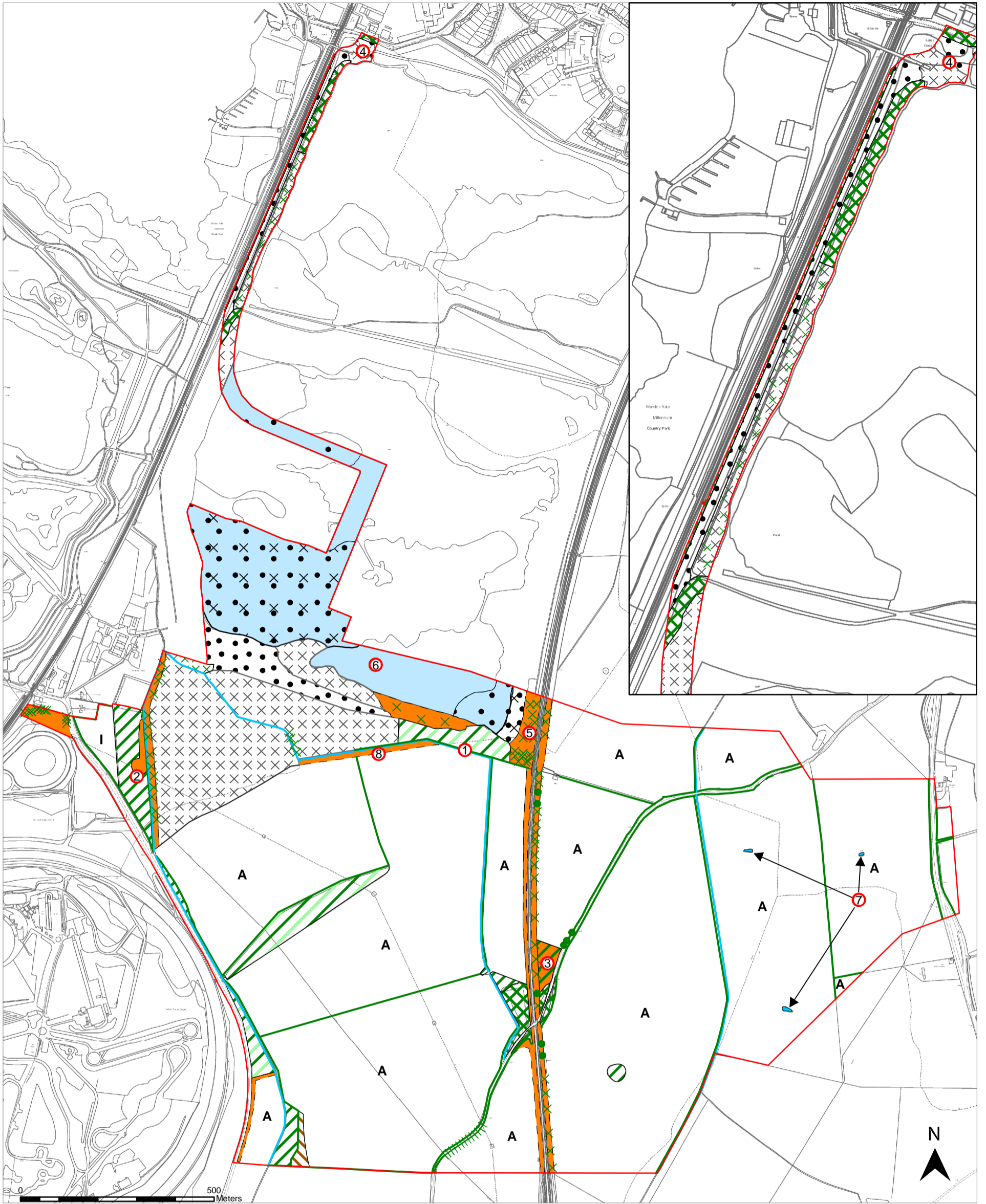
DRAWING TITLE  
Non-statutory designated sites within 5km of site

DATE: 23.09.2014  
DRAWN: COH  
CHECKED: IJF  
APPROVED: IJF  
SCALE: 1:30,000  
STATUS: FINAL

**LEGEND**

-  The Project Site
-  2km search area
-  County Wildlife Sites (CWS)
-  Roadside Nature Reserves (RNR)
-  Local Geological Sites (LGS)

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**LEGEND**

	The Project Site		Arable
	Target note		Ephemeral / short perennial vegetation
	Plantation broadleaved woodland		Bare ground
	Plantation mixed woodland		Swamp
	Continuous scrub		Wet ditch
	Scattered scrub		Species-poor intact hedgerow
	Neutral grassland		Species-poor intact hedgerow with trees
	Improved grassland		Species-poor defunct hedgerow
	Tall ruderal vegetation		Scattered broadleaved tree
	Standing water (pond)		

## Appendix 2: Relevant Desk Study Results

**Table 1: Statutory Designated Sites within 5km of Site Boundary**

Site Name	Area (ha)	Grid ref.	Description
Cooper's Hill SSSI, LNR, CWS, RNR	18.06	TL028376	This site lies approximately 550m to the south east of the Survey Site. Cooper's Hill consists of extensive heathland situated on acidic soil. Springs are present and form wet flushes supporting rich marsh plant communities. A small acidic mire (a rare habitat type in Bedfordshire is also present). Two areas of woodland have developed on the marshy areas adding to the biodiversity value of the site. The site supports a diverse invertebrate fauna.
Kingswood & Glebe Meadows, Houghton Conquest SSSI, LNR, CWS	36.10	TL045403	This site is located approximately 1.1 km to the east of the Survey Site. Kingswood comprises ash/maple woodland, and represents a habitat which has become increasingly scarce in Bedfordshire. The wood is characteristic of ancient semi-natural woodland supporting a rich flora. Glebe Meadows border the woodland to the north and consist of species-rich unimproved grassland managed for hay and grazing. Small ponds supporting amphibians are also present on the site.
Maulden Church Meadow SSSI, LNR	4.14	TL059382	This site is located approximately 3.2 km to the east of the Survey Site, and comprises unimproved pasture supporting neutral grassland communities. Acid grassland communities are also present in the south of the site. Three ponds are also present on this site and the site is known to support a rich invertebrate fauna.
Maulden Wood and Pennyfather's Hills SSSI	148.77	TL170390	This site lies approximately 3.2 km to the east of the Survey Site and consists of a large block of mixed deciduous and coniferous woodland supporting a very rich invertebrate fauna. Maulden Wood is an ancient woodland site with Pennyfather's Hills consisting of former heathland habitat within plantations of Scot's pine. The wood has a diverse breeding bird and fungi population. Several ponds are also present on site.
Marston Thrift SSSI, LNR, CWS	37.41	SP973417	This site is located 3.3 km to the west of the Survey Site. Marston Thrift comprises ash/maple ancient, semi-natural woodland formerly managed as coppice-with standards. The ground flora is diverse and varied with damp woodland rides also present. The site is important for butterflies with purple hairstreak present. The western meadow consists of short acidic grassland.

Site Name	Area (ha)	Grid ref.	Description
Maulden Heath SSSI	7.56	TL070386 TL068384	Maulden Heath SSSI is located 3.9 km to the east of the Survey Site. The site consists of lowland acidic grassland supporting a rich herb community. Areas of scrub and bracken are also present throughout the site.
Flitwick Moor SSSI, CWS	59.78	TL045350	Flitwick Moor is located approximately 3.3 km to the south-east of the Survey Site and is a remnant of eutrophic mire renowned for its flora and invertebrate fauna. A number of draining channels bisect the moor where two woodland types have also developed. Flitwick Moor is also important for mosses and liverworts, fungi, invertebrates and breeding birds.
Flitwick Wood LNR	14.4	TL023348	Flitwick Wood LNR is located approximately 4.1 km to the south of the Survey Site. This site consists of an area of ancient woodland supporting a diverse botanical assemblage.
Flitton Moor LNR	6.7	TL056360	This site is located 4.5 km to the south east of the Survey Site and consists of fen, moor, grassland and woodland habitats.

SSSI = Site of Special Scientific Interest, LNR = Local Nature Reserve, CWS = County Wildlife Site, RNR = Roadside Nature Reserve

**Table 2: Non-statutory Designated Sites within 2km of Site Boundary**

Site Name	Area (ha)	Grid ref.	Description
Rookery Clay Pit CWS	153.1	TL017413	This CWS covers the northern portion of land within the Survey Site. The pit consists of three large pools with sparse ephemeral/short perennial vegetation and rank neutral grassland in the north-western corner. Small patches of marsh vegetation are also present throughout the site. A broadleaved plantation is present in the centre of the site.
Stewartby Lake CWS	111.1	TL005425	This CWS lies approximately 35 m north west of the Survey Site. This site includes a large steep-sided lake supporting typical marshland communities on its periphery. The clay areas in the south-west of the support an MG1 grassland community that includes species associated with calcareous soils. A survey in 2004 found the grassland to most closely resemble a CG7d community (Fragaria-Erigeron sub-community) with affinities to MG5 grassland. There are marshy areas interspersed within the grassland along with small ponds and ditches. The northeast side of the lake mostly consists of dense hawthorn scrub with a regularly mown path through it. The site supports a diverse assemblage of breeding and overwintering birds.

Site Name	Area (ha)	Grid ref.	Description
Millbrook Pillinge Pit CWS	19.5	TL006412	This CWS is also located approximately 200 m west of the Survey Site and comprises a water-filled Oxford Clay pit bordered by a margin of neutral grassland (MG1) and scattered scrub. An area of dense scrub is present on the eastern side of the site. A number of small, scrub-covered islands are present in the lake and there are also stands of (S13) lesser reedmace swamp habitat of CWS status present on site.
Amphill Park CWS	50.5	TL027385	This site is located approximately 560 m to the south east of the Survey Site. This site consists of a large area of unimproved acidic grassland, semi-improved acidic grassland and marshy grassland with scattered trees and scrub, dense scrub and some open water (three fish-stocked ponds); and Laurel Wood (mature semi-natural broadleaved woodland).
Lidlington Pit CWS	10.5	TL001401	This site lies approximately 570 m from the west of the Survey Site and comprises a large flooded clay pit with peripheral neutral grassland and swamp habitats.
Millbrook Churchyard CWS	0.57	TL013385	This churchyard lies approximately 630 m south of the Survey Site and consists of semi-improved acid grassland (U1 and MG5 communities).  The site supports three acid grassland indicators, eight neutral and neutral/calcareous indicators (meeting the CWS threshold of eight), two strong neutral and neutral/calcareous indicators and one strong calcareous grassland indicator. The site therefore meets CWS criteria for both neutral and acid grassland recognition.
Millbrook CWS	4.9	TL013384	This CWS is also located approximately 750 m south of the Survey Site (just south of Millbrook Churchyard CWS) and consists of acidic and marshy grassland habitats. Broadleaved woodland is also present on site.
Heydon Hill CWS	11.8	TL004387	This site is located approximately 770 m to the south-west of the Survey Site and comprises a single block of semi-natural broadleaved (ancient) woodland and two fields of acidic grassland adjacent to east.
Coronation Pit CWS	95.4	TL030433	Coronation Pit CWS is located approximately 940 m to the north-east of the Survey Site. The site is a large disused brick pit with a large lake over 33 ha in area located in the south of the site. Areas of broadleaved woodland, dense scrub and rank neutral grassland are also present on this site.
Millbrook Warren CWS	202.2	TL001375	This site lies approximately 1.2 km to the south-west of the Survey Site and consists of ancient woodland and mature plantation woodland.

Site Name	Area (ha)	Grid ref.	Description
Ampthill Cemetery and the Knoll CWS	2.4	TL037383, TL040381	This site lies approximately 1.6 km to the east of the Survey Site and comprises semi-improved neutral and acid grassland with scattered trees and shrubs.
Ampthill Tunnel CWS	2.2	TL021377	This CWS is located approximately 1.3 km to the south of the Survey Site and contains unimproved neutral and acid grassland. The northern end of the site contains scrub with mature oaks present on the eastern site boundary. It contains good examples of neutral grassland and greensand grassland. Common lizards are present on this site.
Marston Bypass RNR	0.7	SP989410	This site is located approximately 1.5 km to the west of the Survey Site and consists of a road verge sowed with wildflower seeds.

CWS = County Wildlife Site, RNR = Roadside Nature Reserve



## Appendix 3: Target Notes

### Target Note 1

A parcel of plantation broadleaved woodland located on the south-eastern corner of Rookery Clay Pit CWS.

Common Name	Scientific Name	DAFOR (Frequency)
<b>Trees/shrubs</b>		
Alder	<i>Alnus glutinosa</i>	A
Scots pine	<i>Pinus sylvestris</i>	F
Silver birch	<i>Betula pendula</i>	F
Pedunculate oak	<i>Quercus robur</i>	F
Ash	<i>Fraxinus excelsior</i>	O
Dog rose	<i>Rosa canina</i> agg.	O
Hazel	<i>Corylus avellana</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Field maple	<i>Acer campestre</i>	O
<b>Herbs</b>		
Woad and ladies	<i>Arum maculatum</i>	O
Common nettle	<i>Urtica dioica</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	O

### Target Note 2

A semi-mature broadleaved woodland plantation, located towards the western boundary of the Survey Site to the south of South Pilling Farm. Evidence of recent management included tree thinning that had created a glade (semi-improved neutral grassland) with adjoining scattered scrub.

Common Name	Scientific Name	DAFOR (Frequency)
<b>Trees/shrubs</b>		
Poplar sp.	<i>Populus</i> sp.	A
Ash	<i>Fraxinus excelsior</i>	F
Norway maple	<i>Acer platanoides</i>	O
Field maple	<i>Acer campestre</i>	O
Beech	<i>Fagus sylvatica</i>	O
Scot's pine	<i>Pinus sylvestris</i>	O
Silver birch	<i>Betula pendula</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Pedunculate oak	<i>Quercus robur</i>	O
Wych elm	<i>Ulmus glabra</i>	O
<b>Herbs</b>		
False oat-grass	<i>Arrhenatherum elatius</i>	A
Perennial rye grass	<i>Lolium perenne</i>	A
Annual meadow grass	<i>Poa annua</i>	F
Creeping buttercup	<i>Ranunculus repens</i>	F
Creeping thistle	<i>Cirsium arvense</i>	F
Cow parsley	<i>Anthriscus sylvestris</i>	O
Lords and Ladies	<i>Arum maculatum</i>	O

Hogweed	<i>Heracleum sphondylium</i>	O
Cleavers	<i>Galium aparine</i>	O
Wood avens	<i>Geum urbanum</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	O
Curled dock	<i>Rumex crispus</i>	O
Cow Parsley	<i>Arthriscus sylvestris</i>	O
Common hogweed	<i>Heracleum sphondylium</i>	O
Teasel	<i>Dipsacus fullonum</i>	O
White clover	<i>Trifolium repens</i>	O
Common nettle	<i>Urtica dioica</i>	O

### **Target Note 3**

Young plantation broadleaved woodland located at the corner of an arable field between Millbrook Road and the railway line. Unimproved neutral grassland had established beneath the planted trees, presumably following relaxation of intensive farmland management pressure.

<b>Common Name</b>	<b>Scientific Name</b>	<b>DAFOR (Frequency)</b>
<b>Trees/shrubs</b>		
Pedunculate oak	<i>Quercus robur</i>	F
Ash	<i>Fraxinus excelsior</i>	F
Field maple	<i>Acer campestre</i>	F
Hazel	<i>Corylus avellana</i>	F
Dog rose	<i>Rosa canina</i> agg.	O
Hawthorn	<i>Crataegus monogyna</i>	O
<b>Ground flora (grasses and herbs)</b>		
Common fleabane	<i>Pulicaria dysenterica</i>	A
Bramble	<i>Rubus fruticosus</i> agg.	F
Yorkshire fog	<i>Holcus lanatus</i>	F
False oat-grass	<i>Arrhenatherum elatius</i>	F
Common knapweed	<i>Centaurea nigra</i>	F
Wild carrot	<i>Daucus carota</i>	F
Ribwort plantain	<i>Plantago lanceolata</i>	F

### **Target Note 4**

The access track to the north of the Survey Site was formed of compacted soil, rubble & rail ballast that was exposed bare ground due to the frequency of vehicular movement along the track. Either side of the track was a mosaic of scrub, tall ruderal vegetation, short perennial / ephemeral vegetation and narrow fringes of rabbit grazed neutral grassland. It is understood from the landowner that this area is regularly sprayed with herbicide in order to keep vegetation under control in areas previously cleared of great crested newts. The more species-rich area of this habitat mosaic was located at the gateway / entrance to the far north of the Survey Site, and in the area marked by the Target Note.

<b>Common Name</b>	<b>Scientific Name</b>	<b>DAFOR (Frequency)</b>
Creeping cinquefoil	<i>Potentilla reptans</i>	A
American willowherb	<i>Epilobium ciliatum</i>	F
Ground ivy	<i>Glechoma hederacea</i>	F
Yellow-wort	<i>Blackstonia perfoliata</i>	F
Common centaury	<i>Centaureum erythraea</i>	F
Perforate St. John's-wort	<i>Hypericum perforatum</i>	F
Blue fleabane	<i>Erigeron acer</i>	F

Bristly oxtongue	<i>Helminthotheca echioides</i>	F
Weld	<i>Reseda luteola</i>	F
Smooth hawkbeard	<i>Crepis capillaris</i>	F
Canadian fleabane	<i>Conyza canadensis</i>	F
Scentless mayweed	<i>Tripleurospermum inodorum</i>	F
Common nettle	<i>Urtica dioica</i>	F
Butterfly bush	<i>Buddleja davidii</i>	LA
Alder	<i>Alnus glutinosa</i>	LA
Silver birch	<i>Betula pendula</i>	LA
Bramble	<i>Rubus fruticosus agg.</i>	LF
Spear thistle	<i>Cirsium vulgare</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
Hoary willowherb	<i>Epilobium parviflorum</i>	O
Self-heal	<i>Prunella vulgaris</i>	O
Black medick	<i>Medicago lupulina</i>	O
Teasel	<i>Dipsacus fullonum</i>	O
Colt's-foot	<i>Tussilago farfara</i>	O
Scarlet pimpernel	<i>Anagallis arvensis</i>	O
Creeping bent	<i>Agrostis stolonifera</i>	O
Bird's-foot-trefoil	<i>Lotus corniculatus</i>	O
Fern-grass	<i>Catapodium rigidum</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O
Yarrow	<i>Achillea millefolium</i>	O
Red bartsia	<i>Odontites vernus</i>	O
Annual meadow-grass	<i>Poa annua</i>	O
Yorkshire fog	<i>Holcus lanatus</i>	O
Common cudweed	<i>Filago vulgaris</i>	O
Square-stalked St. John's-wort	<i>Hypericum tetrapterum</i>	O
Greater plantain	<i>Plantago major</i>	O
Narrow-leaved bird's-foot-trefoil	<i>Lotus glaber</i>	R

### **Target Note 5**

An area of unimproved species-rich neutral grassland to the north of the Survey Site (south east of Rookery Clay Pit CWS). The grassland sits on a plateau next to the railway line. The ground slopes steeply to the west into the pit.

<b>Common Name</b>	<b>Scientific Name</b>	<b>DAFOR (Frequency)</b>
Agrimony	<i>Agrimonia eupatoria</i>	F
Yellow-wort	<i>Blackstonia perfoliata</i>	F
Common centaury	<i>Centaurium erythraea</i>	F
Smooth hawkbeard	<i>Crepis capillaris</i>	F
Blue fleabane	<i>Erigeron acer</i>	F
Red fescue	<i>Festuca rubra</i>	F
Yorkshire fog	<i>Holcus lanatus</i>	F
Bird's-foot-trefoil	<i>Lotus corniculatus</i>	F
Black medick	<i>Medicago lupulina</i>	F
Creeping cinquefoil	<i>Potentilla reptans</i>	F

Bramble	<i>Rubus fruticosus agg.</i>	F
Yellow oat-grass	<i>Trisetum flavescens</i>	F
Spear thistle	<i>Cirsium vulgare</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Hairy St. John's-wort	<i>Hypericum hirsutum</i>	O
Square-stalked St. John's-wort	<i>Hypericum tetrapterum</i>	O
Red bartsia	<i>Odontites vernus</i>	O
Dog rose	<i>Rosa canina</i>	O
Ragwort	<i>Senecio jacobaea</i>	O

### **Target Note 6**

Swamp vegetation associated with the base of the southern pit at Rookery Clay Pit CWS. This habitat was steadily shrinking as water levels receded in response to prolonged pumping out of water to promote the implementation of the LLRS by the end of 2014.

<b>Common Name</b>	<b>Scientific Name</b>	<b>DAFOR (Frequency)</b>
Common reed	<i>Phragmites australis</i>	D
Wood small-reed	<i>Calamagrostis epigejos</i>	F
Marsh dock	<i>Rumex palustris</i>	F
Jointed rush	<i>Juncus articulatus</i>	O
Creeping bent	<i>Agrostis stolonifera</i>	O
Soft-stemmed bulrush	<i>Schoenoplectus tabernaemontani</i>	O
False-fox sedge	<i>Carex otrubae</i>	O
New Zealand pigmyweed	<i>Crassula helmsii</i>	O







### **Target Note 7**

Three ponds within the Survey Site, located to the east and positioned centrally in arable fields. The ponds were buffered by wide (2 to 3 m wide) grassy borders. All ponds were approximately 1 m deep and were mostly open; with only one pond shaded (in part) by scrub. Vegetation associated with the ponds included amphibious bistort *Persicaria amphibia*, bittersweet *Solanum dulcumara*, branched bur-reed *Sparganium erectum*, reedmace *Typha latifolia* and soft rush *Juncus effusus*. One pond had a covering of broad-leaved pondweed *Potamogeton natans* at the centre of the pond.

### **Target Note 8**

A section of ditch, approximately 700 m long that runs from east to west and is mostly unshaded. Unlike other ditch sections across the Survey Site, this section had more gently sloping banks, dominated by coarse grasses with patches of blackthorn *Prunus spinosa* and hawthorn *Crataegus monogyna* scrub, and a varied assemblage of marginal plants, which included: abundant fool's watercress *Apium nodiflorum*, great willowherb *Epilobium hirsutum* and water mint *Mentha aquatica*; with occasional meadowsweet *Filipendula ulmaria* and false-fox sedge *Carex otrubae*.

**Appendix 4: Photographs**

	
<p><b>Photo 1: Typical arable field boundary; comprising a species poor hedgerow and a field margin of coarse grasses, lacking in herbs.</b></p>	<p><b>Photo 2: Plantation woodland at Target Note 1, showing sparse ground flora.</b></p>
	
<p><b>Photo 3: Access track north west of the Survey Site. Dense, continuous scrub and patches of scattered scrub line the flanks of the track.</b></p>	<p><b>Photo 4: Species-rich neutral grassland, showing the Rookery South Pit in the background.</b></p>
	
<p><b>Photo 5: A more noteworthy field ditch and margin along the edge of an arable field in the northern half of the Survey Site.</b></p>	<p><b>Photo 6: Ephemeral vegetation and bare ground near the gateway / entrance along the access road to the far north of the Survey Site.</b></p>



**Photo 7: Base of the southern pit (Rookery Clay Pit CWS), here showing a mosaic of ephemeral vegetation and bare ground in the south west part of the CWS.**



**Photo 8: Vegetation associated with Rookery Clay Pit CWS (South Pit). Foreground shows ephemeral vegetation on sloping bank, whilst a mosaic of swamp, ephemeral vegetation and bare ground occurs at the base of the Pit.**



**Photo 9: One of three ponds within the Survey Site, to the east of the railway corridor.**

## 8.2 – Invertebrate Report

**Millbrook Power Project**  
Invertebrate Survey Interim Report



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## Contents

1	Summary .....	2
2	Introduction.....	3
3	Methods.....	4
4	Results and Interpretation .....	8
5	References .....	13
	Appendix 1: Photographs .....	14
	Appendix 2: Figures.....	15
	Appendix 3: Species of Conservation Concern Recorded from the Desk Study .....	16
	Appendix 4: Species List (2014 Surveys of Survey Site) .....	19
	Appendix 5 Survey Proforma.....	24

# 1 Summary

- 1.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.
- 1.2 MPL commissioned BSG Ecology to undertake invertebrate surveys of suitable habitats within the red-line of the Project Site, as reported in the Project Scoping Report (the 'Survey Site'). The purpose of the surveys was to inform and support an application for Development Consent for the Power Generation Plant. A supporting desk study and literature review was also conducted, which covered the Project Site and land up to 2 km from this point.
- 1.3 The desk study revealed the presence of a significant (county value) invertebrate fauna associated with The Rookery. It is understood that habitats within Rookery South Pit (which occupies the southern half of the Rookery Clay Pit CWS) is currently the subject of an ongoing Low Level Restoration Scheme (LLRS) by the landowner. Towards the end of 2014, the base of Rookery South Pit it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS.
- 1.4 A total of 155 species were recorded from the Survey Site. Many of the species recorded are common and widespread across England. However, three of these are nationally scarce and eight of these are Species of Principal Importance, albeit only on account of their population declines over recent decades, which, according to the JNCC (2010) require further research.
- 1.5 This is an Interim Report. Further surveys are programmed, for late August and early September 2014. These surveys will include late summer surveys of terrestrial invertebrates (including moths and butterflies), and aquatic invertebrate surveys targeting the three ponds in the Survey Site. A final report will be produced to incorporate these findings, which will accompany the DCO Application.

## 2 Introduction

- 2.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.

### Site Description

- 2.2 The Project Site, as identified in the Project Scoping Report comprises the Power Generation Plant Area within Rookery South Pit, and the Gas and Electrical Connection Areas which extend from The Rookery into the surrounding agricultural land to the south and east.. The approximate centre of the Project Site lies at grid reference 501373, 240734, which is situated between Bedford and Milton Keynes.
- 2.3 The Survey Site is restricted to the best examples of suitable habitat within the red-line boundary of the Project Site as reported in the Project Scoping Report (as determined by an experienced entomologist). The Survey Site is shown in Figure 1 Appendix 2. The main habitats within the Survey Site are arable fields, delineated by hedgerows, ditches and minor roads and lanes. To the north, an area of land exists that is in the process of being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. This area presently includes sparsely vegetated ground, swamp and bare earth. Towards the end of 2014, the base of Rookery South Pit it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS. .

### Description of Project

- 2.4 The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical capacity of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the Power Generation Plant to the existing National Grid Gas (NGG) National Transmission System (NTS). It will connect to the National Grid Electrical Transmission System (NETS) via underground cable or overhead lines.
- 2.5 BSG Ecology was appointed as the ecological consultant to undertake a preliminary ecology survey, which included a desk study and Extended Phase 1 Habitat Survey. This identified the need to undertake a suite of Phase 2 surveys in order to fully assess the nature conservation value of the Project Site, including invertebrate surveys. These baseline surveys will be included in an appendix to an ecology chapter of an Environmental Statement, which will be submitted, as an integral part of the application for Development Consent.

### Aims of Study

- 2.6 The aims of the invertebrate survey were to identify whether any rare, scarce or nationally threatened species of invertebrate, including Species of Principal Importance were present, and if present, to evaluate their likely coverage across the Survey Site.
- 2.7 This report is an interim report. Further surveys are programmed for late August and early September 2014; targeting late summer terrestrial invertebrates (including moths and butterflies), and aquatic invertebrates of the three ponds in the Survey Site.

### 3 Methods

#### Desk Study

- 3.1 Existing ecological information regarding protected species was requested from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) covering the Project Site and land up to 2 km from the Project Site boundary. In addition, on-line resources including the Multi Agency Geographic Information for the Countryside (MAGIC, [www.magic.gov.uk](http://www.magic.gov.uk)) website and aerial photography of the area were also reviewed.
- 3.2 This information was supplemented by previous survey and mitigation work undertaken by BSG Ecology on The Rookery Clay Pit County Wildlife Site (CWS), including land within and immediately north of the Survey Site (PBA, 2009).

#### Habitat Potential Assessment

- 3.3 On 8 May 2014, the Survey Site (shown on Figure 1) was assessed by Dr Ian Fairclough MCIEEM, an experienced entomologist, for its suitability to support important invertebrate communities.
- 3.4 Notes were made of the habitats present, which were documented in a photographic record. Habitats were assessed for their potential to support important invertebrate communities. To enable a full characterisation of the Survey Site for invertebrates this included observations of features that might limit invertebrate interest as well as those which might be of particular value for invertebrates. In particular, emphasis was placed on the following features (where present):
- Mature open grown trees and veteran trees: especially those with large volumes of standing dead wood;
  - Woodland edge and scrub: especially where there is a diverse vegetation structure and species composition;
  - Species-rich grassland: especially that in association with scrub, with a high proportion of plants providing nectar and pollen, and with a varied vegetation structure;
  - Early successional habitat: (e.g. cliff faces, quarries, eroded banks, periodically disturbed bare or sparsely vegetated ground) especially on free-draining ground where there is a high proportion of exposed bare earth; and
  - Wetland: including watercourses (e.g. ditches, flushes and seepages), standing water or waterbodies (e.g. ponds, lakes and swamp) and associated terrestrial habitat (e.g. wet heath and marshy grassland).
- 3.5 A number of habitats were identified during the survey with the potential to support important invertebrate communities (which are described further in the results section). Subsequent invertebrate surveys were designed, to target key indicator groups of invertebrates within the Survey Site, namely Lepidoptera (butterflies and moths), Coleoptera (beetles) and Hemiptera (true bugs), associated with ditches, forb-rich grassland, and grassland and scrub matrix assemblages. The results of these targeted surveys were used to assess the main groups of invertebrate present within the Survey Site, and to provide an indication of the relative species diversity within the targeted groups.
- 3.6 Three ponds occur within the Survey Site, which may be of importance to aquatic invertebrates. Surveys for these will be conducted in late August 2014, and the findings incorporated within the final report.

#### Targeted Survey for Terrestrial Invertebrates (non-Lepidoptera)

- 3.7 Features within the Survey Site that provided the most suitable habitat for these taxonomic orders were selected for targeted survey. These included a range of typical, yet more suitable vegetation structures, including: transitional habitat along well established field margins close to ditch margins and hedgerows. Across these, the following sampling methods were employed: pitfall traps, sweep netting, beating and grubbing. These methods are described below. Whilst Coleoptera and

Hemiptera formed the focus of the survey, incidental records of other invertebrate taxa were also recorded. Surveys were conducted on 9 and 20 May 2014 by Dr Ian Fairclough.

### **Pitfall Traps**

- 3.8 Pitfall traps were set out in clusters of three, at two locations within the Survey Site (shown on Figure 1). Pitfall trapping involved the use of circular plant pot trays (24 cm diameter x 5 cm depth) that were sunk into a circular hole that was excavated using a spade. The trays were installed such that the tray rims were flush with the surrounding ground level. Preserving fluid, comprising 1 part ethylene glycol (antifreeze) to 3 parts water, was poured into the trays until they were half full. A drop of detergent was added to the fluid to break the surface tension and lastly, a layer of mesh (aperture size 2 cm x 1 cm) was balanced over the tray to prevent capture of small mammals, amphibians and reptiles. Photograph 1 (Appendix 1) shows a pitfall trap deployed within the Survey Site. The traps were operational during the period from 9 and 20 May 2014. Pitfall trapping is considered to be an effective method for the sampling of ground dwelling beetles, particularly those belonging to the family Carabidae (ground beetles).

### **Sweep Netting**

- 3.9 Sweep netting involved walking at a steady pace through the vegetation and passing an entomologist's sweep net back and forth through vegetation in a figure of eight motion. This method is particularly suitable for capturing phytophagous (foliage-feeding) families such as Curculionidae (weevils), Chrysomelidae (leaf or flea beetles), Nitidulidae (pollen beetles) and Cantharidae (soldier beetles). Sweep netting is also an effective method for collecting many families of bugs, although the Miridae (capsid bugs) can often be the most numerous both in number of individuals and number of species.

### **Beating**

- 3.10 Beating is a useful technique for extracting beetles from overhanging branches. This method involves placing a beating tray beneath a branch before delivering several sharp blows to the branch and sending any dislodged invertebrates into the beating tray for inspection. This method may uncover a diverse array of beetle families (similar to those found during the sweeping), and occasionally producing a Cerambycid (longhorn beetle) or Elaterid (click beetle). The Pentatomidae and Acanthosomatidae (shield bugs) are two of many Hemipteran families recorded using this method.

### **Grubbing**

- 3.11 Grubbing is the name generally applied to the extraction of invertebrates by hand from a variety of mediums such as denser grass tussocks, where a thatch has developed, often with patches of pleurocarpous (spreading and branched) mosses. To assist in the detection of small beetles (e.g. Staphylinidae (rove beetles)), moss and leaf litter were sieved or placed in a bucket of water to capture invertebrates struggling to the surface.

### ***Weather Conditions***

- 3.12 For both survey visits the weather had been warm if slightly unsettled in the preceding weeks. On the day of the survey conducted on 9 May 2014, the weather was dry, cloudy and warm (maximum temperature 20°C), with a light wind. During the survey visit undertaken on 20 May 2014 the weather was dry, fairly hot (maximum temperature 23°C) and overcast with occasional sunny spells, with a light wind. The weather conditions were optimal for both surveys.

### ***Sample Sorting and Identification***

- 3.13 Whilst some species could be identified in the field, the majority of specimens were stored in 70% methanol solution for later identification, using a stereoscopic microscope with the aid of identification literature. Experienced entomologist, Don Stenhouse FRES, assisted in the identification of terrestrial invertebrates collected from the field.

### Targeted Survey for Butterflies

- 3.14 On 30 July 2014, Dr Jim Fairclough visited the Survey Site to conduct a walked butterfly transect survey. This survey was the first of two to be conducted over the summer, the second of which will be conducted in late August.
- 3.15 A transect route was selected that covered a large proportion of the typical habitats of the whole of the Survey Site (encompassing the more suitable areas for butterflies) and took approximately two and a half hours to complete. This transect route is shown on Figure 1. The method used an adapted protocol for the UK Butterfly Monitoring Scheme (UKBMS). Thus:
- Timed counts were made between 10:00 and 16:30 hours, and only carried out in warm, bright and dry weather, with no more than moderate winds.
  - A transect route was devised (Figure 1), which was split into sections, each section being of similar length and covering habitat typical of the Survey Site.
  - Each section was walked at a slow, steady pace counting all butterflies seen within a fixed distance, 2.5 m either side of the transect line and 5 m ahead.
  - Care was taken to maintain a steady pace and avoid waiting at favoured hotspots to improve the count and bias the results.
  - Butterfly numbers and % sunshine in each section were recorded using the standard UKBMS proforma. Wind speed was estimated using the Beaufort scale (0 - no wind, 6 - very strong wind).
- 3.16 During the survey the wind speed was measured as 2 (light wind) and the average temperature was 25°C.

### Targeted Survey for Moths

- 3.17 On 18 June 2014 a night-time moth survey was undertaken, which was the first of two to be conducted over the summer, the second of which will be conducted in late August. The survey was conducted by Peter Newbold MCIEEM and Ross Crates MCIEEM, both ecologists competent in moth surveys and identification. Two Robinson moth traps were used, each fitted with mercury vapour bulbs to attract as many moths as possible. The traps were positioned in areas within the Survey Site that were expected to give the greatest range of species, yet in locations that were typical of the types of habitat prevailing at the Survey Site (notably field margins close to hedgerows and ditches) (see Figure 1 for trap locations).
- 3.18 Weather conditions during the survey were optimal; warm and humid (overnight low of 16°C) and with little or no wind.
- 3.19 The lights were switched on at dusk and remained lit until the generator powered down after at least four hours running time. The traps were checked periodically throughout the night to log any new arrivals. Any species hard to identify from external markings alone, and those requiring further confirmation, were retained and dissected if necessary to ascertain their identity.

### Survey Limitations

- 3.20 Seasonal surveys such as those carried out at the Survey Site are liable to be biased, to some extent, by the life histories of the invertebrate species themselves, a proportion of which may be found in spring, or in autumn, for example. The prevailing state of the vegetation will also play an important role. In the present case, much of the determination of interest depends on the quality of established field margin habitat, either specifically or as part of a wider mosaic with other boundary features, and the appearance and apparent value of vegetation can vary over the course of a year, as different plant species grow and come into flower, and as the exact nature of management, and its consequences for invertebrates, become apparent. For example, it is unlikely that identical conclusions may have been drawn from a survey conducted in mid-spring, or early-autumn.
- 3.21 Allied to this, two or three visits targeting two or three insect orders can only detect a proportion of the total species pool using a site. However, it does provide the opportunity to investigate the assemblage types present and to gauge where the most important parts of the Survey Site for invertebrates are most likely to be found. Furthermore, the setting of pitfall traps, to some extent,



helps negate restricted survey effort (especially for ground dwelling invertebrates), since the traps are operational and collecting target groups over a prolonged period of time.

## 4 Results and Interpretation

### Desk Study

- 4.1 An invertebrate scoping survey followed by nine site visits to collect invertebrates was undertaken by BSG Ecology during 2008 (PBA, 2009). This suite of surveys identified 483 species of invertebrates within Rookery Clay Pit County Wildlife Site (CWS), some of which were of conservation importance. The Rookery Clay Pits CWS includes the southern clay pit of The Rookery, which falls within the Survey Site. Three species were classified as SPIs (Species of Principal Importance, NERC Act 2006); the small heath *Coenonympha pamphilus*, shaded broad-bar moth *Scotopteryx chenopodiata* and cinnabar moth *Tyria jacobaeae*. All three are still widespread and common though declining. Amongst the 483 species recorded, 44 hold a Red Data Book or Nationally Scarce conservation status or merit one. The survey revealed Rookery Pits CWS as a site of county importance for invertebrate conservation and one of the best invertebrate sites in Bedfordshire. Most of the areas and habitat components sampled by the survey yielded Red Data Book or Nationally Scarce invertebrates. Aquatic and wetland habitats were richest in Red Data Book or Nationally Scarce invertebrate species but many species were associated with the grassland habitats and the bare and sparsely-vegetated ground, and some with a stand of poplars.
- 4.2 The desk study produced records of eighteen species of butterfly, all from within or adjacent to the Survey Site. These included the small heath, dingy skipper *Erynnis tages*, the wall *Lasiommata megera* and the grizzled skipper *Pyrgus malvae*, all of which are classified as SPI's. In addition, records of 40 species of moth were obtained. The majority of these species were either recorded on site or within a 200 m radius of the Survey Site. Most of these species of moth are classified as SPIs.
- 4.3 All species of invertebrate recorded from the Survey Site that are of conservation significance (i.e. rare, scarce or nationally threatened species of invertebrate, including Species of Principal Importance) are listed in Appendix 3.

### Habitat Potential Assessment

- 4.4 The majority of the Survey Site comprised intensively managed agricultural land, characterised by large arable fields, grass-covered field margins and fairly recent, species-poor, yet intact hedgerows (dominated by hawthorn *Crataegus monogyna*) (see Photograph 2, Appendix 1). These were discounted from further study on the basis of the habitat being of poor suitability for invertebrates. Only common and widespread species might be expected to occur in association with such habitat.
- 4.5 The main exception to this agricultural land is the area that lies to the north of the Survey Site. This comprised the access track that was a mosaic of bare ground with ephemeral vegetation and scrub at varying density. Also to the north, within Rookery South Pit was a patchy mosaic of bare ground, ephemeral vegetation and swamp vegetation in the form of drying reedbed dominated by stunted common reed *Phragmites australis*. These areas north of the Survey Site, notably within Rookery South Pit are being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. Accordingly, despite these areas maintaining a high level of interest for invertebrates at the time of survey, they were discounted from further investigation for the present study as it was assumed that the baseline for this area will be set as the future baseline (at the end of 2014), which is likely to a remodelled landform of compacted bare earth.
- 4.6 Notwithstanding the above, there were several habitat types of potential interest to invertebrates within the Survey Site. These formed the focus of the surveys and are summarised below.

### Established Boundary Features

- 4.7 As mentioned earlier, the hedgerows, which were more numerous in the east of the Survey Site, were of a uniform structure, species-poor and therefore lacking any defining character that would make them of significant value to invertebrates. The margins were generally species-poor, being dominated by grasses and lacking in forbs. However, there were several field boundaries,

particularly in the northern and western parts of the Survey Site, which are of slightly greater value (see Photographs 3, 4 and 5). In most cases, these included hedgerows and / or ditch banks with south-facing aspects and a wider variety of forbs, including species that are good pollen and nectar sources such as common fleabane *Pulicaria dysenterica*, wild carrot *Daucus carota*, bramble *Rubus fruticosus* agg, hogweed *Heracleum sphondylium* and great willowherb *Epilobium hirsutum*. Hedgerows at these locations were generally more complex and well-structured providing a permanent feature for hibernating invertebrates. Furthermore, they would have broken up the fields to add additional heterogeneity, and potentially warmth, at least close to the ground, which would likely have been of particular benefit to butterflies. The ditches also contributed to the diversity of microhabitats for invertebrates, offering a more humid environment at the ditch bases, for ground beetles and rove beetles and, supporting a different assemblage of plants (e.g. watercress *Rorippa nasturtium-aquaticum*, water mint *Mentha aquatica* and meadowsweet *Filipendula ulmaria*), which in turn can support a wider range of phytophagous (foliage feeding) invertebrates, such as weevils and various true bugs.

### Wooded Copses (Plantations)

- 4.8 There were several wooded copses across the Survey Site. Some were very recent, so were established on grassland habitat which was still prevalent. Others were somewhat older, yet still betrayed their origin as plantation woodland, due to a typically shaded and poorly developed ground flora and understorey, and a single age structure of trees. Pheasant were reared in some, which can also be detrimental to invertebrates as the pheasants will scour the ground feeding on ground dwelling invertebrates and nipping at young vegetation, stunting its growth. Copses fitting these descriptions would generally be of limited importance for terrestrial invertebrates. They have no features of antiquity such as a large volume of standing and fallen dead wood, rot holes, sap runs and cavities that would attract a more specialised dead wood (saproxylic) invertebrate fauna.
- 4.9 However, the most established copses within the Survey Site such as that immediately south of South Pilling Farm (close to Butterfly Transect BT8, see Figure 1) could be expected to act as reservoirs, supporting more invertebrates than would be found in the wider intensively farmed landscape. Here the woodland was complemented with grassland where a ride cut through the woodland, and patches of ruderal vegetation (including nettle, thistles and umbellifers) provided transition zones that would often be rich in invertebrates, due to the structural diversity. The added height and often permanency of these features makes them important refuges for invertebrates especially during winter when penetrating frosts may otherwise have adverse consequences. The scrub which was also prevalent in this area would have been an important food source. In early and mid-spring, blackthorn and hawthorn are valuable reservoirs of nectar and pollen for bees, wasps, moths and beetles. Later in summer / early autumn they provide a source of food (fruit) for fruit feeding species.

### Ponds

- 4.10 There were three ponds within the Survey Site (see, for example, Photograph 6). These were located to the east and were positioned centrally in arable fields. Whilst being quite isolated, these ponds are still likely to have been important reservoirs for invertebrates. The wide field margins surrounding the ponds offered a buffer to the drift of chemicals used by the farmer, and the ponds themselves were mature, yet still with plenty of open water and marginal vegetation. This included species such as amphibious bistort *Persicaria amphibia*, bittersweet *Solanum dulcumara*, reedmace *Typha latifolia* and soft rush *Juncus effusus*. The range of species potentially associated with ponds is unequalled, with such habitat typically well represented by a range of snails, diving beetles (Dytiscidae), water beetles (Hydrophilidae), dragonflies (Odonata) and caddisflies (Trichoptera).

### Terrestrial Invertebrates (non-Lepidoptera)

- 4.11 In total 84 invertebrate taxa were identified, 83 of these to species level. Beetles made up most of the records (53 species). The next most recorded order was the true bugs followed by the bees, wasps and ants (Hymenoptera). The full list of invertebrates recorded within the Survey Site is

displayed in tabular format in Appendix 4. The results of the survey were analysed by measuring the number of locally rare, nationally notable and IUCN red-list / RDB<sup>1</sup> species.

- 4.12 Overall, the majority of the insects recorded are widely distributed and common, with fifteen regarded as more local and two of Notable status. These notable species are discussed further in Table 1, below.

**Table 1: Summary of Beetle Species Status and Habitat Requirements**

Scientific Name	Status	Notes on Habitat Requirements
<i>Platydracus latebricola</i> (a rove beetle)	Nationally Scarce (Notable B)	This species prefers dry soils on insolated sites, although its habitat preferences are not well understood. It is recorded mainly from the midlands and south-east of England. It was taken from a pitfall trap, positioned along a field boundary (close to a ditch) to the north.
<i>Microplontus triangulum</i> (a weevil)	Nationally Scarce (Notable B)	Records are mainly from the east and south-east of England with a few records found as far north as Cumbria. It has been recorded from roadside verges, field margins, grassland and disturbed ground. According to Morris (2008) it is 'Notable B (hardly reflecting its rarity)' suggesting that he regards it as rarer, although as it is found on the very common yarrow <i>Achillea millefolium</i> it could be expected to be more common. It was taken during sweeping of field margin vegetation to the north of the Survey Site (sweep net area 1; Figure 1).

<sup>1</sup> **Status Definitions and Criteria of Invertebrate Groups:** for many invertebrate groups, species rarity has often been gauged by the number of national 10km grid squares in which they occur. The fewer the "spots on a map", the rarer it is. This, however, does not exactly equate with how threatened a species is, since some species may be naturally confined to very few localities but are very abundant where they do occur and under no immediate threat of extinction. The matter of how threatened the "rarest" species are has been addressed in a series of Red Data Books (RDB), such as for insects (Shirt, 1987). Here, the listing as RDB1 (Endangered), RDB2 (Vulnerable) and RDB3 (Rare) is an assessment of how threatened or endangered the species is in Britain, rather than how scarce it is in terms of map spot counting.

Over the last decade the RDB categories are slowly being replaced by IUCN red-list categories (Critically Endangered, Endangered and Vulnerable), which use different criteria to those developed for the RDBs. However, this process is slow, and IUCN categories are not available for all groups. Accordingly, wherever IUCN categories have been allocated, these are also shown.

Below RDB status, less rare but still significant species can be defined as Nationally Scarce (formerly called Nationally Notable), which is often sub-divided into Na (scarce), Nb (less scarce). These sub-categories are based on 10 kilometre square spot counting for the Great Britain grid system. The Na sub-category represents scarce taxa that are thought to occur in 30 or fewer 10 km squares of the Great Britain grid system. The Nb sub-category represents less scarce taxa that occur in 31 to 100 10 km squares. Taxa in the N- sub-category are those listed as 'Notable', but not always distinguished into sub-category Na or Nb in the relevant review. These species are thought to occur in 16 to 100 10 km squares of the National Grid but are too poorly known for their status to be more precisely estimated.

The concept of 'Local' is less well defined, but comprises species of distinctly limited or restricted distribution, with such limitations being brought about by climate controls, dependency on a scarce habitat type, host (in the case of parasitic species) or similar ecological factor. In this present study, the Local status of species is as per the Recorder database package developed by JNCC.

## Butterflies

- 4.13 Twelve butterfly and two day-flying moth species were observed during the course of the transect survey. A summary of the transect survey results are shown in Table 2 below and the route of the transect survey is shown in Figure 1. Copies of the original survey proforma can be found in Appendix 5.

**Table 2: Summary of Transect Survey Results**

Common Name	Latin Name	No. of sightings on 30 July
Common Blue	<i>Polyommatus icarus</i>	7
Brown Argus	<i>Aricia agestis</i>	1
Gatekeeper	<i>Pyronia tithonus</i>	48
Meadow Brown	<i>Maniola jurtina</i>	26
Ringlet	<i>Aphantopus hyperantus</i>	3
Peacock	<i>Inachis io</i>	10
Comma	<i>Polygonia c-album</i>	2
Small Tortoiseshell	<i>Aglais urticae</i>	1
Essex Skipper	<i>Thymelicus lineola</i>	7
Small Skipper	<i>Thymelicus sylvestris</i>	1
Large White	<i>Pieris brassicae</i>	25
Green-Veined White	<i>Pieris napi</i>	2
6-Spot Burnet (moth)	<i>Zygaena filipendulae</i>	3
Shaded Broad-Bar (moth)	<i>Scotopteryx chenopodiata</i>	1

- 4.14 The diversity of butterfly species is typical for a site of this type and location. The species recorded are generally considered to be common and widespread across central and southern England.
- 4.15 The most notable find during the survey was that of the shaded broad-bar, a geometrid moth that occupies a wide range of habitats including dunes, downs, waste ground and grassland. The larvae feed on vetches and clovers. Whilst this is regarded as a widespread and moderately common species, it's inclusion on Section 41 of the NERC Act 2006 relates to a reported decline of 73% over 35 years for this species, which is triggering the need for further research into its decline (JNCC, 2010).

## Moths

- 4.16 The night-time survey produced 57 taxa of moth, 56 of which were recognisable as species (see Appendix 4).
- 4.17 Eight species collected were particularly noteworthy, due to their status either as a nationally notable species, or their inclusion as a SPI (S. 41; NERC Act 2006). Table 3, below gives more detailed information about each species and their habitat requirements.

**Table 3: Summary of Moth Species Status and Habitat Requirements**

Scientific Name	Status	Notes on Habitat Requirements
Large nutmeg <i>Apamea anceps</i>	SPI: Decline of 88% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species has a localised distribution, although it is particularly well distributed and locally abundant on well drained farmland in south east and central southern England. The moth is associated with grasses, so it would have been well suited to the field margins within the Survey

Scientific Name	Status	Notes on Habitat Requirements
		Site.
Dusky brocade <i>Apamea remissa</i>	SPI: Decline of 76% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species is common across England. The moth is associated with grasses, so it would have been well suited to the field margins within the Survey Site.
mottled rustic <i>Caradrina morpheus</i>	SPI: Decline of 73% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species is common across England. The moth is associated with a variety of herbaceous plants (e.g. nettle, docks and willows), so it would have been well suited to the hedgerows and copses within the Survey Site.
rustic <i>Hoplodrina blanda</i>	SPI: Decline of 75% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species is common across England. The moth is associated with a variety of herbaceous plants (e.g. chickweed, docks and plantains), so it would have been well suited to the field margins within the Survey Site.
lackey <i>Malacosoma neustria</i>	SPI: Decline of 90% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species is common across southern England. The moth is associated with a variety of broadleaved trees and shrubs (e.g. hawthorn, blackthorn, apple and oak), so it would have been well suited to the hedgerows and copses within the Survey Site.
giant water veneer <i>Schoenobius gigantella</i>	SPI: Decline of 90% over 35 years; research needed (JNCC, 2010)	According to Sterling & Parsons (2012), this species has a very localised distribution, principally across south east England. The moth is associated with reedbeds, especially coastal reedbeds, although gravel pits are also favoured. The larvae feed internally on the young shoots of common reed and reed sweet-grass. The discovery of this species at the Survey Site will most certainly have been in association with the swamp in The Rookery, most likely Rookery South Pit, which was closest to the moth traps.
blood vein <i>Timandra comae</i>	SPI: Decline of 79% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species is common across England. The moth is associated with a variety of herbaceous plants, but docks in particular, so it would have been well suited to the field margins, hedgerows and copses within the Survey Site.
cinnabar <i>Tyria jacobaeae</i>	SPI: Decline of 83% over 35 years; research needed (JNCC, 2010)	According to Waring & Townsend (2003), this species is common across England. The moth is almost exclusively associated with common ragwort, so it would have been well suited to better established field margins within the Survey Site.

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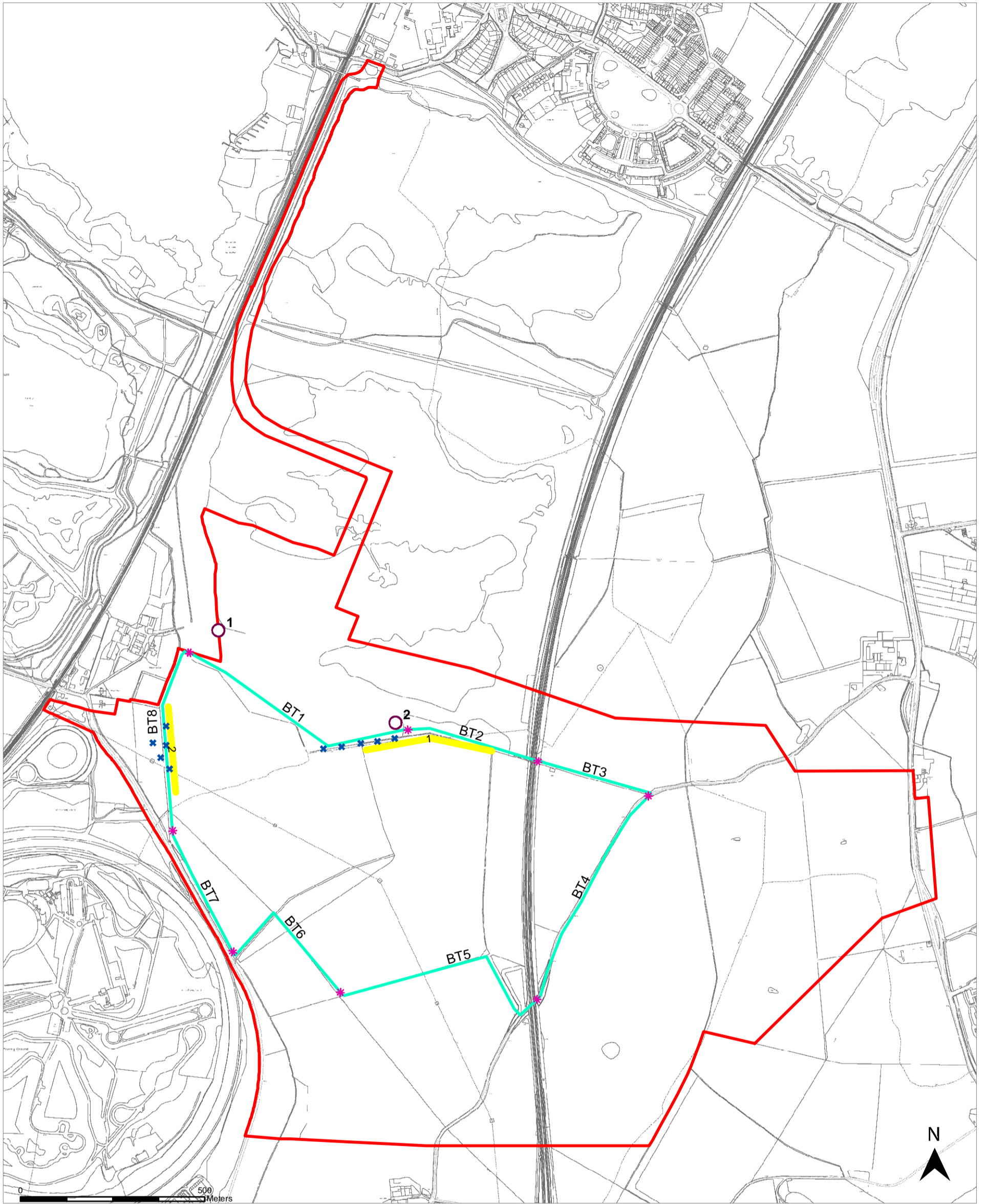
## Appendix 1: Photographs

	
<p>Photo 1: Pitfall trap deployed at the Survey Site.</p>	<p>Photo 2: Example of field margin of negligible value to terrestrial invertebrates (typical of eastern side of Survey Site).</p>
	
<p>Photo 3: More structurally diverse field margin, in this instance delineated by a hedgerow.</p>	<p>Photo 4: More structurally diverse field margin, in this instance delineated by a ditch.</p>
	
<p>Photo 5: More structurally diverse field margin, in this instance delineated by a hedgerow &amp; wooded copse.</p>	<p>Photo 4: One of the three ponds to the east of the Survey Site. Note the wide grassland margin.</p>



## Appendix 2: Figures

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**LEGEND**

- The Project Site
- BT1 \* Butterfly transect
- Area of targeted sweeping, grubbing and beating
- \* Pitfall trap location
- <sup>1</sup> Location of moth trap

### Appendix 3: Species of Conservation Concern Recorded from the Desk Study

Order	Scientific Name	Conservation Status
Araneae	<i>Pardosa agrestis</i>	Nationally Scarce (Nb)
Araneae	<i>Alopecosa barbipes</i>	Vulnerable
Coleoptera	<i>Dacryla fallax</i>	Nationally Scarce
Coleoptera	<i>Dryops similis</i>	Nationally Scarce (Na)
Coleoptera	<i>Limnichus pygmaeus</i>	Nationally Scarce (Na)
Coleoptera	<i>Longitarsus parvulus</i>	Nationally Scarce (Na)
Coleoptera	<i>Achenium humile</i>	Nationally Scarce (Nb)
Coleoptera	<i>Anacaena bipustulata</i>	Nationally Scarce (Nb)
Coleoptera	<i>Berosus signaticollis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Catapion pubescens</i>	Nationally Scarce (Nb)
Coleoptera	<i>Cercyon sternalis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Chaetarthria seminulum sens.lat.</i>	Nationally Scarce (Nb)
Coleoptera	<i>Chlaenius nigricornis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Cypha discoidea</i>	Nationally Scarce (Nb)
Coleoptera	<i>Demetrius imperialis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Elaphropus parvulus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Enochrus quadripunctatus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Graptodytes granularis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Helophorus nanus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Hydroglyphus geminus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Hygrotus parallelogrammus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Ilybius chalconatus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Limnebius nitidus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Limnebius papposus</i>	Nationally Scarce (Nb)
Coleoptera	<i>Longitarsus dorsalis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Notaris scirpi</i>	Nationally Scarce (Nb)
Coleoptera	<i>Orthochaetes setiger</i>	Nationally Scarce (Nb)
Coleoptera	<i>Pterostichus gracilis</i>	Nationally Scarce (Nb)
Coleoptera	<i>Ochthebius nanus</i>	Near Threatened
Coleoptera	<i>Ochthebius pusillus</i>	Near Threatened
Coleoptera	<i>Neobisnius procerulus</i>	Red Data Book (Insufficiently Known)
Diptera	<i>Oxycera morrisii</i>	Nationally Scarce
Diptera	<i>Pipizella virens</i>	Nationally Scarce
Diptera	<i>Stratiomys singularior</i>	Nationally Scarce
Hemiptera	<i>Microvelia pygmaea</i>	Nationally Scarce (Nb)

Order	Scientific Name	Conservation Status
Hymenoptera	<i>Hylaeus cornutus</i>	Nationally Scarce (Na)
Hymenoptera	<i>Nomada fucata</i>	Nationally Scarce (Na)
Hymenoptera	<i>Hoplitis claviventris</i>	Nationally Scarce (Nb)
Hymenoptera	<i>Hylaeus signatus</i>	Nationally Scarce (Nb)
Hymenoptera	<i>Lasioglossum malachurum</i>	Nationally Scarce (Nb)
Hymenoptera	<i>Lasioglossum puncticolle</i>	Nationally Scarce (Nb)
Hymenoptera	<i>Sphecodes crassus</i>	Nationally Scarce (Nb)
Lepidoptera	<i>Sesia apiformis</i>	Nationally Scarce (Nb)
Lepidoptera	<i>Coenonympha pamphilus</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Erynnis tages</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Lasiommata megera</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Pyrgus malvae</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Acronicta rumicis</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Acronicta psi</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Acronicta rumicis</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Amphipyra tragopoginis</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Apamea anceps</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Apamea remissa</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Arctia caja</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Atethmia centrigo</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Blepharita adusta</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Caradrina morpheus</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Diarsia rubi</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Ecliptopera silaceata</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Ennomos erosaria</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Eulithis mellinata</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Euxoa tritici</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Hemistola chrysoprasaria</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Hepialus humuli</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Hoplodrina blanda</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Hydraecia micacea</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Lycia hirtaria</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Malacosoma neustria</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Melanchra persicariae</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Melanchra pisi</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Mythimna comma</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Nemophora fasciella</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Scotopteryx chenopodiata</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Spilosoma lubricipeda</i>	SPI (s. 41 NERC Act 2006)

<b>Order</b>	<b>Scientific Name</b>	<b>Conservation Status</b>
Lepidoptera	<i>Spilosoma luteum</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Tholera cespitis</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Tholera decimalis</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Timandra comae</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Tyria jacobaeae</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Watsonalla binaria</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Xanthia icteritia</i>	SPI (s. 41 NERC Act 2006)
Orthoptera	<i>Conocephalus discolor</i>	Nationally Scarce (Na)

## Appendix 4: Species List (2014 Surveys of Survey Site)

Order	Scientific Name	Conservation Status
Araneae	<i>Dysdera erythrina</i>	Common
Coleoptera	<i>Agriotes obscurus</i>	Common
Coleoptera	<i>Altica palustris</i>	Common
Coleoptera	<i>Amara plebeja</i>	Common
Coleoptera	<i>Amara similata</i>	Common
Coleoptera	<i>Anacaena globulus</i>	Common
Coleoptera	<i>Anacaena lutescens</i>	Common
Coleoptera	<i>Anaspis maculata</i>	Common
Coleoptera	<i>Anotylus sculpturatus</i>	Common
Coleoptera	<i>Anthonomus rubi</i>	Common
Coleoptera	<i>Aphodius sphacelatus</i>	Common
Coleoptera	<i>Badister bullatus</i>	Common
Coleoptera	<i>Barypeithes araneiformis</i>	Common
Coleoptera	<i>Barypeithes pellucidus</i>	Common
Coleoptera	<i>Brachypterus glaber</i>	Common
Coleoptera	<i>Brachypterus urticae</i>	Common
Coleoptera	<i>Calathus fuscipes</i>	Common
Coleoptera	<i>Cantharis lateralis</i>	Local
Coleoptera	<i>Carabus nemoralis</i>	Local
Coleoptera	<i>Carabus problematicus</i>	Common
Coleoptera	<i>Cercyon melanocephalus</i>	Common
Coleoptera	<i>Cionus alauda</i>	Local
Coleoptera	<i>Cionus scrophulariae</i>	Common
Coleoptera	<i>Coelostoma orbiculare</i>	Local
Coleoptera	<i>Cordylepherus viridis</i>	Local
Coleoptera	<i>Cyphon padi</i>	Local
Coleoptera	<i>Grammoptera ruficornis</i>	Common
Coleoptera	<i>Harpalus rubripes</i>	Local
Coleoptera	<i>Harpalus rufipes</i>	Common
Coleoptera	<i>Hydroporus memnonius</i>	Common
Coleoptera	<i>Hypera rumicis</i>	Common
Coleoptera	<i>Malachius bipustulatus</i>	Common
Coleoptera	<i>Malthodes marginatus</i>	Common
Coleoptera	<i>Meligethes aeneus</i>	Common
Coleoptera	<i>Microcara testacea</i>	Common
Coleoptera	<i>Microplontus triangulum</i>	Nationally Scarce (Nb)

Order	Scientific Name	Conservation Status
Coleoptera	<i>Nebria brevicollis</i>	Common
Coleoptera	<i>Neocoenorrhinus minutus</i>	Local
Coleoptera	<i>Oedemera lurida</i>	Local
Coleoptera	<i>Oedemera nobilis</i>	Common
Coleoptera	<i>Onthophagus coenobita</i>	Local
Coleoptera	<i>Onthophagus joannae</i>	Local
Coleoptera	<i>Perapion violaceum</i>	Common
Coleoptera	<i>Philonthus politus</i>	Common
Coleoptera	<i>Phyllobius oblongus</i>	Common
Coleoptera	<i>Phyllobius pomaceus</i>	Common
Coleoptera	<i>Phyllobius roboretanus</i>	Common
Coleoptera	<i>Phyllodrepa floralis</i>	Common
Coleoptera	<i>Platydracus latebricola</i>	Nationally Scarce (Nb)
Coleoptera	<i>Poecilus cupreus</i>	Local
Coleoptera	<i>Polydrusus pterygomalis</i>	Common
Coleoptera	<i>Pterostichus madidus</i>	Common
Coleoptera	<i>Pterostichus melanarius</i>	Common
Coleoptera	<i>Rhagonycha femoralis</i>	Common
Coleoptera	<i>Rhyzobius litura</i>	Common
Coleoptera	<i>Sitona lineatus</i>	Common
Coleoptera	<i>Tachyporus nitidulus</i>	Common
Coleoptera	<i>Tytthaspis sedecimpunctata</i>	Local
Dermaptera	<i>Forficula auricularia</i>	Common
Diptera	<i>Sarcophaga carnaria</i>	Common
Glomerida	<i>Armadillidium vulgare</i>	Common
Glomerida	<i>Glomeris marginata</i>	Common
Hemiptera	<i>Acanthosoma haemorrhoidale</i>	Common
Hemiptera	<i>Aelia acuminata</i>	Local
Hemiptera	<i>Cercopis vulnerata</i>	Common
Hemiptera	<i>Corizus hyoscyamii</i>	Local
Hemiptera	<i>Palomena prasina</i>	Common
Hemiptera	<i>Physatocheila dumetorum</i>	Common
Hemiptera	<i>Plesiodema pinetella</i>	Common
Hemiptera	<i>Stenodema calcarata</i>	Common
Hemiptera	<i>Stenodema laevigata</i>	Common
Hymenoptera	<i>Myrmica rubra</i>	Common
Hymenoptera	<i>Myrmica ruginodis</i>	Common
Hymenoptera	<i>Pachyprotasis rapae</i>	Common
Hymenoptera	<i>Priocnemis sp</i>	Common

Order	Scientific Name	Conservation Status
Hymenoptera	<i>Selandria serva</i>	Common
Isopoda	<i>Asellus aquaticus</i>	Common
Isopoda	<i>Oniscus asellus</i>	Common
Julida	<i>Brachyiulus pusillus</i>	Common
Julida	<i>Ophiulus pilosus</i>	Common
Lepidoptera	<i>Agapeta hamana</i>	Common
Lepidoptera	<i>Aglais urticae</i>	Common
Lepidoptera	<i>Agrotis clavis</i>	Common
Lepidoptera	<i>Agrotis exclamationis</i>	Common
Lepidoptera	<i>Agrotis segetum</i>	Common
Lepidoptera	<i>Aliemma loeflingiana</i>	Common
Lepidoptera	<i>Apamea anceps</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Apamea lithoxylaea</i>	Common
Lepidoptera	<i>Apamea monoglypha</i>	Common
Lepidoptera	<i>Apamea remissa</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Apamea sordens</i>	Common
Lepidoptera	<i>Aphantopus hyperantus</i>	Common
Lepidoptera	<i>Archips podana</i>	Common
Lepidoptera	<i>Aricia agestis</i>	Common
Lepidoptera	<i>Axylia putris</i>	Common
Lepidoptera	<i>Cabera exanthemata</i>	Common
Lepidoptera	<i>Caradrina morpheus</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Cerura vinula</i>	Common
Lepidoptera	<i>Chrysoteuchia culmella</i>	Common
Lepidoptera	<i>Cidaria fulvata</i>	Common
Lepidoptera	<i>Cnephasia asseclana</i>	Common
Lepidoptera	<i>Cochylys atricapitana</i>	Common
Lepidoptera	<i>Cochylys hybridella</i>	Common
Lepidoptera	<i>Crambus pasquella</i>	Common
Lepidoptera	<i>Crambus perlella</i>	Common
Lepidoptera	<i>Diachrysis chrystis</i>	Common
Lepidoptera	<i>Diachrysis chrystis</i>	Common
Lepidoptera	<i>Eilema lurideola</i>	Common
Lepidoptera	<i>Eudonia lacustrata</i>	Common
Lepidoptera	<i>Geometra papillonaria</i>	Common
Lepidoptera	<i>Hedya nubiferana</i>	Common
Lepidoptera	<i>Hedya pruniana</i>	Common
Lepidoptera	<i>Hoplodrina blanda</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Hydrella flammeolaria</i>	Common



Order	Scientific Name	Conservation Status
Lepidoptera	<i>Idaea aversata</i>	Common
Lepidoptera	<i>Idaea fuscovenosa</i>	Local
Lepidoptera	<i>Inachis io</i>	Common
Lepidoptera	<i>Lacanobia oleracea</i>	Common
Lepidoptera	<i>Laothoe populi</i>	Common
Lepidoptera	<i>Laspeyria flexula</i>	Local
Lepidoptera	<i>Lomographa temerata</i>	Common
Lepidoptera	<i>Malacosoma neustria</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Maniola jurtina</i>	Common
Lepidoptera	<i>Mythimna impura</i>	Common
Lepidoptera	<i>Mythimna pallens</i>	Common
Lepidoptera	<i>Nola cucullatella</i>	Common
Lepidoptera	<i>Opisthograptis luteolata</i>	Common
Lepidoptera	<i>Peribatodes rhomboidaria</i>	Common
Lepidoptera	<i>Phalera bucephala</i>	Common
Lepidoptera	<i>Phoesia tremula</i>	Common
Lepidoptera	<i>Pieris brassicae</i>	Common
Lepidoptera	<i>Pieris napi</i>	Common
Lepidoptera	<i>Polygonia c-album</i>	Common
Lepidoptera	<i>Polyommatus icarus</i>	Common
Lepidoptera	<i>Pterostoma palpina</i>	Common
Lepidoptera	<i>Ptilodon cucullina</i>	Common
Lepidoptera	<i>Pyronia tithonus</i>	Common
Lepidoptera	<i>Rusina ferruginea</i>	Common
Lepidoptera	<i>Schoenobius gigantella</i>	Nationally Scarce (Nb)
Lepidoptera	<i>Scotopteryx chenopodiata</i>	Common
Lepidoptera	<i>Sphinx ligustri</i>	Common
Lepidoptera	<i>Swammerdamia caesiella</i>	Common
Lepidoptera	<i>Thymelicus lineola</i>	Common
Lepidoptera	<i>Thymelicus sylvestris</i>	Common
Lepidoptera	<i>Timandra comae</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Tortrix viridana</i>	Common
Lepidoptera	<i>Tyria jacobaeae</i>	SPI (s. 41 NERC Act 2006)
Lepidoptera	<i>Xestia c-nigrum</i>	Common
Lepidoptera	<i>Xestia triangulum</i>	Common
Lepidoptera	<i>Xestia xanthographa</i>	Common
Lepidoptera	<i>Zygaena filipendulae</i>	Common
Lithobiomorpha	<i>Lithobius forficatus</i>	Common
Polydesmida	<i>Brachydesmus superus</i>	Common

<b>Order</b>	<b>Scientific Name</b>	<b>Conservation Status</b>
Polydesmida	<i>Polydesmus coriaceus</i>	Common
Pulmonata	<i>Trochulus hispidus</i>	Common

## **Appendix 5 Survey Proforma**

SITE NAME Millbrook RECORDER Jim Fairclough

YEAR 2014 DATE 30 July WEEK NO. Wk 1 = 1<sup>st</sup>-7<sup>th</sup> April  
Wk 2 = 8<sup>th</sup>-14<sup>th</sup> April etc. START 13.45 FINISH 16.30

AVERAGE TEMP. (°C) 25 AVERAGE WIND SPEED (0-6) 2 WIND DIRECTION W

0 smoke rises vertically, 1 slight smoke drift, 2 wind felt on face, 3 leaves in slight motion, 4 dust raised & small branches move, 5 small trees in leaf sway, 6 large branches move & trees sway

SECTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
Small skipper	1															
Essex skipper	11	11				11		1								
Small / Essex skipper																
Large skipper																
Dingy skipper																
Grizzled skipper																
Clouded yellow																
<del>Brimstone</del>																
Large white																
Small white																
Green-veined white		1			1											
Orange tip																
Green hairstreak																
Purple hairstreak																
Small copper																
Small blue																
Brown argus		1														
Common blue		11						1								
Chalkhill blue																
Holly blue																
White admiral																
Red admiral																
Painted lady																
Small tortoiseshell	1															
Peacock						11		11								
Comma	1							1								
Dark green fritillary																
Silver-washed fritillary																
Speckled wood																
Wall																
Marbled white																
<del>Grayling</del>																
Gatekeeper						11	1									
Meadow brown			1	1	1		11									
Ringlet		1					11									
Small heath																
B-spot burnet	1	1		1												
shaded broad bar						1										
TOTAL																

SECTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	AVERAGE SUNSHINE
% SUNSHINE	100	100	90	90	80	80	80	80								90

NOTES:

PLEASE SEND COPIES OF YOUR RECORDING FORMS TO YOUR LOCAL CO-ORDINATOR (DETAILS AVAILABLE ON THE BC & UKBMS WEBSITES) BY THE END OF OCTOBER. DATA IN TRANSECT WALKER FORMAT SHOULD BE SENT IN BY THE END OF NOVEMBER.  
[www.butterfly-conservation.org](http://www.butterfly-conservation.org) [www.ukbms.org](http://www.ukbms.org)

This information is sent to Butterfly Conservation, the Centre for Ecology and Hydrology and their partners on the understanding that the data provided by the recorder will be entered into a computerised database and will be used for nature conservation, research, education and public information. The information remains the property of the recorder at all times.

## **8.3 – Herpetofauna Interim Report**

**Millbrook Power Project**  
Herpetofauna Interim Report

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## Contents

1	Summary .....	3
2	Introduction.....	4
3	Methods.....	5
4	Results and Interpretation .....	9
5	References .....	12
	Appendix 1: Figures.....	13
	Appendix 2: Great Crested Newt Habitat Suitability Index (HSI) Assessment Scores .....	14
	Appendix 3: Great Crested Newt Survey Results .....	16
	Appendix 4: Photographs .....	20
	Appendix 5: Reptile Survey Results .....	21

## 1 Summary

- 1.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.
- 1.2 MPL commissioned BSG Ecology to undertake great crested newt *Triturus cristatus* (GCN) surveys, of ponds within the red-line boundary of the Project Site (as reported in the Project Scoping Report), and to a distance of up to 250 m from this (the 'Survey Site'). The Survey Site for the reptile surveys comprised suitable habitat within the Project Site. The purpose of the surveys was to inform and support an application for Development Consent for the Power Generation Plant. A supporting desk study and literature review was also conducted, which covered the Project Site and land up to 2 km from this.
- 1.3 This is an Interim Report. The results of the GCN surveys are complete; however, a final reptile survey is programmed for late-August/ early-September 2014. A final report will be produced to incorporate these findings, which will accompany the DCO Application.

### Great Crested Newts

- 1.4 The desk study revealed the presence of a large population of GCN associated with Rookery North Pit. This population is formed from GCN that are being translocated from Rookery South Pit, which is currently the subject of an ongoing Low Level Restoration Scheme (LLRS) by the landowner, under licence to Natural England. It is understood that the translocation of GCN from Rookery South Pit will be completed in 2014.
- 1.5 Thirteen ponds were surveyed in total as part of the field survey. These excluded the ponds in Rookery North Pit, for which current data exists confirming a large population in this area. The survey revealed the presence of GCN in eight of 13 ponds surveyed. These are represented by four separate populations, all with medium or small populations, which are broadly located to the east, south and west of the Survey Site. The population recorded to the east includes the only ponds occupied by GCN that are within the Project Site.

### Reptiles

- 1.6 The desk study revealed the presence of a low population of grass snakes *Natrix natrix* and a medium population of common lizards *Zootoca vivipara* associated with The Rookery Clay Pit CWS. Reptiles are being translocated from Rookery South Pit, which is currently the subject of an ongoing LLRS. Again, it is understood that the translocation of reptiles from Rookery South Pit will be completed in 2014.
- 1.7 Surveys identified the presence of common lizard *Zootoca vivipara* and grass snake *Natrix natrix* within the Project Site, specifically along the Bletchley to Bedford railway corridor and land to the west of this. Peak adult count of common lizard and grass snake were eight and three respectively. These figures may need to be revised following the seventh and final survey visit, programmed for late summer.

## 2 Introduction

- 2.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.

### Site Description

- 2.2 The Project Site, as identified in the Project Scoping Report comprises the Power Generation Plant Area within Rookery South Pit, and the Gas and Electrical Connection Areas which extend from The Rookery into the surrounding agricultural land to the south and east. The approximate centre of the Project Site lies at grid reference 501373, 240734, which is situated between Bedford and Milton Keynes.
- 2.3 The Survey Site includes all ponds (water bodies) within the red-line of the Project Site, as reported in the Project Scoping Report, and to a distance of 250 m from this, as shown on Figure 1, Appendix 1. The Survey Site for the reptile surveys includes all areas of habitat with suitability for reptiles within the Project Site, as shown on Figure 3. The main habitats within the Survey Site are arable fields, delineated by hedgerows, ditches and minor roads and lanes. To the north, an area of land exists that is in the process of being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. This area presently includes sparsely vegetated ground, swamp and bare earth. Towards the end of 2014, it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS.

### Description of Project

- 2.4 The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical capacity of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the Power Generation Plant to the existing National Grid Gas (NGG) National Transmission System (NTS). It will connect to the National Grid Electrical Transmission System (NETS) via underground cable or overhead lines.
- 2.5 BSG Ecology was appointed as the ecological consultant to undertake a preliminary ecology survey, which included a desk study and Extended Phase 1 Habitat Survey. This identified the need to undertake a suite of Phase 2 surveys in order to fully assess the nature conservation value of the Project Site, including GCN and reptile surveys. These baseline surveys will be included in an appendix to an ecology chapter of an Environmental Statement, which will be submitted, as an integral part of the application for Development Consent.

### Aims of Study

- 2.6 The aims of surveys were to identify whether:
- Great crested newts (GCNs) were present in the ponds within the Survey Site, and if present, to estimate the population size; and
  - Reptiles were present in suitable habitats within the Survey Site, and if present, to identify the species assemblage. (Note that a population estimate will be calculated following the seventh and final visit in late August/ early September 2014.)

### 3 Methods

#### Desk Study

- 3.1 Existing ecological information regarding protected species was requested from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) covering the Survey Site and land up to 2 km away. In addition, on-line resources including the Multi Agency Geographic Information for the Countryside (MAGIC, [www.magic.gov.uk](http://www.magic.gov.uk)) website and aerial photography of the area were also reviewed.
- 3.2 This information was supplemented by previous survey and mitigation work undertaken by BSG Ecology on The Rookery Clay Pit CWS, including land within and immediately north of the Survey Site (PBA, 2009; BSG Ecology, 2013).

#### Great Crested Newt

##### The Survey Site

- 3.3 The Survey Site includes all ponds within the red-line boundary of the Project Site and to a distance of 250 m from this, which is shown on Figure 1. Guidance from Natural England (derived from the most recent Method Statement spreadsheet; Natural England, 2013) states that a 500 m search radius can be required in certain circumstances, which is normally when **all** the following conditions are met:
- maps, aerial photos, walk-over surveys or other data indicate that the pond(s) has potential to support a large great crested newt population,*
  - the footprint contains particularly favourable habitat, especially if it constitutes the majority available locally,*
  - the development would have a substantial negative effect on that habitat, and*
  - there is an absence of dispersal barriers.'*
- 3.4 In considering these conditions, it can be concluded that a 250 m search radius from the Project Site is appropriate, since not all the conditions are met, as described below.
- maps, aerial photos, walk-over surveys or other data indicate that the pond(s) has potential to support a large great crested newt population.* This condition is met as a large population is present at Rookery North Pit (Section 4.0 provides further details).
  - the footprint [Project Site] contains particularly favourable habitat, especially if it constitutes the majority available locally.* The Project Site largely comprises intensively managed arable fields of low suitability to GCN. To the north (within Rookery South Pit) the Project Site includes land that is presently being restored as part of a LLRS. On completion of the restoration this land will be of low suitability for GCN. Outside the Project Site, particularly to the west, there are significant areas of semi-natural habitat that constitute excellent habitat for GCN. This includes habitat at the Vehicle Proving Ground, along the railway embankments / cuttings, and the Marston Vale Millennium Country Park. Accordingly, this condition is not met, and therefore no further consideration to the remaining two conditions is relevant.
- 3.5 In consideration of the Survey Site and the selection of ponds to a 250 m radius from the Project Site, it is also relevant to note that there are many suitable ponds in the surrounding landscape (up to 250 m from the Project Site) yet very few beyond this, therefore suggesting a lack of connectivity between such ponds (clustering) and limited opportunities for associated dispersal of GCN into the wider landscape.
- 3.6 In connection with the above point, where pond clustering occurs whereby a pond inside the 250 m radius from the Project Site is less than 250 m from a pond outwith the Project Site, the Survey Site has been extended to include this outer pond. This approach accords with the guidelines, and enables a full representation of the population size to be made, on the basis that GCN are assumed to readily move between ponds at this distance apart (English Nature, 2001).

## Field Survey

### Habitat Suitability Assessment

3.7 During the field survey a HSI assessment of all ponds within the Survey Site was undertaken. Information on the physical features and characteristics of each pond were collected in order to allow a GCN HSI score to be derived for each pond by applying the scoring system developed by Oldham *et al.* in 2000 and updated by the Herpetological Conservation Trust in 2008 (HCT, 2008). The Habitat Suitability Index is calculated by allocating scores to features associated with each pond; these include size, quality of surrounding habitat and presence of fish. These scores are then used to calculate the overall HSI for each pond as a number between 0 and 1, with 0 being the least suitable and 1 being the most suitable. The HSI score allows each pond to be placed in one of five pre-defined categories defining its suitability for GCN as follows:

- <0.5 = poor
- 0.5 – 0.59 = below average
- 0.6 – 0.69 = average
- 0.7 – 0.79 = good
- >0.8 = excellent

### Amphibian Survey

3.8 Surveys were undertaken in accordance with survey techniques described in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). Observations of GCN and other amphibian species of principal importance (S. 41; NERC Act 2006) were recorded. Three survey methods were employed on each of the 13 ponds during each survey, in accordance with standard methodology. These were a combination of bottle trapping, netting, torch light searches and/or egg searches, which are further described below.

3.9 *Torch surveys:* This method involved searching for GCN after sunset using 1 million candle power torches. All accessible parts of a pond were slowly walked and searched.

3.10 *Bottle trapping:* Where water depth and bank side access allowed, bottle traps (constructed from 2 litre plastic drinks bottles) were set in suitable parts of a pond at dusk and left in place overnight. Bottle traps were checked for amphibians the following morning within 12 hours of setting and any animals caught were released at the point of capture.

3.11 *Netting:* A long-handled dip-net was used for sampling suitable parts of a pond for amphibians. Where access permitted, all suitable parts of the pond were searched for GCN. Results from netting are only useful for indicating presence/likely absence, and not population size.

3.12 *Egg search:* Egg searches were conducted in order to determine whether GCN were breeding in the ponds. This involved searching marginal and aquatic vegetation for the distinctive leaf folding pattern and egg of GCN. Results from egg searches are only useful for indicating presence/likely absence, and not population size. The presence of GCN eggs is also a measure of attempted breeding at a pond.

### Great Crested Newt Population Assessment Survey

3.13 In order to estimate the population size class for ponds containing GCN, the peak adult count per pond per visit recorded through either torching or bottle-trapping must be determined. Where ponds supporting GCN occur within 250 m of each other, and are not separated by a significant barrier to dispersal, the population size class is indicated by the peak adult count summed across all connected ponds on a single survey visit through either torching or bottle-trapping. Populations can then be classed as:

- 'small' for maximum counts of up to 10 adults;
- 'medium' for maximum counts between 11 and 100; or
- 'large' for maximum counts exceeding 100 adults.

### Amphibian Survey Details

- 3.14 The surveys were conducted over a period of approximately eight weeks with four visits undertaken in the period mid-April to mid-May. They were conducted by Dr Jim Fairclough (JF) MCIEEM (GCN Licence Number: CLS001611), Peter Newbold (PN) MCIEEM (GCN Licence Number: CLS001717), Greg Chamberlain (GHC) MCIEEM, Dr Angie Julian (AJ) (GCN Licence Number: CLS02421), John Woods (JW) GradCIEEM, Elly Pattullo (EP), Ross Crates (RC), Francesca Morini (FM), Tom Chapman (TM) and Klare Chamberlain (KC). Table 1, below, summarises the dates on which the surveys were undertaken and weather conditions, which were favourable during all surveys.

Table 1: Timetable and conditions of GCN surveys

Visit no.	Date	Surveyors	Temp (°C)	Rain
1	22/04/2014	JF, PN, RC, TC, FM	10	None
2	30/04/2014	JF, GHC, AJ, JW	15	None
3	08/05/2014	GHC, KC, TC, RC	12-13	None
4	19/05/2014	GHC, KC, JF, EP	16	None
5	30/06/2014	GHC, KC	14	None
6	18/06/2014	GHC, PN, RC	13	None

### Limitations of Study

- 3.15 No survey of Pond J was undertaken during visit 1 due to access restrictions. Given that three (of five) surveys of Pond J were undertaken during the period mid-April to mid-May, the period within which GCN counts are expected to peak, and in accordance with the Great Crested Newt Mitigation Guidelines (English Nature, 2001), the population size-class assessment based on the survey results of Pond J is considered to be robust. Furthermore, the peak GCN count in Pond J was 28 adults (visit 4). An additional survey would have been highly unlikely to identify a large population size-class (GCN count exceeding 100).

### Reptiles

#### Field Survey

- 3.16 The reptile survey was undertaken in accordance with good practice guidance, including that set out in the Herpetofauna Worker's Manual (Gent *et al.*, 2003) and Reptile Survey Guidance (Froglife, 1999).
- 3.17 The presence/likely absence of reptiles at the Survey Site was established through the use of artificial refugia in combination with a visual search of the Survey Site, as described below.

#### Artificial Refugia

- 3.18 Artificial refugia (roofing felt or corrugated metal sheets measuring between c. 0.5 m x 0.5 m and c. 0.5 m x 1.0 m) were placed in locations assessed during the Phase 1 Habitat survey as being suitable for use by basking reptiles. Refugia were placed in a variety of aspects to enable survey findings to be indicative of use of the Survey Site by reptiles at different times of day, but where possible, favouring southerly aspects that would remain warm all day.
- 3.19 Suitable habitat for reptiles within the Survey Site is limited to a network of hedgerows and ditches, rough grassland, tall ruderal vegetation, patchy scrub and woodland edges. This was calculated to be approximately 20 ha in total. Accordingly, a total of 200 refugia were deployed: 180 on 17th April 2014, 13 days ahead of the first survey visit; and an additional 20 on 30<sup>th</sup> May, incorporated into the survey from visit 4 onwards to reflect revisions to the Survey Site boundary. The average refugia density in areas of suitable reptile habitat was approximately 10 per hectare. This accords with the best practice recommended refugia density of 5-10 refugia per hectare (Froglife, 1999), enabling a robust assessment of the presence/likely absence of reptiles and an approximate estimate of the population size to be made.

- 3.20 During each survey visit, the refugia were inspected for any reptiles basking on the upper surface, then lifted and checked for sheltering animals beneath before being carefully replaced. Potential reptile refuges already present on the Survey Site, such as discarded wood and large debris, were also inspected for the presence of reptiles.

#### Visual Search

- 3.21 A visual search for reptiles within suitable habitats across the Survey Site was also undertaken during each survey visit. This helped to ensure that all areas were fully considered in the survey and helped eliminate a bias towards those reptile species more likely to use refugia. Visual searches involved walking slowly around the Survey Site in order to systematically search potential basking areas for reptiles in the areas between artificial refugia locations (Froglife, 1999).

#### Reptile Survey Details

- 3.22 The following information was recorded during each reptile survey visit: species present; number of individuals present; approximate life stage (e.g. adult); location (refugia number or marked on map if visual encounter); date, survey start and finish times; and weather conditions.
- 3.23 Surveys were carried out during suitable weather conditions. Dates of the survey visits along with survey timings and weather conditions are provided in Table 2. Visits were undertaken on seven occasions in total, by Dr Jim Fairclough (JF) MCIEEM, Greg Chamberlain (GHC) MCIEEM, and John Woods (JW) Grad CIEEM (Table 1). (Note that the seventh and final survey visit is yet to be undertaken).

Table 2: 2014 Survey Details

Visit No.	Date	Surveyor	Start / End	Time	Weather				
					Wind	Rain	Sun	Cloud (okta's)	Temp (°C)
1	30/04/14	JF and JW	Start	14.40	Light	None	Strong	2	20
			End	16.52	Light	None	Strong	2	18
2	14/05/14	JW	Start	11:30	Light	None	Strong	2	17
			End	14:30	Light	None	Strong	3	20
3	19/05/14	GHC and JW	Start	08:45	Light	None	Strong	0	19
			End	10.30	Light	None	Strong	0	25
4	03/06/14	GHC	Start	13.55	Still	None	Occasional	5	17
			End	17.25	Still	None	Occasional	6	17
5	19/06/14	GHC	Start	12.55	Light	None	Milky	8	16
			End	16.00	Light	None	Milky	8	16
6	23/07/14	GHC and JW	Start	6.40	Light	None	Milky	8	15.5
			End	10.30	Light	None	Milky	7	20
7	To be completed								

#### Limitations to Methods

- 3.24 There were no limitations to the reptile survey.



## 4 Results and Interpretation

### Great Crested Newts

#### Desk Study

- 4.1 Surveys for GCN were undertaken in and around the Rookery Clay Pit CWS in 2008 (PBA, 2009). The presence of a large population of GCN was subsequently confirmed during these surveys. Trapping and translocation of newts has since taken place under a mitigation licence issued by Natural England in 2011. This has affected the southern half of the Rookery Clay Pit CWS incorporating the southern portion of the proposed access track and a proportion of the arable land in the north of the Survey Site, and had yielded over 6,000 GCNs (up to the end of July 2014), which were subsequently moved to receptor areas in the north of the Rookery Clay Pit CWS (400 m east of the proposed access track) and a receptor area named Stewartby Way 2 (SW2) to the east of the Bletchley to Bedford railway corridor. At the present time, the translocation programme is continuing in the south of the Rookery Clay Pit CWS (Rookery Pit South) and is expected to be completed by November 2014.

#### Habitat Suitability Assessment

- 4.2 During the field survey, 13 ponds were identified within the Survey Site. The locations and HSI scores attributed to these ponds are shown on Figure 1 (Appendix 1). A full description of each of the ponds, along with HSI scores, is included in Appendix 2.

#### Amphibian Surveys

- 4.3 Eight ponds were found to contain GCN (Figure 2, Appendix 1). Evidence of egg-laying, which indicates breeding activity, was found in each of these ponds. In addition, eight ponds were found to support common toad *Bufo bufo*, a species of principal importance (s. 41; NERC Act 2006). A summary of the survey results can be found in Table 3 below, along with a note on the presence of common toad. Full survey results are detailed in Appendix 3 and selected photographs (referenced in Table 3) in Appendix 4.

4.4 Table 3: Summary of Great Crested Newt Survey Results

Pond	Maximum Adult Peak Count Per Survey Visit*						GCN Eggs	Common Toad present
	1	2	3	4	5	6		
A (Photo 1)	4	5	0	0	0	1	Yes	No
C	0	0	0	4	1	1	Yes	Yes
H	0	0	1	0	0	1	Yes	No
I	0	0	0	0	0	0	No	No
J (Photo 2)	-	15	12	28	2	1	Yes	Yes
K	3	1	7	2	0	0	Yes	No
L	0	0	0	0	0	0	No	No
O	0	0	0	0	0	0	No	Yes
P	0	0	0	0	0	0	No	Yes
Q (Photo 3)	0	4	2	0	1	0	Yes	Yes
R	0	0	1	0	0	0	Yes	Yes
S (Photo 4)	0	5	0	1	0	0	Yes	Yes
T (Photo 5)	0	0	0	0	0	0	No	Yes

\*For either torching or bottle trapping

### Great Crested Newt Population Size Class Assessment

4.5 Four population clusters were identified, whereby a 'population' is defined as a collection of ponds where there is reasonable certainty of regular interchange of individuals between ponds (typically, within 250 m of each other and with an absence of barriers to dispersal) (English Nature, 2001). These included three small size-class and one medium size-class GCN populations, as shown on Figure 2. Results of the assessment are summarised in Table 4, below.

4.6 Table 4. Population size class assessment results.

Population ID	Ponds included	Peak count	Adult GCN	Population size class
Population A	Pond C	4		Small
Population B	Pond A	5		Small
Population C	Ponds R, Q and S	9		Small
Population D	Ponds H, J and K	30		Medium

### Reptiles

#### Desk Study

4.7 The desk study revealed the presence of a low population of grass snakes *Natrix natrix* and a medium population of common lizards *Zootoca vivipara* associated with The Rookery Clay Pit CWS. Reptiles are being translocated from Rookery South Pit, which is currently the subject of an ongoing LLRS.

#### Reptile Surveys

4.8 Two common species of reptile were recorded at the Survey Site, namely common lizard and grass snake. No other reptile species have been recorded. The results of the surveys are summarised in Table 5 below and the locations at which common lizards and grass snakes were recorded are shown in Figure 3, Appendix 1. Full survey results are included in Appendix 5.

4.9 Table 5: Reptiles recorded at the Survey Site during each visit.

Date of Survey	Visit No.	Common lizards		Grass snakes	
		Adult	Juvenile	Adult	Juvenile
30/04/14	1	8	1	1	1
14/05/14	2	5	0	0	0
19/05/14	3	3	0	2	0
03/06/14	4	4	0	3	0
19/06/14	5	0	0	1	1
23/07/14	6	2	1	2	1
To be completed	7	-	-	-	-

4.10 A total of 22 adult and two juvenile common lizard observations were made throughout the first six survey visits, with a peak count of eight adults on visit one. Of these, 11 adult and one juvenile common lizard observations were made in Zone 11, a rough grassland field margin bordered to the north by a wooded copse and adjacent to the Bletchley to Bedford railway corridor that divides the Project Site (Figure 3, Appendix 1). Common lizards were also observed in Zones 16 and 17 (immediately south of the Project Site, adjacent to the railway corridor), Zone 7 (along the southern edge of a wooded plantation), Zone 4 (along to a wide, heavily vegetated ditch with structurally diverse bankside vegetation) and Zone 5 (along the eastern edge of a semi-natural broadleaved woodland plantation).

- 4.11 Nine adult and three juvenile grass snakes were observed during the first six survey visits, with a peak count of three adults on visit 4. Of these, five adult and two juvenile grass snake observations were made in Zone 5. Single grass snake observations were made at Zones 3, 7, 12, 16 and 17 (juvenile).
- 4.12 With the exception of Zone 17, which was immediately east of the railway corridor, no common lizards or grass snakes were observed to the east of the railway corridor that divides the Project Site. Potential reptile habitat on land to the east of the railway corridor was less suitable and limited to field boundaries typically consisting of species poor hedgerows, wet ditches and uniform grassland field margins (see for example photograph 6 (Appendix 4)).
- 4.13 A population estimate for reptiles across the Survey Site will be calculated following the seventh and final visit, programmed for late August 2014.

## 5 References

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Gent, A.H. & Gibson, S.D. (2003) Herpetofauna Workers' Manual. JNCC, Peterborough.

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Oldham R.S., Keeble J., Swan M.J.S. and Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* **10** (4), 143-155.

Peter Brett Associates (PBA) LLP (2009) *The Rookery Low Level Restoration Scheme – Environmental Statement Volume 1*.

## Appendix 1: Figures

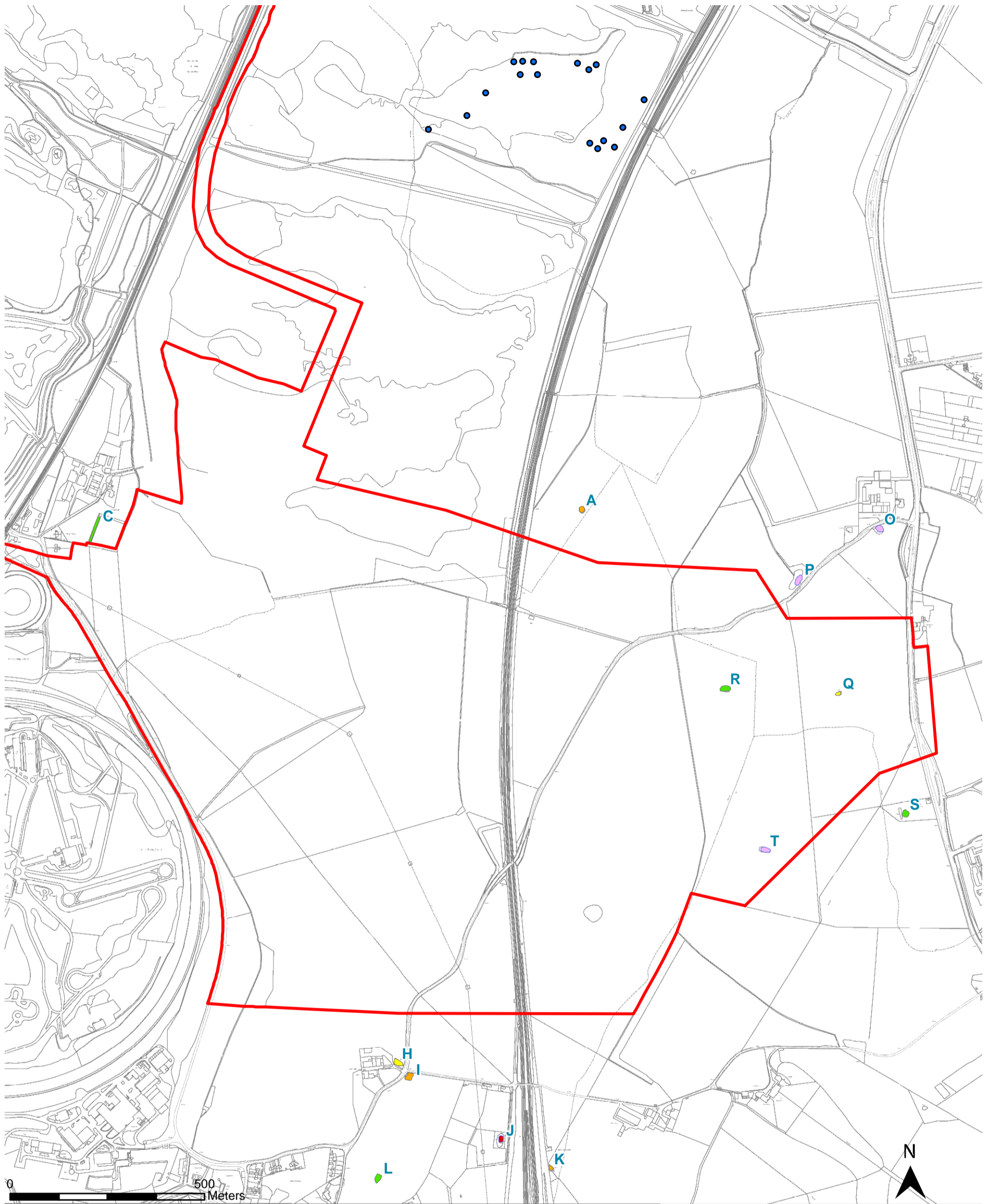
(overleaf)

Figure 1: Great crested newt pond HSI assessment

Figure 2: Great crested newt population size-class assessment

Figure 3: Reptile survey results

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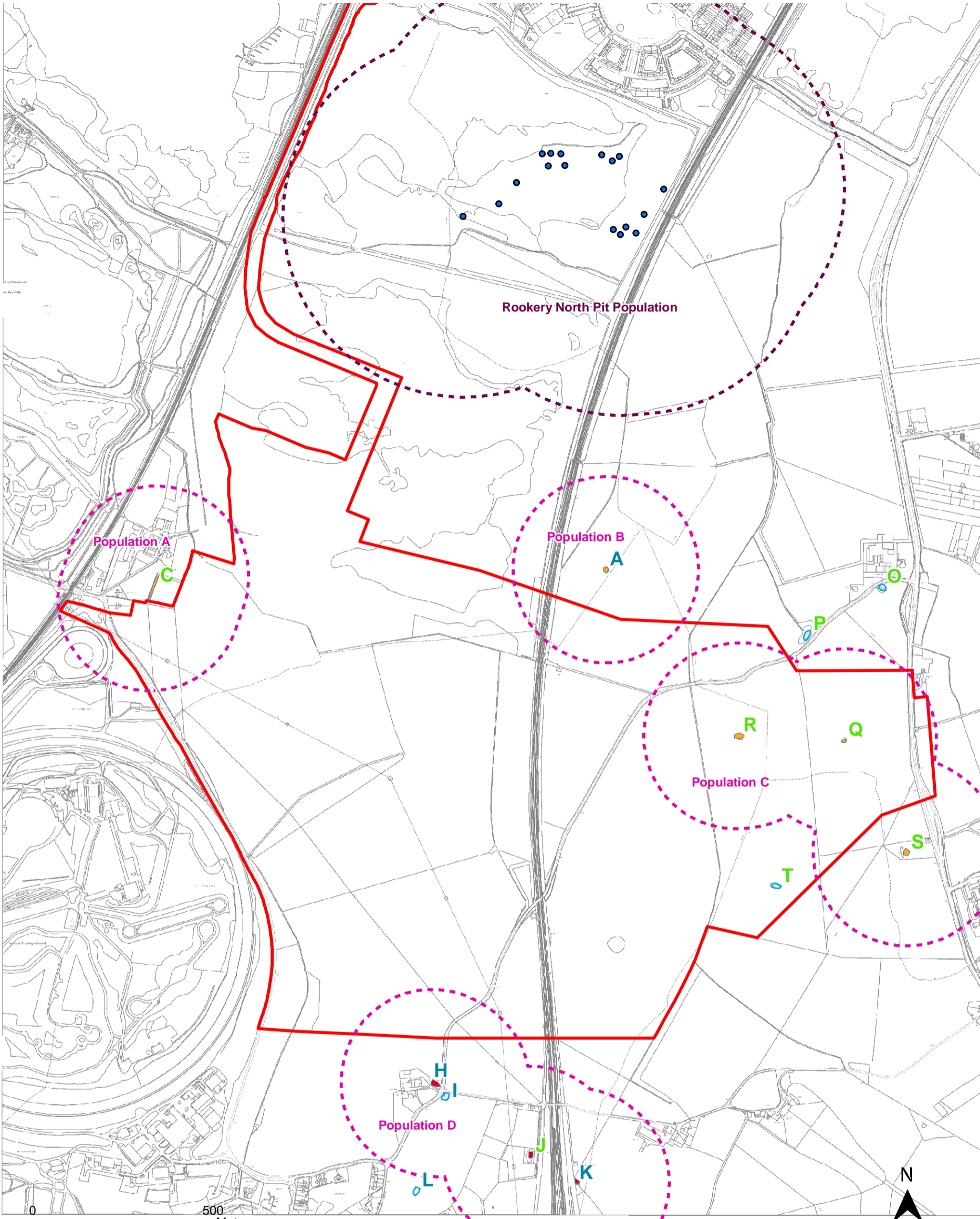


**LEGEND**

- The Project Site
- Great crested newt pond (Rookery North Pit)

**Ponds surveyed and their suitability to support great crested newts**

- Excellent
- Good
- Average
- Below average
- Poor
- A Pond ID



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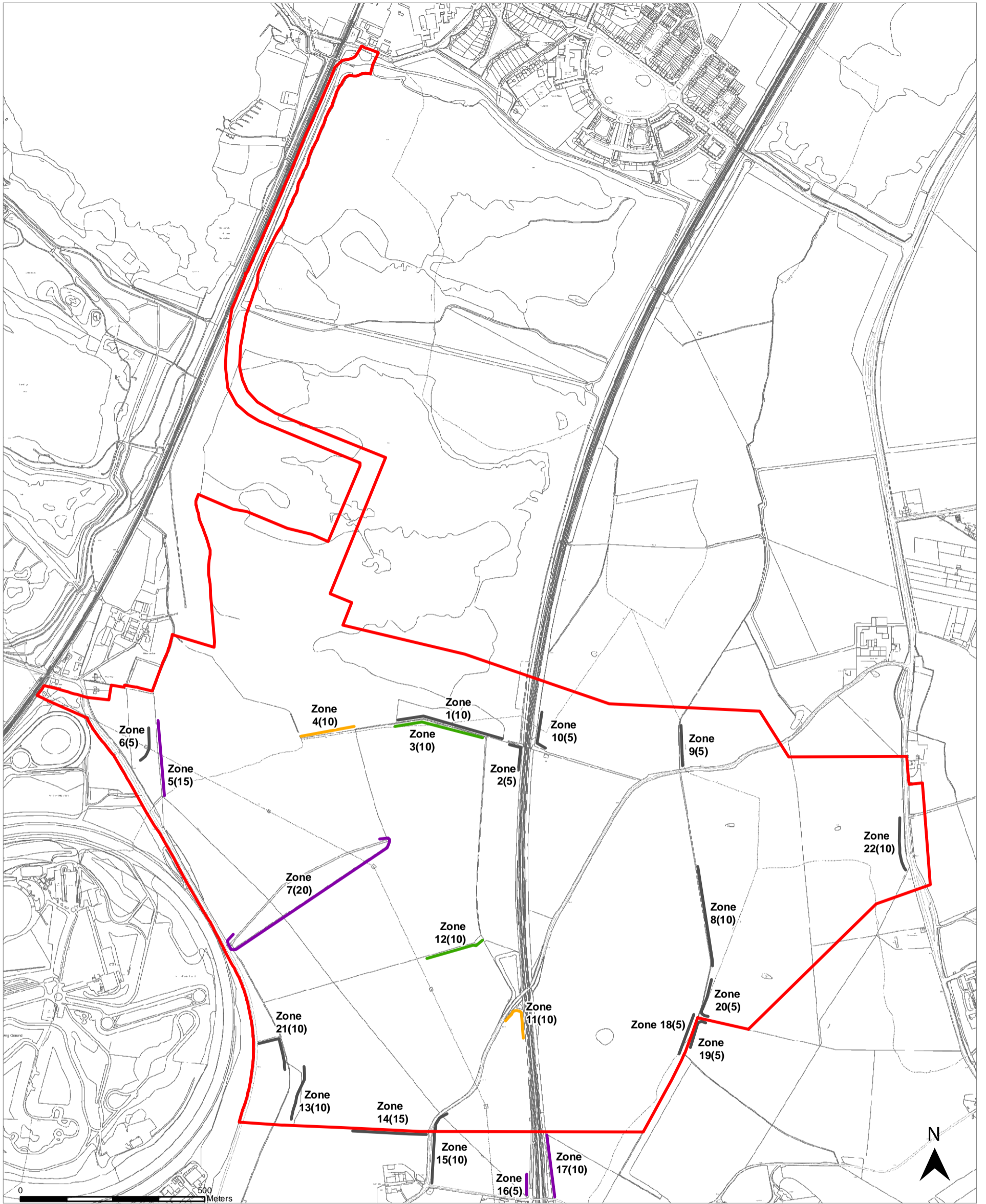
**LEGEND**

- The Project Site
- Great crested newt pond (Rookery North Pit)
- 500m buffer from Rookery North Pit GCN ponds

**Amphibian Survey**

- GCN absent
- Medium population
- Small population
- A Pond ID - common toad not recorded
- A Pond ID - common toad present
- 250m buffer from great crested newt population

L:\Contracts\Live Contracts\7393.03 Millbrook Phase 2 Survey & Reporting\Work in Progress\Mapping\02\_GIS\01\_projects\7393.03\_reptiles\_140728.mxd



**LEGEND**

- The Project Site
- No reptiles found
- Grass snake recorded
- Common lizard recorded
- Grass snake and common lizard recorded
- Zone 1 (10)      Zone ID (number of refugia)



## Appendix 2: Great Crested Newt Habitat Suitability Index (HSI) Assessment Scores

ID	SI Scores (Oldham <i>et al</i> , 2000)											Suitability Class	Grid Ref
	Location	Area	Permanence	Water Quality	Shading	Water fowl	Fish	Density	Terrestrial Habitat	Macrophyte Cover	HSI Score		
A	1	0.6	0.5	0.67	1	1	1	0.84	0.33	0.6	0.71	Good	TL021405
<p>This pond covers an area of approximately 310 m<sup>2</sup> and ranged between 50cm and 1m in depth. Vegetation in this pond consisted of bulrush <i>Typha latifolia</i> with occasional common reed <i>Phragmites australis</i>. This pond is located to the north-east of the Survey Site within an arable field offering limited sheltering opportunities for newts in its immediate surrounding area.</p>													
C	1	0.4	0.5	0.67	0.3	0.67	0.67	1	0.67	0.3	0.57	Below average	TL009405
<p>This pond is located within the grounds of South Pilling Farm. This pond ranges from 30-50 cm in depth and is heavily shaded by hazel, alder and willow trees. It is possible that GCN could use the fallen leaves from these trees as egg laying material. This pond is surrounded by sheep grazed pasture.</p>													
H	1	0.5	0.9	0.33	0.3	1	0.67	0.95	0.67	0.4	0.61	Average	TL017391
<p>A pond adjacent to Lower Farm south of the Survey Site. This pond covers an area of approximately 250 m<sup>2</sup> and is between 50 cm and 1 m in depth and supports small stands of bulrush. This pond is surrounded by scrub and scattered planted trees offering some potential sheltering habitat for newts. An inflow brings water into this pond from the adjacent road.</p>													
I	1	0.8	+1	0.67	0.8	1	0.33	1	0.67	0.3	0.70	Good	TL017393
<p>This pond lies on the opposite side of the road to Pond H described above. This pond covers an area of approximately 400 m<sup>2</sup> and is also between 50 cm and 1 m in depth. Patches of duckweed <i>Lemna minor</i> are present on this pond whilst the submerged curled pondweed <i>Potamogeton crispus</i> is also present. This pond is bordered by a ditch, access track and road.</p>													
J	1	0.5	0.5	0.67	0.7	1	1	1	1	0.9	0.8	Excellent	TL019389
<p>This pond lies within a small woodland copse approximately 20 m west of a wooded railway cutting and contains water to a depth of 0.6 m. Aquatic vegetation includes abundant floating sweet-grass <i>Glyceria fluitans</i>, water starwort <i>Callitriche</i> sp. and watercress <i>Nasturtium officinale</i>.</p>													
K	1	0.3	0.5	0.67	0.4	1	1	0.95	1	0.9	0.71	Good	TL020388
<p>This pond lies to the south of the Survey Site, adjacent to the railway cutting. This pond was relatively shallow and is likely to periodically dry. However, it supported dense mats of watercress and was surrounded by a small woodland copse likely to provide high quality terrestrial habitat for GCN.</p>													
L	1	0.1	1	0.33	0.4	1	1	1	1	0.4	0.59	Below average	TL016388

ID	SI Scores (Oldham <i>et al</i> , 2000)											Suitability Class	Grid Ref
	Location	Area	Permanence	Water Quality	Shading	Water fowl	Fish	Density	Terrestrial Habitat	Macrophyte Cover	HSI Score		
	<p>This pond lies in an arable field to the south of the Survey Site and covers an area of approximately 150-200m<sup>2</sup> and is over 1 m in depth. Ruderal vegetation and scrub surrounds this pond offering some potential sheltering habitat to newts. Common duckweed was present on the pond and it is likely that run off from the surrounding field feeds into the pond possibly adversely affecting water quality.</p>												
O	1	0.9	0.9	0.33	0.3	1	0.01	0.8	0.67	0.33	0.38	Poor	TL029405
	<p>This pond, to the north east of the Survey Site, lies adjacent to the north of an arable field and adjacent to a small wooded copse. Aquatic vegetation is limited due to heavy shading. The bed of the pond contains abundant leaf litter and other detritus.</p>												
P	1	0.2	0.9	0.33	0.8	0.67	0.01	0.8	0.33	0.3	0.40	Poor	TL027404
	<p>This pond, to the north east of the Survey Site, lies between an arable field and a small wooded copse and contains water to a depth of over 1 m. Aquatic vegetation includes abundant curled pondweed <i>Potamogeton crispus</i>. There was evidence of coarse fish in the pond, which is likely to be well stocked.</p>												
Q	1	0.2	1	0.67	1	0.67	1	0.8	0.33	0.8	0.67	Average	TL028401
	<p>This pond, within the Survey Site, lies within an arable field and contains water to a depth of approximately 1 m. The margins of the pond are dominated by bulrush.</p>												
R	1	0.2	1	0.67	0.6	1	0.33	0.8	0.33	0.55	0.57	Below average	TL025401
	<p>This pond, within the Survey Site, lies within an arable field and contains water to a depth of approximately 1 m depth. The central section of the pond is heavily shaded by scrub. Marginal vegetation includes abundant bulrush <i>Typha latifolia</i>, and frequent amphibious bistort <i>Persicaria amphibia</i> and bittersweet <i>Solanum dulcamara</i>.</p>												
S	1	0.05	0.5	0.33	0.8	1	1	0.8	0.33	0.9	0.52	Below average	TL030398
	<p>This pond to the south east of the Survey Site, contains water to a depth of 0.8 m and supports a dense cover of aquatic macrophytes including reedmace and watercress. It is enclosed within a habitat patch containing a mosaic of recently planted scrub and broadleaved trees. Beyond this habitat patch is arable farmland.</p>												
T	1	0.4	1	0.67	1	1	0.01	0.9	0.33	0.5	0.46	Poor	TL026397
	<p>This pond, within the Survey Site, lies within an arable field and contains water to of approximately 1 m depth. Marginal vegetation is dominated by branched bur-reed <i>Sparganium erectum</i>. Fish (stickleback) are known to be numerous in this pond.</p>												

## Appendix 3: Great Crested Newt Survey Results

Pond A		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	3	1	30	3	1	0	0	0	0	-	-	-	Y	N
2	30/04/2014	15	3	3	30	3	0	0	4	1	0	-	-	-	-	N
3	08/05/2014	12	3	2/3	25	0	0	0	0	0	0	-	-	-	-	N
4	19/05/2014	16	3	2	25	0	0	0	0	0	0	-	-	-	-	N
5	03/06/2014	14	2	2	25	0	0	0	0	0	0	-	-	-	-	N
6	18/06/2014	13	3	1	25	0	1	0	0	0	0	-	-	-	-	N

Pond C		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	1	2	10	0	0	0	0	0	0	-	-	-	Y	N
2	30/04/2014	15	2	2	20	0	0	0	0	0	0	-	-	-	-	N
3	08/05/2014	12	1	3	10	0	0	0	0	0	0	-	-	-	-	N
4	19/05/2014	16	1	3	20	0	0	0	0	4	0	-	-	-	-	N
5	03/06/2014	14	1	2	20	0	0	0	1	0	0	-	-	-	-	N
6	18/06/2014	13	1	3	20	0	0	0	0	1	0	-	-	-	-	Y

Pond H		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	1	2	25	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	1	2	20	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	12	2	3	15	1	0	0	0	0	0	-	-	-	Y	N
4	19/05/2014	16	2	3	20	0	0	0	0	0	0	-	-	-	-	N
5	03/06/2014	14	2	5	20	0	0	0	0	0	0	-	-	-	-	N

6	18/06/2014	13	3	3	20	0	0	0	1	0	0	-	-	-	-	N
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Pond I		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	1	2	20	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	1	3	20	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	12	2	2	20	0	0	0	0	0	0	-	-	-	N	N
4	19/05/2014	16	3	2	20	0	0	0	0	0	0	-	-	-	N	N

Pond J		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	No access – pond not surveyed														
2	30/04/2014	15	4	0	10	8	7	0	0	0	0	-	-	-	Y	N
3	08/05/2014	12	3	1	20	1	0	0	6	6	0	-	-	-	-	N
4	19/05/2014	16	3	1	10	15	13	0	2	2	1	-	-	-	-	N
5	03/06/2014	14	4	2	15	2	0	0	0	2	0	-	-	-	-	N
6	18/06/2014	13	3	1	15	1	0	0	1	0	0	-	-	-	-	Y

Pond K		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	3	1	15	2	1	0	0	0	0	0	-	-	-	N
2	30/04/2014	15	4	0	5	1	0	0	0	0	0	0	-	-	-	N
3	08/05/2014	12	3	1	5	1	6	0	0	0	0	0	-	-	-	N
4	19/05/2014	16	3	2	0	1	1	0	-	-	-	-	-	-	-	Y
5	03/06/2014	14	4	2	5	0	0	0	0	0	0	0	-	-	-	-
6	18/06/2014	13	4	3	5	0	0	0	0	0	0	0	-	-	-	-

Pond L		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	3	1	20	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	4	1	20	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	12	4	2	5	0	0	0	0	0	0	-	-	-	N	N
4	19/05/2014	16	5	2	15	0	0	0	0	0	0	-	-	-	N	N

Pond O		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	0	5	15	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	2	3	15	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	12	2	3	15	0	0	0	0	0	0	-	-	-	N	N
4	19/05/2014	16	2	4	15	0	0	0	0	0	0	-	-	-	N	N

Pond P		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	1	4	25	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	2	3	20	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	12	2	3	25	0	0	0	0	0	0	-	-	-	N	N
4	19/05/2014	16	1	4	25	0	0	0	0	0	0	-	-	-	N	N

Pond Q		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	2	0	15	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	2	1	15	0	0	0	3	1	0	-	-	-	N	N
3	08/05/2014	13	4	1		1	1	0	0	0	0	-	-	-	N	N
4	19/05/2014	16	3	1	17	0	0	0	0	0	0	-	-	-	Y	N

5	03/06/2014	14	2	0	15	0	0	0	0	1	0	-	-	-	-	N
6	18/06/2014	13	3	4	15	0	0	0	0	0	0	-	-	-	-	N

Pond R		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	2	2	20	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	4	2	20	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	13	3	1	20	0	0	0	0	1	0	-	-	-	Y	N
4	19/05/2014	16	3	1	20	0	0	0	0	0	0	-	-	-	-	N
5	03/06/2014	14	2	2	20	0	0	0	0	0	0	-	-	-	-	N
6	18/06/2014	13	3	1	20	0	0	0	0	0	0	-	-	-	-	N

Pond S		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	3	0	10	0	0	0	0	0	0	-	-	-	Y	N
2	30/04/2014	15	4	2	20	0	0	0	3	2	0	-	-	-	-	N
3	08/05/2014	13	2	3	20	0	0	0	0	0	0	-	-	-	-	N
4	19/05/2014	16	3	2	20	0	0	0	0	1	0	-	-	-	-	N
5	03/06/2014	14	4	3	15	0	0	0	0	0	0	-	-	-	-	N
6	18/06/2014	13	2/3	1	15	0	0	0	0	0	0	-	-	-	-	N

Pond T		Survey Details				Torch Survey			Bottle Trapping			Netting				
Visit No.	Date	Air temp	Veg cover	Turbidity	No. Bottles	Male	Female	Imm.	Male	Female	Imm.	Male	Female	Imm.	Eggs	Larvae
1	22/04/2014	10	3	2	20	0	0	0	0	0	0	-	-	-	N	N
2	30/04/2014	15	3	2	20	0	0	0	0	0	0	-	-	-	N	N
3	08/05/2014	12	3	3		0	0	0	0	0	0	-	-	-	N	N
4	19/05/2014	16	3	3	20	0	0	0	0	0	0	-	-	-	N	N

### Appendix 4: Photographs



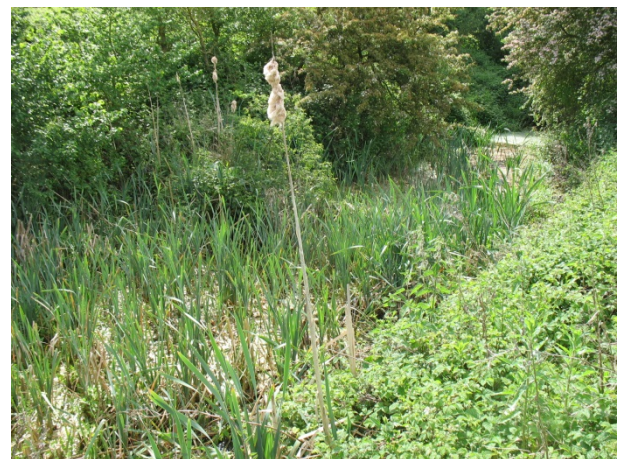
Photograph 1: Pond A



Photograph 2: Pond J



Photograph 3: Pond Q



Photograph 4: Pond S



Photograph 5: Pond T



Photograph 6: Typical field margin habitat of land to the east of the railway corridor.

**Appendix 5: Reptile Survey Results**

Survey Date	30/04/2014		14/05/2014		18/05/2014		03/06/2014		19/06/2014		23/07/2014	
Zone	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard
1												
2												
3											1 adult	
4		2 adult										
5					1 adult	1 adult	2 adult	1 adult	1 adult 1 juv.		1 adult 1 juv.	2 adult
6												
7		1 adult			1 adult							
8												
9												
10												
11		5 adult 1 juv.		5 adult		1 adult						
12							1 adult					
13												
14												
15												
16	1 Adult					1 adult		3 adult				
17	1 Juv.											1 juv.
18												
19												
20												
21												
22												



Survey Date	30/04/2014		14/05/2014		18/05/2014		03/06/2014		19/06/2014		23/07/2014	
Zone	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard	Grass snake	Common Lizard
Total adult	1	8	0	5	2	3	3	4	1	0	2	2
Total juv.	1	1	0	0	0	0	0	0	1	0	1	1

## 8.4 – Breeding Birds Report

**Millbrook Power Plant**  
Breeding Bird Survey

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<b>Client</b>	Millbrook Power Limited
<b>Job</b>	Millbrook Power Plant
<b>Report title</b>	Breeding Bird Survey
<b>Draft version/final</b>	FINAL
<b>File reference</b>	7393.03_R_BBS_pnjf_260814_er.jf

	<b>Name</b>	<b>Position</b>	<b>Date</b>
<b>Originated</b>	Peter Newbold	Senior Ecologist	06 August 2014
<b>Reviewed</b>	Jim Fairclough	Principal Ecologist	07 August 2014
<b>2<sup>nd</sup> Draft Reviewed</b>	Jim Fairclough	Principal Ecologist	19 August 2014
<b>3<sup>rd</sup> Draft Reviewed</b>	Jim Fairclough	Principal Ecologist	26 August 2014
<b>Approved for issue to client</b>	Jim Fairclough	Principal Ecologist	26 August 2014
<b>Issued to client</b>	Jim Fairclough	Principal Ecologist	26 August 2014

### Disclaimer

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Nothing in this report constitutes legal opinion. If legal opinion is required the advice of a qualified legal professional should be secured.

**Contents**

1 Summary ..... 2

2 Introduction..... 3

3 Methods..... 4

4 Results and Interpretation ..... 7

5 References ..... 15

Appendix 1: Figures..... 16

Appendix 2: Species of Conservation Importance Recorded from the Desk Study ..... 17

## 1 Summary

- 1.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.
- 1.2 MPL commissioned BSG Ecology to undertake breeding bird surveys of all habitats within the red-line boundary of the Project Site, as reported in the Project Scoping Report, plus a 50m buffer (the 'Survey Site'). The purpose of the surveys was to inform and support an application for Development Consent for the Power Generation Plant. A supporting desk study and literature review was also conducted, which covered the Project Site and land up to 2 km from this.
- 1.3 The desk study returned records of 158 birds of conservation importance, the great majority of which were derived from the Rookery Clay Pit County Wildlife Site (CWS).
- 1.4 The breeding bird survey revealed 65 bird species that were breeding (or potentially breeding) within the Survey Site. Thirty-one of these appear on one or more schedules or lists of species of conservation importance. Bearded tit, gadwall, redshank and ringed plover are all associated with the reedbed habitat and open water within the clay pits (Rookery Clay Pits CWS). The land where these birds were recorded (the southern clay pit) is in the process of being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. Towards the end of 2014, the base of Rookery South Pit it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS and therefore, would not be expected to support these birds beyond the end of 2014.
- 1.5 During a bat survey a single barn owl was incidentally observed hunting. No evidence of breeding was found on site, but they are likely to be breeding in the local area and occasionally using the Survey Site for foraging.

## 2 Introduction

### Background to Commission

- 2.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.

### Site Description

- 2.2 The Project Site, as identified in the Project Scoping Report comprises the Power Generation Plant within Rookery South Pit, and the Gas and Electrical Connection Areas extending from The Rookery into the surrounding agricultural land to the south and east. The approximate centre of the Project Site lies at grid reference 501373, 240734, which is situated between Bedford and Milton Keynes.
- 2.3 The Survey Site comprises the habitats within the red-line of the Project Site, as reported in the Project Scoping Report, along with a 50m buffer, as illustrated on Figure 1 Appendix 1. The main habitats within the Survey Site are arable fields, delineated by hedgerows, ditches and minor roads and lanes. To the north, an area of land exists that is in the process of being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. This area presently includes sparsely vegetated ground, reedbed and bare earth. Towards the end of 2014 it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS.

### Description of Project

- 2.4 The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical capacity of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the Power Generation Plant to the existing National Grid Gas (NGG) National Transmission System (NTS). It will connect to the National Grid Electrical Transmission System (NETS) via underground cable or overhead lines.
- 2.5 BSG Ecology was appointed as the ecological consultant to undertake a preliminary ecology survey, which included a desk study and Extended Phase 1 Habitat Survey. This identified the need to undertake a suite of Phase 2 surveys in order to fully assess the nature conservation value of the Project Site, including breeding bird surveys. These baseline surveys will be included in an appendix to an ecology chapter of an Environmental Statement, which will be submitted, as an integral part of the application for Development Consent.

### Aims of Study

- 2.6 The objective of the survey was to evaluate the bird assemblage using the Survey Site and identify key areas of habitat used by breeding birds, with particular attention to rare and notable bird species. This report aims to provide a list of bird species encountered and their breeding status (i.e. confirmed, probable or possible breeding on the Survey Site), and an estimate of the likely number of territories/colonies of bird species breeding on or close to the Survey Site.



### 3 Methods

#### Desk Study

- 3.1 Existing ecological information regarding protected and otherwise notable species was requested from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) covering the Survey Site and land up to 2 km away.
- 3.2 This information was supplemented by previous survey and mitigation work undertaken by BSG Ecology on The Rookery Clay Pit CWS, including land within and immediately north of the Survey Site (PBA, 2009).

#### Field Survey

- 3.3 The Survey Site was split into three sections; northern (comprising the existing access track, reedbed and disused clay pit (Rookery South Pit) and associated buffer), south-eastern and south-western (both comprising predominantly arable farmland and small woodland copses to the east and west of the railway respectively). Three visits to each section were undertaken in the early morning by an experienced ornithologist, Ross Crates. Survey duration on each visit was between 3 and 5 hours.
- 3.4 In addition, two dusk surveys were conducted in peak breeding season to locate any crepuscular/nocturnal species such as barn owl *Tyto alba*, which may have been breeding or foraging on site. A building inspection of South Pilling Farm was also conducted to survey for any barn owls potentially breeding in the farm buildings.
- 3.5 Dates of survey and weather conditions recorded during the surveys are summarised in Table 1.

**Table 1: Dates of Survey Visits and Weather Conditions.**

Visit No.	Date	Purpose of visit	Time of visit	Weather conditions at start	Weather conditions at finish
1.1	19/04/14	BBS	06:30-09:30	Temp 6°C; wind BF1, cloud 7/8, rain 0mm. Visibility very good.	Temp 12°C; wind BF1, cloud 6/8, rain 0mm. Visibility very good.
1.2	21/04/14	BBS	06:15-11:15	Temp 7°C; wind BF1, cloud 8/8, rain 0mm. Visibility 75m at start, clearing after 2 hours.	Temp 12°C; wind BF2 E, cloud 3/8, rain 0mm. Visibility very good.
1.3	22/04/14	BBS	05:45-08:00	Temp 8°C, wind BF1, cloud 6/8, rain 0mm. Visibility very good	Temp 13°C, wind BF2-4E, cloud 6/8, rain 0mm. Visibility very good
Cr.1	18/05/14	Crepuscular survey	19:00-22:00	Temp 23°C, BF3-5SE, cloud 1/8, rain 0mm. Visibility very good	Temp 19°C, cloud 1/8, rain 0mm, wind BF2-4SE, visibility very good.
2.1	19/05/14	BBS	04:45-09:00	Temp 13°C, cloud 4/8, wind BF1-2SE, rain 0mm. Visibility very good.	Temp 18°C, cloud 5/8, wind BF 2-4SE, rain 0mm. Visibility very good.
Cr.2	20/05/14	Crepuscular survey	19:30-22:30	Temp 18°C, cloud 7/8, rain 0mm, wind BF2-3SE, visibility very good.	Temp 15°C, cloud 5/8, rain 0mm, wind BF1-2SE, visibility very good.

Visit No.	Date	Purpose of visit	Time of visit	Weather conditions at start	Weather conditions at finish
2.2	20/05/14	BBS	04:40-07:30	Temp 14°C, cloud 4/8, rain- 1 heavy shower for 15min, Wind BF1-2 SE, Visibility good.	Temp 18°C, cloud 6/8, rain 0mm, wind BF2-3 SE. Visibility good.
2.3	21/05/14	BBS	04:55-07:55	Temp 8°C, cloud 3/8, rain 0mm, wind BF1SE, visibility very good.	Temp 14°C, cloud 4/8, rain 0mm, wind BF2-4 SE, visibility very good.
3.1	16/06/14	BBS	04:55-08:55	Temp 11°C, wind BF3-6 NNE, cloud 6/8, rain 0mm, visibility very good.	Temp 14°C, wind BF3-6NNE, cloud 5/8, rain 0mm, visibility very good.
3.2	17/06/14	BBS	04:30-07:30	Temp 15°C, cloud 8/8 wind BF2-4 NNE, rain light intermittent drizzle. Visibility good.	Temp 16°C, cloud 7/8, wind BF2-4 NNE, rain 0mm, visibility good.
3.3	18/06/14	BBS	04:30-07:30	Temp 10°C, cloud 1/8, wind BF1, rain 0mm. Visibility very good.	Temp 12°C, cloud 3/8, wind BF1, rain 0mm. Visibility very good.

- 3.6 During each visit the Survey Site was walked at a slow pace to enable all birds detected to be identified and located. Frequent stops were made to scan suitable habitats and to listen for singing and calling birds. All accessible areas of suitable breeding habitat within the Survey Site boundary and immediately adjacent areas were approached to within 50 m.
- 3.7 During the survey the location and activity of each bird detected (including those seen or heard) was recorded and mapped using standard two-letter BTO species codes combined with activity symbols.
- 3.8 Birds exhibiting breeding behaviour were assigned to one of three categories: possible breeding, probable breeding or confirmed breeding. These are defined below (based on BTO criteria):
- Possible breeding: birds heard singing or alarm calling or simply present in suitable breeding habitat on one of the survey visits;
  - Probable breeding: a pair of birds present in suitable breeding habitat; a repeat observation of territorial behaviour (song or alarm calling) on two or more different visits in the same location; courtship behaviour or display in suitable breeding habitat; birds apparently visiting a nest site; or, evidence of nest building (including excavation of a hole);
  - Confirmed breeding: one or more adults undertaking a distraction display; the presence of a used nest or eggshells; the presence of recently fledged or downy young (that are clearly of local origin); apparently incubating adults or adults commuting to and from a nest hole; adult birds carrying faecal sacs or food for young; or, a nest with eggs or young present.
- 3.9 Internal inspections of all buildings around South Pilling Farm were also undertaken. Records were taken of any evidence of breeding barn owls, this can include:
- Droppings (white vertical streaks on roof beams and large white splashes on floors)
  - Pellets. Barn owls generally swallow their prey whole and regurgitate the indigestible parts (bones, fur etc.) as pellets. The colour and condition of pellets can give an indication as to when a site was last used by barn owls.
  - Feathers. Barn owl nestlings begin their initial moult at 11 months. Adult barn owls tend to shed their largest and most noticeable feathers (wing feathers) in the summer.

- Nest debris. Barn owls do not build nests but nesting areas may contain nestling fluff and pellet debris.
- Potential entrance points. The minimum hole size required for barn owls to gain access to a building is 7 cm by 7 cm.
- Suitable nesting platforms. Barn owls need a level area to lay their eggs usually over 3 metres in length and over 3 metres off the ground. Typical nesting places include tops of walls, between bales and attic floors.

3.10 To inform the assessment in this report, the numbers of potential territories identified, the abundance of species at the county and national level, the quality of the habitat present and the geographical range of the birds concerned have been considered, based on national and regional accounts. The Bedfordshire Bird Report (Nightingale, 2012) was consulted to assess the local population and distribution of each individual bird species.

3.11 Due to the relative abundance of ornithological data, it is often possible to derive population estimates within a defined geographical area (e.g. county). A 1 % threshold can then be applied to indicate importance (e.g. 1 % of the county population is equivalent to county importance). There is no fundamental biological basis for the 1 % threshold, but it does follow the rationale for site selection set out within the Ramsar Convention 1971 (Criterion 6: A wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird), and the Joint Nature Conservation Committee's SPA selection guidelines (JNCC, 2014). It has also been adopted for the purposes of defining thresholds of importance of waterfowl at the European and UK level by the BTO in their Wetland Bird Survey reporting (BTO 2014a). The 1% threshold is therefore considered to provide a reasonable and defensible basis for the evaluation of bird populations.

#### **Limitations to Methods**

3.12 As with all breeding bird surveys following this technique, the process is open to some subjectivity in interpretation except where active nests are located. Therefore, these 'territories' will be classed as putative and their mapped locations will indicate the 'centre' of a territory and not necessarily the breeding location.

3.13 All visits were conducted in suitable weather conditions and during the optimal period for breeding bird surveys. It is therefore not considered that any significant constraints were encountered.

## 4 Results and Interpretation

### Desk Study

4.1 Records of 158 birds of conservation importance have been recorded from within a 2 km radius of the Survey Site, which are presented in Appendix 2. Thirty-seven of these are Schedule 1 species (Wildlife and Countryside Act 1981 (as amended)), and are highlighted by the use of italics for the common name in the table included at Appendix 2. The great majority of the records are derived from the Rookery Clay Pit CWS. Of the 37 Schedule 1 species, the following 11 species have potential to be associated with the Survey Site as suitable nesting habitat is present:

- Barn owl *Tyto alba* – This species tends to forage upon tussocky grassland with a good litter layer providing habitat for their preferred prey species (field voles). The semi-improved grassland and tall ruderal vegetation mosaic on the periphery of the Survey Site is therefore considered to provide some foraging habitat for barn owls. In addition, it is possible that some of the outbuildings associated with South Pilling Farm could support this species.
- Bittern *Botaurus stellari* – Bitterns have been recorded within the reedbed in the lake in the north of the Rookery Clay Pit CWS (adjacent to the proposed access track). The dense reedbed on the periphery of the lake in the north of the Rookery Clay Pit CWS (adjacent to the proposed access track) continues to provide suitable nesting and foraging habitat for this species.
- Bearded tit *Panurus biarmicus* – The bearded tit is found almost exclusively within dense reedbeds. The dense reedbed on the periphery of the lake in north of the Rookery Clay Pit CWS (adjacent to the proposed access track) provides suitable nesting and foraging habitat for this species.
- Cetti's warbler *Cettia cetti* – This species nests in dense scrub and reedbed habitats and was recorded within reed habitat adjacent to the proposed access track in January 2014.
- Firecrest *Regulus ignicapillus* – The plantation woodland within the Survey Site is considered to offer some, yet limited potential nesting and foraging habitat for firecrest.
- Garganey *Anas querquedula* – This species of duck nests in dense vegetation including reedbed. Suitable nesting habitat for this species is therefore also present within the dense reedbed on the periphery of the lake to the north of the Rookery Clay Pit CWS.
- Hobby *Falco subbuteo* – This species has been observed foraging over the water-bodies within the Rookery Clay Pit CWS during great crested newt translocation works in 2011 and 2013 (Steven Foot, pers comm.). The more established, mature trees present within and adjacent to the Survey Site have some potential to be used as nesting habitat for this spring/summer migrant.
- Little-ringed plover *Charadrius dubius* – This species breeds on man-made habitats close to fresh water. Sand and gravel quarries are regularly used as breeding sites. This species was recorded nesting on site in 2011 and 2013 upon clay habitats adjacent to the water-bodies in the Rookery Clay Pit CWS (Steven Foot, pers comm.). Accordingly, there remains suitable habitat for this species to the north of the Survey Site.
- Mediterranean gull *Larus melanocephalus* – This species is known to breed near inland lakes and wetlands. The water-bodies in the Rookery Clay Pit CWS provide suitable nesting habitat for this species.
- Marsh harrier *Circus aeruginosus* – This species nests in dense reedbed and has been recorded foraging over the reedbed present in the northern and south-eastern areas of the Rookery Clay Pit CWS in 2011 and 2013 (Steven Foot, pers comm.).

- Red kite *Milvus milvus* – This species was recorded circling above the Survey Site during the preliminary ecology survey (BSG Ecology, 2014). The more established, mature trees present within and adjacent to the Survey Site have potential to be used as nesting habitat for this species.

4.2 A number of bird Species of Principal Importance (Natural Environment and Rural Communities Act (NERC) 2006 (s. 41)) were also shown to be present within 2 km of the Survey Site in the results of the desk study. Of these, the following could potentially nest within the Survey Site as suitable habitat is present for these species: dunnock *Prunella modularis*, house sparrow *Passer domesticus*, starling *Sturnus vulgaris*, reed bunting *Emberiza schoeniculus*, skylark *Alauda arvensis*, song thrush *Turdus philomelos*, bullfinch *Pyrrhula pyrrhula*, yellowhammer *Emberiza citrinella*, cuckoo *Cuculus canorus* and yellow wagtail *Motacilla flava flavissima*.

### Field Survey

4.3 A total of 54 bird species that could be breeding within the Project Site were recorded during the three survey visits combined. These are summarised in Table 2 together with an estimated number of confirmed, probable or possible breeding territories/nest sites. The indicative central point of each territory or location of individual bird records is shown in Appendix 1, Figure 2 (northern half of the Survey Site) and Figure 3 (southern half of the Survey Site).

**Table 2: Summary results of breeding bird survey.**

Common name	Species	Breeding status within Survey Site			Total Pairs
		Confirmed	Probable	Possible	
Sparrowhawk	<i>Accipiter nisus</i>			1	1
Reed warbler	<i>Acrocephalus scirpaceus</i>		5	1	6
Long-tailed tit	<i>Aegithalos caudatus</i>	3	3		6
Skylark	<i>Alauda arvensis</i>		9	1	10
Mallard	<i>Anas platyrhynchos</i>		1	1	2
Gadwall	<i>Anas strepera</i>			1	1
Tufted duck	<i>Aythya fuligula</i>		2		2
Canada goose	<i>Branta canadensis</i>	1			1
Buzzard	<i>Buteo buteo</i>			1	1
Linnet	<i>Carduelis cannabina</i>		7	3	10
Goldfinch	<i>Carduelis carduelis</i>	2	4		6
Greenfinch	<i>Carduelis chloris</i>		4		4
Treecreeper	<i>Certhia familiaris</i>			1	1
Ringed plover	<i>Charadrius hiaticula</i>		1	2	3
Stock dove	<i>Columba oenas</i>		3		3
Woodpigeon	<i>Columba palumbus</i>		10	4	14
Carrion crow	<i>Corvus corone</i>	1	1	1	3
Rook	<i>Corvus frugilegus</i>			1	1
Jackdaw	<i>Corvus monedula</i>			1	1
Cuckoo	<i>Cuculus canorus</i>		2	1	3
Blue tit	<i>Cyanistes caeruleus</i>	19	8	1	28
Great spotted woodpecker	<i>Dendrocopos major</i>		1	1	2
Yellowhammer	<i>Emberiza citrinella</i>	2	8	2	12
Reed bunting	<i>Emberiza schoeniclus</i>		3	3	6
Robin	<i>Erithacus rubecula</i>	18	2	1	21
Chaffinch	<i>Fringilla coelebs</i>	6	18	8	32

Common name	Species	Breeding status within Survey Site			Total Pairs
		Confirmed	Probable	Possible	
Coot	<i>Fulica atra</i>	2	2		4
Moorhen	<i>Gallinula chloropus</i>	1	1		2
Jay	<i>Garrulus glandarius</i>		2		2
Pied wagtail	<i>Motacilla alba</i>	1	2		3
Bearded tit	<i>Panurus biarmicus</i>		1		1
Great tit	<i>Parus major</i>	10	1	1	12
Grey partridge	<i>Perdix perdix</i>		1	1	3
Pheasant	<i>Phasianus colchicus</i>		1	3	4
Chiffchaff	<i>Phylloscopus collybita</i>		6		6
Willow warbler	<i>Phylloscopus trochilus</i>		6		6
Magpie	<i>Pica pica</i>		1	1	2
Green woodpecker	<i>Picus viridis</i>			1	1
Great crested grebe	<i>Podiceps cristatus</i>	1			1
Dunnock	<i>Prunella modularis</i>	1	11	2	14
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	1	1	3
Goldcrest	<i>Regulus regulus</i>		2		2
Collared dove	<i>Streptopelia decaocto</i>		1		1
Turtle dove	<i>Streptopelia turtur</i>		1		1
Blackcap	<i>Sylvia atricapilla</i>	2	19	1	22
Whitethroat	<i>Sylvia communis</i>	2	16		18
Lesser white throat	<i>Sylvia curruca</i>	1	2		3
Little grebe	<i>Tachybaptus ruficollis</i>		1		1
Redshank	<i>Tringa totanus</i>	1	1		2
Wren	<i>Troglodytes troglodytes</i>	3	12	2	17
Blackbird	<i>Turdus merula</i>	18	6	2	26
Song thrush	<i>Turdus philomelos</i>	1	3	1	5
Mistle thrush	<i>Turdus viscivorus</i>		2		2
Lapwing	<i>Vanellus vanellus</i>	3	2		5

4.4 A further nine additional species were recorded breeding outside the Project Site but within the Survey Site. Three additional species were assumed to be breeding within the wider area but were of relevance to this report due to their conservation significance. These are summarised in Table 3 together with an estimated number of territories/nest sites. The indicative central point of each territory or location of individual bird records is also shown where appropriate in Appendix 1, Figure 2.

**Table 3: Breeding bird species recorded outside the Project Site**

Common name	Species name	Breeding within Survey Site	Breeding outside of Survey Site but notable
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	1 Confirmed	
Red-legged partridge	<i>Alectoris rufa</i>	4 Confirmed	
Pochard	<i>Aythya ferina</i>	2-3 Confirmed	
Kestrel	<i>Falco tinnunculus</i>	1 Possible	
Barn Swallow	<i>Hirundo rustica</i>	3+ Confirmed	
Yellow wagtail	<i>Motacilla flava flavissima</i>	1 Confirmed	
House sparrow	<i>Passer domesticus</i>	3 Probable	

Common name	Species name	Breeding within Survey Site	Breeding outside of Survey Site but notable
Coal tit	<i>Periparus ater</i>	1 Confirmed	
Bittern	<i>Botaurus stellaris</i>		1 Possible
Common tern	<i>Sterna hirundo</i>		4 Probable
Barn owl	<i>Tyto alba</i>		1 Confirmed

4.5 In addition to the above, a further twelve bird species were recorded during the survey visits for which no evidence of breeding within the Survey Site was noted. This included individuals flying over the Survey Site or species which may breed locally but for which suitable nesting habitat either does not occur on the Survey Site, or where no behaviour suggesting breeding was recorded. These species are summarised in Table 4 below together with notes on use of the Survey Site.

**Table 4: Non-breeding Bird Species recorded**

Common name	Species name	Notes
Meadow pipit	<i>Anthus pratensis</i>	One non-breeding bird recorded on visit 1, one flyover heard on visit 3
Swift	<i>Apus apus</i>	10 birds observed feeding/commuting over site on visit 3
Grey heron	<i>Ardea cinerea</i>	A single individual flying over the Survey Site on all three surveys
House martin	<i>Delichon urbicum</i>	Total of 16 birds recorded feeding in and around the Survey Site
Peregrine	<i>Falco peregrinus</i>	A single individual perched on electricity pylon on visit 2, flying N to adjacent pylon and then flew further N
Kingfisher	<i>Alcedo atthis</i>	A single kingfisher was recorded flying into bankside vegetation in the northern clay pit on the boundary of the Survey Site, during the crepuscular survey. The banks at this location were not vertical or overhung (which is preferred by kingfisher), so it is unlikely that kingfisher would breed here.
Herring gull	<i>Larus argentatus</i>	A single individual flying over the site on visit 1
Lesser black-backed gull	<i>Larus fuscus</i>	Single individuals flying over site on visits 2 and 3
Black-headed gull	<i>Larus ridibundus</i>	Four individuals flying over on visit 2
Red kite	<i>Milvus milvus</i>	Single individuals observed flying low N over site on visits 2 and 3
Cormorant	<i>Phalacrocorax carbo</i>	Two individuals flying over on visit 3
Sand martin	<i>Riparia riparia</i>	Flock of 15 feeding on visit 3
Starling	<i>Sturnus vulgaris</i>	Mixed flock of adults and juveniles feeding on site on visit 3

4.6 Of the 65 species of bird recorded as breeding (confirmed, possible, or probable) within or adjacent to the Survey Site, 31 appear on one or more schedules or lists of species of conservation importance, as follows:

- Schedule 1, Wildlife and Countryside Act 1981, as amended.
- Species of Principal Importance for the Conservation of Biodiversity in England as listed in accordance with section 41 of the Natural Environment and Rural Communities Act (NERC) 2006 (s. 41);
- Species of high conservation concern (red list species) included in Birds of Conservation Concern 3 (BOCC) (Eaton *et al*, 2009); and

- Species of medium conservation concern (amber list species) included in Birds of Conservation Concern 3 (BOCC) (Eaton *et al*, 2009).

4.7 These 31 species together with an indication of their relevant status are included in Table 4. The status of each species in Bedfordshire (Nightingale, 2012) is also provided. The paragraphs following Table 4 provide an account of where the birds were recorded and information on their habitat preferences. This can be viewed alongside Figure 2 (Appendix 1).

**Table 4: Status of Birds of Conservation Importance Breeding at the Survey Site.**

Common name	Species name	WCA Sch. 1	s.41	Red List	Amber List	Status in Beds.
Barn owl	<i>Tyto alba</i>	✓			✓	Uncommon but widespread
Bearded tit	<i>Panurus biarmicus</i>	✓			✓	Scarce migrant
Bittern	<i>Botaurus stellaris</i>	✓	✓	✓		Scarce winter visitor
Bullfinch	<i>Pyrrhula pyrrhula</i>		✓		✓	Widespread
Common tern	<i>Sterna hirundo</i>				✓	Common Breeder
Cuckoo	<i>Cuculus canorus</i>		✓	✓		Widespread but declining
Dunnock	<i>Prunella modularis</i>		✓		✓	Very common
Gadwall	<i>Anas strepera</i>				✓	Breeding in small numbers (approx. 17 sites)
Green woodpecker	<i>Picus viridis</i>				✓	Common resident
Grey partridge	<i>Perdix perdix</i>		✓	✓		Common but declining resident
House sparrow	<i>Passer domesticus</i>		✓	✓		Common but declining
Kestrel	<i>Falco tinnunculus</i>				✓	Widespread
Lapwing	<i>Vanellus vanellus</i>		✓	✓		Common but declining
Linnet	<i>Carduelis cannabina</i>		✓	✓		Locally common
Little grebe	<i>Tachybaptus ruficollis</i>				✓	Common and widespread
Mallard	<i>Anas platyrhynchos</i>				✓	Common but declining
Mistle thrush	<i>Turdus viscivorus</i>				✓	Widespread
Pochard	<i>Aythya ferina</i>				✓	Breeding at 11 known sites
Redshank	<i>Tringa totanus</i>				✓	Scarce breeder
Reed bunting	<i>Emberiza schoeniclus</i>		✓		✓	Fairly common
Ringed plover	<i>Charadrius hiaticula</i>				✓	Uncommon localised breeder
Skylark	<i>Alauda arvensis</i>		✓	✓		Widespread
Song thrush	<i>Turdus philomelos</i>		✓	✓		Common
Stock dove	<i>Columba oenas</i>				✓	Widespread and common
Swallow	<i>Hirundo rustica</i>				✓	Widespread and



Common name	Species name	WCA Sch. 1	s.41	Red List	Amber List	Status in Beds.
						common
Tufted duck	<i>Aythya fuligula</i>				✓	Common breeder
Turtle dove	<i>Streptopelia turtur</i>		✓	✓		Fast declining breeder
Whitethroat	<i>Sylvia communis</i>				✓	Common
Willow warbler	<i>Phylloscopus trochilus</i>				✓	Widespread but declining
Yellow wagtail	<i>Motacilla flava</i>		✓	✓		Localised breeder
Yellowhammer	<i>Emberiza citrinella</i>		✓	✓		Fairly common

- 4.8 Barn owl. During a bat survey a single bird was observed hunting. No evidence of breeding was found within the Survey Site, including during the building inspection of South Pilling Farm, but they are likely to be breeding in the local area and occasionally using the Survey Site for foraging. In general the Survey Site is very low quality foraging habitat for barn owls, predominantly consisting of large arable fields with very small field margins. The areas of higher quality foraging habitat include the areas of rank grassland along the margins of the woodland copses, the grassland surrounding South Pilling Farm and the railway corridors.
- 4.9 Bearded tit. This is a species of extensive reedbed, principally in more coastal counties. During the surveys at least two birds were heard amongst common reed *Phragmites australis* (their breeding habitat) just outside the 50 m buffer zone to north-east of the Survey Site. A further pair was heard in the reedbed within the clay pit in the north-east of the site.
- 4.10 Bittern. A single male was heard booming to the north east, beyond the Survey Site boundary. There is currently no breeding habitat suitable for bittern within the Survey Site. The reedbed in the clay pit within the Project Site is currently drying out as the water is pumped away from this area to promote the implementation of the LLRS by the end of 2014, so the Project Site, or indeed, the Survey Site is unlikely to support suitable habitat for bittern by 2015.
- 4.11 Bullfinch. The bullfinch is a generalist species that normally breeds within dense hedges (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). One confirmed pair had fledged young near the road bridge over the railway. The second probable pair bred in bushes near the northern entrance track. The final possible pair could have bred in the wooded copse to the west of the Survey Site. The site had one confirmed, one probable and one possible breeding pair.
- 4.12 Common tern. No evidence of breeding tern was found within the Survey Site, but four pairs are estimated to be breeding in the local area.
- 4.13 Cuckoo. The cuckoo's favoured habitat is open woodland but females lay their eggs in the nest of other species (Dunnock, Reed Warbler and Meadow Pipit are favoured 'hosts') (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). The Survey Site had two probable and one possible breeding pairs.
- 4.14 Dunnock. The dunnock is a generalist that will breed in any hedgerow or dense scrub. The Survey Site had one confirmed, 11 probable and two possible breeding pairs.
- 4.15 Gadwall. The Gadwall strongly prefers fairly shallow, eutrophic or standing open water, with plenty of cover from emergent vegetation and dry banks or islands for nesting (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). The Survey Site had one possible breeding pair in the pools to the north of the Survey Site. Water is being pumped away from the area of pooled water in the clay pit within the Project Site to promote the implementation of the LLRS. The Project Site, or indeed, the Survey Site is unlikely to support suitable habitat for Gadwall by 2015.
- 4.16 Green woodpecker. The green woodpecker's favoured habitat is woodland edge, but will breed in any suitable mature tree (Snow and Perrins, 1998). The Survey Site had one possible breeding pair near the Bletchley to Bedford railway to the north east of the Survey Site

- 4.17 Grey partridge. Grey partridge prefers short grassland (not longer than 15 cm) with patches of scrub or hedgerows for them to nest at the base of and to provide cover (Snow and Perrins, 1998). There were one probable and one possible breeding pair spread across the Survey Site.
- 4.18 House sparrow. The house sparrow is a species that nests in loose colonies often utilising holes and crevices within buildings, but will also nest within dense hedgerows which is a very common habitat at the Survey Site. The Survey Site had three probable breeding pairs near the buildings on the western boundary.
- 4.19 Kestrel. There was a single pair breeding within the Survey Site but these were only seen foraging with no evidence of breeding within the Survey Site.
- 4.20 Lapwing. Lapwings breed on lowland farmland and unimproved pasture and meadows (RSPB, 2014). The Survey Site had three confirmed and two probable breeding pairs concentrated in the southern clay pit to the north of the Survey Site.
- 4.21 Linnet. The linnet is a generalist, found where there are abundant sources of seed (typically associated with lowland farmland). It will nest in dense, thorny hedgerows or areas of scrub. There were seven probable and three possible breeding pairs spread across the Survey Site.
- 4.22 Little grebe. The little grebe prefers small shallow water bodies (less than 1m), with muddy bottoms and a dense submerged aquatic vegetation. One probable pair was breeding in the pool within the southern clay pit.
- 4.23 Mallard. The mallard is extremely adaptable to a wide range of habitats, but essentially prefers still and shallow water (less than 1m) with ample plant growth such as the small ponds around the site (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). The Survey Site had one probable pair in a pond to the east of the railway and a second possible breeding pair in the lake margin in the clay pit.
- 4.24 Mistle thrush. The mistle thrush is a generalist species which breeds in a variety of habitats including gardens and farmland (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). The Survey Site had two probable breeding pairs in the woodland to the west.
- 4.25 Pochard. The pochard requires several hectares of shallow (1 - 2.5 m) of open water, uncluttered with floating vegetation but prolific with submerged plant and animal food (Snow and Perrins, 1998). Two to three pairs were potentially breeding within the lake, beyond the Survey Site. The small pools being drained that are found within the Project Site (southern clay pit) are not large enough to support breeding pochard.
- 4.26 Redshank. The inland breeding habitat of redshank is limited to depressions, lakes and river basins, and other wetlands free of tall dense aquatic vegetation or closed stands of shrubs and trees (Snow and Perrins, 1998). A small flock was heard on visit 1, estimated to be approximately 10 birds. Two pairs probably breeding were recorded within the Survey Site. Outside the Survey Site (but within the southern clay pit) a pair was confirmed breeding by the presence of young, and another pair probably breeding was recorded.
- 4.27 Reed bunting. The breeding habitat of reed bunting is restricted to low, dense vegetation, such as the reed beds and oilseed rape fields across the Survey Site. They will avoid open country as well as closed forests. (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). There were three confirmed and three possible breeding pairs spread across the Survey Site.
- 4.28 Ringed plover. Ringed plover breeding habitat is limited to wide sandy or shingle lake margins (Snow and Perrins, 1998). One pair was probably breeding and two possibly breeding within the southern clay pit in the north of the Survey Site.
- 4.29 Skylark. Skylarks are ground nesting birds preferring open surfaces of firm, level or unobstructed soils preferably well clothed in grasses or cereals (Snow & Perrins, 1998). There were nine probable and one possible breeding pairs spread across the Survey Site.

- 4.30 Song thrush. The song thrush is a generalist species that will nest in any suitable cover including scrub or hedgerows (Snow & Perrins, 1998). The Survey Site supported one confirmed, three probable and one possible breeding pairs.
- 4.31 Stock dove. The stock dove is a generalist species that nests in holes in trees, buildings and sometimes in abandoned rabbit warrens (Snow & Perrins, 1998). There were three probable breeding pairs in the small wooded copses across the Survey Site.
- 4.32 Barn Swallow. Swallows were not recorded breeding on the Survey Site, but more than three pairs were recorded within the farm buildings just beyond the Survey Site and were using the Survey Site to forage.
- 4.33 Tufted duck. The tufted duck is extremely adaptable to a wide range of water habitats, but prefer more open freshwater habitats not encroached by vegetation (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). The Survey Site had two probable breeding pairs on the pools being drained at the southern clay pit.
- 4.34 Turtle dove. The turtle dove prefers undisturbed habitat and will not breed in or very near towns. Although it is predominantly a ground feeder they are largely arboreal and will breed in small trees, shrubs or tall mature hedges (Snow and Perrins, 1998; RSPB, 2014; BTO, 2014). On the Survey Site a singing male was observed singing to the south end of the access track (northern part of the Survey Site), meaning a probable pair.
- 4.35 Whitethroat. Whitethroat is a generalist species that requires dense scrub or hedgerows for nesting. There were two confirmed and 16 probable breeding pairs spread across the Survey Site.
- 4.36 Willow warbler. Willow warbler is a generalist species that requires scrub, hedgerows or woodland but nests within the dense vegetation at the base of these features (Snow & Perrins, 1998). The Survey Site had six probable breeding pairs mainly around the scrub adjacent to the railway corridors.
- 4.37 Yellow wagtail. In the breeding season yellow wagtail is confined to lowlands, occupying fringes of wetlands, such as rivers, lakesides and moist pastures (Snow and Perrins, 1998). It is a ground nesting bird using dense vegetation such as the reedbed on and adjacent to the Survey Site. Although there was potential for breeding on site no evidence was found. There was a single pair possibly breeding to the north east, beyond the Survey Site.
- 4.38 Yellowhammer. Yellowhammer is found on a wide variety of farmland types but is most common on lowland arable farmland. It nests at the base of dense hedgerows (occasionally on the ground earlier in the season) (Snow and Perrins, 1998). There were two confirmed, eight probable and two possible breeding pairs spread across the Survey Site.

#### **Distribution and abundance of Breeding Birds using the Survey Site**

- 4.39 A total of 65 bird species were recorded breeding within the Survey Site, 31 of these appear on one or more schedules or lists of species of conservation importance.
- 4.40 The majority of the Survey Site is of limited value for breeding birds with large arable fields, delineated by hedgerows and ditches. The majority of the species are generalist species, breeding within the hedgerows, scrub and small wooded copses within the Survey Site with only skylark recorded breeding in the open fields.
- 4.41 The main interest feature within the Survey Site for breeding birds is the Rookery Clay Pits CWS. The southern half of this clay pit that lies within the Project Site presently includes sparsely vegetated ground, reedbed and bare earth. This southern clay pit is presently being restored as part of a LLRS by the landowner, so will have little value to the majority of the breeding birds observed here by the end of 2014. The northern clay pit, which is outside the Survey Site also includes reedbed habitat, but this is healthier and is found in association with open water. Accordingly, it is suitable for a more diverse range of breeding birds, which included a male booming bittern, bearded tit and pochard.

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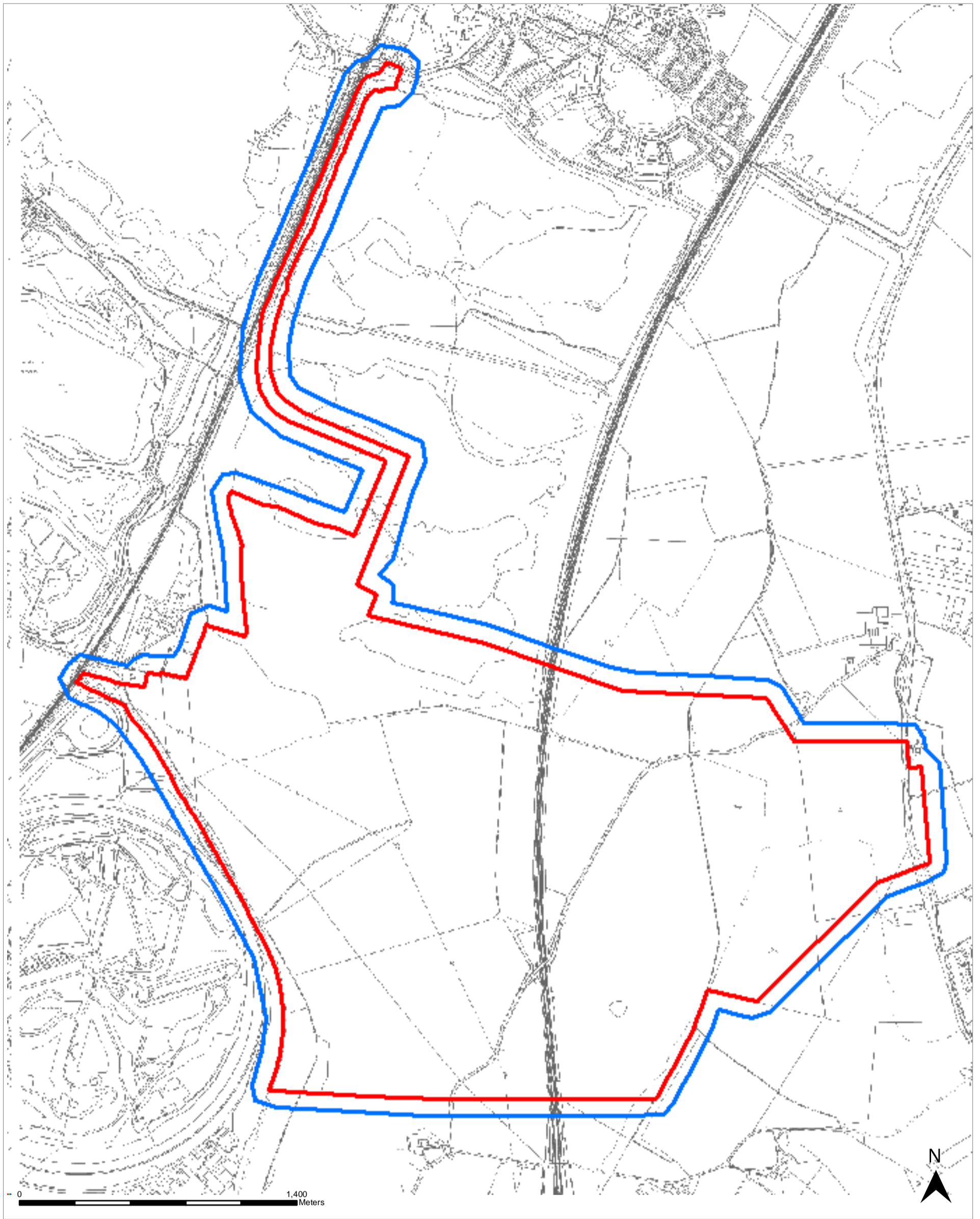
## **Appendix 1: Figures**

**Figure 1:** Location and boundary of development

**Figure 2:** Breeding Bird Territory Map (northern section)

**Figure 3:** Breeding Bird Territory Map (southern section)

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**LEGEND**

- Project Site Boundary
- Survey Site Boundary

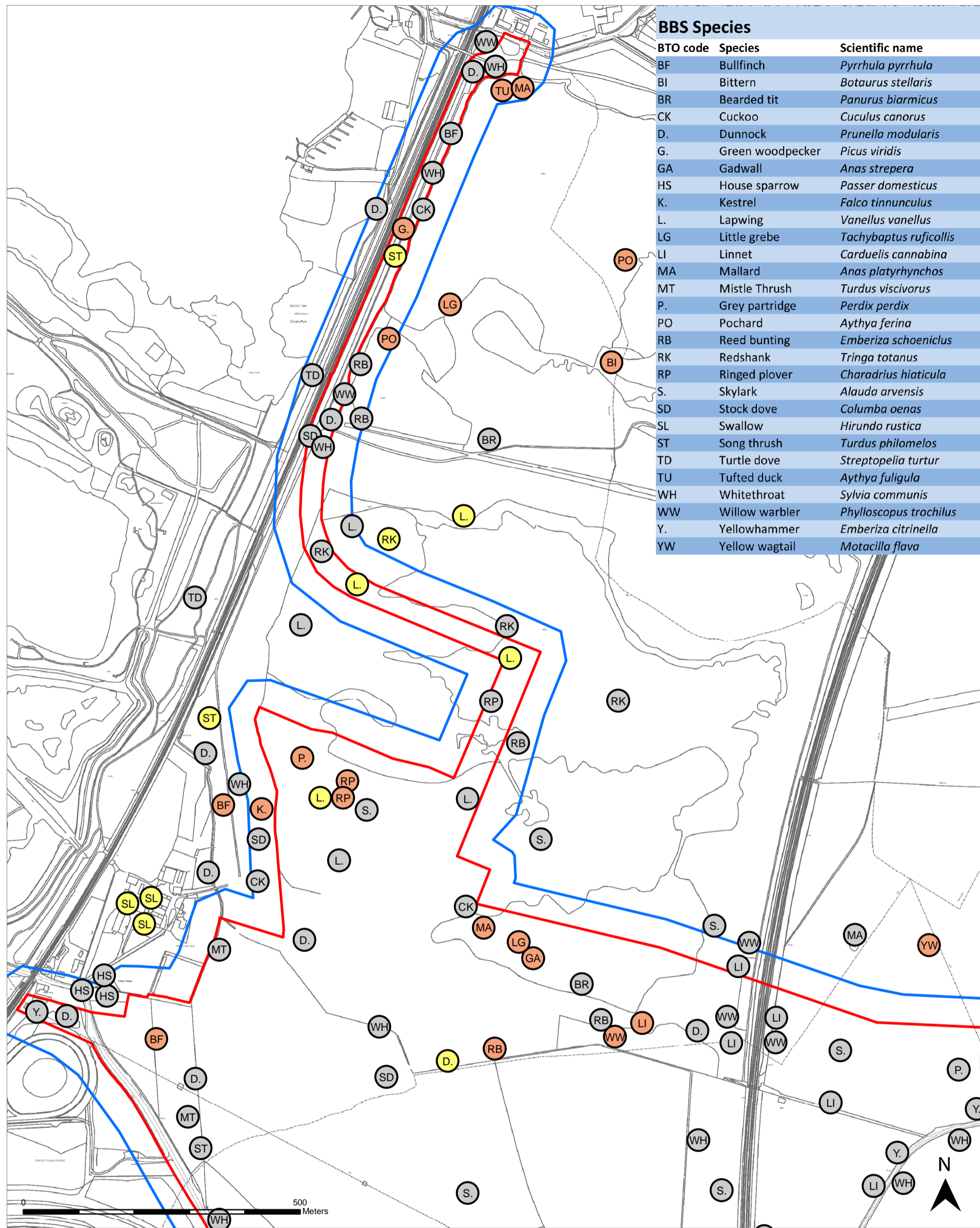
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Figure 1: Breeding Bird Survey Site and Project Site Boundary

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DRAWN: COH	APPROVED: JF	STATUS: FINAL

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BBS Species		
BTO code	Species	Scientific name
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>
BI	Bittern	<i>Botaurus stellaris</i>
BR	Bearded tit	<i>Panurus biarmicus</i>
CK	Cuckoo	<i>Cuculus canorus</i>
D.	Dunnock	<i>Prunella modularis</i>
G.	Green woodpecker	<i>Picus viridis</i>
GA	Gadwall	<i>Anas strepera</i>
HS	House sparrow	<i>Passer domesticus</i>
K.	Kestrel	<i>Falco tinnunculus</i>
L.	Lapwing	<i>Vanellus vanellus</i>
LG	Little grebe	<i>Tachybaptus ruficollis</i>
LI	Linnet	<i>Carduelis cannabina</i>
MA	Mallard	<i>Anas platyrhynchos</i>
MT	Mistle Thrush	<i>Turdus viscivorus</i>
P.	Grey partridge	<i>Perdix perdix</i>
PO	Pochard	<i>Aythya ferina</i>
RB	Reed bunting	<i>Emberiza schoeniclus</i>
RK	Redshank	<i>Tringa totanus</i>
RP	Ringed plover	<i>Charadrius hiaticula</i>
S.	Skylark	<i>Alauda arvensis</i>
SD	Stock dove	<i>Columba oenas</i>
SL	Swallow	<i>Hirundo rustica</i>
ST	Song thrush	<i>Turdus philomelos</i>
TD	Turtle dove	<i>Streptopelia turtur</i>
TU	Tufted duck	<i>Aythya fuligula</i>
WH	Whitethroat	<i>Sylvia communis</i>
WW	Willow warbler	<i>Phylloscopus trochilus</i>
Y.	Yellowhammer	<i>Emberiza citrinella</i>
YW	Yellow wagtail	<i>Motacilla flava</i>

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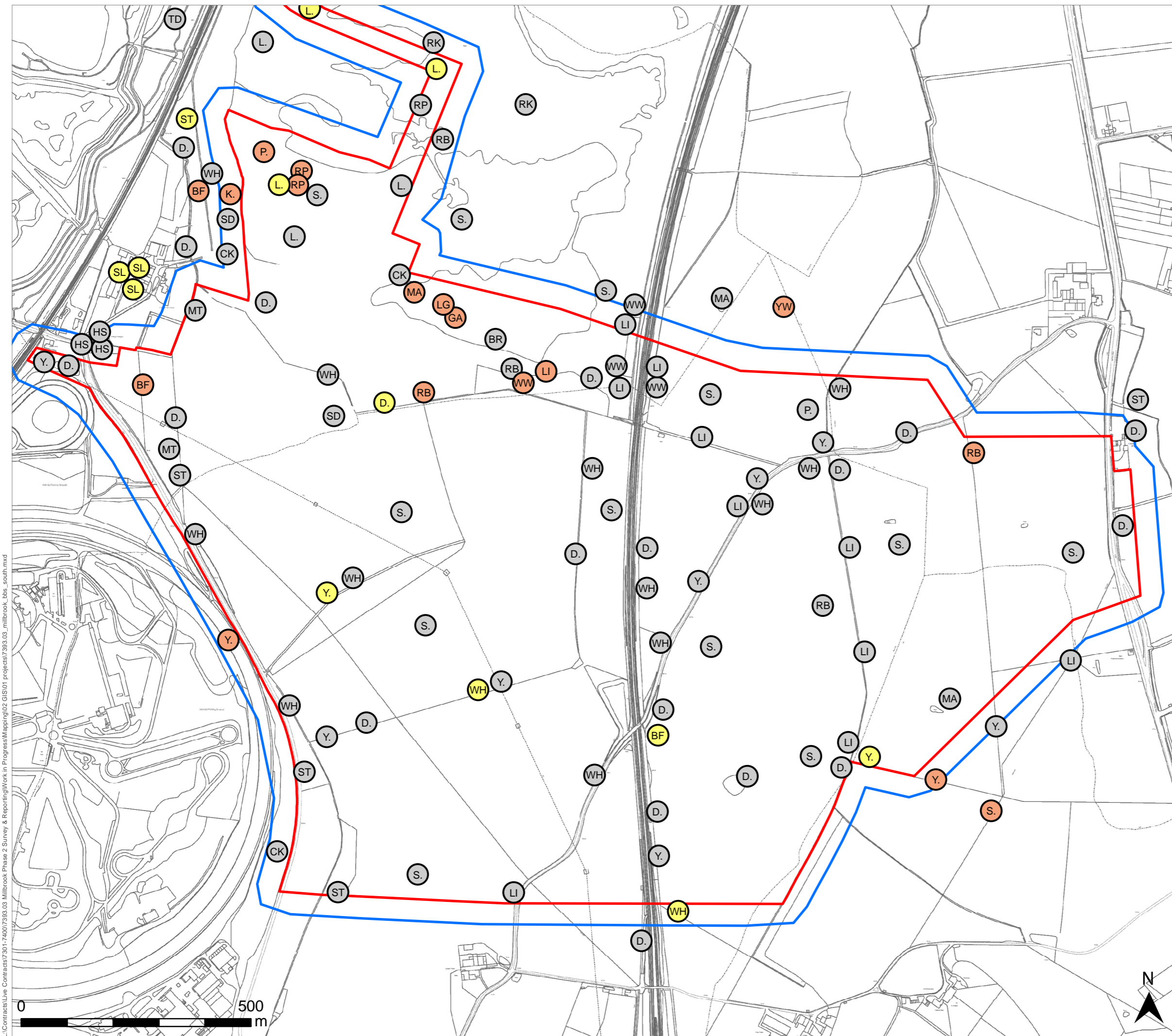
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Figure 2: Breeding bird survey results (north)

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DRAWN: COH      APPROVED: JF      STATUS: FINAL

- LEGEND**
- Project Site Boundary
  - Survey Site Boundary
  - Possible breeding
  - Probable breeding
  - Confirmed breeding



**LEGEND**

- Project Site Boundary
- Survey Site Boundary
- Possible breeding
- Probable breeding
- Confirmed breeding

**BBS Species**

BTO code	Species	Scientific name
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>
BI	Bittern	<i>Botaurus stellaris</i>
BR	Bearded tit	<i>Panurus biarmicus</i>
CK	Cuckoo	<i>Cuculus canorus</i>
D.	Dunnock	<i>Prunella modularis</i>
G.	Green woodpecker	<i>Picus viridis</i>
GA	Gadwall	<i>Anas strepera</i>
HS	House sparrow	<i>Passer domesticus</i>
K.	Kestrel	<i>Falco tinnunculus</i>
L.	Lapwing	<i>Vanellus vanellus</i>
LG	Little grebe	<i>Tachybaptus ruficollis</i>
LI	Linnet	<i>Carduelis cannabina</i>
MA	Mallard	<i>Anas platyrhynchos</i>
MT	Mistle Thrush	<i>Turdus viscivorus</i>
P.	Grey partridge	<i>Perdix perdix</i>
PO	Pochard	<i>Aythya ferina</i>
RB	Reed bunting	<i>Emberiza schoeniclus</i>
RK	Redshank	<i>Tringa totanus</i>
RP	Ringed plover	<i>Charadrius hiaticula</i>
S.	Skylark	<i>Alauda arvensis</i>
SD	Stock dove	<i>Columba oenas</i>
SL	Swallow	<i>Hirundo rustica</i>
ST	Song thrush	<i>Turdus philomelos</i>
TD	Turtle dove	<i>Streptopelia turtur</i>
TU	Tufted duck	<i>Aythya fuligula</i>
WH	Whitethroat	<i>Sylvia communis</i>
WW	Willow warbler	<i>Phylloscopus trochilus</i>
Y.	Yellowhammer	<i>Emberiza citrinella</i>
YW	Yellow wagtail	<i>Motacilla flava</i>



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 Figure 3: Breeding bird survey results (south)

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 Sources: BSG Ecology survey data

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## Appendix 2: Species of Conservation Importance Recorded from the Desk Study

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Sparrowhawk	<i>Accipiter nisus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Common sandpiper	<i>Actitis hypoleucos</i>	2006	TL015407	On site (Rookery Clay Pit CWS)
Skylark	<i>Alauda arvensis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Kingfisher	<i>Alcedo atthis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Pintail	<i>Anas acuta</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Shoveller	<i>Anas clypeata</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Teal	<i>Anas cracca</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Wigeon	<i>Anas penelope</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Mallard	<i>Anas platyrhynchos</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Garganey	<i>Anas querquedula</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Gadwall	<i>Anas strepera</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Greylag goose	<i>Anser anser</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Meadow pipit	<i>Anthus pratensis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Tree pipit	<i>Anthus trivialis</i>	2006	TL0140	On site (Rookery Clay Pit CWS)
Swift	<i>Apus apus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Grey heron	<i>Ardea cinerea</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Turnstone	<i>Arenaria interpres</i>	2008	TL0142	On site (Rookery Clay Pit CWS)
Short-eared owl	<i>Asio flammeus</i>	2008	TL0041	Adjacent to the west of the Survey Site.
Long-eared owl	<i>Asio otus</i>	2008	TL0041	Adjacent to the west of the Survey Site.
Little owl	<i>Athene noctua</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Pochard	<i>Aythya ferina</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Tufted duck	<i>Aythya fuligula</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Greater scaup	<i>Aythya marila</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Ferruginous duck	<i>Aythya nyroca</i>	2003	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Waxwing	<i>Bombycilla garrulus</i>	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Bittern	<i>Botaurus stellaris</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Barnacle goose	<i>Branta leucopsis</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Goldeneye	<i>Bucephala clangula</i>	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Buzzard	<i>Buteo buteo</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Sanderling	<i>Calidris alba</i>	2005	TL0140	On site (Rookery Clay Pit CWS)
Dunlin	<i>Calidris alpina</i>	2006	TL0140	On site (Rookery Clay Pit CWS)
Knot	<i>Calidris canutus</i>	2006	TL0140	On site (Rookery Clay Pit CWS)
Curlew sandpiper	<i>Calidris ferruginea</i>	2003	TL0041	Adjacent to the west of the Survey Site.
Little stint	<i>Calidris minuta</i>	2006	TL027430	Coronation Pit CWS, 1.1km to the north-east of the Survey Site.
Lesser redpoll	<i>Carduelis cabaret</i>	2005	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Linnet	<i>Carduelis cannabina</i>	2005	TL0041	Adjacent to the west of the Survey Site.
Goldfinch	<i>Carduelis carduelis</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Greenfinch	<i>Carduelis chloris</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Common redpoll	<i>Carduelis flammea</i>	2005	TL026385	In Amptill Park CWS approximately 160m to the east of the Survey Site.
Siskin	<i>Carduelis spinus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Tree creeper	<i>Certhia familiaris</i>	2007	SP9938	Approximately 580m to the south-west of the Survey Site.
Cetti's warbler	<i>Cettia cetti</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Little ringed plover	<i>Charadrius dubius</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Ringed plover	<i>Charadrius hiaticula</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Black tern	<i>Chlidonias niger</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Black-headed gull	<i>Chroicocephalus ridibundus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
<i>Marsh harrier</i>	<i>Circus aeruginosus</i>	2014	TL0141	On site (Rookery Clay Pit CWS)*
<i>Hen harrier</i>	<i>Circus cyaneus</i>	2008	TL0142	On site (Rookery Clay Pit CWS)
Hawfinch	<i>Coccothraustes coccothraustes</i>	2005	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Stock dove	<i>Columba oenas</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Raven	<i>Corvus corax</i>	2008	TL015407	On site (within Rookery Clay Pit).
<i>Quail</i>	<i>Coturnix coturnix</i>	2006	TL0041	Adjacent to the west of the Survey Site.
Cuckoo	<i>Cuculus canorus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
<i>Whooper swan</i>	<i>Cygnus columbianus</i>	2005	TL015407	On site (within Rookery Clay Pit).
Mute swan	<i>Cygnus olor</i>	2014	TL0140	On site (Rookery Clay Pit CWS)
House martin	<i>Delchion urbicum</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Great spotter woodpecker	<i>Dendrocopus major</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Lesser spotted woodpecker	<i>Dendrocopus minor</i>	2007	TL029381	In Amphill Park CWS approximately 160m to the east of the Survey Site.
Little egret	<i>Egretta garzetta</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Corn bunting	<i>Emberiza calandra</i>	2004	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Yellowhammer	<i>Emberiza citronella</i>	2008	TL015407	On site (within Rookery Clay Pit).
Reed bunting	<i>Emberiza schoeniclus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
<i>Merlin</i>	<i>Falco columbarius</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
<i>Hobby</i>	<i>Falco subbuteo</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Kestrel	<i>Falco tinnunculus</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Red-footed falcon	<i>Falco vespertinus</i>	2012	TL0140	On site (Rookery Clay Pit CWS)
Pied flycatcher	<i>Motacilla alba</i>	2003	TL0041	Adjacent to the west of the Survey Site.
<i>Brambling</i>	<i>Fringilla montifringilla</i>	2006	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Fulmar	<i>Fulmarus glacialis</i>	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Snipe	<i>Gallinago gallinago</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Moorhen	<i>Gallinula chloropus</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Black-throated diver	<i>Gavia arctica</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Great northern diver	<i>Gavia immer</i>	2006	TL004417	Adjacent to the west of the Survey Site.
Oystercatcher	<i>Haemotopus ostralegus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Swallow	<i>Hirundo rustica</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Little gull	<i>Hydrocoloeus minutus</i>	2008	TL0041	Adjacent to the west of the Survey Site.
Caspian tern	<i>Hydroprogne caspia</i>	2007	TL0041	Adjacent to the west of the Survey Site.
Great grey shrike	<i>Lanius excubitor</i>	2003	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Herring gull	<i>Larus argentatus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Common gull	<i>Larus canus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Lesser black-backed gull	<i>Larus fuscus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Iceland gull	<i>Larus glaucooides</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Glaucous gull	<i>Larus hyperboreus</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Great black-backed gull	<i>Larus marinus</i>	2004	TL015407	On site (within Rookery Clay Pit).
Mediterranean gull	<i>Larus melanocephalus</i>	2007	TL015407	On site (within Rookery Clay Pit).
Yellow-legged gull	<i>Larus michahellis</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Bar-tailed godwit	<i>Limosa lapponica</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Black-tailed godwit	<i>Limosa limosa</i>	2006	TL015407	On site (within Rookery Clay Pit).
Grasshopper warbler	<i>Locustella naevia</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Nightingale	<i>Luscinia megarhynchos</i>	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Common scoter	<i>Melanitta nigra</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Smew	<i>Mergellus albellus</i>	2005	TL004417	Adjacent to the west of the Survey Site.
Goodsander	<i>Mergus merganser</i>	2003	TL004417	Adjacent to the west of the Survey Site.

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Red kite	<i>Milvus milvus</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Gannet	<i>Morus bassanus</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Pied wagtail	<i>Motacilla alba</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Grey wagtail	<i>Motacilla cinerea</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Yellow wagtail	<i>Motacilla flava flavissima</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Spotted flycatcher	<i>Muscicapa striata</i>	2006	TL004417	Adjacent to the west of the Survey Site
Red crested pochard	<i>Netta rufina</i>	2006	TL004417	Adjacent to the west of the Survey Site
Curlew	<i>Numenius arquata</i>	2005	TL015407	On site (within Rookery Clay Pit).
Whimbrel	<i>Numenius phaeopus</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Wheatear	<i>Oenanthe oenanthe</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Osprey	<i>Pandion haliaetus</i>	2006	TL015407	On site (within Rookery Clay Pit).
Bearded tit	<i>Panurus biarmicus</i>	2004	TL004417	Adjacent to the west of the Survey Site.
Tree sparrow	<i>Passer montanus</i>	2003	TL004417	Adjacent to the west of the Survey Site.
House sparrow	<i>Passer domesticus</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Grey partridge	<i>Perdix perdix</i>	2007	TL0141	On site (Rookery Clay Pit CWS)
Coal tit	<i>Periparus ater</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Shag	<i>Phalacrocorax aristotelis</i>	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Cormorant	<i>Phalacrocorax carbo</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Grey phalrope	<i>Phalaropus fulicarius</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Ruff	<i>Philomachus pugnax</i>	2005	TL015407	On site (within Rookery Clay Pit).
Black redstart	<i>Phoenicurus ochruros</i>	2003	TL03	Within 2km of the Survey Site.
Redstart	<i>Phoenicurus phoenicurus</i>	2006	TL015407	On site (within Rookery Clay Pit).
Willow warbler	<i>Phylloscopus trochilus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Green woodpecker	<i>Picus viridis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Snow bunting	<i>Plectrophenax nivalis</i>	2007	TL0142	On site (Rookery Clay Pit CWS)
Golden plover	<i>Pluvialis apricaria</i>	2005	TL015407	On site (within Rookery Clay Pit).
Grey plover	<i>Pluvialis squatarola</i>	2007	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Slavonian grebe	<i>Podiceps auritus</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Great crested grebe	<i>Podiceps cristatus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Black-necked grebe	<i>Podiceps nigricollis</i>	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Marsh tit	<i>Poecile palustris</i>	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Dunnock	<i>Prunella modularis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Bullfinch	<i>Pyrrhula pyrrhula</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Water rail	<i>Rallus aquaticus</i>	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Avocet	<i>Recurvirostra avosetta</i>	2004	TL015407	On site (within Rookery Clay Pit).
Firecrest	<i>Regulus ignicapilla</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Goldcrest	<i>Regulus regulus</i>	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Sand martin	<i>Riparia riparia</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Kittiwake	<i>Rissa tridactyla</i>	2004	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Whinchat	<i>Saxicola rubetra</i>	2006	TL015407	On site (within Rookery Clay Pit).
Stonechat	<i>Saxicola torquata</i>	2005	TL026385	In Ampthill Park CWS approximately 160m to the east of the Survey Site.
Woodcock	<i>Scolopax rusticola</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Nuthatch	<i>Sitta europaea</i>	2007	SP9938	Approximately 580m to the south-west of the Survey Site
Common tern	<i>Sterna hirundo</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*

Common Name	Scientific Name	Date	Grid Ref.	Location and Distance from Site
Arctic tern	<i>Sterna paradisaea</i>	2006	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Sandwich tern	<i>Sterna sandvicensis</i>	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Little tern	<i>Sternula albifrons</i>	2005	TL015407	On site (within Rookery Clay Pit).
Turtle dove	<i>Streptopelia turtur</i>	2012	TL0140	On site (Rookery Clay Pit CWS)*
Tawny owl	<i>Strix aluco</i>	2005	TL008425	Stewartby Lake CWS adjacent to the west of the Survey Site.
Starling	<i>Sturnus vulgaris</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Whitethroat	<i>Sylvia communis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Little grebe	<i>Tachybaptus ruficollis</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Shelduck	<i>Tadorna tadorna</i>	2006	TL015407	On site (within Rookery Clay Pit CWS).
Spotted redshank	<i>Tringa erythropus</i>	2005	TL015407	On site (within Rookery Clay Pit CWS).
Wood sandpiper	<i>Tringa glareola</i>	2004	TL015407	On site (within Rookery Clay Pit CWS).
Greenshank	<i>Tringa nebularia</i>	2005	TL015407	On site (within Rookery Clay Pit CWS).
Green sandpiper	<i>Tringa ochropus</i>	2005	TL015407	On site (within Rookery Clay Pit CWS).
Redshank	<i>Tringa totanus</i>	2005	TL015407	On site (within Rookery Clay Pit CWS).
Redwing	<i>Turdus iliacus</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Song thrush	<i>Turdus philomelos</i>	2008	TL0141	On site (Rookery Clay Pit CWS)
Fieldfare	<i>Turdus pilaris</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*
Ring ouzel	<i>Turdus torquatus</i>	2008	TL0042	Stewartby Lake CWS adjacent to the west of the Survey Site.
Mistle thrush	<i>Turdus viscivorus</i>	2013	TL0140	On site (Rookery Clay Pit CWS)*
Barn owl	<i>Tyto alba</i>	2006	TL004417	Adjacent to the west of the Survey Site
Lapwing	<i>Vanellus vanellus</i>	2014	TL0140	On site (Rookery Clay Pit CWS)*

\* = Species incidentally recorded during great crested newt survey and translocation works undertaken at the Rookery Pit between 2011 and 2014.

## 8.5 – Bats and Water Voles Interim Report



**Millbrook Power Project**  
Mammal Survey Interim Report

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	<b>Name</b>	<b>Position</b>	<b>Date</b>
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**Contents**

1 Summary ..... 2

2 Introduction ..... 3

3 Methods ..... 4

4 Results and Interpretation ..... 10

5 References ..... 20

Appendix 1: Figures ..... 21

## 1 Summary

- 1.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.
- 1.2 MPL commissioned BSG Ecology to undertake a suite of mammal surveys, specifically badger, bats, otter and water vole, in habitats within and adjacent to the red-line boundary of the Project Site as reported in the Project Scoping Report (the 'Survey Site'). The purpose of the surveys was to inform and support an application for Development Consent for the Power Generation Plant. A supporting desk study and literature review was also conducted, which covered the Project Site and land up to 2 km from this.
- 1.3 The desk study revealed the presence badger, otter and water vole activity around The Rookery Clay Pit CWS and roosting bats in buildings at South Pillinge Farm.
- 1.4 The badger survey identified the presence of a 6-entrance main / subsidiary badger sett within the Project Site.
- 1.5 Evidence of bat activity was widely recorded across the Project Site; however, the access track to the north of the Project Site returned the highest number of records, primarily from the automated detector surveys. Several small, non-breeding summer roosts of common and soprano pipistrelle bats and brown long-eared bat were identified at South Pillinge Farm.
- 1.6 No evidence of otter or water activity was found within the Project Site.
- 1.7 This report is an interim report. The results of the badger, water vole and otter surveys are complete. However a final bat activity survey is programmed for September 2014. A final report will be produced to incorporate these findings, which will accompany the DCO Application.

## 2 Introduction

- 2.1 Millbrook Power Limited (MPL) is promoting a new Power Generation Plant, with the Power Generation Plant Site located primarily on land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land to the south and east.

### Site Description

- 2.2 The Project Site, in which the Project would be located, comprises land within former clay pits known as 'The Rookery', and the Gas and Electrical Connections extending from The Rookery into the surrounding agricultural land. The approximate centre of the Project Site lies at grid reference 501373, 240734, which is situated between Bedford and Milton Keynes.
- 2.3 The Survey Site for the badger survey comprised the red-line boundary of the Project Site as reported in the Project Scoping Report (see Figure 1). The Survey Site for the otter and water vole survey included all watercourses or ditches within the Project Site (see Figure 5). The Survey Site for the bat surveys included the red-line boundary of the Project Site, extended to include South Pilling Farm, located close to the north western boundary of the Project Site (see Figures 2a and 2b and Figure 3). The main habitats within the Survey Site are arable fields with boundaries delineated by hedgerows, ditches, minor roads and lanes.. The main habitats within the Survey Site are arable fields, delineated by hedgerows, ditches and minor roads and lanes. To the north, an area of land exists that is in the process of being restored as part of a Low Level Restoration Scheme (LLRS) by the landowner. This area presently includes sparsely vegetated ground, swamp and bare earth. Towards the end of 2014 it is expected to comprise just bare earth following bulk movement of soils that are required for the LLRS.

### Description of Project

- 2.4 The Power Generation Plant would operate as a Simple Cycle Gas Turbine (SCGT) peaking plant and would be designed to provide an electrical capacity of up to 299 Megawatts (MW). It would be fuelled by natural gas, supplied by a new underground gas pipeline connecting the Power Generation Plant to the existing National Grid Gas (NGG) National Transmission System (NTS). It will connect to the National Grid Electrical Transmission System (NETS) via underground cable or overhead lines.
- 2.5 BSG Ecology was appointed as the ecological consultant to undertake a preliminary ecology survey, which included a desk study and Extended Phase 1 Habitat Survey. This identified the need to undertake a suite of Phase 2 surveys in order to fully assess the nature conservation value of the Project Site, including mammal (badger, bat, otter and water vole) surveys. These baseline surveys will be included in an appendix to an ecology chapter of an Environmental Statement, which will be submitted, as an integral part of the application for Development Consent.

### Aims of Study

- 2.6 The aims of the mammal surveys were to identify whether protected or noteworthy<sup>1</sup> mammal species, specifically badger, bats, otter and water vole, are present within the Survey Site, and where present, to obtain an understanding of abundance and distribution.

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<sup>1</sup> e.g. brown hare, hedgehog and harvest mouse (all listed at s. 41; NERC Act 2006)

### 3 Methods

#### Desk Study

- 3.1 Existing ecological information regarding protected and notable species was requested from the Bedfordshire and Luton Biodiversity Recording and Monitoring Centre (BRMC) covering the Project Site and land up to 2 km from the Project Site boundary. This information was supplemented by previous survey and mitigation work undertaken by BSG Ecology on The Rookery Clay Pit CWS, including land within and immediately north of the Survey Site (PBA, 2009; BSG Ecology 2013).

#### Badgers

- 3.2 A dedicated badger survey was conducted by Greg Chamberlain and Dr Jim Fairclough on 30 July 2014. Where possible all areas of the Survey Site (see Figure 1, Appendix 1) were accessed. The survey involved walking over the Survey Site, searching for evidence of badgers and badger activity. Evidence searched for included sett entrances, latrine pits, foraging holes, paw prints, pathways in vegetation and badger hairs caught on fencing or vegetation. The dedicated survey conducted on 30 July 2014 was also supplemented with incidental records, taken during other species surveys (e.g. reptile surveys) conducted on a number of occasions in 2014.
- 3.3 Once a sett was discovered, an indication of the level of activity (following Neal and Cheeseman, 1996) was also made, as follows:
- Active – active sett entrances contain no debris or vegetation, are obviously regularly used and often show signs of having been recently excavated.
  - Partially used – partially used entrances are those not in regular use, and which may have debris (leaf litter, twigs, moss, etc.) around the entrance. However, they could potentially be used regularly in the future with minimal clearance necessary.
  - Disused – disused sett entrances show signs of not having been used for a considerable period of time and would not be used again without extensive clearance by a badger.
- 3.4 Several categories of badger setts have been identified (Neal and Cheeseman, 1996). These are described as follows:
- Main setts are defined as setts with five or more entrance holes and which show evidence of use throughout the year. Main setts are associated with large spoil heaps and well-trodden paths.
  - Annexe setts – These setts are intermediate-sized and may be used by breeding badgers. These setts are normally close to a main sett (within 150 m of the main sett and connected to it by obvious paths).
  - Subsidiary setts – These are similar to annexe setts but are likely to be further away (at least 150 m from the main sett and not as well connected to the main sett as annexe setts).
  - Outlier setts – Outlier setts are small setts with one or two entrance holes which are used sporadically by badgers as a temporary refuge. There may be several outlier setts within one badger social group's territory.
- 3.5 In addition to badger setts, other evidence of badgers was also recorded. This included:
- live or dead badgers;
  - foraging scrapes (distinctive excavations made by badgers when searching for food);
  - badger dung;
  - dung pits (a badger will often deposit its dung within a small excavated pit);
  - latrines (a collection of dung pits);
  - badger guard hairs;
  - pathways; and

- badger tracks (footprints).

### ***Limitations to Methods***

- 3.6 For health and safety reasons it was not possible to access Bletchley to Bedford rail land to check for badger activity close to the railway line. It is not thought that this presents a significant constraint, as likely presence of badgers could be confirmed through evidence such as large spoil heaps, latrines and pathways adjacent to (or beneath) the railway boundary fence.

### **Bats**

- 3.7 The arable habitats covering the majority of the Project Site are considered to provide limited foraging opportunities for bats; however, the hedgerows, wooded copses and ditches were identified as being likely to provide a suitable commuting and foraging resource for bats in the wider landscape. Overall, the Survey Site has been assessed as being of 'Low Habitat Quality' according to the current best practice bat survey guidelines (Hundt, 2012). Therefore a range of methods were used at the appropriate level of survey effort as recommended by the guidelines:

- Walked transects; and
- Automated detector surveys.

- 3.8 In addition, buildings at South Pilling Farm were surveyed for presence / likely absence of bats, and where present, to characterise the type of roost (e.g. number and species of bat using the roost). The following methods were used:

- Internal and external building inspection; and
- Dusk emergence and pre-dawn re-entry roost surveys.

### ***Bat Activity Surveys***

#### **Walked transects**

- 3.9 Seasonal walked surveys of two pre-determined transect routes (northern and southern) were undertaken in May (spring) and July (summer) 2014. The final (autumn) walked survey will be completed in September.
- 3.10 Each transect started 15 minutes before sunset and took approximately 2-3 hours to complete. The timing of the surveys therefore covers the bat emergence period and the period of most intense foraging activity when invertebrate prey is most abundant (Altringham, 2003).
- 3.11 The same transect route was walked on each survey visit with the start points and direction changed on each visit to ensure that different parts of the Survey Site were surveyed at different times of the night. This approach was adopted to remove any bias that could be introduced into the survey data if each transect was walked in the same direction. This bias could otherwise have resulted in any given point on the transect route being visited at approximately the same interval after sunset. Static recording points were selected for each of the transects. At these points the surveyor stood for 3 minutes to listen and record all bat passes, using bat detectors.
- 3.12 Bat activity was recorded using Anabat hand-held electronic bat detectors. This model of detector automatically records all the bat passes they detect, which significantly reduces the chances that bats could be missed due to human error. Wherever possible, surveyors recorded the observed behaviour and numbers of bats onto a field proforma. This was to aid identification and also to provide additional detail on the behaviour of observed bats. Field notes included a record of the time of each bat encounter, allowing results to be cross-referenced with the recorded data.
- 3.13 Details of the walked transect surveys are summarised in Table 1. A map of walked transect routes is presented in Figures 2a and 2b (Appendix 1). The main aim of the transect walks was to determine the location of areas of high bat activity, such as foraging areas and/or commuting routes (e.g. ditches and hedgerows). Accordingly, the selected transect routes focussed on such areas.



- 3.14 All walked transects avoided heavy rain, strong winds and dusk temperatures below 10°C as recommended in the BCT guidelines (Hundt, 2012). Dates of the survey visits along with survey timings and weather conditions are provided in Table 2. Surveys were undertaken by Dr Tom Flynn (TF) MCIEEM, Greg Chamberlain (GHC) MCIEEM, John Woods (JW) Grad CIEEM, Tom Chapman (TC), Stuart Elsom (SE) and Ross Crates (RC) (Table 1). (Note that the third and final survey visit is yet to be undertaken).

Table 1: Survey dates, times, personnel and weather conditions recorded during the bat activity transect surveys.

Date of transect	Time		Rain		Cloud Oktas scale (0-8)		Temperature °C		Wind	
	Start	End	Start	End	Start	End	Start	End	Start	End
19 May 2014	20:53	23:08	N	N	3	3	20	17	Light	Light
Personne	TF, JW, SE and RC									
22 July 2014	20:30	23:07	N	N	2	2	17	16	Mode-rate	Mode-rate
Personne	GHC, JW, TC and SE									
September 2014	To be completed.									

#### Automated detector surveys

- 3.15 In addition to the transect surveys, automated detector surveys were conducted using Wildlife Acoustics Song Meter 2 (SM2) bat detectors. These detectors are also full spectrum detectors that are triggered automatically to record bat echolocation calls. These detectors can be deployed and left to remotely record bat activity for a period of several nights.
- 3.16 Two SM2 detectors (Statics 1 and 2) were deployed, to assess bat activity along the vehicular track in the north west of the Project Site and a section of scattered scrub approximately 100 m to the east of South Pilling Farm, to supplement data from the transect surveys. The locations of Statics 1 and 2 are shown on Figure 2a (Appendix 1).
- 3.17 The detectors were deployed for at least four consecutive nights at each of the locations, which allowed continuous monitoring to take place during the period when bats are active, i.e. sunset to sunrise. They were programmed to begin recording from half an hour before sunset until half an hour after sunrise. Survey hours varied throughout the survey season according to daylight hours and have been calculated for each recording session in order to accurately calculate activity indices.
- 3.18 The automated detectors were deployed for the following dates: 30 May to 4 June 2014 and 22 to 30 July 2014. Statics 1 and 2 will be deployed for at least four consecutive nights in September 2014.

#### Bat call analysis

- 3.19 Recorded bat calls were analysed using Analook software to confirm the identity of the bats present. Where possible, the bat was identified to species level. Records of long-eared bats *Plecotus* sp. were not identified to species level due to the overlapping call parameters of the two native species but were assumed to refer to brown long-eared bats. It is possible that grey long-eared bat *Plecotus austriacus* may occasionally occur in the region, but given the species' known distribution (Swift & Entwistle 2008), it is highly unlikely. In addition, no records of this species were found from the desk study. Species of the genus *Myotis* were grouped together due to many of the species having overlapping call parameters making species identification problematic (Hundt, 2012).
- 3.20 For *Pipistrellus* species the following criteria, based on measurements of peak frequency, were used to classify calls:
- Common pipistrelle ≥42 and <49 kHz

- Soprano pipistrelle ≥51 kHz
- Nathusius' pipistrelle <39 kHz
- Common pipistrelle / soprano pipistrelle ≥49 and <51 kHz
- Common pipistrelle / Nathusius' pipistrelle ≥39 and <42 kHz

3.21 In addition, the following categories were used for calls which could not be identified with confidence due to the overlap in call characteristics between species or species groups:

- *Myotis* sp./brown long-eared bat;
- *Nyctalus* sp. (either Leisler's bat or noctule); and
- *Eptesicus/Nyctalus* sp. (either serotine, noctule or Leisler's bat).

3.22 The Analook software enables analysis of the relative activity of different species of bats by counting the minimum number of bats recorded within discrete sound files. For the purposes of this analysis, the recording of one or more passes by a single species of bat within a 15 second sound file is counted as a single bat pass (B). During analysis of sound files, it was possible to estimate the minimum number of bats recorded on individual sound files but not whether consecutive sound files had recorded, for example, a number of individual bats passing as they commute to a feeding habitat or one bat calling repeatedly as it flies up and down a hedgerow, for instance. Therefore, relative abundance of bats cannot be estimated from this analysis, but the number of bat passes does reflect the relative importance of a feature/habitat to bats by assigning a level of bat activity that is associated with that feature, regardless of the type of activity. In this analysis, bat passes per hour (B/h) has been used as a measure of 'relative activity'.

3.23 Following completion of the autumn survey, scheduled for September, data will be further analysed to incorporate an assessment of seasonal patterns in bat activity.

#### Limitations to methods

3.24 The aim of automated detector monitoring was to collect at least 4 nights of data in each season (spring, summer and autumn). However, during the summer survey in July the SM2 unit located at static position 2 (S2) failed during the third night of monitoring. Given that the measure of 'relative activity' used in this analysis is bat passes per hour, it was still possible to extract useful data, albeit based on a reduced sample size. This is therefore not considered a significant constraint.

### Roost Surveys

#### Internal and external building inspection

3.25 On 19 May 2014 an internal and external building inspection survey was undertaken at South Pilling Farm by Laura Grant (Natural England Bat Licence no. CLS001496). Ten buildings (Buildings B1 – B10) (see Figure 3, Appendix 1) were inspected to assess their potential to support roosting bats and to search for evidence of bat activity.

3.26 During the survey a thorough search was made of the buildings including all accessible areas and crevices for bats, their droppings, food remains or characteristic grease marks at potential roost exit/entrance points. The exterior of the buildings were searched, paying particular attention to window ledges, where droppings can gather undisturbed, and under potential roost access points, such as loose tiles and gaps between boarding. Where possible, internal inspections were also undertaken.

3.27 Signs of bat activity searched for included:

- Live bats;
- Droppings;
- Urine spots;
- Feeding remains (e.g. discarded wings of flying invertebrates);
- Oil staining;

- Smell;
- Daytime vocalisations;
- Absence of cobwebs (a well-used bat roost and its access points are typically clear of cobwebs);
- Scratching;
- Dead bats; and
- Tracks in dust (by a roost).

3.28 All buildings were assigned a category defining their potential to support roosting bats in accordance with Table 2 below.

Table 2: Categories of bat potential of buildings

Level of Bat Potential	Rationale
Negligible	Building with no or very limited roosting opportunities for bats, no evidence of use by bats and where the feature is isolated from foraging habitat.
Low	Building with a limited number of roosting opportunities, no evidence of current use by bats and with poor connectivity to foraging habitat.
Medium	Building with some roosting opportunities, with no evidence of current use by bats and with connectivity to moderate – high quality foraging habitat.
High	Building with multiple roosting opportunities for one or more species of bat, and with good connectivity to high quality foraging habitat.
Confirmed Roost	Presence of bats or evidence of recent use by bats.

#### Bat emergence and re-entry surveys

- 3.29 In order to establish the presence/likely absence of bat roosts within the buildings, and to establish the species and number of bats using the buildings, one dusk emergence and one pre-dawn re-entry survey was undertaken. These surveys covered those buildings where either a bat roost had been found or where the building was assessed as having medium or high potential to support roosting bats. Surveys involve ecologists watching and listening for bats leaving their roosts at dusk (emerging) and / or returning to a roost pre-dawn (re-entry).
- 3.30 From the inspection survey two buildings were found to contain bat roosts / have high potential to support bat roosts and three buildings were deemed to have medium potential to support roosting bats. In order to adequately survey these five buildings, eight surveyors were utilised for the surveys. Surveyors were positioned outside the buildings at points where potential bat access points could be observed.
- 3.31 Surveyors were equipped with an Anabat bat detector to enable the bat calls to be recorded to assist with species identification. The recorded calls were then analysed using Analook sonogram software.
- 3.32 Dates of the survey visits along with survey timings and weather conditions are provided in Table 3. Surveys were led by Laura Grant (LG) (Natural England Bat Licence no. CLS001496) and Hannah Bilston (HB) (Natural England Bat Licence no. CLS00548). The survey team comprised Dr Jim Fairclough (JF) MCIEEM, Greg Chamberlain (GHC) MCIEEM, John Woods (JW) Grad CIEEM, Tom Chapman (TC), Stuart Elsom (SE), Francesca Morini (FM), David Kent (DK), Glyn Brown (GB), Jamie Peacock (JP) and Ross Crates (RC) (Table 1).

Table 3. Emergence and re-entry survey details.

Survey	Date	Personnel	Start Time	End Time	Weather
Pre-dawn re-entry	23 July 2014	LG, JW, GHC, TC, SE, RC,	03.10	05.10	Temp °C: 21

Survey	Date	Personnel	Start Time	End Time	Weather
		FM and GB			Wind: light Rain: none Cloud cover: none
Dusk emergence	30 July 2014	HB, JF, GHC, JP, SE, RC, FM, DK,	20.41	22.56	Temp °C: 21 Wind: light Rain: none Cloud cover: none

### Limitations to Methods

- 3.33 During the pre-dawn re-entry survey on 23 July 2014, one Anabat failed. As a result, one surveyor (Laura Grant, positioned at VP2) used a BatBox Duet detector and, in the absence of a recording device, undertook species identification in the field. Laura Grant is a highly experienced, licenced bat worker, skilled in species identification. As such, an absence of bat call recordings is not considered a significant constraint.

### Otter and Water Vole

#### *Otter and water vole survey*

- 3.34 An otter and water vole survey was undertaken at the site on 19 May 2014, which coincides with the spring peak levels of activity for water vole (Strachan *et al.*, 2011). The survey was undertaken by Dr Jim Fairclough MCIEEM, assisted by Greg Chamberlain MCIEEM and John Woods GradCIEEM. The weather during the survey was dry, with intermittent sun and a light wind.
- 3.35 Ditches present across the Survey Site were surveyed for water vole and otter. This included an assessment of the suitability of each section of ditch for water vole. The survey covered approximately 2.3 km of ditch, as shown on Figure 5 (Appendix 1). Each ditch was searched for evidence of water vole following best practice guidance provided in the *Water Vole Conservation Handbook* (Strachan *et al.*, 2011). This included visual searches for the following signs:
- Latrines - comprising a concentration of droppings in discrete locations, often near nest sites, at range boundaries or at places used to enter and exit the water;
  - Feeding stations - comprising neat piles of chewed lengths of vegetation, usually up to 10 cm in length, on pathways or haul-out locations;
  - Burrows - these are typically found along the water's edge and on top of the bank (up to 5 m from the water's edge) and are 4-8 cm in diameter. Holes on top of the banks often have 'lawns' around them (areas of grazed vegetation); and
  - Footprints - located in soft mud or silt.
- 3.36 In addition, any evidence of otter, such as droppings ('spraints'), runs, holts and footprints, was recorded.
- 3.37 One section of ditch within the Survey Site, north west of Ditch 2b (see Figure 5, Appendix 1), was not surveyed during the present (2014) surveys. This is due to the ditch being within the area being restored as part of the LLRS. Water vole was not recorded as being present in this ditch section during surveys completed in 2008 and 2009 (PBA, 2009).

### Other Notable Mammal Species

- 3.38 During surveys targeted at other species, incidental observations of other notable mammal species of principal importance (s. 41; NERC Act 2006) were recorded.

## 4 Results and Interpretation

### Badger

#### **Desk study**

- 4.1 BSG Ecology undertook badger surveys in September 2008 (PBA, 2009). These surveys identified the presence of badger latrines within The Rookery Clay Pit CWS; however, no evidence of badger setts were identified.
- 4.2 A foraging badger was noted within scrub between the northern and southern halves of the Rookery Clay Pit CWS approximately 500 m to the east of the proposed access track, during great crested newt surveys of Rookery North Pit in 2013 (BSG Ecology, 2013).

#### **Badger survey**

- 4.3 An active badger sett comprising six well-used entrances was identified within a small copse within the Survey Site, as shown on confidential Figure 1, Appendix 1. Given the absence of other badger setts within the Survey Site, this is likely to be a main or subsidiary sett. Mammal tracks of indeterminable origin, and therefore possibly attributable to badger, and two atypical latrines (probably badger) were also identified within the Survey Site, as shown on confidential Figure 1, Appendix 1.

### Bats

#### **Desk study**

- 4.4 In 2008, BSG Ecology undertook activity surveys, building and tree inspection surveys and dusk emergence/dawn return to roost surveys for bats at The Rookery Clay Pit CWS and the surrounding area (PBA, 2009). The activity surveys recorded an assemblage of eight species of bat foraging and/or commuting within and around the northern half of the Rookery Clay Pit CWS. These species included common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and Nathusius' pipistrelle *Pipistrellus nathusii*; noctule *Nyctalus noctula*; serotine *Eptesicus serotinus*; barbastelle *Barbastella barbastellus*; Leisler's bats *Nyctalus leisleri* and a *Myotis* spp. Buildings at South Pilling Farm were also assessed to determine the presence / likely absence of roosting bats.
- 4.5 Of the buildings that were surveyed, five were found to contain evidence of the presence of bats. The farmhouse was found to support a brown long-eared *Plecotus auritus* roost in the loft. A small number of bats were seen during the survey, and droppings were found that were thought to be from this species only (PBA, 2008).
- 4.6 The desk study (BRMC) also provided records of nine species of bats from within a 2 km radius of the Survey Site. The closest of these were a noctule bat found on a tree 150 m to the west of the Survey Site in 2012 and a Daubenton's bat *Myotis daubentonii* from 300 m to the west in 2009.

#### **Walked transects**

- 4.7 A least five bat species were recorded during the walked transect surveys (walked transects) undertaken to date. The confirmed species or species groups include:
- *Myotis* spp.;
  - Noctule;
  - Nathusius' pipistrelle;
  - Common pipistrelle; and
  - Soprano pipistrelle.

4.8 Bat passes recorded during the transect surveys each month are summarised in Table 4 below. Locations of bat passes recorded during the walked transects are summarised (i.e. only one point is displayed where multiple passes of the same species were heard at one location) on Figures 2a and 2b.

Table 4: Bat species recorded (and number of soundfiles) during two walked transects per survey

Month	Transect	Myotis spp.	Noctule	Nathusius pipistrelle	Common pipistrelle	Soprano pipistrelle	Total	
May	Northern	3	0	0	17	6	26	
	Southern	0	1	0	14	20	35	
July	Northern	2	7	5	15	16	45	
	Southern	2	8	0	19	15	44	
September	Northern	To be completed.						
	Southern							
<b>Total</b>		<b>7</b>	<b>16</b>	<b>5</b>	<b>102</b>	<b>71</b>	<b>150</b>	
<b>% Total</b>		<b>4.7</b>	<b>10.7</b>	<b>3.3</b>	<b>43.3</b>	<b>38.0</b>		

4.9 The northern transect focussed on the access track that runs along the western edge of The Rookery Clay Pit CWS, the wet ditch and plantation edge to the south of The Rookery Clay Pit CWS, South Pillinge Farm and an area of plantation woodland to the south of this (Figure 2a, Appendix 1). The southern transect focused on field margins and hedgerows within the central section of the Project Site (Figure 1b, Appendix 1). Relative activity levels were similar on both transects.

4.10 During the transect surveys, common and soprano pipistrelle bats were the most frequently recorded bat species accounting for 43.3% and 38% of all the bat calls recorded respectively. These were encountered commuting across the Project Site and foraging along hedgerows and plantation woodland edges. Five Nathusius' pipistrelle calls were recorded, all of which were detected on the northern transect in July near South Pillinge Farm and near the northernmost point of the Project Site.

4.11 Calls of species other than pipistrelles were only recorded in very low numbers during the walked transect surveys. The patterns of activity of these species recorded during the static monitoring are discussed in the following paragraphs.

4.12 Noctule were recorded in May and July and account for 10.7% of all recorded calls. Most of the noctule calls were recorded in July, these were bats commuting over the site.

4.13 *Myotis* species were also recorded in May and July, with 3 and 4 calls recorded respectively, accounting for 4.7% of the total calls recorded. *Myotis* calls were encountered scattered in pockets throughout the Survey Site including along the access track to the west of The Rookery Clay Pit CWS, near the woodland plantation to the south of The Rookery Clay Pit CWS and near South Pillinge Farm.

4.14 Most of the species were recorded outside typical roost emergence times (see Table 5, below). Some *Myotis* species calls during the July transect were recorded before 70 minutes after sunset which is within the typical emergence period for this species group (typically between 30 and 70 minutes after sunset) indicating the species may be roosting within or near to the Survey Site (Hundt, 2012).

Table 5. Proximity of first bat passes to sunset.

Species	Typical Emergence Time (Hundt, 2012)	Minutes after sunset of closest bat call to sunset.
Pipistrelle species bat	From approximately 30 mins after sunset	52 minutes

Noctule	Early evening in daylight, to sunset	35 minutes
<i>Myotis</i> species	Typically between 30 and 70 minutes after sunset	67 minutes

**Automated detector surveys**

4.15 The two static bat detectors were deployed in the following locations across the Survey Site as shown on Figure 2a, Appendix 1:

- Static (S) S1 on a section of scattered scrub approximately 100 m to the east of South Pillinge Farm;
- Static (S) S2 on the vehicular track in the north west of the Project Site.

4.16 A total of at least nine bat species were recorded during the periods of static detector monitoring. These species were as follows:

- Barbastelle;
- Long-eared species;
- *Myotis* spp.;
- Noctule;
- Leisler’s;
- Serotine;
- Nathusius’ pipistrelle
- Common pipistrelle; and
- Soprano pipistrelle.

4.17 The bat data recorded during the automated detector monitoring periods for each survey period are summarised in Table 6 below.

Table 6. Automated detector survey results.

Species/species group	Relative activity (Bat passes/hour)				Total number of passes
	May		July		
	Static 1	Static 2	Static 1	Static 2	
Barbastelle		0.63			<b>19</b>
Noctule		0.33	0.68	3.02	<b>85</b>
Leislers’ bat			0.06	0.23	<b>6</b>
<i>Nyctalus</i> sp.			0.18		<b>6</b>
Serotine		0.03			<b>1</b>
Long-eared bat			0.28	0.34	<b>15</b>
Long-eared bat / serotine		0.03	0.03	0.06	<b>3</b>
Long-eared bat / <i>Myotis</i> sp. bat		0.10	0.06	0.57	<b>15</b>
<i>Myotis</i> sp. bat		8.40	0.06	0.91	<b>273</b>
Nathusius’ pipistrelle		0.03	0.06	0.06	<b>4</b>
Nathusius’ / common pipistrelle		0.07		0.06	<b>3</b>
Common pipistrelle		63.89	4.78	11.69	<b>2300</b>
Common / soprano pipistrelle		5.99	0.80	0.63	<b>219</b>
Soprano pipistrelle		141.90	3.91	30.4	<b>4969</b>

Species unidentified		0.13			4
<b>Passes/hour</b>	<b>0</b>	<b>221.39</b>	<b>10.91</b>	<b>47.97</b>	
<b>Total number of passes</b>	<b>0</b>	<b>6723</b>	<b>354</b>	<b>841</b>	<b>7918</b>

- 4.18 As with the transect survey findings, the static monitoring survey data clearly show that common and soprano pipistrelle bats were the bat species most frequently recorded, accounting for 7,488 (2,300 – common pipistrelle, 4,969 – soprano pipistrelle and 219 either common or soprano pipistrelle) out of 7,918 bat calls from the static detectors combined, which equates to over 94% of the total bat calls recorded during automated detector surveys at the north of the Survey Site.
- 4.19 Myotis species were the second most frequent bat species/groups recorded during static monitoring. However, compared with the common pipistrelle, the level of activity recorded by static detectors was much lower with an overall total of 273 calls accounting for 3.4% of the total activity.
- 4.20 The next most frequently recorded species were noctule, barbastelle and long-eared bat sp. with a total of 85, 19 and 15 calls recorded across the whole monitoring period accounting for 1.1%, 0.24% and 0.19% respectively of all calls recorded during the static surveys. Noctule bats and possibly long-eared (only long-eared species calls with parameters overlapping with serotine and *Myotis sp.* bats were recorded during the May period) were recorded in all months, albeit in low numbers. Barbastelle were only recorded during the May survey period.
- 4.21 Bat activity was significantly higher at S2 than at S1. During the May survey period, bat passes (of all species) occurred at a rate of 221.39 passes per hour at S2, whereas as no passes were recorded at S1. During the July survey period, whilst overall bat activity was lower than in May, activity levels at static location 2 (47.97 passes per hour) were again higher than at S1 (10.91). This is largely due to significantly higher common and soprano pipistrelle bat activity at the S2 than S1.

#### ***Internal and external building inspection***

- 4.22 The assessment of roosting potential for each of the buildings located at South Pilling Farm is shown in Figure 3, Appendix 1. The findings of the external, and where applicable internal inspection, are described in Table 7 below.
- 4.23 Two buildings (Buildings B5 and B6) were assessed as offering high potential to support roosting bats due to multiple roosting opportunities and immediate connectivity with suitable foraging habitat. Buildings B5 and B6 both contained evidence of use by bats. Building B5 offers a large number of external roosting opportunities and access to open internal roof structures. Building B6 offers external roosting opportunities and potential access to an internal roost space. Whilst no internal inspection was undertaken in Building B6, the desk study revealed that a brown long-eared bat roost was present in the loft (PBA, 2009). Discussion with the farmer indicated that, at the time of survey, this roost was still present.
- 4.24 Three buildings (Buildings B3, B8 and B10) were assessed as offering a medium potential to support roosting bats due to several roosting opportunities and immediate connectivity with suitable foraging habitat. A further four buildings were assessed as offering a low potential to support roosting bats due to a limited number of features suitable for roosting bats (Buildings B1, B2, B4 and B7).
- 4.25 One building (Building B9) was assessed as offering negligible potential to support roosting bats due to a lack of features capable of supporting roosting bat.



Table 7: Results of the Bat Building Inspection

Building Ref.	Building Description	Features with potential to support roosting bats	Evidence of bat use?	Overall Assessment of Roost Potential
B1	Steel-framed barn with pitched, corrugated concrete roof and cladding on upper sections of wall. Walls constructed from galvanised steel. Lean-to (single storey height) attached to southern gable end. Northern end of building of brick construction.	One small gap in brickwork near south east corner of northern section.	Two pipistrelle droppings attached/stuck to eastern wall.  One pipistrelle dropping found on pile of bricks stacked adjacent to eastern wall of barn.	Low
B2	Steel-framed barn with pitched, corrugated concrete/asbestos roof. East gable end of brick cavity wall construction.	Cobweb filled gaps in east gable end brickwork.  No obvious roost features with signs of use by bats.	None	Low
B3	Wooden barn / shed. Wooden clad walls and roof. Broken soffit box on north east corner of building. Wooden cladding on northern gable end in state of disrepair.	Access to cavity, which may extend up to roof height, behind wooden cladding on northern gable end.  Cavity under ridge 'tiles' if access is available.	Collection of moth wings on floor beneath joist.  Five pipistrelle droppings on stored materials to east of building 3.	Medium
B4	Brick walled barn with corrugated concrete/asbestos roof and steel frame. Large access to interior (open sliding door), large open windows	None	Five pipistrelle droppings on white sheet inside barn at northern end of building interior. Likely to be from light sampling / foraging bats.	Low
B5	Barn of brick construction with pitched, tiled roof lined with wooden sarking boards. The building extends eastwards in four places, creating three 'courtyard' areas. These 'extensions' contain open sections of wall. Some sections of roof contained a raised central section to allow for narrow ventilation slots, each measuring 1 m wide by 0.1 m high.	Some slightly raised ridge and roof tiles. Gaps present at the end of joists, between wooden sarking and in mortar on south east corner (accessed from building interior). On the external side of the south east corner there was a brick missing.  Some windows replaced with iron grills: access point to	One pipistrelle dropping on tarpaulin in 'garage' within north west corner of building.  In central section, c. 30 relatively fresh, most likely from spring 2014, scattered <i>Myotis</i> sp. bat droppings. Urine splashes and <i>Myotis</i> sp. and pipistrelle bat droppings on corrugated plastic leant against internal wall.  A pipistrelle dropping located at ground level below clean gap in brickwork.	High Confirmed Roost /

		building interior.	<p>Five pipistrelle droppings attached to wall below clean gap between wooden cladding and brick wall.</p> <p>In room in south west corner of the building; unidentified bat droppings scattered by the base of the internal side of the western gable end. About 20 droppings on the floor under the ridge beam by partition wall. Where ridge beam intersected partition wall, scratch marks and staining on both sides of ridge beam. Also some bat droppings and moth wings attached to wall / caught in cobwebs.</p>	
B6	Two-storey farmhouse of brick construction with tiled roof.	Loose roof tiles, brick missing in wall on northern end.	<p>Pipistrelle-sized dropping below cobweb free gap in brickwork.</p> <p><i>Desk study and anecdotal evidence indicate presence of brown long-eared bat roost in loft space.</i></p>	High / Confirmed Roost
B7	Farmhouse outbuilding of brick construction. Unlined tiled roof.	Small gaps around brickwork.	None	Low
B8	Brick building with corrugated concrete/asbestos roof. Separate roof with access point at eastern side. Roof void 1-2 m in height.	<p>Access into ridge via uncapped ridge tile at western end.</p> <p>Clean gap into soffit.</p>	None	Medium
B9	Wide span steel framed barn with corrugated concrete / asbestos roof. Very airy internal space.	No obvious suitable features.	None	Negligible
B10	Wooden barn / shed with pitched corrugated concrete / asbestos roof and timber clad wall. Window frames empty.	Gaps in timber cladding at southern gable: access to cavity behind.	None	Medium

### **Bat emergence and re-entry surveys**

- 4.26 During the emergence / re-entry surveys undertaken at South Pilling Farm, bats were observed emerging from or re-entering to roost within three of the buildings, Buildings B5, B6 and B8. No other buildings were found to support roosting bats. Survey findings are described below and likely roost access points are shown on Figure 4, Appendix 1.

#### **Building B5**

- 4.27 During the re-entry survey on 23 July 2014, a soprano pipistrelle bat was observed re-entering a roost, accessed through a gap between bricks where a piece of mortar was missing in the western wall, at 04.41 (29 minutes before sunrise). In addition a pipistrelle species bat was observed re-entering a roost within the western elevation of the building at 04.35, 35 minutes before sunrise. Later inspection of the wall revealed the probable roost access point to be a clean gap in the corner of a damaged brick.
- 4.28 On 30 July, during the emergence survey, a pipistrelle species bat exited the building at 21.27, 31 minutes after sunrise, from the northern-most window on the western elevation of the building. This bat is likely to have been roosting in an internal building feature. Also at 21.27, a common pipistrelle bat was observed as having emerged from beneath a ridge tile located in the extension to the south side of the central (of three) courtyard area. Two minutes later a common pipistrelle bat exited the central section of building B5 through the barn door, having likely emerged from a roost located within the building's interior.
- 4.29 A brown long-eared bat returned to roost at 04.22 on 23 July 2014, 48 minutes before sunrise, within the northern end of the building via an access point (slots in a partially covered window space) located near the northern end of the western wall. Prior to this, a *Myotis* sp. bat was seen flying towards the north west corner of the building at roof height at 04.04, 66 minutes before sunrise. Given the direction of flight and proximity to sunrise, it is possible that this *Myotis* sp. bat re-entered a roost
- 4.30 These findings indicate that Building B5 supports a number of small, non-breeding summer roosts of common and soprano pipistrelle bats, a brown long-eared bat and possibly a *Myotis* sp. bat.

#### **Building B6**

- 4.31 During the re-entry survey a common pipistrelle bat re-entered a roost, accessed under a loose roof tile, at 04.39, 31 minutes before sunrise. During the emergence survey a pipistrelle species bat and a soprano pipistrelle bat emerged from under loose tiles. The pipistrelle species bat emerged at 21.09, 13 minutes after sunset, from a roost exit point located near the roof apex near the eastern side of the building. At 21.30, 34 minutes after sunset, a soprano pipistrelle bat emerged from a roost exit point located on the western side of the roof.
- 4.32 Four brown long-eared bats were observed flying close to the roof of Building B6 during the re-entry survey between 04.35 and 04.39, 35 – 31 minutes before sunrise. Given the proximity of these observations to sunrise and of the flights to the roof, it is probable that these long-eared bats re-entered the farmhouse to roost via access points in the roof. During the emergence survey, a long-eared bat is likely to have emerged from an access point located in the roof on the western side of the building at 21.25, 29 minutes after sunset.
- 4.33 These findings indicate that the Building B6 supports a number of small, non-breeding summer roosts of common and soprano pipistrelle bats and for brown long-eared bats.

#### **Building B8**

- 4.34 Two pipistrelle species bats re-entered a roost between 04.35 and 04.37, 35 – 33 minutes before sunrise. Access was gained via a slot behind a barge board on the western elevation.
- 4.35 These findings indicate that Building B8 supports a non-breeding summer roost for a pipistrelle bat species.

**Otter and water vole**

**Desk study**

**Water vole**

4.36 The survey carried out by BSG Ecology in October 2008 identified the presence of a water vole latrine, a large feeding cache and several runs (PBA, 2009). These signs were found on the northern fringe of the largest waterbody in the Rookery Clay Pit CWS and provide direct evidence of water voles presence in close proximity to the Survey Site. No signs of water vole activity were found during a subsequent survey carried out in May 2009 (PBA, 2009). During this survey, areas of vegetation were located that had been disturbed by wildfowl, in particular geese, and deer. There were also frequent signs of fox activity and possible signs of mink presence. The closest most recent record of water vole in the desk study was from 1.5 km to the north of the Survey Site in 2012.

**Otter**

4.37 During surveys undertaken in 2008 a single otter print was recorded on a clay bank in the south-east of the Rookery Clay Pit CWS (PBA, 2009). No other evidence of otter activity was recorded during the survey. The large water-body in the north of the Rookery Clay Pit CWS (adjacent to the proposed access) supports a healthy fish population and it is likely that otters regularly use this water-body and the adjacent Stewartby Lake CWS as a foraging resource.

**Otter and water vole survey**

4.38 No evidence of water vole presence was found. Ditches within the Survey Site, as shown on Figure 5 (Appendix 1) and summarised in Table 8, below, had poor to sub-optimal habitat suitability for water vole.

Table 8: Habitat suitability of water-bodies surveyed for water vole.

Waterbody ID	Description	Habitat Suitability
Ditch 1	Shallow ditch (flows both sides of road), water c. 3 cm deep, gravel-silt bottom. Steep sides (near vertical to trapezoidal, especially where bank has slumped). Channel cut to ca. 1.5 m. Channel base ca. 40 cm in width. Vegetated with tall coarse grasses ( <i>Arrhenatherum elatius</i> dominant), frequent common nettle <i>Urtica dioica</i> , cow parsley <i>Anthriscus sylvestris</i> , hemlock <i>Conium maculatum</i> , cleavers <i>Gallium aparine</i> and hogweed <i>Heracleum sphondylium</i> . Hedge on western bank. Wetland plants infrequent but include great willowherb <i>Epilobium hirsutum</i> , foals watercress <i>Apium nodiflorum</i> and water figwort <i>Scrophularia auriculata</i> . Sub-optimal due to shallow water depth. Forage/cover and bank profile both good.	Sub-optimal
Ditch 2a	Trapezoidal shape, base ca. 50 cm in width, channel cut to depth of 1.5 m, ca. 5 cm water depth. Next to hedgerow, mostly shaded but occasional gaps with abundant marginal vegetation. Shaded sections sparse beneath. Open sections (which are few) include abundant fool's watercress and great willowherb and frequent coarse grasses. Poor suitability, in most part due to lack of forage and shallow depth.	Poor
Ditch 2b	Trapezoidal shape, base c. 50 cm in width, channel cut to depth of 1 m, c. 5 – 20 cm water depth. Open ditch for most part (small patches of scrub and hedge by eastern end of northern bank). Wetland vegetation includes abundant fool's watercress, watermint <i>Mentha aquatica</i> and great willowherb, frequent hard rush <i>Juncus inflexus</i> and occasional false fox sedge <i>Carex otrubae</i> . Three indeterminate burrows, small voles confirmed but no latrines of water vole (or rat). Sub-optimal due to shallow water	Sub-optimal - Optimal

	depth. Forage/cover and bank profile both optimal.	
Ditch 3	Trapezoidal to near vertical sides. Base 40 – 60 cm in width. Channel cut to depth of 1.7 m. Water depth 5 – 20 cm. Ditch bordered on east by intact hedgerow. Several indeterminate burrows. Sub-optimal due to shallow water depth. Forage / cover and bank profile optimal.	Sub-optimal - Optimal
Ditch 4	Adjacent to woodland. U-shaped ditch, ca. 5 m wide from bank to bank with a channel depth of c. 2 m. Contains flowing water to a depth of ca. 5 cm. Heavily shaded on both sides by a shrub layer dominated by hawthorn, <i>Crataegus monogyna</i> and mature trees, including frequent ash <i>Fraxinus excelsior</i> and occasional apple <i>Malus</i> sp. No emergent macrophytes. Common nettle <i>Urtica dioica</i> only on banks. Poor suitability, in most part due to lack of forage and shallow depth.	Poor
Ditch 5	Ditch adjacent to Lombardy Poplar <i>Populus nigra</i> plantation. Variable shape, ca. 6 m from bank to bank with a channel depth of c. 2 m. Contains flowing water to a depth of 15 – 20 cm. Ditch heavily shaded on west side with mature Lombardy poplar. Common nettle dominates both banks. Bank vegetation also includes frequent great willowherb and occasional hogweed. Poor suitability, in most part due to lack of forage and shallow depth.	Poor

4.39 No evidence of otter presence was found. There are few foraging opportunities for otter within the Survey Site, which supports generally intensively managed habitats with few places that otters could use as resting sites. The only exception would be along the access road (northern part of the Survey Site, adjacent to the large water-filled lagoon of Rookery Clat Pit CWS (northern lagoon). It is also relevant that ditches within the Survey Site have limited connectivity to suitable habitats in the wider area.

#### Other protected and notable mammal species

4.40 Records for all of the following species have been revealed during the desk study, and are listed as Species of Principal Importance on s. 41 of the NERC Act 2006. During the surveys conducted in 2014 surveyors were vigilant to the potential presence of these species across the Survey Site. Accordingly, when any of these animals (or evidence of the presence of an animal) was seen a record was duly made, the results of which are annotated on Figure 6 (Appendix 1).

#### Brown hare

4.41 Three brown hare *Lepus europaeus* were recorded on site during an initial walkover survey of the Project Site (BSG Ecology, 2014).

4.42 During the targeted surveys in spring and summer 2014, a further nine records of brown hare were made within the Project Site, and one approximately 100 m to the south. These records were made over four different survey visits: 17 April (5 observations), 14 May (1 observation), 19 May (1 observation) and 30 July (3 observations).

4.43 This species is common and widespread in the UK where they are most common in arable areas where cereal growing predominates (Harris & Yalden, 2008). The majority of the records made were of animals within arable fields, albeit close to field margins, near hedgerows or the railway corridor.

#### Hedgehog

4.44 The closest record of a hedgehog *Erinaceus europaeus* provided in the results of the desk study was approximately 190 m to the west of the Survey Site. Hedgehogs are found in most lowland habitats but have a preference for grassland in close proximity to woodland, scrub or hedgerows (Harris & Yalden, 2008).

4.45 No incidental observations of hedgehog were made during the 2014 surveys.

### Harvest Mouse

- 4.46 The harvest mouse *Micromys minutus* favours areas of tall, dense grassy vegetation with breeding nests often constructed in cereal crops, long grass, reed beds, rushes and bramble patches (Harris & Yalden, 2008). This species was identified in the north of the Survey Site during clearance of the arable/ruderal habitats in autumn 2012 as part of the great crested newt licence works (Steven Foot, pers comm).
- 4.47 Some of the denser marginal vegetation adjacent to the proposed access track, the field margins and within the understorey of the plantation mixed woodland in the centre of the Survey Site has the potential to support this species; however, no incidental observations of harvest mouse were made during the 2014 surveys.

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## **Appendix 1: Figures**

Figure 1: Badger Survey Results (CONFIDENTIAL)

Figure 2a: Bat Activity Results - North: May and July

Figure 2b: Bat Activity Results - South: May and July

Figure 3: Building Inspection Results

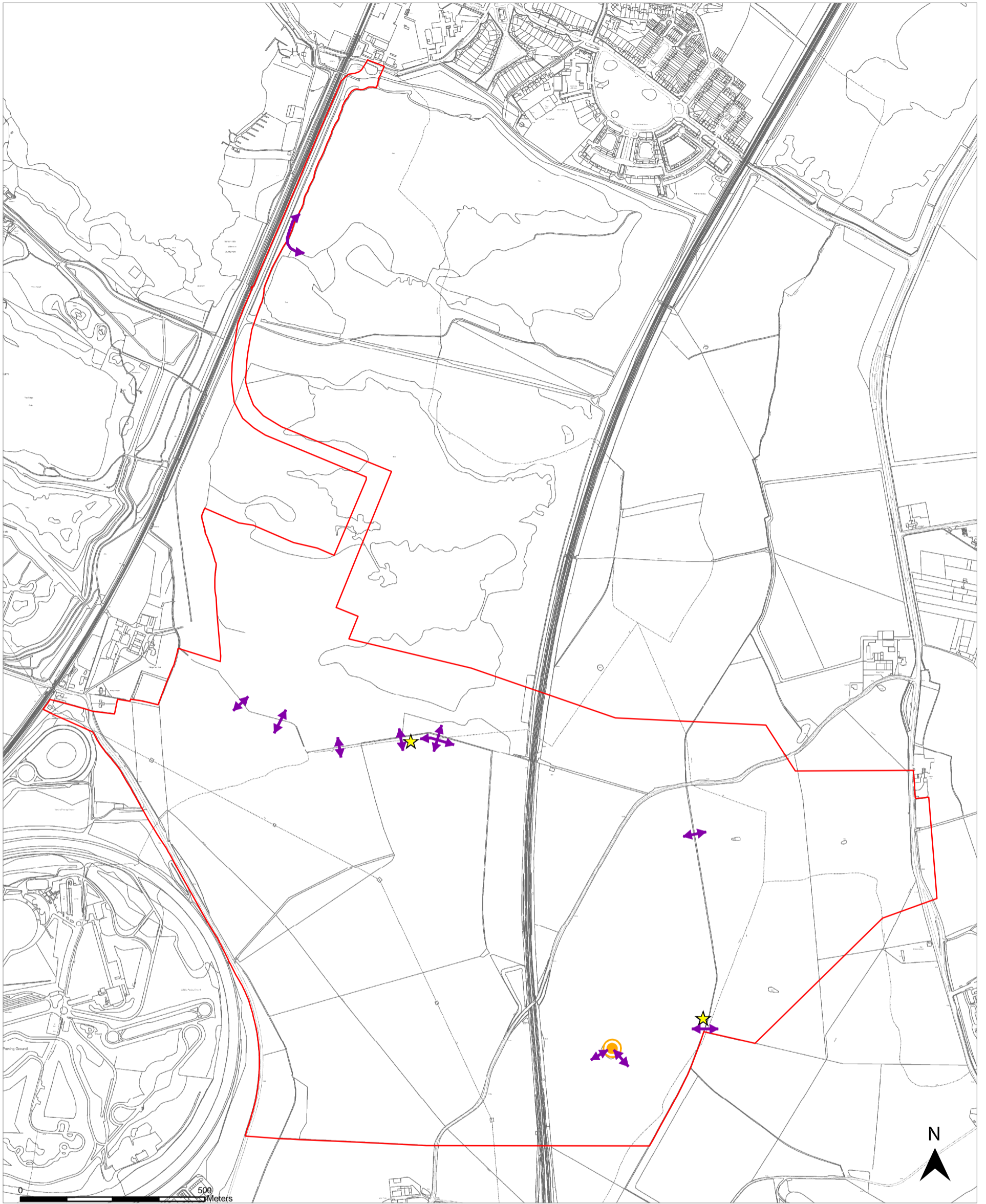
Figure 4: Bat Emergence/Re-entry Survey Results South Pilling Farm

Figure 5: Ditches Surveyed for Otter and Water Vole

Figure 6: Incidental Records of Other Notable Mammal Species



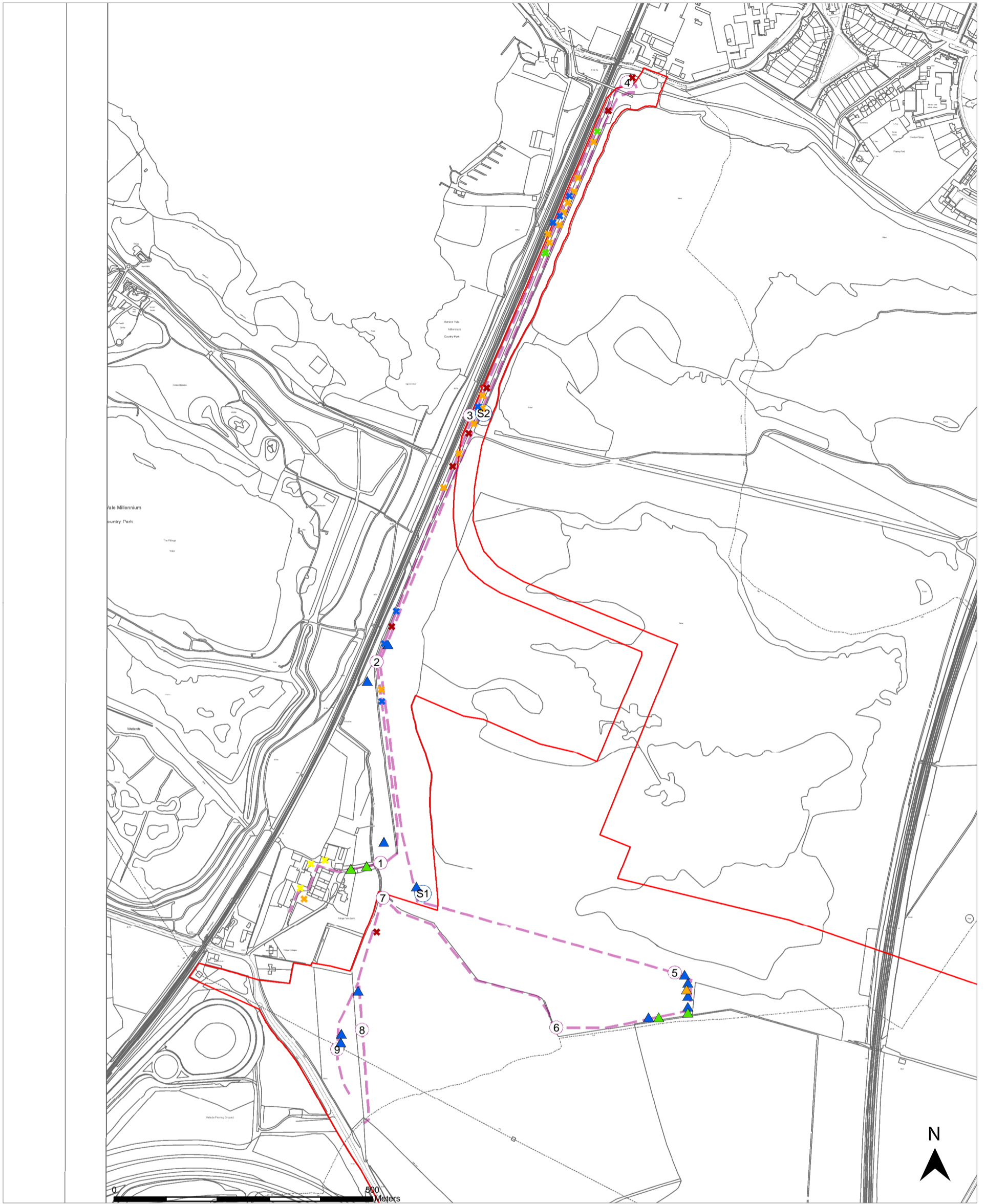
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**LEGEND**

- The Project Site
- ★ Atypical latrine
- ↔ Mammal track (possible badger)
- Badger sett

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MILLBROOK POWER PROJECT

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Fig 2a: Bat Activity Results - North: May and July

DATE: 06.08.2014      CHECKED: IJF      SCALE: 1:7,500  
DRAWN: JW              APPROVED: IJF      STATUS: FINAL

**LEGEND**

- The Project Site
- Bat Activity Transect - North
- 1 Transect Stopping Point
- S1 Statics Detector Location

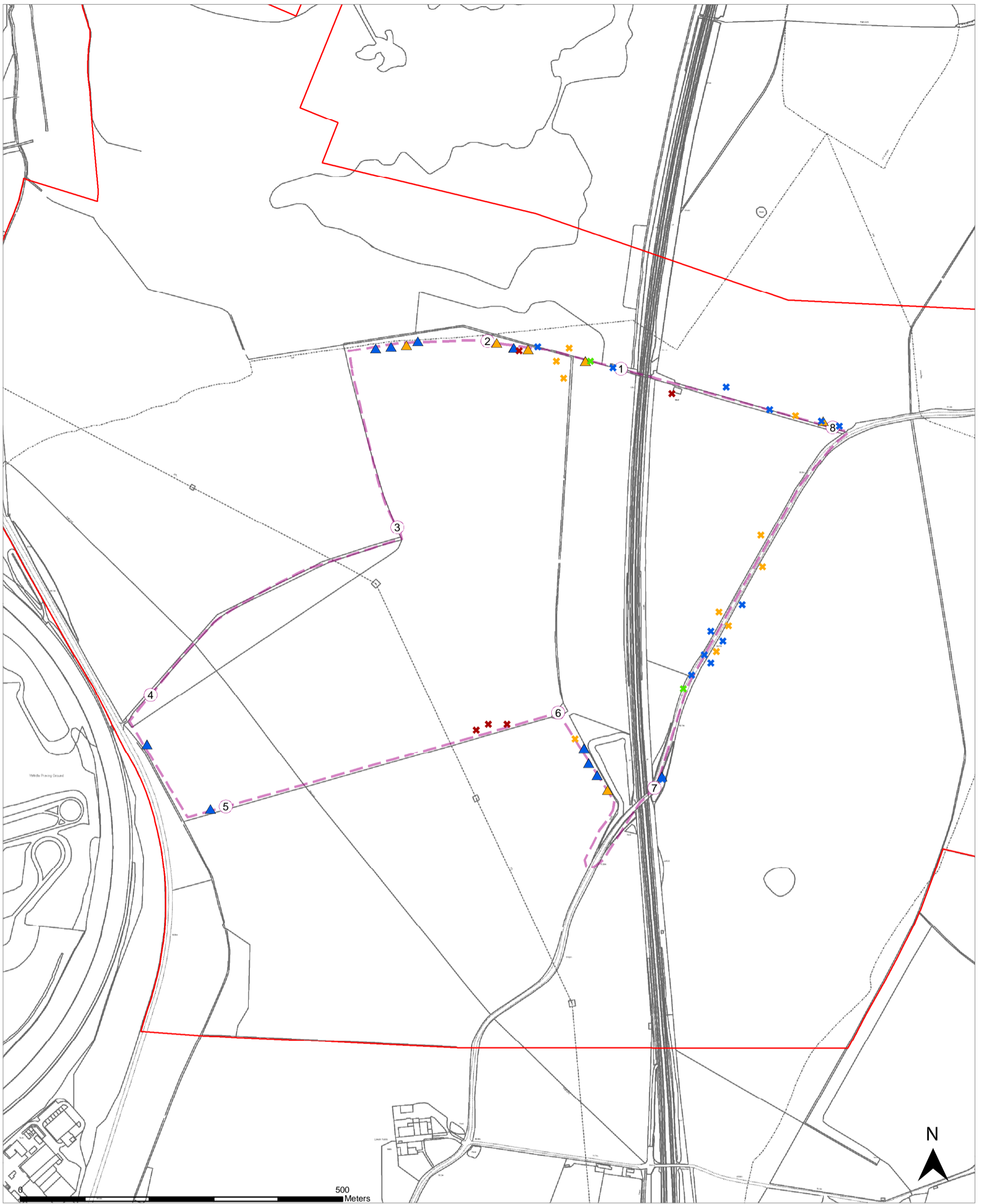
**Bat Activity Transect: May**

- ▲ *Myotis* sp.
- ▲ Common pipistrelle
- ▲ Soprano pipistrelle

**Bat Activity Transect: July**

- ✱ *Myotis* sp., July
- ✱ Nathusius' pipistrelle
- ✱ Common pipistrelle
- ✱ Soprano pipistrelle
- ✱ Noctule

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**LEGEND**

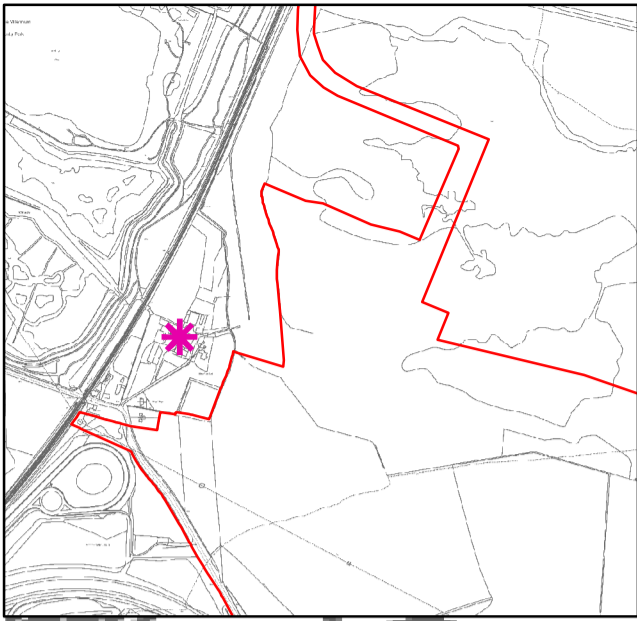
- The Project Site
- Bat Activity Transect - South
- 1 Transect Stopping Point

**Bat Activity Transect: May**

- ▲ Common pipistrelle
- ▲ Soprano pipistrelle

**Bat Activity Transect: July**

- ✱ *Myotis* sp.
- ✱ Common pipistrelle
- ✱ Soprano pipistrelle
- ✱ Noctule



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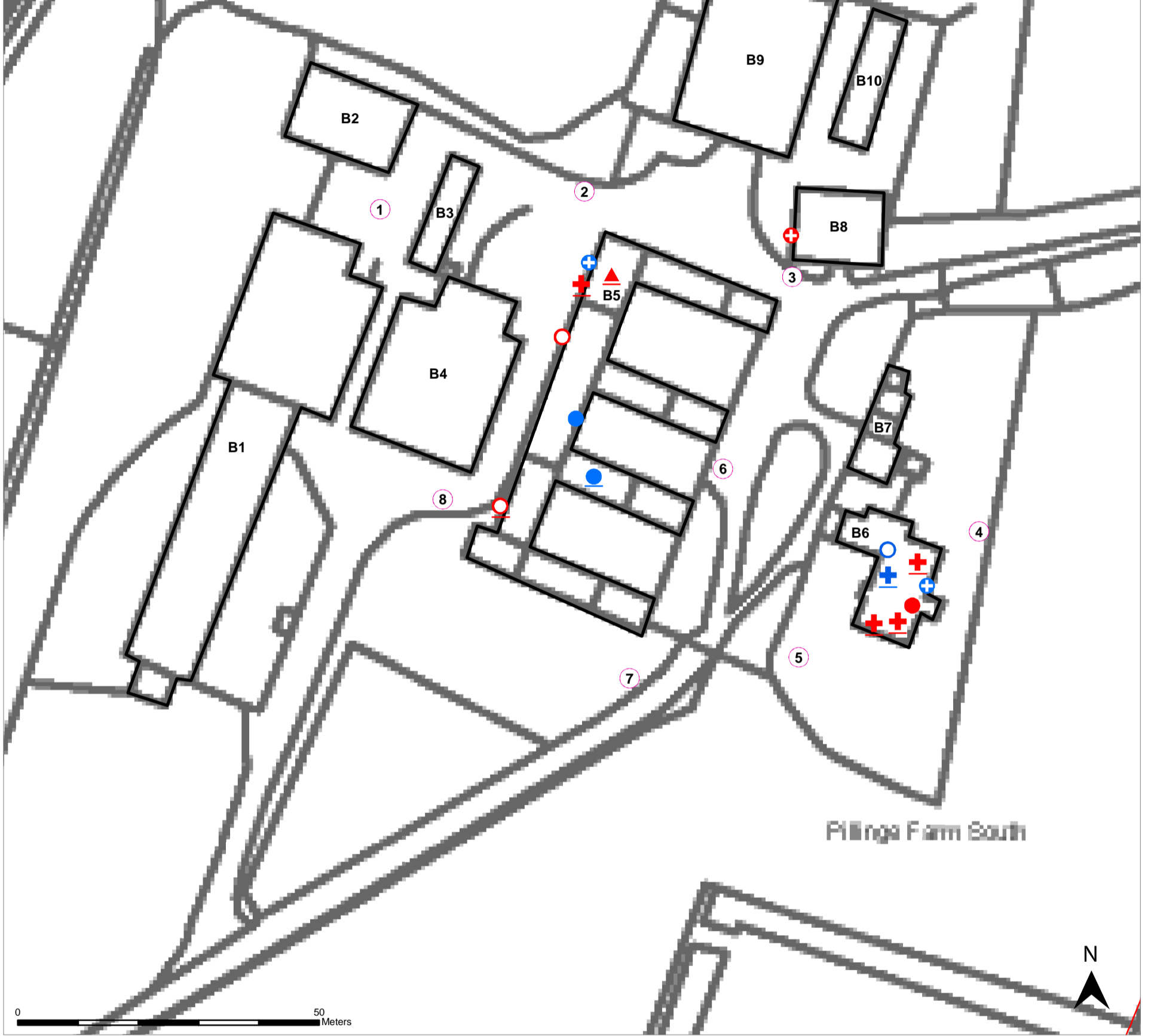
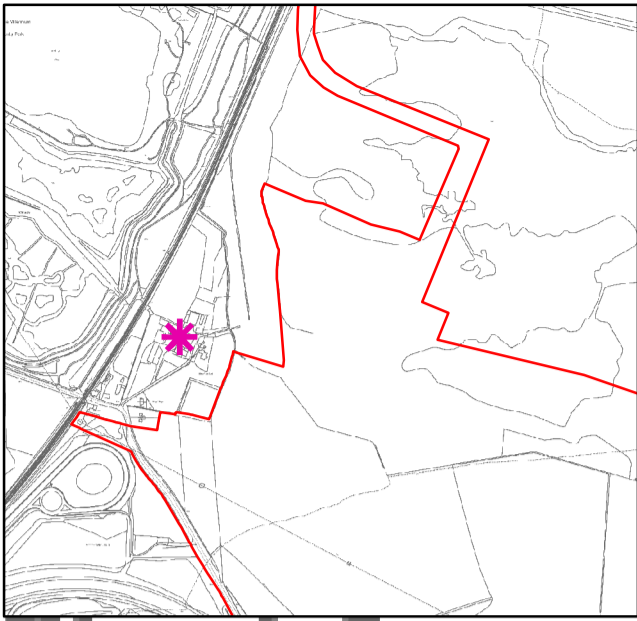
**LEGEND**

- The Project Site
- \* Location of South Pilling Farm

**Suitability of Buildings to Support Roosting Bats**

- High / Confirmed Roost
- Medium
- Low
- Negligible

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PROJECT TITLE  
MILLBROOK POWER PROJECT

DRAWING TITLE  
Figure 4: Bat Emergence/Re-entry Survey Results  
South Pilling Farm

DATE: 11.08.2014

CHECKED: JW

SCALE: 1:750

DRAWN: COH

APPROVED: IJF

STATUS: FINAL

**LEGEND**

- The Project Site
- \* Location of South Pilling Farm
- B1 Building reference and outline
- 1 Vantage point/surveyor location
- Roost emergence/re-entry (confirmed)
- Roost emergence/re-entry (probable)

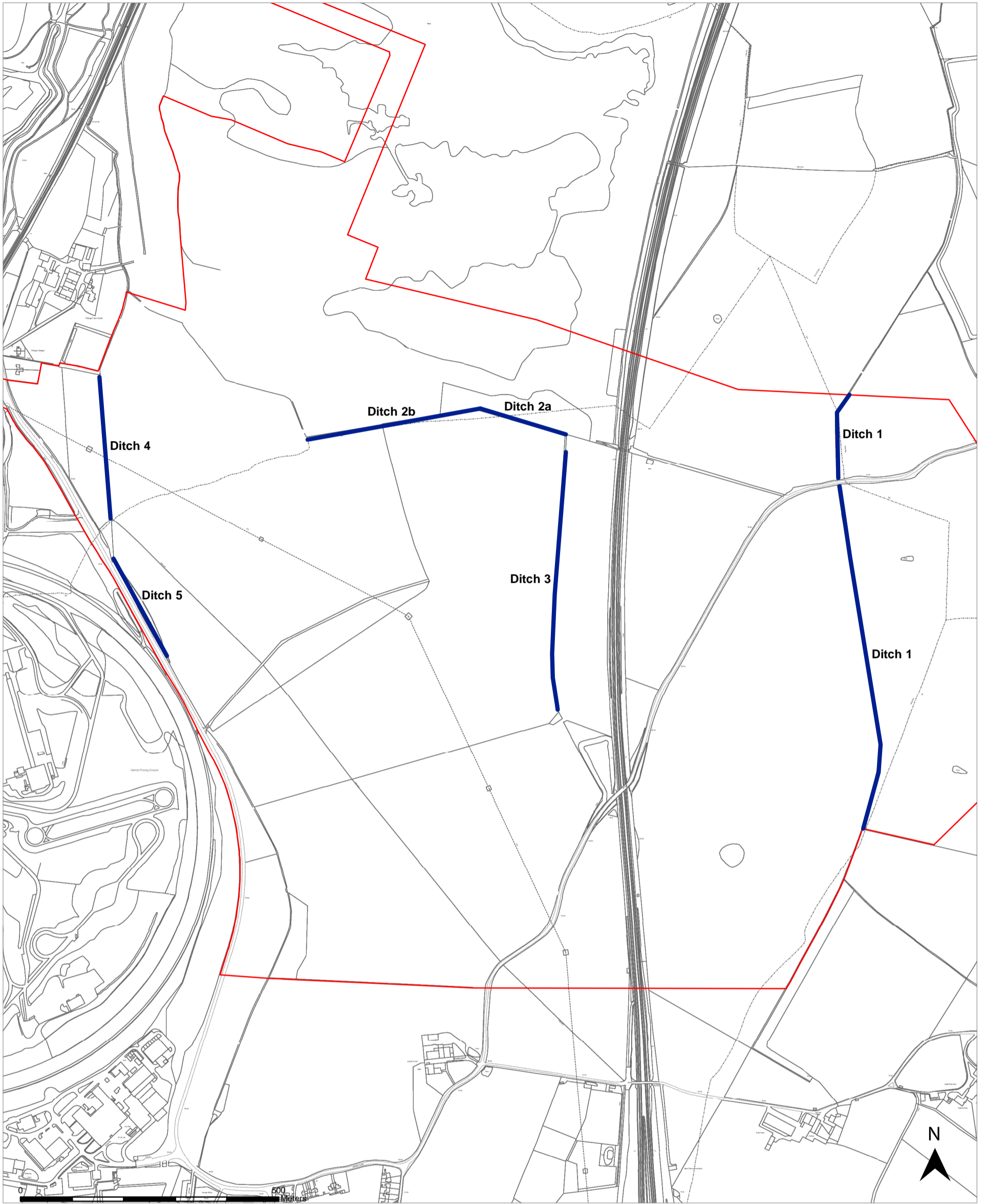
**Roost re-entry points (23/07/14)**

- ▲ *Myotis* sp.
- + Long-eared bat
- Common pipistrelle
- Soprano pipistrelle
- + Pipistrelle species bat

**Roost emergence points (30/07/14)**

- + Long-eared bat
- Common pipistrelle
- Soprano pipistrelle
- + Pipistrelle species bat

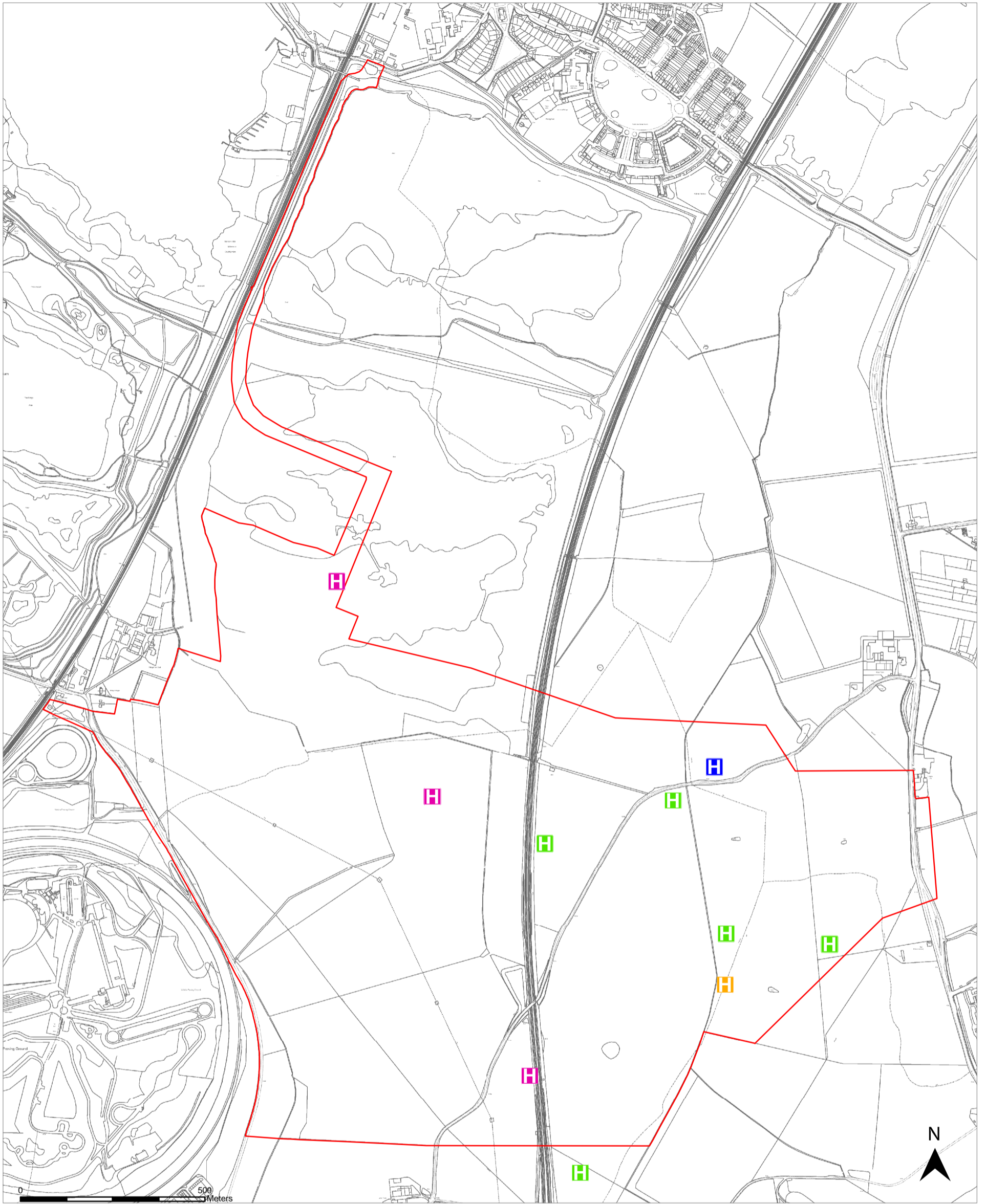
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**LEGEND**

- The Project Site and Survey Site Boundary
- Ditch surveyed for otter and water vole

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**LEGEND**

The Project Site

**Incidental brown hare records and date of observation**

17 April 2014

14 May 2014

19 May 2014

30 July 2014

## **Appendix 10. Ground Conditions**

### **10.1- PBA Phase 1 Ground Condition Report**





# Millbrook Power Project

## Phase 1 Ground Condition Assessment (Contamination and Ground Stability)

On behalf of **Millbrook Power Ltd**

Project Ref: 31116 | Rev: 0 | Date: September 2014

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## Document Control Sheet

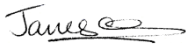

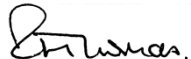
**Project Name:** Millbrook Power Project

**Project Ref:** 31116

**Report Title:** Phase 1 Ground Condition Assessment (Contamination and Ground Stability)

**Doc Ref:** Rev0

**Date:** September 2014

	Name	Position	Signature	Date
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<b>Reviewed by:</b>	Paul Jeffery	Senior Associate		30.09.14
<b>Approved by:</b>	Richard Thomas	LLP Director		30.09.14
<b>For and on behalf of Peter Brett Associates LLP</b>				

Revision	Date	Description	Prepared	Reviewed	Approved
00	30.09.14	FINAL	JG	PJ	RHT

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## Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
1.1	Preamble	1
1.2	Background	1
1.3	Objectives	2
1.4	Site Location and Setting	2
1.5	Low Level Restoration Scheme (LLRS)	3
1.6	Proposed Development	3
1.7	Methodology and Report Format	3
1.8	Sources of Information	5
<b>2</b>	<b>Land Use Information</b>	<b>6</b>
2.1	Introduction	6
2.2	Current Land Use	6
2.3	Summary of On-Site Historical Land Use	7
2.4	Summary of Notable Off-Site Historical Land Uses	8
<b>3</b>	<b>Environmental Setting</b>	<b>11</b>
3.1	Geology	11
3.2	Hydrogeology	14
3.3	Groundwater Conditions	15
3.4	Hydrology – Summary of Surface Water Monitoring Results	15
3.5	Landfill Records	16
3.6	Substantiated Pollution Incidents	16
3.7	Controlled Waters - Groundwater	16
3.8	Controlled Waters - Surface Water	16
3.9	Discharge Consents	17
3.10	Ecological Systems	17
<b>4</b>	<b>Tier 1 Preliminary Risk Assessment</b>	<b>18</b>
4.1	Introduction	18
4.2	Conceptual Site Model	18
4.3	Geoenvironmental Hazard Identification	18
4.4	Hazard Assessment	20
4.5	Risk Estimation	21
4.6	Risk Evaluation	21
4.7	Confidence and Uncertainty	21
<b>5</b>	<b>Preliminary Geotechnical Assessment</b>	<b>23</b>
5.1	Introduction	23
5.2	Implications of Proposed Low Level Restoration Scheme (LLRS)	23
5.3	Potential Ground Settlement	23
5.4	Access Road and Green Lane Junction	24
5.5	Foundations	24

5.6	Floor Slabs and Pavements .....	24
5.7	Clay Volume Change Potential .....	25
5.8	Chemical Attack on Buried Concrete .....	25
5.9	Slope Stability.....	25
5.10	Potential for Hydraulic Uplift.....	26
5.11	Surface Water Disposal.....	26
<b>6</b>	<b>Conclusions and Recommendations .....</b>	<b>27</b>
6.1	Conclusions .....	27
6.2	Geotechnical Conclusions.....	28
6.3	Recommendations.....	28
<b>7</b>	<b>Essential Guidance for Report Readers .....</b>	<b>29</b>
<b>8</b>	<b>References .....</b>	<b>30</b>

## Tables

Table 3.1	Summary of Geological Hazards from Groundsure Report.....	13
Table 3.2	Summary of Hydrogeological Information (Data from PBA 2009a).....	14
Table 3.3	Summary of Hydrogeology and Groundwater Vulnerability Related Information.....	16
Table 3.4	Summary of Surface Water Related Information .....	17

## Figures

Figure 1	Site Location Plan
Figure 2	Site Layout and Exploratory Hole Location Plan

## Appendices

Appendix 1	PBA Methodology for Assessment of Potentially Contaminated Land
Appendix 2	Site Walkover Inspection Photographs
Appendix 3	Envirocheck Report Supplied by Landmark
Appendix 4	On-Site Exploratory Hole Records from 3 <sup>rd</sup> Party Report
Appendix 5	Table of Estimated Risk (Conceptual Site Model)

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# 1 Introduction

## 1.1 Preamble

Peter Brett Associates LLP (PBA) has been instructed by Millbrook Power Ltd (the Client) to undertake a Phase 1 Ground Condition Assessment for an area of land that lies within and around the Rookery South clay pit, approximately 1km to south of the village of Stewartby, in Marston Vale, Bedfordshire. This report has been prepared to support a Development Consent Order (DCO) application to develop the application area for the construction of a proposed gas fired electricity peaking plant.

## 1.2 Background

The Rookery South clay pit (comprising an area of approximately 95 ha) and adjoining Rookery North clay pit (approximately 70 ha), were previously used for clay extraction from the Oxford Clay Formation to use in brick manufacture at the Stewartby Brickworks. The former clay pits have been largely worked out, with basal levels in the Rookery South pit left largely as they were after excavation apart from some minor areas of reworked ground and partial buttressing of the pit edge side slopes to improve their stability. At the time of writing this report the Rookery South pit was disused and partially flooded. A site layout plan is presented as Figure 2.

Clay extraction ceased in 1986 and a programme of restoration has been proposed for the Rookery South pit as a whole by the current site owner O&H Properties Limited. The proposed low level restoration scheme (LLRS) will be implemented prior to the development of the site and will involve the use of soils, overburden and a proportion of the remaining clay reserves to re-profile the base of the pit, and buttress the side slopes to improve their stability. These restoration works are described in more detail in Section 1.5 below.

The wider site area has been the subject of several previous ground investigations and reports compiled by PBA and others. The following sections of the report draw upon previous studies and site investigation information primarily from the following reports:

- CLA 2000. Ground Investigation – Rookery South Proposed Landfill Site, Bedfordshire. Report no: 2690072. March 2000. CL Associates.
- TC 2001. Terraconsult. Slope stability and Uplift Assessment Rookery South Landfill Site, Bedfordshire. May 2001. Ref. 00/039-1.
- PBA 2003 Peter Brett Associates. Slope stability Review, Rookery South. Letter to O+H Hampton Ltd, dated 9 December 2003. Reference 14051/002/SNK/KB/DA.
- PBA 2005. Peter Brett Associates. Strategic Slope Stability Review, November 2005. Reference 13231/CHB/KB/RHT.
- PBA 2008. Peter Brett Associates. Rookery Pit (North and South) – Low Level Restoration Scheme – Geoenvironmental and Geotechnical Desk Study and Phase 1 Ground Condition Assessment. December 2008. Reference 14081 Geo Phase 1/rev 1.
- PBA 2009. Peter Brett Associates. Rookery Pit – Low Level Restoration Scheme – Engineering Statement. April 2009. Reference 14081EngStat R2.
- PBA 2009a. Peter Brett Associates Proposed Resource Recovery Centre – Rookery South, Stewartby. Geoenvironmental and Geotechnical Desk Study and Phase 1 Ground Condition Assessment. Ref 21780/016/DTS/Rev1.

- PBA 2009b. Peter Brett Associates. Proposed Resource Recovery Centre – Rookery South, Stewartby. Report on Geotechnical and Geoenvironmental Ground Investigation. Ref 21780/016/GI/Rev1.
- PBA 2011. Peter Brett Associates. Rookery Pit Low Level Restoration Scheme Planning Permission Ref BC/CM/2000/8 Site Environmental Management Plan. Ref 14081/052/Rev 1.

### 1.3 Objectives

This report presents a Phase 1 ground condition assessment comprising a desk study, site walkover and Tier 1 preliminary qualitative contamination risk assessment and land instability appraisal.

The objective of the Phase 1 is to identify the likely ground conditions and environmental setting that might have associated environmental liabilities or which may affect redevelopment, as well as appraising the likely geological or geotechnical hazards at the site. The Phase 1 desk study and site inspection report is the minimum requirement under the National Planning Policy Framework for land potentially affected by contamination or instability. This will be considered a brownfield development.

It should be noted that this Phase 1 assessment is a land condition assessment and does not purport to be an ecological, flood risk or archaeological survey and additional specific surveys may be required to support a planning application. Guidance on the use of this report is provided in Section 7.

### 1.4 Site Location and Setting

The application land area lies partly within and to the south of the Rookery South clay pit, approximately 1km to south of the village of Stewartby, in Marston Vale, Bedfordshire.

The application area includes a section of land within the Rookery South clay pit that it is understood will house the power generating equipment (The Generating Equipment Site). Adjacent to the north of this there is a small temporary Laydown area that will be used during the construction process. The total Operation and Laydown (Construction) area is around 13 hectares.

The application area also includes a vehicular access corridor road (The Access Route). It runs in a southerly direction from Green Lane along the western perimeter of the Rookery North pit and then descends via an access ramp in the north-western corner of Rookery South pit. It then traverses south at a low level within the base of Rookery South pit to meet the northern boundary of the Generating Equipment Site. The road will be some 1.5km in length.

A large parcel of agricultural land bounding the south of the clay pit is included within the wider application area. This land comprises approximately 215 hectares that will be utilised for a Electrical Connection to the existing 400kV overhead line and a link to the National Transmission System (NTS) gas pipeline, located some 1.2km to the southeast of the Generating Equipment Site site (The Electrical Connection Area). The Electrical Connection routes have not been fully defined and will occupy narrow corridors of land somewhere within this Electrical Connection area.

The remaining parts of the wider Rookery South clay pit bound the immediate northern and eastern boundaries of the operation area, with agricultural land located further to the east of the London to Sheffield (mainline) railway that bisects the site running in a north to south direction. The western boundary of the wider application site is largely bounded by the Bedford to Bletchley ('Marston Vale') railway line and Marston Vale Millennium Country Park, with Millbrook Vehicle Proving Ground located further to the south west.

South Pilling Farm is located to the immediate southwest of the Generating Equipment Site.

This site is currently accessed via a track leading from Green Lane 1.2km to the north of the proposed Generating Equipment Site. The Operation area is centred at National Grid Reference (NGR) TL 012 406. A site location plan is presented as **Figure 1**.

A site layout plan, annotated with features discussed in this report is presented as **Figure 2**.

## 1.5 Low Level Restoration Scheme (LLRS)

Before development of the subject site it is understood that the proposed LLRS for Rookery South will be implemented and will therefore form the baseline conditions for the Project Site. Planning Permission has been granted for the LLRS under application numbers BC/CM/2000/9 and BC/CM/2000/8. In summary the LLRS for the Rookery South pit will comprise:

- 1) Topsoil stripping from an area to the immediate south of Rookery South pit to enable further overburden and clay extraction from this area.
- 2) Excavation of soils, overburden and clay from the southern area to provide engineered clay fill and restoration soils for the re-profiling and buttressing works around the pit edges.
- 3) Re-profiling of the base of Rookery South pit, graded to falls, utilising clay won from the southern area, resulting in topographic levels in the vicinity of the proposed Generating Equipment Site of approximately 30m – 31m AOD.
- 4) Construction of a new vehicular access track into the southwestern corner of the pit to provide low level access to the pit.
- 5) Buttressing of slopes on the southern, eastern and northern sides of the Rookery South pit to provide a slope stabilisation solution to existing slopes.
- 6) Provision of surface water management ditches in the reprofiled pit base discharging to an attenuation pond located in northwest corner of Rookery South pit. The surface water ditches and attenuation pond will include habitat mitigation and enhancement measures.
- 7) Provision of pumping station to enable discharge of collected waters from the attenuation pond to Stewartby Lake with additional provision of a pumped emergency flow to Rookery North and reverse flow drainage

## 1.6 Proposed Development

It is understood the project site will comprise:

- A new Power Generation Plant in the form of a Simple Cycle Gas Turbine (SCGT) peaking power generating station, fuelled by natural gas with a rated electrical output of up to 299 Megawatts (MW). The Power Generation Plant comprises:
  1. Generating equipment including up to five gas turbine generators, up to five exhaust gas flue stacks and balance of plant, which are located within the Generating Equipment Site (together the "Generating Equipment");
  2. A new purpose built access road from Green Lane to the Generating Equipment Site (the "Access Road");
  3. A temporary construction compound required during construction only (the "Laydown Area");



- A new purpose built access road from Green Lane to the Generating Equipment Site (the "Access Road");
- A temporary construction compound required during construction only (the "Laydown Area");
- A new gas connection to bring natural gas to the Generating Equipment from the National Transmission System (NTS) (the "Gas Connection"); and

The Generating Equipment, Access Road and Laydown Area are together known as the "Power Generation Plant", and are located within the Power Generation Plant Site

The Power Generation Plant, Gas Connection, and Electrical Connection, together with all access requirements are referred to as the 'Project' and are all integral to the generation of electricity and subsequent export of that electricity to the NETS. The land upon which the Project would be developed, or which would be required in order to facilitate the development of the Project, is referred to as the 'Project Site' The Project is described in more detail in Section 2, including the options currently under consideration for the Gas Connection and Electrical Connection.

The Power Generation Plant Site is located primarily on land within former clay pits known as 'The Rookery', with the Gas and Electrical Connections extending from The Rookery into adjacent agricultural land.

## 1.7 Methodology and Report Format

The PBA methodology for ground condition contamination assessment is presented in **Appendix 1**.

The underlying principle is the evaluation of *pollutant linkages* in order to assess whether the presence of a source of contamination could potentially lead to harmful consequences. A pollutant linkage consists of the following three elements:

- A source of contamination or hazard that has the potential to cause harm or pollution;
- A pathway for the hazard to move along / generate exposure; and
- A receptor which is affected by the hazard.

For each potential pollutant linkage identified the risk is estimated through consideration of the magnitude of the potential consequences and the likelihood or probability of an event occurring.

This report is divided into chapters identifying potential sources (hazard identification), potential pathway and receptor identification and risk estimation and assessment.

The ground stability assessment includes a review of all the available historical ground investigation information relating to the proposed application site and published information relating to the geoenvironmental setting. The primary geotechnical objective of this study was to undertake an assessment of the geotechnical constraints present at the proposed application site in accordance with NPPF in order to assist with informing the DCO application for future redevelopment of the site.

## 1.8 Sources of Information

Information within PBA archives (See Section 1.2 above) and that readily available in the public domain has been reviewed in order to identify the likely ground conditions at the proposed application site and in the surrounding area.

The following additional sources of information were used in the preparation of this report:-

- Emap Groundsure Report and historical maps (Emap 2014)
- PBA walkover inspection on 4th August 2014 – photographic plates are presented in Appendix 2.
- BGS Geology Map held by PBA
- PBA Cavity Databases (non-coal mining and natural cavities)
- Millbrook Power Project, Environmental Impact Assessment Scoping Report, produced by Orbis Power Ltd (Ref: Orbis P1078/04/01 Rev 09).

## 2 Land Use Information

### 2.1 Introduction

This section presents a summary of current and historical land uses on and immediately adjacent to the Project Site. Land use is used to inform the hazard identification element of the risk assessment.

The current land use information is based on a walkover inspection undertaken by PBA on the 4<sup>th</sup> August 2014. Photographs taken during the site walkover (Plates 1 to 6) are presented in **Appendix 2**.

The historical land use information is based largely on archive information held by PBA, supplemented by Ordnance Survey maps and aerial photography provided by Landmark and presented in **Appendix 3**.

The main features noted during the site walkover are marked on the Site Layout Plan (**Figure 2**).

For simplicity and ease of reading, the site descriptions have been split into three sections; the site of the generating equipment and laydown area (Generating Equipment Site) in the base of the Rookery South Pit, the Access Route providing connectivity between the Generating Equipment Site and Green Lane, and the area of the Electrical Connections adjacent to the south of the clay pit (Electrical Connection Area).

### 2.2 Current Land Use

#### 2.2.1 On-Site – Generating Equipment Site (Generating Equipment Site, Laydown Area)

The Generating Equipment Site of the site lies within the base of the Rookery South clay pit. The pit is currently some 15m lower than the natural surrounding ground level. The base of the pit in this area is roughly level and sparsely vegetated, with no features of note observed within the excavation. The southern part of the site area includes the southern bank of the clay pit, which is again sparsely vegetated. The western bank lies immediately beyond the western boundary of this part of the site, and comprises a split level pit edge slope.

#### 2.2.2 On-site – Access Route

The Access Route to the Generating Equipment Site is located in the base of the Rookery South pit at its southernmost extent. The access road then turns west and curves to the north and runs along the western site boundary between Rookery North Pit lake and the Bedford to Bletchley railway line, that is currently occupied by an access track and a hedgerow running alongside the railway line. The Access Route meets Green Lane at its northernmost extent.

#### 2.2.3 On-Site – Electrical Connection Area

The section of the site currently comprises agricultural land located adjacent to the south and southeast of the Rookery South clay pit. The land comprises around sixteen discrete fields. At the time of the walkover the land was mainly cropped with wheat.

The land rises to the crest of a hill some 600m to the south of the clay pit with maximum elevation of around 71 mAOD. This higher ground generally runs in a northwest/southeast direction, with land falling to the north towards the clay pit.

The London, Midland and Scottish mainline railway line runs through the central parts of this site area in a north-south direction. Millbrook Road also crosses the eastern portion of this site

area, orientated in a northeast-southwest direction; Millbrook Road crosses the mainline railway some 400m to the north of the southern site boundary.

33kV electricity pylons cross part of the Electrical Connection area. These enter along the central southern boundary of the site some 100m to the west of the railway. The pylons run in a north-westerly direction and exit the site boundary immediately to the south of South Pilling Farm.

Two small watercourses (drainage ditches) are marked on the OS map as flowing through this land, one parallel to the west of the railway and another 500m to the west of the railway

#### 2.2.4 Off-Site Generating Equipment Site

- North: The remainder of the Rookery South clay pit bounds the north of the Generating Equipment Site site, beyond which is the Rookery North pit, Green Lane and the redundant Stewartby Brickworks site. Stewartby Village lies adjacent to the north of the Rookery North pit some 1200m to the north of the Generating Equipment Site.
- East: The remainder of the Rookery South Pit bounds the east of the Generating Equipment Site, beyond which is a railway line and agricultural land.
- West: The western edge of the Rookery South Pit bound the west of the Generating Equipment Site, beyond which there is a railway line and the Marston Vale Millennium Country Park.
- South: The south of the Generating Equipment Site is bound by the Electrical Connection area that largely comprises the southern edge of the Rookery South pit and agricultural land.

#### 2.2.5 Off-Site - Generating Electrical Connection Area

- North: Generating Equipment Site comprising the Rookery South pit and agricultural land to the east of the railway.
- East: Predominantly agricultural land
- South: Predominantly agricultural land
- West: South Pilling Farm, Station Lane, immediately beyond which Millbrook Vehicle Proving Ground is situated.

### 2.3 Summary of On-Site Historical Land Use

#### 2.3.1 Electrical Connection Area

- The earliest available historical map (1883/1884) shows the Electrical Connection area to be undeveloped and comprise around twenty agricultural fields. The London, Midland and Scottish Railway is shown to bisect the eastern part of this land orientated in a north-south direction. Millbrook Road is marked within the eastern part of this area crossing the railway line via a bridge within the southeast corner. A small house and a well are marked close to the southern boundary adjacent to the east of Millbrook Road. Several drains running along field boundaries and tracks cross the area as well as two footpaths. An area of woodland in the south-western quadrant occupies approximately a fifth of the site area. Around eight small ponds are present within the eastern third of the site, possibly for livestock purposes.
- The next available map dated 1901 shows few on-site land-use changes. A small (70m x 100m) area of raised land labelled as 'Rises' is marked adjacent to the west of the railway line, close to the Millbrook Road bridge crossing. It is unclear from the map what this is used for.

- No further on-site land-use changes could be identified until the map dated 1978, whereby electricity pylons and associated cables are marked crossing this part of the site. The route of the pylons enters the site along the central part of the southern boundary and exits along the western boundary, 200m to the south of South Pilling Farm.
- On the map dated 1990 the small ponds are no longer marked, and are assumed to have been infilled
- The 2006 map indicates that some of the field boundaries have been removed to make way for larger fields. The field drainage is more clearly marked with a drain running from close to the railway bridge in a northerly direction to the edge of the Rookery South clay pit, then turning in a westerly direction towards South Pilling Farm.
- The 2014 map shows no changes in land-use except for a 'mast' that is shown to have been erected adjacent to the east of the railway in the north of the site area.

### 2.3.2 Generating Equipment Site

- The earliest available map indicates this area of the site falls within the boundaries of four agricultural fields. Two farm tracks originating from South Pilling Farm cross this area.
- No land use changes are marked in this area of the site until the map dated 1982. This map shows that this part of the site and the extreme north of the Electrical Connection area is occupied by a clay pit, extending beyond the north of the site area and forming part of the wider Rookery South clay pit.
- By 2006 the clay pit is marked as disused with no features whatsoever marked within this part of the site, understood to now occupy part of the base of the clay pit.

### 2.3.3 Access Road

- The earliest available map (1883) shows the proposed route of the access road to run alongside the Bedford Branch of the London and Northwest Railway, through four agricultural fields. No further features of note are marked within this site area.
- No changes in on-site land use are marked until the map dated 1982. This area of the site now lies wholly within the clay pits of Rookery South and Rookery North (marked as disused). A conveyor and an access track are marked running along the western pit boundary, these fall within the boundary of the access road where it follows this part of the site. An electrical substation is also marked within this area located some 300m to the south of Green Lane adjacent to the access track.
- The Map dated 2006 indicates that the part of the site which falls within the Rookery North pit is occupied by water, expected to be the flooded base of the clay pit. The conveyor remains along the western boundary although it is now shown to run in an easterly direction at the junction of the Rookery South and Rookery North pits. The base of the Rookery South pit is not shown to be flooded at this time.
- The next available map (2014) shows little change in the land use of this part of the site. Some water is now shown within the base of the Rookery South pit, and this is shown to underlie the eastern extent of this access road.

## 2.4 Summary of Notable Off-Site Historical Land Uses

- The earliest available Ordnance Survey maps from 1889 – 1892 show that the proposed application site was situated in open agricultural land. The railway lines that border the Rookery Pits were already constructed at this time and Millbrook Station had been developed (700m to the southwest of the Generating Equipment Site) in association with the western railway line. The

Morteyns Arms Inn was also present adjacent to the station at this time. The settlement of 'Wooton Pillinge' is marked approximately 1.2km north of the proposed application site, and to the north of that, the early stages of the Pillinge Brickworks are shown (approx 1.8km N of the Generating Equipment Site). A group of buildings labelled as 'Pillinge Farm South' were located 400m to the southwest of the Generating Equipment Site and 'Magpie Hall' was situated 400m to the east of the Generating Equipment Site. A number of footpaths and land drains ran across the area.

- The maps from 1901 show some small developments at the Millbrook Station with construction of a 'goods shed'. The 'Pillinge Brickworks' are shown to have undergone expansion, with two new clay pits shown adjacent to the railway line. Two semi-detached properties, marked as 'Pillinge Cottages', are also shown on the 1901 maps approximately 150m south of Pillinge Farm South.
- A 'Brickworks' is first noted on the 1902 map approximately 500m to the north of the Green Lane. Expansion of this brickworks site takes place over the subsequent decades, with an engine house marked by 1927. The clay pits adjacent to the west of the brickworks site are shown to have expanded and have reached their maximum extent by 1927. Significant expansion of the site is shown on the map dated 1938 with the Pillinge Brickworks site now renamed as the Stewartby Brickworks occupying a large area of land to the north of Green Lane. Continued expansion is shown up until the map dated 1983. By 1983 the site occupies an area of some 700m x 1800m with numerous chimneys, tanks kilns and conveyors marked. The Brickworks site now bounds the land adjacent to the north of Green Lane, some 50m to the north of the northern boundary of the proposed access road for the subject site.
- The 1938 maps show the start of construction of the village of Stewartby immediately to the north of Rookery North (1.2km N of the Generating Equipment Site).
- The commencement of clay extraction from Rookery North occurred in around 1960 with excavations starting in the north and progressing southwards. The excavations within Rookery North were nearing completion at the southern extent of the pit by the early 1970's. Further excavations progressed on the southern side of the central causeway within the Rookery South Pit and continued up until about 1986.
- Station Road was constructed in the early 1970s, connecting the town of Millbrook (to the south of the Generating Equipment Site) with Millbrook Station (to the southwest of the Generating Equipment Site).
- South Pillinge Farm was extended with construction of seven new outbuildings in the late 1970s. Pillinge Cottages (two semi detached properties), situated 140m south of the farm buildings, and an electrical sub-station, situated 250m north of the farm buildings, were also constructed at this time.
- Anecdotal accounts and review of historical aerial photographs suggest that the Rookery North pit was partially backfilled during the period from about 1971 to 1997. The Envirocheck report has indicated that the Rookery North pit was licensed as a 'co-disposal landfill'. Further details provided by the Environment Agency have indicated that non-hazardous organic waste from a variety of local industrial sources were mixed with surface waters from the Rookery Pit and 'Callow' deposits (see Section 4) and pumped into the base of the pit. The licensed area for these operations covered all of the Rookery North pit and the northern third of the Rookery South pit. A copy of the Environment Agency plan showing the extent of the licence boundary shows details of the waste sources as follows: non-notifiable mineral wastes (including 'neosid' ferrite sludge, lime and water from water softening treatments and Hargreaves fertiliser waste), food wastes (from Coca Cola, Rosa Poultry, Telfers and Unilever), leather wastes and gelatine wastes from 'Croda'.
- The 1983 maps show expansion of the village of Stewartby and the Stewartby Brickworks, to the north of the proposed application site. The brick pit adjacent to the Stewartby Brickworks is now shown to be partly occupied by land and development of a large open area marked as a 'vehicle proving ground' 750m to the southwest of the proposed application site. The pits previously excavated to the northwest of the proposed application site are shown to be flooded and are

marked as 'Stewartby Lake'. Just to the south of Stewartby Lake, and to the west of the proposed application site, an additional lake is present. This area was further altered in the period between 1999 and 2008 when additional lakes had been created as wetland habitats (the 'Marston Vale Millennium Country Park').

- An engineering works is noted some 250m to the southeast of the site boundary of the Electrical Connection area, marked within Reddings's Wood. Further expansion is shown on the map dated 1978 along with a factory. By 1990 several new buildings have been constructed, with the site now marked as an Engineering Research Establishment.

## 3 Environmental Setting

### 3.1 Geology

#### 3.1.1 Geological Map and Regional Geology

According to the British Geological Survey (BGS) Geological Maps (1:50,000 Sheet 203 and 1:10,000 Sheet TL 04 SW) the solid geology of the area generally consists of the following sequence of strata:

- The Peterborough Member of the Oxford Clay Formation (highly plastic fossiliferous clay);
- Underlain by the Kellaways Formation (sandy clays and clayey sands of the Kellaways Sand Member with an underlying stiff shelly clay called the Kellaways Clay Member);
- Underlain by the Cornbrash Formation (limestone) and the Blisworth Clay Formation and Blisworth Limestone Formation at depth.

In the area of the proposed electrical Electrical Connection apparatus in the south of the site the geological map records unworked Oxford Clay comprising the Stewartby Member and the Weymouth Member which underlies the vast majority of this area. The Peterborough Member of the Oxford Clay is shown to outcrop in the northwest corner of the Electrical Connection area.

Small sections of the site area are indicated by the map as having superficial Quaternary Valley Gravel and Alluvium present, associated with former and current streams adjacent to the east of the railway line, albeit some of these deposits may have been removed by the more recent clay extraction works. A further tract of alluvial deposits is shown on the geological map being present adjacent to the east of South Pillinge Farm. Quaternary head deposits comprising clay, silt, sand and gravel are also marked in some parts of the site, namely along the southwestern boundary adjacent to south Pillinge Farm and another area in the southeast of the Electrical Connection area adjacent to Millbrook Road, and along Amphill Road.

Superficial Deposits and weathered Oxford Clay were unsuitable for the brickmaking process and this material was removed and cast back into the pit. Locally it was called Callow and for the purposes of this report is called Callow, when in-situ, and Callow Clay Fill, when disturbed and placed at a new location. The Callow Clay Fill sometimes contains brick fragments because broken brick rubble was used for making temporary pads and machinery stands. Generally excavations left around 0.5 to 1.0m of remnant Oxford Clay in the base of the pit overlying the Kellaways Sand, although this was dependant on the workmanship of the machine operators and in places the layer of remnant clay is thicker or absent.

The unweathered Oxford Clay was called Knotts by the local brickmaking industry. The Oxford Clay Formation supported a major brickmaking industry locally because its high organic content reduced the amount of fuel required to 'fire' the clay, and its carbonate content was ideally suited to brickmaking.

Historical clay extraction from the Rookery Pit has resulted in ground levels in the base of the pit some 15m – 25m lower than the surrounding ground.

#### 3.1.2 Site Specific Ground Conditions from Previous Ground Investigations

Information on the ground conditions from within the site have been taken from CL Associates (2000) and with reference to wider BGS records, and other studies undertaken by PBA in the vicinity of the site within Rookery South and North pits including PBA (2009b) and PBA (2011).



Copies of the exploratory hole records that fall within or close to the site area are presented in **Appendix 4**.

#### Electrical Connection Area

Exploratory hole records for this area are only present in the northwestern corner of this part of the site. The records from within this area confirm the presence of 'reworked topsoil' comprising soft brown slightly sandy slightly gravelly clay to around 0.2m bgl. This was reportedly underlain by weathered Oxford Clay comprising soft and firm light orange brown mottled slightly sandy clay proven to around 3.5m bgl. This was underlain by Oxford Clay recorded as firm dark green brown laminated very silty clay proven in the boreholes to depths of between 13.8m bgl (BH4) and 20.5m bgl (BH6). The Kellaways Formation was identified underlying the Oxford Clay, recorded as interbedded dark grey sand and firm grey green clay with occasional shell fragments. The Kellaways Formation was proven to between 19.75m bgl and 24.65m bgl in the areas investigated. The Cornbrash Formation recorded as dark grey fine to medium grained muddy limestone was identified underlying the Kellaways Formation, and was proven to a maximum depth of 24.9m bgl (BH6).

#### Generating Equipment Site and Access Road

On the basis of the available exploratory hole records, the strata thicknesses in the base of the pit are expected to be variable, although consistent in terms of sequencing. Made Ground in the form of Callow Clay fill was reported in several of the exploratory holes proven to a maximum depth of 4.70m in TP14, the base of the Made Ground was not proven in this location. In general the thicknesses of Made Ground (recorded as reworked clay comprising firm grey brown slightly gravelly cobbly clay) appear to be greater towards the centre of the pit. Where the exploratory holes are closer to the edges of the pit, the thicknesses of Made Ground are less or it is altogether absent. In BH13 Made Ground was recorded to a depth of 0.45m bgl, underlain by Oxford Clay proven to a depth of 4.0m bgl. This was underlain by the Kellaways Formation proven to 8.4m bgl, and then by the Cornbrash Formation proven to a depth of 8.8m bgl. The base of the Cornbrash was not proven.

Since the base of the pit is roughly level, on the basis of the exploratory hole records it is anticipated to be underlain by a thickness of either around 4m of Callow Clay or remnant Oxford Clay or a combination of the two depending on the location within the base of the pit.

### 3.1.3 Slope Stability

#### Rookery South

At the time of the site walkover the majority of the western face of the Rookery South pit was observed to be formed at angles of 1Vertical(V):2Horizontal(H) to 1V:3H. The slope here rises from the base of the pit at approximately 26m AOD to 28m AOD to a bench level at approximately 38m AOD. The upper bench is approximately 30m in width, with a second slope further westwards rising to the perimeter level at approximately 42m AOD at an angle of approximately 1V:2.5H.

On the northern section of the western face, in the vicinity of the proposed access ramp, the slope profile is formed at characteristically lower gradients. The toe of the slope is situated along the same alignment as the section further south but the width of the upper bench is reduced from 30m to approximately 12m. The resultant slope is at a lower gradient than that further south and is formed at angles of 1V:3.5H to 1V:4H.

Inspection of the western pit face has not revealed the presence of significant failures other than minor slope wash and sloughing in the exposed face in places.

#### Rookery North

Within the Rookery North pit the southern and eastern pit faces have all been modified by the placement of sludge fill material covered with Callow Clay Fill in the base of the pit, forming shallow gradient slopes of around 1V:16H, that fan out from apparent deposition locations in

the south-eastern parts of the pit. These deposits typically extend part way up the pit faces but in the south-eastern corner of the pit, the bank of deposits extends up to the level of the central causeway at approximately 52m AOD. The western and north-western faces, where they boarder to the access road, appear to be at their as cut angles of approximately 1V:2H to 1V:3H. However, the full height of these faces is obscured by the water body in the pit and only the Callow faces can be seen.

Several small scale failures were noted within the exposed Callow faces along the central parts of the northern wall, i.e to the east of the new junction and access road. These small scale features have resulted in near vertical back scars of typically 1m – 2m in height. These failures coincide with the water levels within the lake and appear to represent a wave cut platform formed as a result of wave erosion affecting the stability of the Callow material.

### 3.1.4 Naturally Occurring Geological Hazards

An assessment of potential geological hazards that may give rise to instability or adverse foundation or construction conditions as supplied by the British Geological Survey (BGS) from their National Geoscience Information Service (NGIS) are presented in the Envirocheck Report reproduced in **Appendix 3**. The generic assessment is generated automatically based on digital geological maps and the scope and the accuracy is limited by the methods used to create the dataset and the excavations and landform modifications undertaken at the site. The BGS dataset is therefore only relavent for the search area.

The information contained in the Groundsure Report has been reviewed and where considered necessary reassessed considering the specific information available for the site. The modified assessment of the potential for geological hazards to be present on the site is summarised in **Table 3.1** below.

Table 3.1 Summary of Geological Hazards from Groundsure Report

Hazard	BGS-NGIS Assessed Hazard Potential	PBA Assessment
Coal Mining Affected Areas	Not Affected	Agree
Collapsible Ground Stability Hazards	Very Low	Agree
Compressible Ground Stability Hazards	Very Low to Moderate	Agree – see below
Dissolution Hazard	No Hazard	Agree
Landslide Ground Stability	Very Low to Moderate	Agree – see below
Running Sand	No Hazard to Very Low	Agree
Shrinking or Swelling Clay	Moderate	Agree

PBA would generally agree with the above assessments indicating that the site generally has a low or very low potential for being affected by the majority of geological hazards.

The exceptions to this are hazards associated with landslide ground stability which are anticipated to be related to the slopes of the Rookery South clay pit that cross part of the subject site.

Given the implementation of the Low Level Restoration Scheme before commencement of the project, this risk will be reduced to the level of very low through the regrading of the side slopes of the pit to a slope angle that will provide long term stability.

Compressible ground stability hazards are highlighted as moderate owing to the presence of callow clay fill within the base of the clay pit. Some of this fill will be in its ‘as placed’ un-engineered condition and will be susceptible to long term consolidation settlement under its self-weight and/or any surface applied loads. Some engineered fill will be placed over the areas of callow clay fill to deliver the LLRS. PBA would tend to agree with this assessment on the basis of the exploratory hole records present within the site footprint, that suggest variable

proportions of compressible callow clay fill up to 4m thick may underlie parts of the Generating Equipment Site.

### 3.1.5 Radon

The Indicative Radon Atlas of England from Public Health England indicates the site is located in an area where no radon protective measures are necessary in the construction of new dwellings or extensions.

### 3.1.6 Natural and Non-Coal Mining Cavity Records – Cavity Searches

A search of the PBA Natural and Non-Coal Mining Cavities Databases indicates that there are no known cavity locations within 2000m of the site boundary.

## 3.2 Hydrogeology

According to the Environment Agency website, the Oxford Clay, Kellaways Clay and the Blisworth Clay Formations are classified as Unproductive Strata, with the Cornbrash Formation a Secondary A Aquifer and the Blisworth Limestone Formation and Kellaways Sand a Principal Aquifer.

The clayey deposits of the Callow Clay Fill, Oxford Clay, Kellaways Clay and Blisworth Clay Formation have been shown to be of extremely low permeability and can be considered as being aquicludes. Whilst the Kellaways Sand and Cornbrash Formation are classified as Minor Aquifers, they have been shown by extensive investigation for the brickmaking, landfill/waste deposition industry and other developments, to be insignificant for water resources purposes in this region due to their limited thickness, low permeability and poor water quality. These formations are considered herein to act as aquitards. The Blisworth Limestone Formation has been shown to be of a slightly higher permeability but also of naturally poor water quality.

The elevation of the base of the pit inside the development area is between 27m and 30m AOD, and once the LLRS has been implemented the base of the pit is expected to lie between 31.6m and 31.0m AOD. Piezometric levels underlying the pit floor have been recorded at approximately 28m AOD to 29.5m AOD in the Kellaways Sand, approximately 27m AOD – 29.5m AOD in the Cornbrash Formation and approximately 30m AOD – 32m AOD in the Blisworth Limestone Formation. Although there is no evidence at all to suggest that hydraulic uplift (or heave) caused by groundwater pressures has occurred in the pit base in the past, assessments of the potential for hydraulic uplift have shown that the factor of safety is acceptable and there is no risk of heave occurring once the LLRS has been implemented. These assessments are given in PBA 2009 and PBA 2009b.

A summary of the permeabilities of the strata underlying the site and the respective groundwater elevations are presented in Table 3.2 below.

Table 3.2 Summary of Hydrogeological Information (Data from PBA 2009a)

Strata	Recorded Groundwater Elevation (mAOD)	Recorded Permeability Range K (m/s) from PBA 2009b
Callow Clay Fill	Limited perched water only	$1.5 \times 10^{-10}$ to $9.5 \times 10^{-11}$
Oxford Clay Formation Knotts		$1.1 \times 10^{-10}$ to $5.2 \times 10^{-11}$
Kellaways Sand	28.36m to 29.71 mAOD	$1.1 \times 10^{-8}$ to $1.1 \times 10^{-10}$
Kellaways Clay		$4.2 \times 10^{-11}$
Cornbrash Formation	29.41 to 26.84 mAOD	$<9.4 \times 10^{-8}$ to $5 \times 10^{-9}$
Blisworth Clay Formation		$5.7 \times 10^{-11}$ to $6.1 \times 10^{-12}$
Blisworth Limestone Formation	30.46 to 32.63 mAOD	$1.1 \times 10^{-6}$ to $7.7 \times 10^{-7}$

### 3.3 Groundwater Conditions

In general, groundwater quality in the Kellaways Sand, the Cornbrash Formation and the Blisworth Limestone Formation in the region has been identified as being poor with saline conditions reported from the majority of reports and investigations (PBA, 2009b).

Historical monitoring of water quality within the Kellaways Formation and the Blisworth Limestone Formation (undertaken on 15 occasions during the period February 2000 – November 2002 by CLA within the monitoring boreholes installed as part of the CLA (2000) investigations) has confirmed that the quality of the groundwater within the Kellaways Formation and the Blisworth Limestone Formation is similar in nature, and is generally poor with elevated concentrations of electrical conductivity, chloride, sulphate, ammoniacal nitrogen, boron and zinc when compared to the relevant assessment criteria.

The historical groundwater monitoring data has been supplemented by groundwater samples taken from the Kellaways Formation as part of the PBA 2010 investigation from a total of three locations on two occasions. The results from the recent groundwater monitoring are included within Appendix 3. In general, the recent groundwater quality data is similar to that previously recorded by CLA. During the PBA 2010 investigation, hydrocarbon analysis of the groundwater retained from the Kellaways Formation from BH103 (on one occasion) recorded a concentration of 0.026mg/l. A subsequent sample was taken from the same borehole and the result showed a concentration below the detection limit. It is likely that the initial concentration was the result of remnant dilute drilling fluid within the borehole at the time of sampling on the first occasion, which has now been removed by the sampling and purging process.

In summary, the quality of the groundwater recorded is considered to be naturally occurring and typical of baseline conditions in similar geological settings. There are no indicators of anthropogenic contamination.

### 3.4 Hydrology – Summary of Surface Water Monitoring Results

Assessment of the quality of the surface water bodies in the vicinity of Rookery Pit has been undertaken since 1999. During this time surface water samples have been taken from the lakes in Rookery South and Rookery North, Harrowden Brook, Elstow Brook, the drainage ditches to the south (the Mill Brook tributary) and west (Mill Brook watercourse) of the site and Stewartby Lake to the west of the proposed application site. A summary of the historical data is presented in the PBA (2009b) report.

Monitoring of the surface water quality within the lake in Rookery South, previously undertaken by CLA in 1999 – 2000, recorded elevated sulphate levels (1,500mg/kg – 2,000mg/kg) and electrical conductivity levels (2,800 $\mu$ S/cm – 3050 $\mu$ S/cm) but no other determinants tested were significantly elevated against the screening criteria such as cyanides, metals and potential organic contaminants. Similar conditions were recorded within the lake in the Rookery North pit at the same time. Monitoring of the surface waters within the ditches and brooks surrounding the Rookery Pits, undertaken at the same time, recorded similar conditions, albeit that the sulphate concentrations and electrical conductivity values were generally lower than within the lakes.

Monitoring of the surface water quality within Elstow Brook and the lakes in the Rookery North and Rookery South pits and the Stewartby Lake has been undertaken on four occasions by PBA (in June – August 2008, January 2009 and April 2011) as part of a study of the wider Marston Vale area. Water samples were analysed for suspended soils, copper, lead, zinc, phosphorus, dissolved oxygen, Biological Oxygen Demand, sulphate, ammonia, chloride, electrical conductivity, nitrate, pH and Total Petroleum Hydrocarbons. The results showed similar characteristics as the data collected previously by CLA, with electrical conductivity levels and sulphate concentrations elevated within the lakes on the Rookery North and Rookery South pits but lower concentrations within the surrounding water bodies. Based upon

the recorded BOD and ammonia results, water quality would be classified as Class A (very good) according to the Environment Agency GQA scheme.

### 3.5 Landfill Records

According to the Envirocheck Report there is a landfill marked within the footprint of the Rookery North and the northern third of the Rookery South pits. The licence is held by London Brick Landfill Ltd at Rookery Clay Pit. Input dates were between 1971 and 1987 with deposited waste including industrial and household waste and liquid sludge. No other landfills are noted within 500m of the site boundary.

Previous investigations confirm that the Rookery South pit was not used for landfilling of household waste or liquid sludge, although the base of the pit has been proven to be underlain by a variable thickness of reworked clay in the form of Callow Clay Fill. It is understood a small area in the northeast corner of the Rookery South pit is underlain by a greater thickness of reworked clay that forms a lobe shaped feature. Extensive investigation of this feature (PBA 2011) suggests that it is inert and comprises reworked Callow Clay Fill, and does not include liquid wastes, sludges or household waste. Its origins are not entirely clear; however it is possible that this feature formed as a result of a land slip or from deposited clay overburden.

Previous testing undertaken on the Callow Clay fill and lobe feature in Rookery South (PBA 2011) indicates that the materials are inert in nature with low concentrations of potential contaminants with regard to the proposed end-use.

The Stewartby Landfill site is marked some 50m to the northwest of the location of the access road. EA records suggest this site last received waste in 1986 and the site received inert, household, industrial, commercial and special wastes.

### 3.6 Substantiated Pollution Incidents

The Envirocheck Report records one pollution incident to controlled waters approximately 250m to the northeast of the site boundary; none are recorded on-site. The incident is recorded as a Category 2 (minor incident) where treated sewage effluent affected Boiling Pot Brook.

### 3.7 Controlled Waters - Groundwater

The following table summarises information recorded in the Envirocheck report regarding hydrogeology and groundwater vulnerability.

Table 3.3 Summary of Hydrogeology and Groundwater Vulnerability Related Information

Item	Details
Aquifer Classification	Bedrock (Oxford Clay) – Unproductive Strata Kellaways Sand – Secondary A Aquifer Cornbrash Formation – Secondary A Aquifer Superficial (Valley Gravel) – Secondary Aquifer Blisworth Limestone – Principal Aquifer
Depth to Groundwater	Measured at 31.2m OD on 04/08/14 (BH12)
Groundwater Flow Direction	Unknown
Source Protection Zone (SPZ)	Not within 500m of a SPZ
Groundwater Abstraction	None recorded within 1km of the site boundary

### 3.8 Controlled Waters - Surface Water

The following table summarises the information recorded in the Envirocheck Report regarding hydrology.

Table 3.4 Summary of Surface Water Related Information

Item	Description
Name	Unnamed drains on-site classed as Tertiary Rivers. No Primary Rivers within 500m of the site boundary.
Quality	Unknown
Abstraction	One recorded on-site operated by R J Parish & Son for general agricultural use from a catch-pit at Ampthill. Two other abstractions for agricultural use are recorded off-site within 1km of the site boundary.
Pollution Incidents	See Section 3.4
Discharge Consents	One recorded on-site licensed to London Brick Company Ltd for the domestic discharge of treated effluent to a tributary of the Elstow Brook. Four other discharge consents are recorded within 500m of the site boundary, primarily associated with treated effluent. It is understood that a second discharge consent is also in force See Section 3.9 for further information.
River Flood Risk *	Site is not within a flood zone
Groundwater Flood Risk*	Unknown
* The scope of this report does not include a flood risk assessment.	

### 3.9 Discharge Consents

The Envirocheck report details one discharge consent within the site boundary. The consent is related to discharge of final effluent from 3 Pilling Cottages to a freshwater stream within the site boundary. The receiving water is noted to be a tributary of the Elstow Brook.

It is understood that a second consent is also active within the site boundary associated with the Rookery Pits, although this record is not identified within the Envirocheck Report. Details of this “trade effluent” discharge consent relating to the Rookery South and Rookery North pits have been previously supplied by the current landowners. The consent understood to be currently in force, allows for pumping “trade effluent” (accumulated waters) from the Rookery Pits into the Mill Brook culvert beneath the railway line to the west of Rookery South and into Stewartby Lake. The points of note relating to this discharge consent are detailed below:

- The discharge must not contain any poisonous, noxious or polluting matter, or solid matter greater than 40mg/l;
- The discharge takes place through a brick lined channel into a partly culverted ditch leading to Stewartby Lake through an outlet at national Grid Reference TL 0112 4131;
- Whilst pumping is underway from the Rookery pits, sulphate and suspended solids concentrations are to be measured once a week (albeit that no constraints on concentrations are identified on the formal consent); and,
- The maximum volume of discharge is not to exceed 2,000m<sup>3</sup> in a 24 hour period.

### 3.10 Ecological Systems

The Magic Map website provides geographic information about the natural environment from across government bodies and is managed by Natural England. The website confirms that there are no statutory designated ecological systems on-site or within 500m of the site boundary.

## 4 Tier 1 Preliminary Risk Assessment

### 4.1 Introduction

The methodology developed and adopted by PBA for the assessment of ground conditions is presented in **Appendix 1**. In accordance with guidance presented in CLR 11 (EA Model Procedures for the Management of Land Contamination) we adopt a staged approach to risk assessment and this report presents a preliminary Tier 1 assessment.

The underlying principle to ground condition assessment is the identification of *pollutant linkages* in order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences.

### 4.2 Conceptual Site Model

The Tier 1 Preliminary Risk Assessment includes the development of a conceptual site model (CSM). The CSM describes the types and locations of potential contamination sources, the identification of potential receptors and the identification of potential transport/migration pathways.

For a pollutant linkage to be identified a connection between all three elements (source-pathway-receptor) is required.

### 4.3 Geoenvironmental Hazard Identification

#### 4.3.1 On-Site - Electrical Connection Area

This part of the site is currently occupied by agricultural farmland, and historical map evidence suggests this has always been the case. Given the intended use of this part of the site to provide an electrical and gas Electrical Connection there are not anticipated to be any pollutant linkages present, since no significant plausible contamination sources have been identified and the end use will not introduce any new receptors.

The risk assessment has therefore only been taken forward for the Generating Equipment Site and the Access Road, where new plant, infrastructure and potential human health receptors are expected to be introduced.

#### 4.3.2 On-site – Generating Equipment Site and Access Road

The site is in the southwest corner of a much larger former clay pit. The brickworks manufacturing operation was located approximately 1.3km north of the site, and consequently any potential contamination sources linked to the process of manufacturing and firing of bricks are expected to be located far enough away to not affect the subject site.

A notable thickness of Callow Clay Fill (CCF) typically around 2.5m thick, but possibly in excess of 4.7m thick has been confirmed to be present across the Generating Equipment Site. This CCF has been recorded to take the form of reworked clay with occasional brick fragments and is consequently not expected to contain any significantly elevated concentrations of potential contaminants. Whilst contamination testing data is not available from the exploratory holes within the Generating Equipment Site itself, data is available from other exploratory holes within the Rookery South pit. The results of contamination testing undertaken by both CLA 2000 and by PBA 2009b for the consented Covanta RRF scheme are considered to be representative of the Generating Equipment Site because the historical and geographical setting of the Generating Equipment Site is identical to that of the wider pit area. Testing from the exploratory holes immediately adjacent to the Generating Equipment Site did not show any evidence of elevated concentrations of potential contaminants.

Whilst there is the potential for small pockets of sporadic and discreet localised contamination to be present within the CCF, it is considered that the frequency and magnitude of any such localised contamination will be very small based upon the currently available information.

Experience in contaminated land assessment by PBA of many other brickmaking sites from the same era in the former London Brick Company (LBC) landholding has indicated that the historical industrial activity of clay excavation and casting back of overburden, with reprofiling/landscaping carried out at these sites does not in itself give rise to significant levels of land contamination.

The potential for contamination to be present based on the past and present site use is assessed as classification score '1'; **Very Low**. (see Table 1, **Appendix 1**).

#### 4.3.3 Ground gases

The previous ground investigations have not encountered any significant quantities of organic materials within the deposits underlying the proposed application site; however the Oxford Clay Formation is known to contain clay of a high organic content. Together with the presence of CCF beneath the site area, there is expected to be a potential for the low concentrations of ground gases in the form of carbon dioxide. However, due to the very low permeability of the Oxford Clay Formation, the potential for any ground gases to migrate to the surface, or laterally, is considered to be low.

#### 4.3.4 Groundwater

In general, groundwater quality in the Kellaways Sand, the Cornbrash Formation and the Blisworth Limestone Formation in the region has been identified as being poor with saline conditions reported from the majority of reports and investigations. In particular the Environmental Quality Standard (EQS) screening criteria have been exceeded for Ammoniacal Nitrogen, Boron, conductivity and Chloride. The concentrations recorded are considered to be naturally occurring and typical of baseline conditions in similar geological settings, and not a result of the on-site ground conditions. There are no indicators of anthropogenic contamination, and hydrocarbons have not been recorded above the screening criteria in the more recent analyses undertaken.

#### 4.3.5 Surface Water

Similarly, previous testing undertaken on the surface waters that form part of the wider site area indicate that elevated sulphate and electrical conductivity levels are present in the surface waters at the site. These were the only parameters that exceeded the screening criteria, and based on the results of the BOD and ammonia results the surface water quality would be assessed a Class A (Very Good) according to the Environment Agency CQA Scheme.

In general, the surface water monitoring data largely reflects the chemistry of the groundwater data and shows that whilst naturally occurring substances are elevated within any relatively static water bodies (e.g Rookery North and Rookery South lakes), no significant anthropogenic contamination of the surface waters is occurring.

#### 4.3.6 Off-Site

The application area lies within a predominantly agricultural setting and consequently potential off-site sources of contamination were generally not identified. The exception to this is the Pillinge (Stewartby) Brickworks site and the Stewartby Landfill (which lie adjacent to the northern site boundary of the access road), the railway lines and sidings and South Pillinge Farm.

Millbrook Vehicle Proving Ground is located adjacent to the southwest boundary of the Electrical Connection area; however there are no records of any pollution incidents arising



from this facility within the Envirocheck Report. Furthermore, the distance of these sources from the site boundary in conjunction with the expected low permeability of the underlying geology means that any off-site contamination (if present) is not likely to affect the subject site, because there are not expected to be any feasible transmission pathways.

Given the observations made during the previous investigations and the groundwater and surface water quality data that has been previously collected from the wider Marston Vale area, it is considered that the risk to the application site associated with potential off-site contamination to be present based on the past and present off-site land-use is assessed as classification score '1'; **Very Low**. (see Table 1, **Appendix 1**).

#### 4.3.7 Summary of Potential Contaminants of Concern within Generating Equipment Site and Access Road Site Area

- Ground Gases – Carbon Dioxide

### 4.4 Hazard Assessment

In order to determine whether the identified hazards pose a risk it is necessary to identify the presence of potential receptors and pathways by which they can be exposed to the hazard.

#### 4.4.1 Identification of Potential Receptors

Potential receptors identified by this assessment and determination of the sensitivity/value are presented in Table 4.1 below.

Table 4.1 – Potential Receptors

Item	Comment	Receptor/Sensitivity
Human Health Current	Undeveloped – Receptors not Present	No - Eliminated
Human Health Future	Commercial /Industrial	Yes – 4
Neighbouring Human Health	None Nearby	No – Eliminated
Construction Workers	Construction Activities Expected	Yes – 4
Groundwater	Underlying aquifers shown not be chemically affected by on-site ground conditions, however site development may introduce preferential pathways into the underlying ground depending on the adopted foundation solution.	Yes – 3
Surface Water	Yes – Surface water in the base of the pit will be managed	Yes – 3
Construction Materials	Services and Foundations	Yes – 2
Animals and crops	No animal/crops and no foreseeable change	No – Eliminated
Ecological Systems	No designated sites within 500m	No - Eliminated
Historical / Archaeological	No identified sites within 250m	No - Eliminated

#### 4.4.2 Identification of Potential Pathways and Pollutant Linkages

Table 2 in the PBA methodology describes possible pathways for each receptor type. The assessment of the potential pollutant linkages identified using information on potential sources, receptors and exposure pathways is presented as a table within **Appendix 5**.

## 4.5 Risk Estimation

Risk estimation involves predicting the likely consequence (what degree of harm might result) and the probability that the consequences will arise (how likely the outcome is). The table in **Appendix 5** summarises the estimated risks for the identified pollutant linkages.

When there is a pollutant linkage (and therefore some measure of risk) it is necessary to determine whether the risk matters and therefore whether further action is required. Risk estimation involves predicting the likely consequence (what degree of harm might result) and the probability that the consequences will arise (how likely the outcome is).

The table in **Appendix 5** presents an assessment of consequence and probability for each potential pollutant linkage identified. Based on the information available, and assuming a worst case scenario, the estimated risks have been designated as follows:

- Human Health Future Users – Very Low
- Human Health Construction Workers – Very Low
- Groundwater – Very Low
- Surface Water – Very Low
- Buildings / Services – Very Low

During construction phase the underlying ground will be exposed and there is an enhanced short term risk.

The highest estimated risk of Very Low for human health is a function of:

- The relative absence of any likely potential sources of contamination.
- The relatively low sensitivity of the proposed end use with regard to human health.
- The low sensitivity of the environmental setting surrounding the site.

A very low risk is defined as where ‘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.’

### 4.5.1 Ground Gases

It is anticipated that the risks to human health arising from naturally occurring ground gases in the clay beneath the site will be low to moderate, and it is anticipated (subject to testing) that any confined spaces may require gas protection measures and/or passive ventilation.

## 4.6 Risk Evaluation

Possible pollutant linkages are determined using professional judgement. If a linkage is considered possible, it is considered that this represents a potentially ‘unacceptable risk’ and therefore requires further consideration. This may be through remediation or mitigation or through further tiers of assessment.

## 4.7 Confidence and Uncertainty

Based on the known current and historical land uses, the overall potential for significant or widespread contamination to be present on the site is considered to be **Very Low**. Based on the available information on ground conditions, the potential for any deleterious material producing hazardous ground gases to be present is considered to be **Low to Moderate**.

The assessment presented herein is based on publically available land use and third party reports on intrusive investigations. Whilst the third party reports provide comfort that there is not likely to be site-wide gross contamination it is considered plausible, but unlikely, that there may be potential small scale, sporadic and discrete localised sources of contamination present on site that have not been identified as part of the current and previous studies. An intrusive investigation would be required to provide actual ground condition data to confirm the presence/absence of contamination.

## 5 Preliminary Geotechnical Assessment

### 5.1 Introduction

The following assessments have been undertaken in accordance with the NPPF, in order to determine whether the land is potentially unstable and identify any appropriate remedial, preventative or precautionary measures, as required. The assessments include consideration of the potential for unstable slopes, ground compression and shrinkage/heave in the context of the proposed development and the local geographical environment.

The following sections of the report are based upon the geological / geotechnical information that has been collated from previous ground investigations and published information.

### 5.2 Implications of Proposed Low Level Restoration Scheme (LLRS)

It is recognised that the proposed LLRS will take place prior to commencement of the development. The LLRS will include regrading levels within the base of the pit by cut and placement of engineered fill, including the winning of clay fill from parts of the wider area. The earthworks in the base of the pit will be undertaken by placing Oxford Clay Fill in layers to raise ground levels and produce a fall across the pit towards an attenuation pond in the northern part of the Rookery South pit. It is proposed that the resulting topographic levels beneath the Generating Equipment Site will be approximately 31.8m AOD – 31.2m AOD, which equates to a limited thickness of fill above current levels of circa 0.5m in places and cut of up to 1.2m.

### 5.3 Potential Ground Settlement

Historically the Callow Clay Fill was placed in the base of the pit without any compaction or surcharge control measures having been implemented, and will have settled under its self-weight ever since. Parts of the Rookery South Pit have previously become inundated with water, albeit these are largely located in areas away from the proposed Generating Equipment Site, but may affect the access route in the base of Rookery South pit. These deposits may therefore currently be present in a relatively soft and compressible nature. Any new fill placed in the base as part of the LLRS will therefore induce additional consolidation settlement of the underlying historical Callow Clay Fill.

PBA have previously undertaken detailed research and analysis of the potential for settlements to be induced by loading of historical Callow Clay Fill in the base of similar pits excavated in the Oxford Clay. Assessments have included one dimensional consolidation analysis in the laboratory and monitoring of in-situ settlements caused by surcharge loading. Results of one-dimensional consolidation testing showed  $M_v$  values, which describe the total magnitude of settlement, generally in the range  $0.3 \text{ m}^2/\text{MN}$  to  $0.4 \text{ m}^2/\text{MN}$ . Corresponding  $C_v$  values, which describe the time required for settlement to occur, ranged from  $0.2 \text{ m}^2/\text{year}$  to  $1.4 \text{ m}^2/\text{year}$ . It has, however, been recognised that the  $C_v$  values from consolidation tests show considerable variation and estimates of the time required for settlement to occur are sensitive to these variations. Back-analysis of the in-situ settlement recorded in association with the construction of an earth embankment over Callow Clay Fill estimated actual  $C_v$  values in the range  $1.6 \text{ m}^2/\text{year}$  to  $3 \text{ m}^2/\text{year}$ .

Utilising relatively conservative values, with an  $M_v$  value of  $0.4 \text{ m}^2/\text{Mn}$  and a  $C_v$  value of  $2 \text{ m}^2/\text{year}$ , preliminary calculations show that for 0.5m of engineered fill placed over 2.5m Callow Clay Fill total settlements of about less than 20mm can be expected. In areas where thicker deposits of Callow Clay Fill have been recorded, or alternatively where thicker deposits of engineered fill will be placed, larger settlements will take place. It is, however, recognised that some areas of relatively thick Callow Clay Fill form topographic high points and will therefore require less engineered fill in order to produce the required platform levels.

The currently envisaged programme for the placement of engineered fill as part of the LLRS and the subsequent development works suggests that construction will commence almost immediately after completion of the earthworks for the LLRS in the Generating Equipment Site and will be largely completed within 12 months. Given this timescale, settlement of the Callow Clay Fill induced by placement of any residual engineered fill will not be fully mobilised prior to construction and recognition of such should therefore be made in respect of the design of hard-surfacing and infrastructure not founded upon deeper naturally occurring materials, particularly in respect of any differential settlement that might occur. It may be necessary to incorporate mitigation measures into the design such as ground improvement or geogrid reinforcement to stiffen the ground present.

Particular attention will need to be given to any areas where the characteristics and thicknesses of the underlying deposits vary across short distances such as at the edges of the pit. Here, there may be a considerable thickness on unimproved Callow Clay Fill banked against the relatively incompressible natural ground forming the steep original pit edge. Infrastructure such as roads, pavements and utilities could be at risk from unacceptably high magnitudes of differential settlement and careful consideration should be made of this risk in their design.

#### **5.4 Access Road and Green Lane Junction**

The proposed development includes for provision of a new vehicular access junction from Green Lane into the existing open access area adjacent to the north-western corner of the Rookery North pit. In order to facilitate the required turning arcs for large construction vehicles the access road may pass relatively close to the perimeter crest of the pit. The design of the access road must therefore include assessment of the slope angle, the distance between the road and the slope and the resultant slope stability.

Improvements to the slope profile within Rookery North pit in the north-western corner following further bathymetric surveys and stability analysis have been submitted and approved as part of the discharge of the LLRS planning conditions.

#### **5.5 Foundations**

The ground conditions on the proposed application site are, in general, expected to form a suitable platform for the construction of proposed facility. For very lightly loaded elements of the proposed facility and elements that are able to tolerate differential movements, shallow spread footings constructed within the remaining Oxford Clay, and possibly in the overlying Callow Clay Fill and engineered development platform fill, could be an appropriate option.

#### **5.6 Floor Slabs and Pavements**

Based upon the expected ground conditions present on the Generating Equipment Site, comprising Callow Clay Fill overlain by a limited thickness of engineered fill placed in the base of the pit as part of the LLRS, it is expected that lightly loaded ground bearing floor slabs and pavements constructed on a suitable depth of capping/sub-base and reinforced by geogrid as necessary will prove adequate.

However, given the relatively soft nature of the Callow Clay Fill, any heavily loaded floor slabs will either need to be suspended on to piles or the ground will require improvement before the slabs are cast. Potential ground improvement techniques could include preloading and surcharging of the Callow Clay Fill in order to accelerate the settlements, or improvement of soft materials by in-situ ground improvement techniques, such as the installation of vibratory stone or concrete columns. It should be recognised; however, that surcharging is a process that requires a certain period of time for porewater pressures to dissipate and for primary settlements to take place and it may be necessary to install additional drainage such as vertical sand drains for this to take place during an acceptable timescale.

## 5.7 Clay Volume Change Potential

Due to the highly plastic nature of the Oxford Clay, and the Callow deposits derived from it, the soils are liable to shrink or swell in response to changes in moisture content. Such changes in moisture content can occur due to seasonal or climatic effects but more commonly structural damage can occur when trees and hedgerows remove moisture from the soil at depth. Conversely removal of trees can cause swelling and structural damage as the soils re-saturate.

Guidance on foundation design in such circumstances is given in BRE Digests 240, 241, 242, 298 and 412, and also in NHBC Standards Chapter 4.2, which can be applied as equally as appropriate to industrial buildings as houses. The historical laboratory testing on the soils present indicates that the in-situ Callow deposits exhibit a high volume change potential whilst the Callow Clay Fill and the Knotts exhibit a generally moderate volume change potential. It is recommended that a high volume change potential is assumed for those fill deposits that will be placed into the base of the pit as part of the LLRS. Particular attention will need to be given to the design of any foundations within the tree root zone of influence of the extensive tree screen proposed as part of the landscaping of the proposed application site.

NHBC Chapter 4.2 recommends that for foundations outside of the zone of influence of any proposed trees or shrubs a minimum foundation depth of 1.0m should be adopted for high volume change potential soils. For any foundations inside the potential zone of influence of any proposed trees or shrubs foundation depths of 1.5m are appropriate, providing that absolute limits are agreed within the planting schedules to exclude any tree planting a certain distance to the foundations. The reader is referred to the NHBC guidance for further details regarding the zone of influence identified for a variety of different tree species.

## 5.8 Chemical Attack on Buried Concrete

It should be recognised that the Oxford Clay is known to be sulphate and pyrite bearing and can therefore be corrosive to buried concrete. Groundwater and surface water monitoring data has also indicated that the waters present at the proposed application site are characterised by high chloride and high sulphate concentrations. It is recommended that checks on site specific conditions should be made prior to construction and the mix design of buried concrete should follow the recommendations of BRE Special Digest 1: Concrete in Aggressive ground (2005). Generally a design sulphate class of DS4 is required in Oxford Clay terrain and subject to groundwater considerations an ACEC class of AC-4 is adopted for mobile groundwater conditions.

## 5.9 Slope Stability

A number of both small scale and large scale instability features have been noted within the Callow and Knotts slopes of the strata in the side walls of the Rookery South pit. The length of side wall adjacent to the proposed location of the Generating Equipment Site is however formed at slacker angles with a bench of 30m width formed part-way down the slope. Here the original pit edges have been modified in the earlier stages of a former restoration programme that was not fully implemented. The gradient of the slopes on this face are formed at angles of approximately 1V:3H to 1V:2H. The overall profile is formed at approximately 1V:4.5H.

The results of a survey of the slope condition on motorway earthworks (Perry, 1989) indicates that slopes greater than 2.5m high, constructed using material sourced from the Oxford Clay Formation, should have a gradient no steeper than 1V:3.5H to limit the risk of slope failure to less than 1 per cent within 20 years of construction. Where the slopes are formed at a gradient steeper than 1V:3.5H, weathering and progressive softening of the near-surface soils on the slope may result in shallow translational and flow movements through the soils near the base of the root system of the vegetation on the slope. For slopes at about 1V:2.5H, the risk of such failures occurring within about 10 years of construction was reported to be about 20%.

In the western parts of the Generating Equipment Site, the proposed slope gradient as a result of the LLRS earthworks will provide a resultant slope gradient equivalent to approximately 1V:3.5H.

## 5.10 Potential for Hydraulic Uplift

When the piezometric pressure in a relatively permeable stratum exceeds the confining overburden pressure of the relatively impermeable strata overlying it, then there is a theoretical risk of heave or hydraulic uplift. However, the inherent strength and cohesion of the confining strata (rather than just its downward acting mass) can also contribute to the resisting downward forces acting against the uplift. Therefore with essentially impermeable deposits (remnant Oxford Clay and Callow Clay Fill) overlying slightly more permeable deposits (Kellaways Sand), and with relatively high piezometric levels recorded in boreholes around the perimeter of the proposed application site, there might be a risk that hydraulic uplift may occur in the pit base where the thickness of the overlying impermeable deposits has been reduced by excavation works and overburden pressures therefore reduced. It should be noted that hydraulic uplift has not occurred in this pit although the theoretical possibility remains.

Previous groundwater monitoring undertaken at the proposed application site has shown that piezometric levels within the Kellaways Sand are at, or close to, the topographic levels currently present within the base of the pit. However, the permeability of the Kellaways Sand has been shown by historical investigations to be relatively low ( $2.4 \times 10^{-6}$  m/s to  $5.1 \times 10^{-7}$  m/s) and the potential for significant hydraulic pressure to build up is therefore considered to be very low.

Calculations of the potential for basal heave have been undertaken using stratigraphical information collected during historical ground investigations undertaken at the proposed application site by CL Associates in 2000 (CLA, 2000) and maximum recorded piezometric levels based on hydrogeological information collected during groundwater monitoring undertaken by CLA between 2000 and 2002 and by PBA in June and September 2008. The factor of safety against the potential for heave to occur as a result of piezometric pressures within the Kellaways Sand, Cornbrash Formation and the Blisworth Limestone Formation, has been calculated by comparing the uplift pressure from each respective groundwater body, measured at boreholes located within the base of the pit, to the vertical overburden pressure applied by the overlying deposits based on the proposed basal formation levels at these locations. The results show that a factor of safety against basal heave of 1.5 or more is present and basal heave is therefore considered unlikely to occur.

The proposed regrading works included as part of the LLRS will result in a platform at approximately 31m AOD – 31.8m AOD. These works will effectively require placement of up fill in places but removal of soil in other areas where ground levels are currently slightly higher than the proposed platform levels. In general, comparing the depth to the Kellaways Sand Formation, recorded during previous ground investigations, with the proposed development platform level indicates that the Kellaways Sand will be overlain by approximately 5m – 10m of very low permeability in-situ Oxford Clay and re-worked Callow Clay fill and basal heave is considered highly unlikely to occur.

## 5.11 Surface Water Disposal

The Oxford Clay and underlying Kellaways Sand are of a very low permeability and there is therefore no scope for the use of infiltration drainage within the proposed application site. As a result, the LLRS includes development of a surface water attenuation pond and associated pumping station in order to control the surface waters within the pits.

It is understood that the drainage of the proposed application site will be via a series of surface water interceptor channels flowing under gravity to the surface water attenuation pond. Levels within the attenuation pond will be controlled by stage pumping any accumulated waters via an existing culvert into Mill Brook and ultimately Stewartby Lake.

## 6 Conclusions and Recommendations

### 6.1 Conclusions

The Project Site spans several different parts of the Rookery South site, and includes a large Electrical Connection area that falls outside the clay pit adjacent to the south of the pit. The Generating Equipment Site of the site falls within the southwest corner of the Rookery South clay pit that provided clay to the nearby Stewartby brickworks. It is understood that clay extraction from this area ceased in 1986. The remaining parts of the Project Site lie to the south of the clay pit and comprise agricultural land that forms part of the Electrical Connection area. Evidence from historical maps suggests that this land has always been in agricultural use.

From a review of the available desk based information it is likely that Callow Clay Fill in the form of reworked clay underlies the base of the clay pit in the Project Site. Indications are that this could be in excess of 4.5m deep in some parts although more typically around 2.5m thick. Chemical testing data is not available on this from within the actual site area, although records from samples taken elsewhere within the wider confines of Rookery South Pit indicate that the material is typical of reworked clay with rare inclusions of brick, and consequently this is not expected to represent a potential source of contamination.

With regard to the Electrical Connection area, there are not expected to be any new receptors introduced, since the area will only be used to provide a below ground gas and above ground electricity Electrical Connection. Furthermore there are not expected to be any notable on-site or plausible off-site sources of contamination in this area, potential hazards associated with ground contamination have therefore not been identified in this part of the site, and hence the risk assessment for this area has not been taken forward.

Whilst it is possible that the reworked Callow Clay Fill within the base of the clay pit may contain isolated, discrete and localised elevated concentrations of potential contaminants, this is considered unlikely on the basis of the testing carried out elsewhere on the site. Furthermore the low sensitivity of the proposed end-use in this area means that even if any localised contamination were present, it is unlikely that any pollutant linkages between the end-users and the ground will be active.

Nevertheless, the presence of Callow Clay fill and the organic rich Oxford Clay Formation could represent a possible low level Carbon Dioxide ground gas source that could migrate to the ground surface via permeable pathways in the reworked ground, or via anthropogenic caused during construction.

Potential pollutant linkages have been identified within the Generating Equipment Site of the site only. Using the information on potential sources (contaminant types), receptors and exposure pathways the estimated risks for the identified pollutant linkages have been assessed as Very Low in all cases (human health and controlled waters). The exception to this is risk associated with naturally occurring ground gas (carbon dioxide) within the underlying clay, further investigation will be required to assess this risk, and it should not be ruled out that some form of mitigation in the form of gas protection measures may be required.

It is therefore considered that the site is unlikely to be designated as “contaminated land” under Part IIA.

Possible pollutant linkages have been identified in the Generating Equipment Site and Access Road only, but these risks have been assessed to be Very Low. It is considered that the risks can be managed and reduced to an acceptable level through a combination of mitigation, remediation, design and adoption of good practice measures during construction.



## 6.2 Geotechnical Conclusions

It is recognised that the proposed LLRS will take place prior to commencement of the development. The LLRS will include regrading levels within the base of the pit by cut and placement of engineered fill, including the winning of lay fill from parts of the wider site area. The earthworks in the base of the pit will be undertaken by placing Oxford Clay Fill in layers to raise ground levels and produce a fall across the pit towards an attenuation pond in the northern part of the Rookery South pit. It is proposed that the resulting topographic levels beneath the Generating Equipment Site will be approximately 31.8m AOD – 31.2m AOD, which equates to a limited thickness of fill above current levels of circa 0.5m in places and cut of up to 1.2m. In the western parts of the Generating Equipment Site, the proposed slope gradient as a result of the LLRS earthworks will provide a resultant slope gradient equivalent to approximately 1V:3.5H to limit the risk of slope failure to less than 1 per cent within 20 years of construction.

The ground conditions on the proposed application site are, in general, expected to form a suitable platform for the construction of proposed facility. For very lightly loaded elements of the proposed facility and elements that are able to tolerate differential movements, shallow spread footings constructed within the remaining Oxford Clay, and possibly in the overlying Callow Clay Fill and engineered development platform fill, could be an appropriate option.

It should be recognised that the Oxford Clay is known to be sulphate and pyrite bearing and can therefore be corrosive to buried concrete. Generally a design sulphate class of DS4 is required in Oxford Clay terrain and subject to groundwater considerations an ACEC class of AC-4 is adopted for mobile groundwater conditions.

## 6.3 Recommendations

It is recommended that a Geotechnical Ground Investigation is carried within the Generating Equipment Site to inform the foundation design of the proposed infrastructure within the Generating Equipment Site of the site. The ground investigation should primarily target the parts of the site that fall within the base of the clay pit to ascertain the nature and extent of the Callow Clay Fill present.

Given the anticipated low level of contamination risk throughout the application area and its proposed end-use, it is anticipated that the requirement to carry out a bespoke Phase 2 geoenvironmental intrusive investigation is not required. It is not expected that a ground investigation of any type will be required for the Electrical Connection area owing to the lack of feasible contamination hazards and receptors within this part of the site.

It may however be prudent to obtain soil samples for geoenvironmental screening during the geotechnical ground investigation in the Generating Equipment Site, and to simultaneously install ground gas monitoring standpipes during these works. This should be followed up by a robust ground gas monitoring programme. It is expected that any requirement for contamination testing be satisfactorily dealt with by planning conditions incorporated in any granted Outline Planning Consent.

It is nevertheless recommended that a programme of groundwater and surface water monitoring is carried out for the site to provide information on the current baseline conditions prior to construction at the site.

## 7 Essential Guidance for Report Readers

This report has been prepared within an agreed timeframe and to an agreed budget that will necessarily apply some constraints on its content and usage. The remarks below are presented to assist the reader in understanding the context of this report and any general limitations or constraints. If there are any specific limitations and constraints they are described in the report text.

The opinions and recommendations expressed in this report are based on statute, guidance, and best practice current at the time of its publication. Peter Brett Associates LLP (PBA) does not accept any liability whatsoever for the consequences of any future legislative changes or the release of subsequent guidance documentation, etc. Such changes may render some of the opinions and advice in this report inappropriate or incorrect and the report should be returned to us and reassessed if required for re-use after one year from date of publication. Following delivery of the report PBA has no obligation to advise the Client or any other party of such changes or their repercussions.

Some of the conclusions in this report may be based on third party data. No guarantee can be given for the accuracy or completeness of any of the third party data used. Historical maps and aerial photographs provide a “snap shot” in time about conditions or activities at the site and cannot be relied upon as indicators of any events or activities that may have taken place at other times.

The conclusions and recommendations made in this report and the opinions expressed are based on the information reviewed and/or the ground conditions encountered in exploratory holes and the results of any field or laboratory testing undertaken. There may be ground conditions at the site that have not been disclosed by the information reviewed or by the investigative work undertaken. Such undisclosed conditions cannot be taken into account in any analysis and reporting.

This report has been written for the sole use of the Client stated at the front of the report in relation to a specific development or scheme. The conclusions and recommendations presented herein are only relevant to the scheme or the phase of project under consideration. This report shall not be relied upon or transferred to any other party without the express written authorisation of PBA. Any such party relies upon the report at its own risk.

The interpretation carried out in this report is based on scientific and engineering appraisal carried out by suitably experienced and qualified technical consultants based on the scope of our engagement. We have not taken into account the perceptions of, for example, banks, insurers, other funders, lay people, etc, unless the report has been prepared specifically for that purpose. Advice from other specialists may be required such as the legal, planning and architecture professions, whether specifically recommended in our report or not.

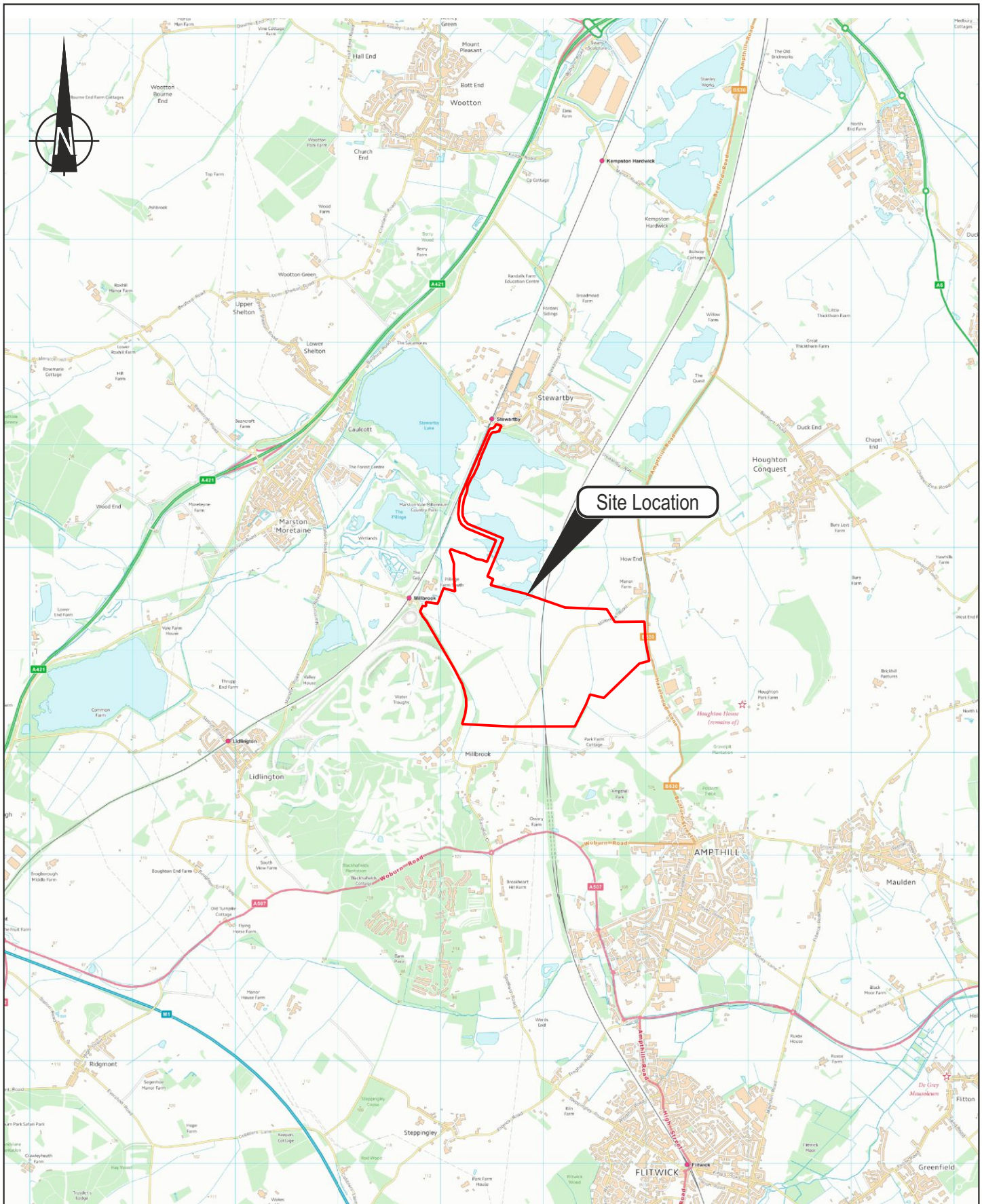
Public or legal consultations or enquiries, or consultation with any Regulatory Bodies (such as the Environment Agency, Natural England or Local Authority) have taken place only as part of this work where specifically stated.


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## FIGURES





 Approximate Site Boundary

Grid Ref: TL 013 411

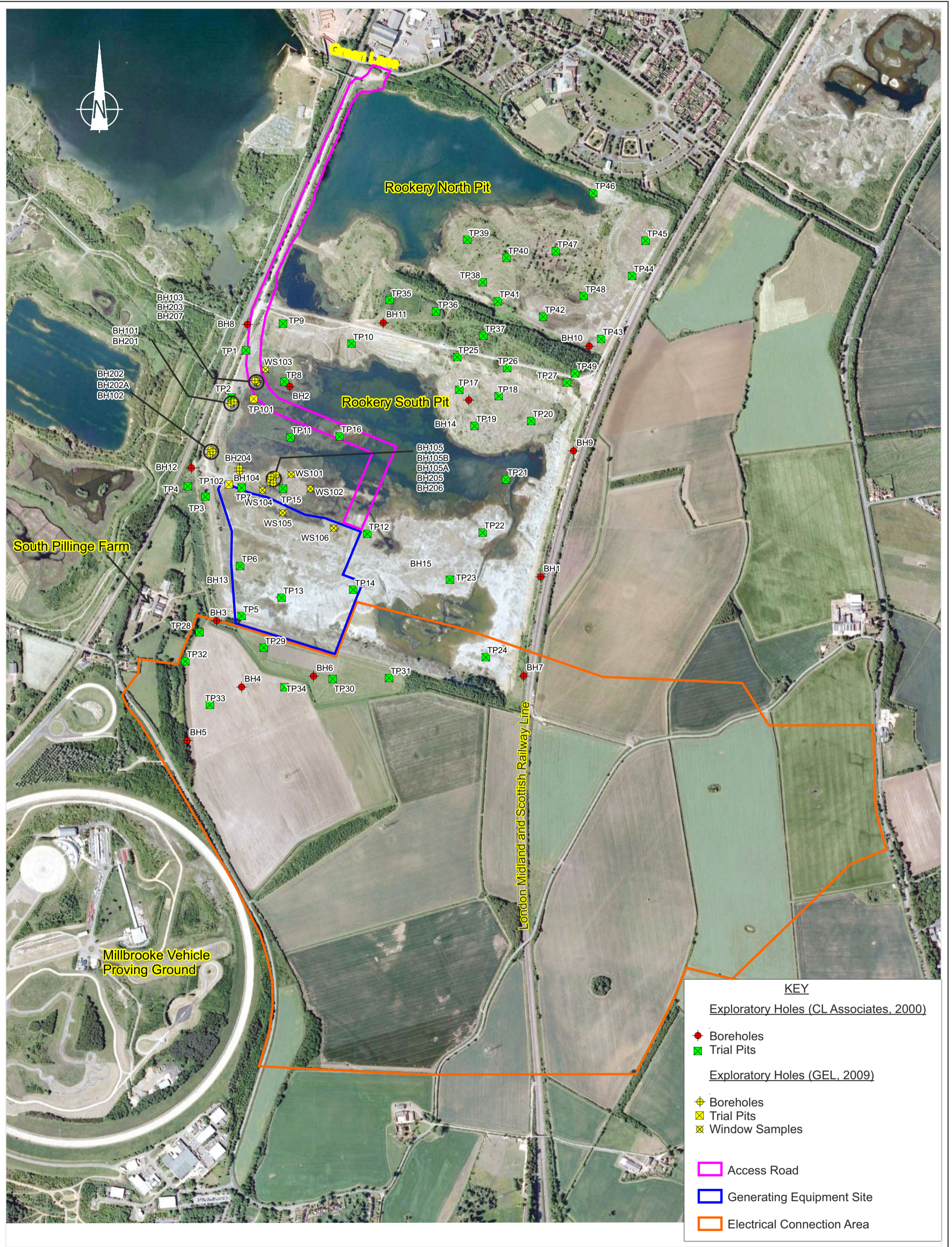


Client  
**Millbrook Power Ltd**  
 Contains Ordnance Survey data © Crown copyright and database right 2014.

**MILLBROOK POWER PROJECT**  
**SITE LOCATION PLAN**

Date	30.09.2014
Scale	1:50 000
Drawn by	davco
Checked by	JG
Revision	0

**FIGURE 1**



Client  
**Millbrook Power Ltd**

Google Earth  
 © 2014 Infoterra Ltd & Bluesky  
 Imagery Date: June 2009

**MILLBROOK POWER PROJECT**

**SITE LAYOUT AND EXPLORATORY HOLE LOCATION PLAN**

Date	30.07.2014
Scale	1:10 000
Drawn by	davco
Checked by	JG
Revision	0

**FIGURE 2**

## APPENDIX 1

# PBA Methodology for Assessment of Potentially Contaminated Land

## 1 Introduction

This document defines the approach adopted by PBA in relation to the assessment of potentially contaminated land in England. The aim is for the approach to (i) be systematic and objective, (ii) provide for the assessment of uncertainty and (iii) provide a rational, consistent, transparent framework.

When preparing our methodology we have made reference to various technical guidance documents and legislation referenced in Section 7 of which the principal documents are Contaminated Land Statutory Guidance (Defra 2012) the Model Procedures for the Management of Contamination (CLR 11) (EA 2004) Contaminated land risk assessment: A guide to good practice (C552) (CIRIA 2001) and the National Planning Policy Framework (DCLG 2012).

## 2 Dealing with Land Contamination

UK legislation aims to help address the problem of historic contamination of land and the risks it can pose to people's health, controlled water and the environment by determining if a contaminant linkage exists. This requires the three elements of receptor; pathway and source (hazard) to be present.

There are several ways in which land contamination can be addressed. For example, voluntarily where action is taken independently by landowners, when land is developed (or redeveloped) under the planning system, during the building control process using building regulations, or, forced remediation under the Part 2A regime. Other legislative regimes may also provide a means of dealing with land contamination issues, such as the regimes for waste, water, environmental permitting, and environmental damage. Further, the law of statutory nuisance may result in contaminants being unacceptable to third parties whilst not attracting action under Part 2A or other environmental legislation.

### 2.1 Part 2A

The Environment Act 1995 introduced Part 2A into the Environmental Protection Act 1990. Part 2A, its accompanying regulations and original Statutory Guidance came into force in England in April 2000. The legislation was extended in August 2006 to include radiological hazards.

Revised Statutory Guidance was issued April 2012. (Defra 2012) to clarify how the regime should operate.

The guidance states that enforcing authorities should seek to use Part 2A only where no appropriate alternative solution exists.

Part 2A defines contaminated land as *“land which appears to the Local Authority in whose area it is situated to be in such a condition that, by reason of substances in, on or under the land that significant harm is being caused, or there is a significant possibility that such harm could be caused, or pollution of controlled waters is being, or likely to be, caused”*.

Harm is defined as *“harm to the health of living organisms or other interference with the ecological systems of which they form part, and in the case of man, includes harm to his property”*.

For the purposes of Part 2A, land is contaminated if it poses a significant possibility of significant harm (SPOSH).

Part 2A provides a means of dealing with unacceptable risks posed by land contamination to human health and the environment, and under the guidance enforcing authorities should seek to find and deal with such land. It states that *“under Part 2A the starting point should be that land is not contaminated land unless there is reason to consider otherwise. Only land where unacceptable risks are clearly identified, after a risk assessment has been undertaken in accordance with the Guidance, should be considered as meeting the Part 2A definition of contaminated land”*. Further the guidance makes it clear that *“regulatory decisions should be based on what is reasonably likely, not what is hypothetically possible”*.

The overarching objectives of the Government's policy on contaminated land and the Part 2A regime are:

- “(a) To identify and remove unacceptable risks to human health and the environment.*
- (a) To seek to ensure that contaminated land is made suitable for its current use.*
- (b) To ensure that the burdens faced by individuals, companies and society as a whole are proportionate, manageable and compatible with the principles of sustainable development”*.

In accordance with the guidance, the enforcing authority may need to decide whether and how to act in situations where decisions are not straightforward, and where there is uncertainty. *“In so doing, the authority should use its judgement to strike a reasonable balance between: (a) dealing with risks raised by contaminants in land and the benefits of remediating land to remove or reduce those risks; and (b) the potential impacts of regulatory intervention including financial costs to whoever will pay for remediation, health and environmental impacts of taking action, property blight, and burdens on affected people”*. The authority is required to *“take a precautionary approach to the risks raised by contamination, whilst avoiding a disproportionate approach given the circumstances of each case”*. The aim is *“that the regime produces net benefits, taking account of local circumstances”*.

The guidance recognises that *“normal levels of contaminants in soils should not be considered to cause land to qualify as contaminated land, unless there is a particular reason to consider otherwise”*.

Normal levels are quoted as:

- “a) natural presence of contaminants’ such as from underlying geology ‘that have not been shown to pose an unacceptable risk to health and the environment*
- b) ...low level diffuse pollution, and common human activity...”*

Similarly the guidance states that significant pollution of controlled waters is required for land to be considered contaminated and the *“fact that substances are merely entering water”* or *“where discharge from land is not discernible at a location immediately downstream”* does not constitute contaminated land.



## PBA Methodology for Assessment of Potentially Contaminated Land

The guidance considers four categorisations to establish if land is contaminated by either presenting an unacceptable risk to human health or significant pollution of controlled waters (Categories 1 and 2) or where not (Categories 3 and 4).

Category 1: *“unacceptably high probability, supported by robust scientific evidence, that significant harm or significant pollution would occur”*. These situations can arise where similar land or exposures are known or strongly suspected to have caused harm.

Category 4: *“no risk or that the level of risk is low”*. These situations can arise where no contaminant linkage is established or normal/background levels of contaminants are present, or where the exposure from soil is only a small proportion of what the receptors may be exposed to.

For land that cannot be readily placed into Categories 1 or 4 further assessment is required. If there is a sufficiently strong case that the risks are of sufficient concern to cause significant harm/pollution or have the significant possibility of significant harm/pollution the land is to be placed into Category 2. If the concern is not met land is considered Category 3.

The technical guidance clearly states that the currently published SGV and GAC's represent *“cautious estimates of level of contaminants in soils”* which should be considered *“no risk to health or, at most, a minimal risk”*. These values do not represent the boundary between categories 3 and 4 and *“should be considered to be comfortably within Category 4”*.

### 2.2 Planning

The Local Planning Authority (LPA) is responsible for the control of development, and in doing so it has a duty to take account of all material considerations, including contamination.

Section 11, Paragraph 109 of the National Planning Policy Framework (NPPF) (DCLG 2012) states the planning system should contribute to and enhance the natural and local environment by *“preventing both new and existing developments from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water pollution”* and *“remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate”*. Paragraphs 120 and 121 describe the policy considerations the Government expects LPA to have in regard to land affected by contamination when preparing policies for development plans and in taking decisions on applications.

For planning purposes, the NPPF requires that the assessment of risks arising from contamination and remediation requirements should be considered on the basis of the current environmental setting, the current land use, and the circumstances of its proposed new use.

In most other respects, however, the underlying approach to identifying and dealing with risk, and the overall policy objective of safeguarding human health and the environment, are similar to that outlined in Part 2A.

However, the level at which contamination is deemed to be unacceptable, or, gives rise to adverse effects under a planning context has not been identified but is envisaged to be more precautionary than the level required to determine land as contaminated under Part 2A.

The current SGV and GAC are not considered target values for the planning regime. In paragraph 121 the developer is required to ensure that land, after development, is not capable of being determined as contaminated land under Part 2A of the EPA 1990.

The principal planning objective is to ensure that any unacceptable risks to human health, buildings and other property and the natural and historical environment from the contaminated condition of the land are identified so that appropriate action can be considered and taken to address those risks. In order to grant a planning permission the Local Planning Authority (LPA) has to be satisfied that there is sufficient information about the condition of the land, its impacts and the availability of viable remedial options. NPPF Paragraph 21 states that *“planning policies and decisions should also ensure that adequate site investigation information, prepared by a competent person, is presented”*. Site investigation information is further defined in the NPPF Glossary page 56 and that also states that investigations should be carried out in accordance with established procedures, including BS10175 (BSI 2011) that in turn links procedure to the requirements of CLR11.

### 2.3 Building Control

The building control department of the local authority (along with the private sector approved inspectors) are responsible for the operation and enforcement of the Building Regulations 2010 (DCLG 2010) to protect the health, safety and welfare of people in and around buildings and Building Control Regulations Approved Document C. Specifically requires the protection of buildings and associated land from the effects of contamination, to be applied (non-exclusively) in all changes of use from commercial or industrial premises, to residential property.

## 3 Approach

CLR 11 recommends a phased or tiered approach to risk assessment with the three tiers being:-

- Tier 1 - preliminary – a qualitative assessment forming part of a Phase 1 report,
- Tier 2 - generic - a quantitative assessment using published criteria to screen site specific ground condition data forming part of a Phase 2 report
- Tier 3 - detailed – a quantitative assessment involving the generation of site specific assessment criteria

Each tier of risk assessment comprises the following four stages:-

1. Hazard Identification – identifying potential contaminant sources on and off site;
2. Hazard Assessment – assessing the potential for unacceptable risks by identifying what pathways and receptors could be present, and what pollutant linkages could result (forming the Conceptual Site Model (CSM));

## PBA Methodology for Assessment of Potentially Contaminated Land

3. Risk Estimation – estimating the magnitude and probability of the possible consequences (what degree of harm might result to a defined receptor and how likely); and
4. Risk Evaluation – evaluating whether the risk needs to be, and can be, managed.

A PBA Phase 1 report normally comprises a desk study, walkover and Tier 1 risk assessment (the project specific offer defines the actual scope of work). This is the minimum requirement as defined by the NPPF, pp56. At Tier 1 the PBA approach to risk estimation involves identifying the magnitude of the potential consequence (taking into account both the potential severity of the hazard and the sensitivity of the receptor) and the magnitude of the likelihood i.e. the probability (taking into account the presence of the hazard and the receptor and the integrity of the pathway). This approach is promoted in current guidance such as R&D 66 (NHBC 2008).

The PBA approach is that if a pollution linkage is identified then it represents a potential risk which requires further consideration and either (1) remediation / direct risk management or (2) further tiers of assessment.

A PBA preliminary Phase 2 report comprises an intrusive investigation to collect site specific information, a Tier 2 quantitative generic risk assessment and a refinement of the CSM using the site specific data. Depending on the findings further investigation and/or progression to Tier 3 risk assessment and the generation of site specific assessment criteria may be required.

The PBA methodology provides an estimate of the level of risk, it does not identify a risk level at which the risk is considered “significant” and/or “unacceptable” as this is dependant on the view of the individual / stakeholder. For example; to a risk adverse stakeholder even a risk level of “very low” may be considered unacceptable and as such this stakeholder may require risk management options to be implemented.

### 4 Identification of Pollutant Linkages and Conceptual Site Model (CSM)

For all Tiers the underlying principle to ground condition assessment is the identification of *pollutant linkages* in order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences. A pollutant linkage consists of the following three elements:-

- A source/hazard – a substance or situation which has the potential to cause harm or pollution;
- A pathway – a means by which the hazard moves along / generates exposure; and
- A receptor/target – an entity which is vulnerable to the potential adverse effects of the hazard.

The *Conceptual Site Model* identifies the types and locations of potential contaminant sources/hazards and potential receptors and potential migration/transportation pathway(s). The CSM is refined as the assessment progresses through the Tiers.

### 4.1 Hazard Identification

A hazard is a substance or situation that has the potential to cause harm. Hazards may be chemical, biological or physical (e.g. explosive gases).

At Tier 1 the potential for hazards to be present is determined from consideration of the previous or ongoing activities on or near to the site in accordance with the criteria presented in the **Table 1**.

Based on the land use information Potential Contaminants of Concern (PCOC) are identified. The PCOC direct the scope of the collection of site specific data and the analytical testing selected for subsequent Tiers.

At Tier 2 the site specific data is screened using published assessment criteria (refer to PBA document entitled Rationale for the Selection of Tier 2 Assessment Criteria). In general, published criteria have been developed using highly conservative assumptions and therefore if the screening criterion is not exceeded then the PCOC is eliminated as a potential Hazard. It should be noted that exceedance does not necessarily indicate that a site is contaminated and/or unsuitable for use only that the PCOC is retained as a potential Hazard. Published criteria are generated using models based on numerous and complex assumptions. Whether or not these assumptions are appropriate in a site-specific context requires confirmation on a project by project basis and would form part of a Tier 3 assessment.

When reviewing or assessing site specific data PBA utilise published guidance on comparing contamination data with a critical concentration (CL:AIRE/CIEH 2008) which presents a structured process for employing statistical techniques for data assessment purposes. The benefit of the statistical tool is uncertainty is quantified and decisions are made knowing the strength of the evidence. Correct decision probability is a function of sample size, difference in the mean and the critical concentration, variation in measured values and the significance level.

### 4.2 Receptor and Pathway Identification

For all Tiers the potential receptors (for both on site and adjoining land) that will be considered are:

- Human Health – including current and future occupiers, construction and future maintenance workers, and neighbouring properties/third parties;
- Ecological systems; \*<sup>1</sup>
- Controlled waters \*<sup>2</sup> – including surface water and groundwater;
- Property, Animal or Crop (existing or proposed) - including buildings, service lines and pipes, crops, livestock, pets, woodland; and
- Archaeological sites and ancient monuments.

\*<sup>1</sup> International or nationally designated sites (as defined in the statutory guidance (Defra Circular 04/12)) “in the local area” will be identified as potential ecological receptors. A search radius of 1, 2 or 5km will be utilised depending on the site specific circumstances (see also pathway identification). The Environment Agency has published an ecological risk assessment framework (EA 2008) which promotes (as opposed to statutorily enforces) consideration of additional receptors to include locally protected sites and protected or notable species. These additional potential receptors will only be considered if a Phase 1 habitat survey, undertaken in accordance with

## PBA Methodology for Assessment of Potentially Contaminated Land

guidance (JNCC 1993), is commissioned and the data provided to PBA. It should be noted that without such a survey the Tier 1 risk assessment may conclude that the identification of potential ecological receptors is inconclusive (see Specification).

<sup>2</sup> the definition of "pollution of controlled water" was amended by the introduction of Section 86 of the Water Act 2003. For the purposes of Part 2A groundwater does not include waters above the saturated zone and our assessment does not therefore address perched water other than where development causes a pathway to develop.

If a receptor is taken forward for further assessment it will be classified in terms of its sensitivity, the criteria for which are presented in **Table 2**. Table 2 has been generated using descriptions of environmental receptor importance/value given in various guidance documents including R&D 66 (NHBC 2008) and Transport Analysis Guidance (based on DETR 2000). Human health and buildings classifications have been generated by PBA using the attribute description for each class.

The exposure pathway and modes of transport that will be considered are presented in **Table 3**.

### 4.3 Note regarding Ecological Systems

The Environment Agency (EA) has developed an ecological risk assessment framework which aims to provide a structured approach for assessing the risks to ecology from chemical contaminants in soils (EA 2008). In circumstances where contaminants in water represent a potential risk to aquatic ecosystems then risk assessors will need to consider this separately.

The framework consists of a three tiered process:-

- Tier 1 is a screening step where the site soils chemical data is compared to a soil screening value (SSV)
- Tier 2 uses various tools (including surveys and biological testing) to gather evidence for any harm to the ecological receptors
- Tier 3 seeks to attribute the harm to the chemical contamination

Tier 1 is preceded by a desk study to collate information about the site and the nature of the contamination to assess whether pollutant linkages are feasible. The framework presents ten steps for ecological desk studies and development of a conceptual site model as follows.

- 1 Establish Regulatory Context
- 2 Collate and Assess Documentary Information
- 3 Summarise Documentary Information
- 4 Identify Potential Contaminants of Concern
- 5 Identify Likely Fate Transport of Contaminants
- 6 Identify Potential Receptors of Concern
- 7 Identify Potential Pathways of Concern
- 8 Create a Conceptual Site Model
- 9 Identify Assessment and Measurement Endpoints
- 10 Identify Gaps and Uncertainties

The information in a standard PBA Phase 1 report covers Steps 1 to 4 inclusive. Step 5 considers fate and transport of contaminants and it should be noted that our standard report adopts a simplified approach considering only transport mechanisms. A simplified approach has also been adopted in respect of Steps 6 and 7 receptors (a detailed review of the ecological

attributes has not been undertaken) and pathways (a food chain assessment has not been undertaken).

Step 9 is outside the scope of our standard Phase 1 report.

The Tier 1 prepared by PBA as part of a Phase 1 report will assess the viability of the mode of transport given the site specific circumstances not specific pathways. As with receptor identification it should be noted that without a habitat survey the Tier 1 risk assessment may conclude that the risk to potential ecological receptors is inconclusive (see PBA Specification for Phase 1 Assessment of Potentially Contaminated Land).

### 4.4 Note regarding Water Framework Directive

The Water Framework Directive (WFD) (2000) aims to protect and enhance the quality of surface freshwater, groundwaters and dependent eco systems, estuaries and coastal waters. The WFD was transposed into UK law in 2003 (Statutory Instruments 2003). Member states must aim to reach good chemical and ecological status as defined in the Directive by 2015.

To address the WFD, a River Basin Management Plan (RBMP) has been developed for the 11 River Basin Districts in England and Wales. These were released by Defra in 2009 (Defra 2009).

These RBMP's establish the current status of waters within the catchments of the respective Districts and the current status of adjoining waters identified. As part of a Tier 2 risk assessment water quality data is screened against the WFD assessment criteria. Compare to the RBMP's current status of waters for the catchment under consideration would form part of a Tier 3 assessment.

## 5 Risk Estimation

Risk estimation classifies what degree of harm might result to a receptor (defined as consequence) and how likely it is that such harm might arise (probability).

At Tier 1 the consequence classification is generated by multiplying the hazard classification score and the receptor sensitivity score. This approach follows that presented in the republished R&D 66 (NHBC 2008).

The criteria for classifying probability are set out in **Table 4** and have been taken directly from Table 6.4 CIRIA C552 (CIRIA 2001). Probability considers the integrity of the exposure pathway.

The consequence classifications detailed in **Table 5** have been adapted from Table 6.3 presented in C552 and R&D 66 (Annex 4 Table A4.3).

The Tier 1 risk classification is estimated for each pollutant linkage using the matrix given in **Table 6** which is taken directly from C552 (Table 6.5).

Subsequent Tiers refine the CSM through retention or elimination of potential hazards and pollutant linkages.

## 6 Risk Evaluation

In order to put the Tier 1 risk classification into context the likely actions are described in **Table 7** which is taken directly from C552 (Table 6.6). Subsequent Tiers identify potential risk management options through remediation and/or mitigation measures.

# PBA Methodology for Assessment of Potentially Contaminated Land

## 7 References

BSI 2007 BS 8485 Code of Practice for characterisation and remediation from ground gas in affected developments.

BSI 2011 BS 10175 (2011) Code of practice - Investigation of potentially contaminated sites

CIRIA 2001: Contaminated land risk assessment – a guide to good practice C552.

CIRIA 2008: Assessing risks posed by hazardous ground gases to buildings C655

CL:AIRE/EIH 2008 Guidance on Company Soil Contamination Data with a Critical Concentration

DCLG 2010 Building Regulations 2010 Approved Document C Site preparation and resistance to contaminants and moisture.

DCLG March 2012. National Planning Policy Framework.

DETR 2000 Methodology for Multi Modal Studies. Volume 2 Section 4. The Environmental Objective.

Defra Circular 01/2006

Defra Circular 04/2012 Environmental Protection Act 1990: Part 2A. Contaminated Land Statutory Guidance.

Defra '2009 Water for Life and Livelihoods. River Basin Management Plan. (11 Districts: Anglia, Dee, Humber, Northumbria, Northwest, Severn, Solway and Tweed, Southeast, Thames, Western Wales) December 2009

EA 2004: The Model Procedures for the Management of Land Contamination CRL 11 published by the Environment Agency (EA).

EA 2008 Ecological Risk Assessment Science Report Series SC070009 published by the Environment Agency (EA).

European Community 2000 Water Framework Directive (2000/60/EC)

JNCC 1993 Handbook for Phase 1 Habitat Survey – A Technical for Environmental Audit prepared by the Joint Nature Conservancy Council (JNCC)

NHBC/EA/CIEH 2008: R&D Publication 66 Guidance for the safe development of housing on land affected by contamination.

Statutory Instrument 2003 No. 3242 Water Resources, England and Wales. The Water Environment (Water Framework Directive) Regulations 2003.

## PBA Methodology for Assessment of Potentially Contaminated Land

**Table 1: Criteria for Classifying Hazards / Potential for Generating Contamination**

Classification/Score	Potential for generating contamination/gas based on land use
Very Low 1	Land Use: agriculture, residential, allotment, recent retail or office use Contamination: None or low level residual concentrations. Gas generation potential : Inert Made Ground
Low 2	Land Use: recent small scale industrial, railway tracks, small scale fuel storage (heating). Contamination: Locally or slightly elevated concentrations. Gas generation potential : Shallow thickness of Alluvium
Moderate 3	Land Use: railway yards, collieries, scrap yards, light industry, engineering works. Contamination: Locally elevated concentrations. Gas generation potential : Dock silt and substantial thickness of organic alluvium/peat
High 4	Land Use: gas works, chemical works, heavy industry, non-hazardous landfills. Contamination: Possible widespread elevated concentrations. Gas generation potential : Shallow mine workings Pre 1960's landfill
Very High 5	Land Use: hazardous waste landfills. Contamination: Likely widespread elevated concentrations. Gas generation potential : Domestic landfill post 1960

*"Greenfield" is land which has not been developed including not used for crop production or animal husbandry and no contamination source therefore no pollutant linkages.*

**Table 2: Criteria for Classifying Receptor Sensitivity/Value**

Classification/Score	Definition
Very Low 1	Receptor of limited importance Groundwater: Unproductive Surface water: None and/or >250m hydraulically down gradient Ecology: No local designation Buildings: Replaceable Human health: Unoccupied/limited access
Low 2	Receptor of local or county importance with potential for replacement Groundwater: Secondary B Surface water: Tertiary <100m hydraulically down gradient Ecology: local habitat resources Buildings: Local value Human health: Minimum score of 4
Moderate 3	Receptor of local or county importance with potential for replacement Groundwater: Secondary A Surface water: Tertiary <50m or Secondary <100m hydraulically down gradient Ecology: County wildlife sites, Areas of Outstanding Natural Beauty (AONB) Buildings: Area of Historic Character Human health: Commercial
High 4	Receptor of county or regional importance with limited potential for replacement Groundwater: Principal Surface water: Secondary <50m or Primary <100m hydraulically down gradient Ecology: SSSI, National or Marine Nature Reserve (NNR or MNR) Buildings: Conservation Area Human health: Minimum score where human health identified as potential receptor
Very High 5	Receptor of national or international importance Groundwater: Source Protection Zone Surface water: Primary <50m hydraulically down gradient Ecology: Special Areas of Conservation (SAC and candidates), Special Protection Areas (SPA and potentials) or wetlands of international importance (RAMSAR) Buildings: World Heritage site Human health: Residential, open spaces and uses where children are present

## PBA Methodology for Assessment of Potentially Contaminated Land

**Table 3: Exposure Pathway and Modes of Transport**

<b>Receptor</b>	<b>Pathway</b>	<b>Mode of transport</b>
<b>Human health</b>	Ingestion	Fruit or vegetable leaf or roots
		Contaminated water
		Soil/dust indoors
		Soil/dust outdoors
	Inhalation	Particles (dust / soil) – outdoor
		Particles (dust / soil) - indoor
		Vapours – outdoor - migration via natural or anthropogenic pathways
		Vapours - indoor - migration via natural or anthropogenic pathways
	Dermal absorption	Direct contact with soil
Direct contact with waters (swimming / showering)		
Irradiation		
<b>Groundwater</b>	Leaching	Gravity / permeation
	Migration	Natural – groundwater as pathway Anthropogenic (e.g. boreholes, culverts, pipelines etc.)
<b>Surface Water</b>	Direct	Runoff or discharges from pipes
	Indirect	Recharge from groundwater
	Indirect	Deposition of wind blown dust
<b>Buildings</b>	Direct contact	Sulphate attack on concrete, hydrocarbon corrosion of plastics
	Gas ingress	Migration via natural or anthropogenic paths
<b>Ecological systems</b>	See Notes	Runoff/discharge to surface water body
	See Notes	Windblown dust
	See Notes	Groundwater migration
	See Notes	At point of contaminant source
<b>Animal and crop</b>	Direct	Wind blown or flood deposited particles / dust / sediments
	Indirect	Plants via root up take or irrigation. Animals through watering
	Inhalation	By livestock / fish - gas / vapour / particulates / dust
	Ingestion	Consumption of vegetation / water / soil by animals

**Table 4: Classification of Probability**

<b>Classification</b>	<b>Definition</b>
<b>High likelihood</b>	There is a pollution linkage and an event either appears very likely in the short-term and almost inevitable over the long-term, or there is already evidence at the receptor of harm / pollution.
<b>Likely</b>	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short-term and likely over the long-term.
<b>Low likelihood</b>	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter-term.
<b>Unlikely</b>	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long-term.

## PBA Methodology for Assessment of Potentially Contaminated Land

**Table 5: Classification of Consequence (score = magnitude of hazard Table 1 and sensitivity of receptor Table 2)**

Classification / Score	Examples
<p><b>Severe</b></p> <p><b>20-25</b></p>	<p>Human health effect - exposure likely to result in "significant harm". Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function.</p> <p>Controlled water effect - short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Equivalent to EA Category 1 incident (persistent and/or extensive effects on water quality leading to closure of potable abstraction point or loss of amenity, agriculture or commercial value. Major fish kill.</p> <p>Ecological effect - short-term exposure likely to result in a substantial adverse effect.</p> <p>Catastrophic damage to crops, buildings or property</p>
<p><b>Medium</b></p> <p><b>10-16</b></p>	<p>Human health effect - exposure could result in "significant harm". Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function.</p> <p>Controlled water effect - equivalent to EA Category 2 incident requiring notification of abstractor</p> <p>Ecological effect - short-term exposure may result in a substantial adverse effect.</p> <p>Damage to crops, buildings or property</p>
<p><b>Mild</b></p> <p><b>6-9</b></p>	<p>Human health effect - exposure may result in "significant harm". Significant harm to humans is defined in circular 01/2006 as death, disease, serious injury, genetic mutation, birth defects or impairment of reproductive function.</p> <p>Controlled water effect - equivalent to EA Category 3 incident (short lived and/or minimal effects on water quality).</p> <p>Ecological effect - unlikely to result in a substantial adverse effect.</p> <p>Minor damage to crops, buildings or property. Damage to building rendering it unsafe to occupy (for example foundation damage resulting in instability).</p>
<p><b>Minor</b></p> <p><b>1-5</b></p>	<p>No measurable effect on humans. Protective equipment is not required during site works.</p> <p>Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems.</p> <p>Repairable effects to crops, buildings or property. The loss of plants in a landscaping scheme. Discolouration of concrete.</p>

**Table 6: Classification of Risk (Combination of Consequence Table 5 and Probability Table 4)**

Probability	Consequence			
	<i>Severe</i>	<i>Medium</i>	<i>Mild</i>	<i>Minor</i>
<i>High likelihood</i>	Very high	High	Moderate	Low
<i>Likely</i>	High	Moderate	Moderate/low	Low
<i>Low likelihood</i>	Moderate	Moderate/low	Low	Very low
<i>Unlikely</i>	Moderate/low	Low	Very low	Very low

**Table 7: Description of Risks and Likely Action Required**

Risk Classification	Description
<b><i>Very high risk</i></b>	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation is likely to be required in the short term.
<b><i>High risk</i></b>	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 undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer-term.
<b><i>Moderate risk</i></b>	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.
<b><i>Low risk</i></b>	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.
<b><i>Very low risk</i></b>	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.

## APPENDIX 2





Plate 1 - Rookery South Pit looking southwest



Plate 2 - Location of proposed access road looking north

Client  
Millbrook Power Ltd

MILLBROOK POWER PROJECT  
SITE WALKOVER PHOTOGRAPHS

Date	01.10.2014
Scale	na
Drawn by	davco
Checked by	JG
Revision	0

APPENDIX



Plate 3 - Grid Connection Area looking southwest



Plate 4 - Site of proposed Operation Area looking northeast



Offices throughout the UK and continental Europe.  
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Client  
Millbrook Power Ltd

MILLBROOK POWER PROJECT  
SITE WALKOVER PHOTOGRAPHS

Date	01.10.2014
Scale	na
Drawn by	davco
Checked by	JG
Revision	0

APPENDIX



Plate 5 - Rookery South Pit looking east



Plate 6 - Grid Connection Area looking northwest

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Client  
Millbrook Power Ltd

MILLBROOK POWER PROJECT  
SITE WALKOVER PHOTOGRAPHS

Date	01.10.2014
Scale	na
Drawn by	davco
Checked by	JG
Revision	0

APPENDIX

## APPENDIX 3

## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

501510, 239960

**Slice:**

A

**Site Area (Ha):**

240.61

**Search Buffer (m):**

500

#### Site Details:

Millbrook Power Project

Green Lane

Stewartby

#### Client Details:

Ms K Riley

Brett Consulting Ltd

Caversham Bridge House

Waterman Place

Reading

Berkshire

RG1 8DN

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	11
Hazardous Substances	-
Geological	12
Industrial Land Use	22
Sensitive Land Use	23
Data Currency	24
Data Suppliers	28
Useful Contacts	29

## Introduction

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

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

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## Report Version v49.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Agency &amp; Hydrological</b>				
Contaminated Land Register Entries and Notices				
Discharge Consents	pg 1	3		7
Enforcement and Prohibition Notices				
Integrated Pollution Controls				
Integrated Pollution Prevention And Control	pg 3		1	
Local Authority Integrated Pollution Prevention And Control				
Local Authority Pollution Prevention and Controls	pg 3		1	
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 3	Yes		
Pollution Incidents to Controlled Waters	pg 3			1
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality				
River Quality Biology Sampling Points				
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions	pg 4	1		1 (*1)
Water Industry Act Referrals				
Groundwater Vulnerability	pg 4	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 5	Yes	n/a	n/a
Superficial Aquifer Designations	pg 5	Yes	n/a	n/a
Source Protection Zones				
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
Detailed River Network Lines	pg 5	Yes	Yes	Yes
Detailed River Network Offline Drainage	pg 10			Yes

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Waste</b>				
BGS Recorded Landfill Sites				
Historical Landfill Sites	pg 11	1		
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				
<b>Hazardous Substances</b>				
Control of Major Accident Hazards Sites (COMAH)				
Explosive Sites				
Notification of Installations Handling Hazardous Substances (NIHHS)				
Planning Hazardous Substance Consents				
Planning Hazardous Substance Enforcements				
<b>Geological</b>				
BGS 1:625,000 Solid Geology	pg 12	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 12	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 18	1		
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 19	Yes		n/a
Potential for Compressible Ground Stability Hazards	pg 19	Yes	Yes	n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 19	Yes	Yes	n/a
Potential for Running Sand Ground Stability Hazards	pg 20	Yes		n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 20	Yes		n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a



Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Industrial Land Use</b>				
Contemporary Trade Directory Entries (50m)	pg 22		1	n/a
Fuel Station Entries				
<b>Sensitive Land Use</b>				
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 23	3		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	<p><b>Discharge Consents</b></p> <p>Operator: London Brick Company Limited  Property Type: Domestic Property (Single)  Location: 3 Pillinge Cottages Station Road, Millbrook, Bedford, Mk45 2jh  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Prcnf03360  Permit Version: 2  Effective Date: 24th January 1992  Issued Date: 24th January 1992  Revocation Date: Not Supplied  Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A14SW (NW)	0	2	500800 240430
1	<p><b>Discharge Consents</b></p> <p>Operator: London Brick Property  Property Type: Domestic Property (Single)  Location: 3 Pillinge Cottages Station Road, Millbrook, Bedford, Mk45 2jh  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Prcnf03360  Permit Version: 1  Effective Date: 28th August 1990  Issued Date: 28th August 1990  Revocation Date: 23rd January 1992  Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	A14SW (NW)	0	2	500800 240430
2	<p><b>Discharge Consents</b></p> <p>Operator: Millbrook Proving Ground Ltd  Property Type: Manufacture Of Motor Vehicles &amp; Engines  Location: Millbrook Bedfordshire, Millbrook, Bedford, Mk45  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Pr1nf2148  Permit Version: 1  Effective Date: 17th September 1985  Issued Date: 17th September 1985  Revocation Date: Not Supplied  Discharge Type: Discharge Of Other Matter-Surface Water  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A7NW (S)	0	2	501300 239400
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 3  Effective Date: 15th June 1985  Issued Date: 15th June 1985  Revocation Date: 15th August 1991  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	355	2	501200 238900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Ltd.  Property Type: Undefined Or Other  Location: Millbrook Stw  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 1  Effective Date: 15th June 1985  Issued Date: 15th June 1985  Revocation Date: 15th August 1991  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	355	2	501200 238900
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 2  Effective Date: 21st October 1981  Issued Date: 21st October 1981  Revocation Date: 14th June 1985  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	355	2	501200 238900
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Awcnf10501  Permit Version: 3  Effective Date: 1st January 2010  Issued Date: 24th September 2009  Revocation Date: Not Supplied  Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	A2NE (S)	389	2	501160 238870
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Awcnf10501  Permit Version: 2  Effective Date: 27th June 1995  Issued Date: 27th June 1995  Revocation Date: 31st December 2009  Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A2NE (S)	389	2	501160 238870

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Awcnf10501  Permit Version: 1  Effective Date: 15th August 1991  Issued Date: 15th August 1991  Revocation Date: 26th June 1995  Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	A2NE (S)	389	2	501160 238870
4	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 1  Effective Date: 31st December 1970  Issued Date: 31st December 1970  Revocation Date: 20th October 1981  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	455	2	501200 238800
5	<p><b>Integrated Pollution Prevention And Control</b></p> <p>Name: Covanta Energy Limited  Location: Rookery Pit 3 Energy From Waste Facility, Rookery South Pit, Nr Stewartby, Bedford, Bedfordshire  Authority: Environment Agency, Anglian Region  Permit Reference: NP3030TV  Original Permit Ref: Np3030tv  Effective Date: Not Supplied  <b>Status: Valid</b>  Application Type: Application  App. Sub Type: New  Positional Accuracy: Located by supplier to within 100m  Activity Code: 5.1 A(1) (C)  Activity Description: Incineration Of Non Hazardous Waste Greater Than 1 T/Hr  Primary Activity: Y  Activity Code: 0.0 Associated Process  Activity Description: Associated Process  Primary Activity: N</p>	A15NW (N)	100	2	501280 241010
6	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Millbrook Proving Ground  Location: Station Road, Millbrook, BEDFORD, Bedfordshire, MK45 2JQ  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: EP/CB/44  Dated: 1st July 1999  Process Type: Local Authority Pollution Prevention and Control  Description: PG1/14 Petrol filling station  <b>Status: Permitted</b>  Positional Accuracy: Manually positioned to the address or location</p>	A10NW (W)	143	3	500786 240153
	<p><b>Nearest Surface Water Feature</b></p>	A14SE (NW)	0	-	500976 240444
7	<p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Water Company Sewage: Sewage Treatment Works  Location: Bedford District, MILLBROOK, Bedfordshire  Authority: Environment Agency, Anglian Region  Pollutant: Sewage - Treated Effluent  Note: Boiling Pot Brook  Incident Date: 29th January 1999  Incident Reference: 4434  Catchment Area: Not Given  Receiving Water: Freshwater Stream/River  Cause of Incident: Other Cause  Incident Severity: Category 3 - Minor Incident  Positional Accuracy: Located by supplier to within 100m</p>	A3NE (S)	251	2	501600 239000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son Licence Number: 6/33/12/*S/0067 Permit Version: 100 Location: Catchpit At Ampthill 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 April Authorised End: 30 September Permit Start Date: 1st November 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m</p>	A7NW (SW)	0	2	501300 239500
9	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son Licence Number: 6/33/12/*S/0067 Permit Version: 100 Location: Catchpit At Ampthill 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 April Authorised End: 30 September Permit Start Date: 1st November 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m</p>	A2NE (SW)	281	2	501100 239000
	<p><b>Water Abstractions</b></p> <p>Operator: Messrs A J Woodward And Co Licence Number: 6/33/12/*s/028 Permit Version: Not Supplied Location: Elstow Brook At, MILLBROOK Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 11 Yearly Rate (m3): 245450 Details: Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	555	2	501200 238700
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000</p>	A12SE (E)	0	2	502429 240002
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Not classified Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000</p>	A11SW (W)	0	2	501512 239957
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000</p>	A10SE (W)	0	2	500965 240001
	<p><b>Groundwater Vulnerability</b></p> <p>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 31 Bedfordshire Scale: 1:100,000</p>	(E)	0	2	502836 240244

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Groundwater Vulnerability</b> 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 31 Bedfordshire Scale: 1:100,000	A14SE (NW)	0	2	501148 240568
	<b>Groundwater Vulnerability</b> Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000	A14NE (NW)	0	2	501058 240915
	<b>Drift Deposits</b> None				
	<b>Bedrock Aquifer Designations</b> Aquifer Designation: Unproductive Strata	A11SW (W)	0	4	501512 239957
	<b>Bedrock Aquifer Designations</b> Aquifer Designation: Unproductive Strata	A11SW (N)	0	4	501512 240001
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - A	A15SW (NW)	0	4	501324 240410
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A12SE (E)	0	4	502463 239948
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A11SW (SW)	0	4	501228 239726
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A12SE (E)	0	4	502475 240001
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	(E)	0	4	502829 240270
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A10NE (W)	0	4	500972 240126
	<b>Extreme Flooding from Rivers or Sea without Defences</b> None				
	<b>Flooding from Rivers or Sea without Defences</b> None				
	<b>Areas Benefiting from Flood Defences</b> None				
	<b>Flood Water Storage Areas</b> None				
	<b>Flood Defences</b> None				
10	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SE (SW)	0	2	501179 239768

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	0	2	500991 240105
12	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A8NE (SE)	0	2	502418 239463
13	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	0	2	501004 240077
14	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A12NE (E)	0	2	502427 240108
15	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A11SE (E)	0	2	501854 239936
16	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NW (NW)	0	2	500798 240378

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A11SW (SW)	0	2	501209 239720
18	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	0	2	500928 240174
19	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	0	2	500796 240429
20	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SE (NW)	8	2	501030 240601
21	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SE (NW)	9	2	500885 240462
22	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	16	2	500784 240479



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	16	2	500928 240174
24	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A8NE (SE)	18	2	502418 239463
25	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A16SW (NE)	128	2	502050 240557
26	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14NW (NW)	199	2	500852 241031
27	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	219	2	500835 240681
28	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SW (W)	233	2	500783 240005

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	247	2	500787 240711
30	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SW (W)	411	2	500737 239714
31	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SW (W)	411	2	500737 239714
32	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (W)	444	2	500727 239662
33	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A2NE (S)	456	2	501191 238800
34	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14NW (NW)	460	2	500595 240920

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A2NE (S)	462	2	501192 238794
36	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (W)	466	2	500683 239699
37	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A9NE (W)	474	2	500188 240351
38	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (SW)	484	2	500715 239595
39	<b>Detailed River Network Offline Drainage</b> River Type: Tertiary River Hydrographic Area: D005	A6NE (SW)	263	2	500911 239697

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	<p><b>Historical Landfill Sites</b></p> <p>Licence Holder: London Brick Landfill Limited            Location: Stewartby, Bedford, Bedfordshire            Name: Rookery Clay Pit            Operator Location: Not Supplied            Boundary Accuracy: As Supplied            Provider Reference: EAHLD01024            First Input Date: 1st January 1971            Last Input Date: 1st April 1987            Specified Waste Type: Deposited Waste included Industrial and Household Waste, and Liquid Sludge            EA Waste Ref: 75174            Regis Ref: AX1/L/LON010            WRC Ref: 0200/0045            BGS Ref: Not Supplied            Other Ref: 8/1977, PIT 80</p>	A16NW (N)	0	2	501929 240987
	<p><b>Local Authority Landfill Coverage</b></p> <p>Name: Mid Bedfordshire District Council            - Has supplied landfill data</p>		0	10	501512 239957
	<p><b>Local Authority Landfill Coverage</b></p> <p>Name: Bedfordshire County Council            - Has no landfill data to supply</p>		0	9	501512 239957
	<p><b>Local Authority Landfill Coverage</b></p> <p>Name: Bedford Borough Council            - Has supplied landfill data</p>		11	11	502210 240716

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS 1:625,000 Solid Geology</b> Description: Oxford Clay and Kellaways Beds	A11SW (W)	0	4	501512 239957
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SW (SW)	0	5	501227 239725
	<b>BGS Estimated Soil Chemistry</b> 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	A10SE (W)	0	5	501000 240034
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12SW (E)	0	5	502000 240000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NE (NW)	0	5	501031 241000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A10NE (W)	0	5	500971 240125
	<b>BGS Estimated Soil Chemistry</b> 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	A11NW (N)	0	5	501450 240155

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A12SE (E)	0	5	502474 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A15NW (N)	0	5	501512 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A11SW (W)	0	5	501512 239957
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A12SE (E)	0	5	502462 239947
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A12SW (E)	0	5	502000 239957
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14SE (NW)	0	5	501140 240487

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A11SW (N)	0	5	501512 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A15SW (NW)	0	5	501323 240409
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14NE (NW)	28	5	501000 240788
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A10SE (W)	28	5	501000 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14SE (NW)	29	5	501000 240581
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14SE (NW)	30	5	501000 240688

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A10SE (W)	44	5	501000 239957
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14NE (NW)	61	5	501000 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A8SE (SE)	63	5	502390 239279
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A10SE (W)	77	5	500963 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	(NW)	209	5	500799 241079
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NE (S)	221	5	501837 239023



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16SW (NE)	228	5	502000 240681
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A4NW (SE)	245	5	502000 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NE (S)	248	5	501797 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A4NW (SE)	248	5	501921 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NW (S)	249	5	501512 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NW (S)	255	5	501204 239000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A4NW (SE)	260	5	502150 238913
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A2NE (S)	268	5	501135 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16SW (NE)	272	5	502137 240679
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14NW (NW)	286	5	500637 240752
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16NW (NE)	311	5	502000 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A9NE (W)	325	5	500472 240236

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 40 - 60 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 15 - 30 mg/kg</p> <p>Concentration:</p>	A3NW (S)	333	5	501323 238920
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A2NE (SW)	335	5	501000 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 40 - 60 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 15 - 30 mg/kg</p> <p>Concentration:</p>	A3NE (S)	385	5	501795 238864
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16NW (NE)	408	5	502087 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A2NE (SW)	500	5	501000 238804
41	<p><b>BGS Recorded Mineral Sites</b></p> <p>Site Name: Rookery Clay Pit</p> <p>Location: , Stewartby, Bedford</p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Reference: 35590</p> <p>Type: Opencast</p> <p><b>Status: Ceased</b></p> <p>Operator: London Brick Co Ltd</p> <p>Operator Location: London Brick Co Ltd, Arden House, West Street, Leighton Buzzard, Bedfordshire, Lu7 7dd</p> <p>Periodic Type: Jurassic</p> <p>Geology: Oxford Clay Formation</p> <p>Commodity: Common Clay and Shale</p> <p>Positional Accuracy: Located by supplier to within 10m</p>	A15NW (N)	0	4	501510 240915
	<p><b>BGS Measured Urban Soil Chemistry</b></p> <p>No data available</p>				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS Urban Soil Chemistry Averages</b> No data available				
	<b>Coal Mining Affected Areas</b> In an area that might not be affected by coal mining				
	<b>Non Coal Mining Areas of Great Britain</b> No Hazard				
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	0	4	501323 240405
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	0	4	501323 240405
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (W)	0	4	501026 240000
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (SW)	11	4	501149 239783
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A16SW (NE)	0	4	501967 240446
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SW (N)	0	4	501458 240480
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (NE)	0	4	501715 240405
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	4	501625 240431
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11SW (SW)	0	4	501324 239872
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A10SE (W)	0	4	501088 239942
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NW (NE)	0	4	501952 240361
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	4	501667 240407

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NW (NW)	0	4	501333 240121
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A7NW (SW)	39	4	501197 239572
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (SW)	102	4	501140 239527
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A8SW (SE)	146	4	502008 239101
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A6SE (SW)	164	4	501062 239196
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6SE (SW)	180	4	501042 239218
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6SE (SW)	205	4	501021 239199
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A3NE (S)	250	4	501780 238999
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	4	502466 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	4	502461 239942
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (SW)	0	4	501225 239729
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	0	4	501323 240405
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (SW)	0	4	501184 239698
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (W)	0	4	501026 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A14SW (NW)	70	4	500660 240551
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	4	501539 240691
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b></p> <p>Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service</p>	A11SW (W)	0	4	501512 239957
	<p><b>Radon Potential - Radon Protection Measures</b></p> <p>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service</p>	A11SW (W)	0	4	501512 239957
	<p><b>Radon Potential - Radon Protection Measures</b></p> <p>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service</p>	A11SW (N)	0	4	501512 240001
	<p><b>Radon Potential - Radon Affected Areas</b></p> <p>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</p>	A11SW (W)	0	4	501512 239957
	<p><b>Radon Potential - Radon Affected Areas</b></p> <p>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</p>	A11SW (N)	0	4	501512 240001

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	<p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Select Engineering            Location: Moreteyne House, Station Lane, Millbrook, Bedford, MK45 2JH            Classification: Sheet Metal Work  <b>Status:</b> Inactive            Positional Accuracy: Automatically positioned to the address</p>	A14SW (NW)	8	-	500713 240478

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Eutrophic Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A10NE (W)	0	8	500926 240134
44	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A11SW (W)	0	8	501512 239957
45	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A11SW (W)	0	8	501512 239957
46	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A3NW (S)	375	8	501349 238878



Agency & Hydrological	Version	Update Cycle
<b>Contaminated Land Register Entries and Notices</b> Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	December 2013 February 2013 July 2008	Annually Annual Rolling Update Not Applicable
<b>Discharge Consents</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Enforcement and Prohibition Notices</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Integrated Pollution Controls</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Integrated Pollution Prevention And Control</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Local Authority Integrated Pollution Prevention And Control</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Controls</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Control Enforcements</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Nearest Surface Water Feature</b> Ordnance Survey	July 2012	Quarterly
<b>Pollution Incidents to Controlled Waters</b> Environment Agency - Anglian Region	September 1999	Not Applicable
<b>Prosecutions Relating to Authorised Processes</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Prosecutions Relating to Controlled Waters</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Registered Radioactive Substances</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>River Quality</b> Environment Agency - Head Office	November 2001	Not Applicable
<b>River Quality Biology Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>River Quality Chemistry Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>Substantiated Pollution Incident Register</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Water Abstractions</b> Environment Agency - Anglian Region	July 2014	Quarterly
<b>Water Industry Act Referrals</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Groundwater Vulnerability</b> Environment Agency - Head Office	January 2011	Not Applicable

Agency & Hydrological	Version	Update Cycle
<b>Drift Deposits</b> Environment Agency - Head Office	January 1999	Not Applicable
<b>Bedrock Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Superficial Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Source Protection Zones</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Extreme Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Areas Benefiting from Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Water Storage Areas</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Detailed River Network Lines</b> Environment Agency - Head Office	March 2012	Annually
<b>Detailed River Network Offline Drainage</b> Environment Agency - Head Office	March 2012	Annually
Waste	Version	Update Cycle
<b>BGS Recorded Landfill Sites</b> British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
<b>Historical Landfill Sites</b> Environment Agency - Anglian Region - Central Area	May 2014	Quarterly
<b>Integrated Pollution Control Registered Waste Sites</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Licensed Waste Management Facilities (Landfill Boundaries)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Licensed Waste Management Facilities (Locations)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Local Authority Landfill Coverage</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Local Authority Recorded Landfill Sites</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	April 2003 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Registered Landfill Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Transfer Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Treatment or Disposal Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
<b>Control of Major Accident Hazards Sites (COMAH)</b> Health and Safety Executive	August 2014	Bi-Annually
<b>Explosive Sites</b> Health and Safety Executive	November 2013	Bi-Annually
<b>Notification of Installations Handling Hazardous Substances (NIHHS)</b> Health and Safety Executive	November 2000	Not Applicable
<b>Planning Hazardous Substance Enforcements</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
<b>Planning Hazardous Substance Consents</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
Geological	Version	Update Cycle
<b>BGS 1:625,000 Solid Geology</b> British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
<b>BGS Estimated Soil Chemistry</b> British Geological Survey - National Geoscience Information Service	January 2010	Annually
<b>BGS Recorded Mineral Sites</b> British Geological Survey - National Geoscience Information Service	April 2014	Bi-Annually
<b>Brine Compensation Area</b> Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
<b>Coal Mining Affected Areas</b> The Coal Authority - Mining Report Service	December 2013	As notified
<b>Mining Instability</b> Ove Arup & Partners	October 2000	Not Applicable
<b>Non Coal Mining Areas of Great Britain</b> British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
<b>Potential for Collapsible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Compressible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Ground Dissolution Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Landslide Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Running Sand Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Radon Potential - Radon Affected Areas</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually
<b>Radon Potential - Radon Protection Measures</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
<b>Contemporary Trade Directory Entries</b> Thomson Directories	August 2014	Quarterly
<b>Fuel Station Entries</b> Catalist Ltd - Experian	August 2014	Quarterly
Sensitive Land Use	Version	Update Cycle
<b>Areas of Adopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Planning Department	August 2014 May 2011	As notified As notified
<b>Areas of Unadopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	August 2014	As notified
<b>Areas of Outstanding Natural Beauty</b> Natural England	August 2014	Bi-Annually
<b>Environmentally Sensitive Areas</b> Natural England	August 2014	Annually
<b>Forest Parks</b> Forestry Commission	April 1997	Not Applicable
<b>Local Nature Reserves</b> Natural England	October 2014	Bi-Annually
<b>Marine Nature Reserves</b> Natural England	July 2013	Bi-Annually
<b>National Nature Reserves</b> Natural England	September 2014	Bi-Annually
<b>National Parks</b> Natural England	August 2014	Bi-Annually
<b>Nitrate Sensitive Areas</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
<b>Nitrate Vulnerable Zones</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	July 2014	Annually
<b>Ramsar Sites</b> Natural England	March 2014	Bi-Annually
<b>Sites of Special Scientific Interest</b> Natural England	September 2014	Bi-Annually
<b>Special Areas of Conservation</b> Natural England	March 2014	Bi-Annually
<b>Special Protection Areas</b> Natural England	September 2014	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Centre for Ecology and Hydrology	 <p><b>Centre for Ecology &amp; Hydrology</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
2	<b>Environment Agency - National Customer Contact Centre (NCCC)</b> PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
3	<b>Central Bedfordshire Council - Environmental Health Department</b> Priory House, Monks Walk, Chicksands, Shefford, Bedfordshire, SG17 5TQ	Telephone: 0300 300 8000 Email: info@centralbedfordshire.gov.uk Website: www.centralbedfordshire.gov.uk
4	<b>British Geological Survey - Enquiry Service</b> 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
5	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
6	<b>Central Bedfordshire Council - Planning Department</b> Priory House, Monks Walk, Chicksands, Shefford, Bedfordshire, SG17 5TQ	Telephone: 0300 300 8000 Email: info@centralbedfordshire.gov.uk Website: www.centralbedfordshire.gov.uk
7	<b>Natural England</b> Suite D, Unex House, Bourges Boulevard, Peterborough, Cambridgeshire, PE1 1NG	Telephone: 0845 600 3078 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
8	<b>Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)</b> Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
9	<b>Bedfordshire County Council (now part of Central Bedfordshire Council)</b> County Hall, Cauldwell Street, Bedford, Bedfordshire, MK42 9AP	Telephone: 01234 363222 Fax: 01234 228656 Website: www.bedfordshire.gov.uk
10	<b>Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department</b> 23 London Road, Biggleswade, Bedford, Bedfordshire, SG18 8ER	Telephone: 01767 313137 Fax: 01767 316717 Website: www.midbeds.gov.uk
11	<b>Bedford Borough Council - Environmental Health Department</b> Town Hall, St Pauls Street, Bedford, Bedfordshire, MK40 1SJ	Telephone: 01234 267422 Fax: 01234 325671 Email: enquiries@bedford.gov.uk Website: www.bedford.gov.uk
-	<b>Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards</b> Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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

## Envirocheck<sup>®</sup> Report:

### BGS Boreholes Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

501510, 239960

**Slice:**

A

**Site Area (Ha):**

240.61

**Borehole Search Buffer (m):**

50

#### Site Details:

Millbrook Power Project

Green Lane

Stewartby

#### Client Details:

Ms K Riley

Brett Consulting Ltd

Caversham Bridge House

Waterman Place

Reading

Berkshire

RG1 8DN

Data Type	Page Number	On Site	0 to 50m
BGS Boreholes (50m)	pg 1	37	7

## Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

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

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A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

## Report Version v49.0



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	<b>BGS Boreholes</b> BGS Reference: Tl03nw57 Drilled Length (m): 38 Borehole Name: Wheelers Hill 1/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/522854/">http://scans.bgs.ac.uk/sobi_scans/boreholes/522854/</a>	A11SW (W)	0	4	501200 239970
48	<b>BGS Boreholes</b> BGS Reference: Tl03nw58 Drilled Length (m): 37 Borehole Name: Wheelers Hill 7/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/522855/">http://scans.bgs.ac.uk/sobi_scans/boreholes/522855/</a>	A11SW (W)	0	4	501310 239930
49	<b>BGS Boreholes</b> BGS Reference: Tl03nw59 Drilled Length (m): 24 Borehole Name: Wheelers Hill 8/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/522856/">http://scans.bgs.ac.uk/sobi_scans/boreholes/522856/</a>	A10SE (SW)	0	4	501190 239790
50	<b>BGS Boreholes</b> BGS Reference: Tl03nw61 Drilled Length (m): 32 Borehole Name: Wheelers Hill 10/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/522858/">http://scans.bgs.ac.uk/sobi_scans/boreholes/522858/</a>	A10SE (W)	0	4	501090 239980
51	<b>BGS Boreholes</b> BGS Reference: Tl04sw64 Drilled Length (m): 35.97 Borehole Name: Lbc Rookery Field 32 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524418/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524418/</a>	A15NE (N)	0	4	501540 240980
51	<b>BGS Boreholes</b> BGS Reference: Tl04sw84 Drilled Length (m): 54.9 Borehole Name: Lbc Rookery Field 8/51 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524438/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524438/</a>	A15NE (N)	0	4	501540 240980
52	<b>BGS Boreholes</b> BGS Reference: Tl04sw67 Drilled Length (m): 15.85 Borehole Name: Lbc Rookery Field 35 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524421/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524421/</a>	A15SE (N)	0	4	501550 240420
52	<b>BGS Boreholes</b> BGS Reference: Tl04sw143 Drilled Length (m): 24.69 Borehole Name: Lbc Wheeler Mill 4/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524497/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524497/</a>	A15SW (N)	0	4	501530 240450
53	<b>BGS Boreholes</b> BGS Reference: Tl04sw68 Drilled Length (m): 14.94 Borehole Name: Lbc Rookery Field 36 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524422/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524422/</a>	A10NE (NW)	0	4	501190 240300
54	<b>BGS Boreholes</b> BGS Reference: Tl04sw70 Drilled Length (m): 32 Borehole Name: Lbc Rookery Field 38 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524424/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524424/</a>	A15SW (N)	0	4	501370 240640
55	<b>BGS Boreholes</b> BGS Reference: Tl04sw79 Drilled Length (m): 28.65 Borehole Name: Lbc Rookery Field 2/51 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524433/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524433/</a>	A15NW (N)	0	4	501220 240850
56	<b>BGS Boreholes</b> BGS Reference: Tl04sw82 Drilled Length (m): 16 Borehole Name: Lbc Rookery Field 6/51 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524436/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524436/</a>	A14NE (NW)	0	4	501110 240870

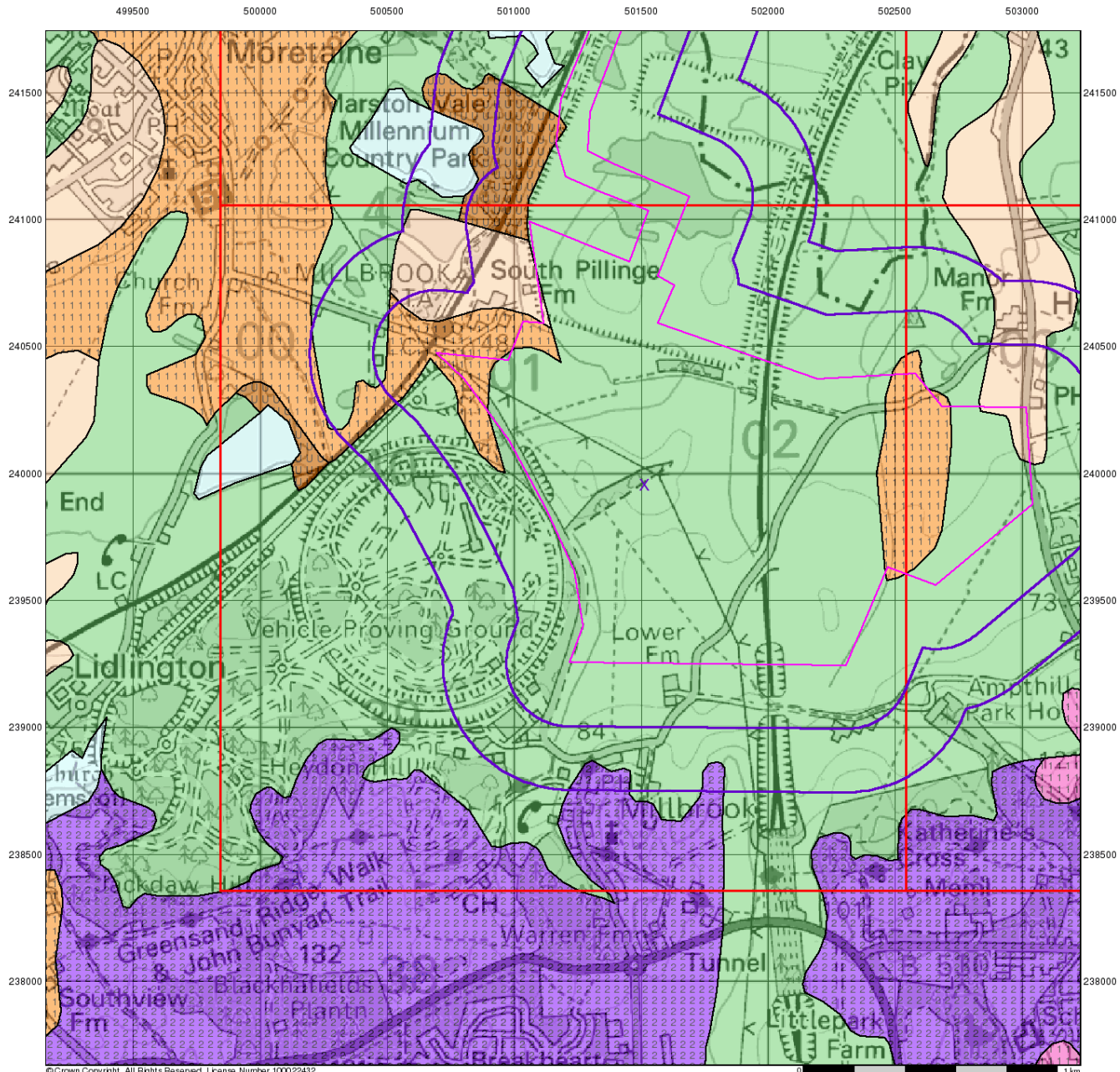
Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	<b>BGS Boreholes</b> BGS Reference: Tl04sw135 Drilled Length (m): 18.59 Borehole Name: Lbc Wheelers Mill 2/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524489/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524489/</a>	A11NW (NW)	0	4	501260 240220
58	<b>BGS Boreholes</b> BGS Reference: Tl04sw136 Drilled Length (m): 27.43 Borehole Name: Lbc Wheelers Mill 3/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524490/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524490/</a>	A11NW (NW)	0	4	501380 240130
59	<b>BGS Boreholes</b> BGS Reference: Tl04sw137 Drilled Length (m): 29.26 Borehole Name: Lbc Wheelers Mill 4/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524491/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524491/</a>	A11NE (N)	0	4	501560 240180
60	<b>BGS Boreholes</b> BGS Reference: Tl04sw138 Drilled Length (m): 35.97 Borehole Name: Lbc Wheelers Mill 5/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524492/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524492/</a>	A11SE (NE)	0	4	501610 240040
61	<b>BGS Boreholes</b> BGS Reference: Tl04sw139 Drilled Length (m): 32 Borehole Name: Lbc Wheelers Mill 6/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524493/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524493/</a>	A11SW (NW)	0	4	501450 240000
62	<b>BGS Boreholes</b> BGS Reference: Tl04sw141 Drilled Length (m): 29.26 Borehole Name: Lbc Wheelers Mill 2/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524495/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524495/</a>	A12NW (NE)	0	4	501910 240330
63	<b>BGS Boreholes</b> BGS Reference: Tl04sw142 Drilled Length (m): 26.21 Borehole Name: Lbc Wheeler Mill 3/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524496/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524496/</a>	A11NE (NE)	0	4	501740 240380
64	<b>BGS Boreholes</b> BGS Reference: Tl04sw144 Drilled Length (m): 26.21 Borehole Name: Lbc Wheeler Mill 5/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524498/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524498/</a>	A11NW (N)	0	4	501480 240350
65	<b>BGS Boreholes</b> BGS Reference: Tl04sw147 Drilled Length (m): 15.62 Borehole Name: Lbc Wheeler Mill 8/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524501/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524501/</a>	A14SE (NW)	0	4	500920 240390
66	<b>BGS Boreholes</b> BGS Reference: Tl04sw149 Drilled Length (m): 17.14 Borehole Name: Lbc Wheeler Mill 10/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524503/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524503/</a>	A10NE (NW)	0	4	500980 240180
67	<b>BGS Boreholes</b> BGS Reference: Tl04sw150 Drilled Length (m): 15.62 Borehole Name: Lbc Wheeler Mill 11/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524504/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524504/</a>	A10NE (NW)	0	4	500970 240250
68	<b>BGS Boreholes</b> BGS Reference: Tl04sw151 Drilled Length (m): 23.24 Borehole Name: Lbc Wheeler Mill 12/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524505/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524505/</a>	A15SW (N)	0	4	501340 240560

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
69	<b>BGS Boreholes</b> BGS Reference: Tl04sw152 Drilled Length (m): 27.76 Borehole Name: Lbc Wheeler Mill 13/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524506/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524506/</a>	A14SE (NW)	0	4	501190 240610
69	<b>BGS Boreholes</b> BGS Reference: Tl04sw514 Drilled Length (m): 27 Borehole Name: Wheelers Hill Stewartby 4/80 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524868/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524868/</a>	A14SE (NW)	0	4	501190 240610
70	<b>BGS Boreholes</b> BGS Reference: Tl04sw153 Drilled Length (m): 30.86 Borehole Name: Lbc Wheeler Mill 14/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524507/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524507/</a>	A15NW (N)	0	4	501240 240730
71	<b>BGS Boreholes</b> BGS Reference: Tl04sw158 Drilled Length (m): 33.83 Borehole Name: Lbc Wheeler Mill 5/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524512/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524512/</a>	A15SW (N)	0	4	501420 240710
72	<b>BGS Boreholes</b> BGS Reference: Tl04sw159 Drilled Length (m): 33.83 Borehole Name: Lbc Wheeler Mill 6/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524513/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524513/</a>	A15NW (N)	0	4	501490 240830
73	<b>BGS Boreholes</b> BGS Reference: Tl04sw164 Drilled Length (m): 18.59 Borehole Name: Lbc Wheeler Mill 11/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524518/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524518/</a>	A14NE (N)	0	4	501110 240950
74	<b>BGS Boreholes</b> BGS Reference: Tl04sw169 Drilled Length (m): 18.59 Borehole Name: Lbc Wheeler Mill 16/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524523/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524523/</a>	A11NW (NW)	0	4	501210 240250
75	<b>BGS Boreholes</b> BGS Reference: Tl04sw170 Drilled Length (m): 15.54 Borehole Name: Lbc Wheeler Mill 17/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524524/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524524/</a>	A10NE (NW)	0	4	501040 240340
76	<b>BGS Boreholes</b> BGS Reference: Tl04sw171 Drilled Length (m): 12.5 Borehole Name: Lbc Wheeler Mill 18/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524525/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524525/</a>	A14SE (NW)	0	4	501130 240490
77	<b>BGS Boreholes</b> BGS Reference: Tl04sw172 Drilled Length (m): 21.64 Borehole Name: Lbc Wheeler Mill 19/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524526/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524526/</a>	A11NW (NW)	0	4	501300 240320
78	<b>BGS Boreholes</b> BGS Reference: Tl04sw177 Drilled Length (m): 23.16 Borehole Name: Lbc Wheeler Mill 3/68 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524531/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524531/</a>	A15SW (N)	0	4	501220 240680
79	<b>BGS Boreholes</b> BGS Reference: Tl03nw60 Drilled Length (m): 41 Borehole Name: Wheelers Hill 9/71 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/522857/">http://scans.bgs.ac.uk/sobi_scans/boreholes/522857/</a>	A11SW (W)	0	4	501250 239910

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
80	<b>BGS Boreholes</b> BGS Reference: Tl04sw173 Drilled Length (m): 18.59 Borehole Name: Lbc Wheeler Mill 20/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524527/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524527/</a>	A14SE (NW)	0	4	501160 240540
81	<b>BGS Boreholes</b> BGS Reference: Tl04sw176 Drilled Length (m): 35.36 Borehole Name: Lbc Wheeler Mill 2/68 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524530/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524530/</a>	A15NW (N)	1	4	501340 240880
82	<b>BGS Boreholes</b> BGS Reference: Tl04sw178 Drilled Length (m): 30.78 Borehole Name: Lbc Wheeler Mill 4/68 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524532/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524532/</a>	A15SE (N)	11	4	501600 240590
83	<b>BGS Boreholes</b> BGS Reference: Tl04sw140 Drilled Length (m): 27.74 Borehole Name: Lbc Wheelers Mill 1/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524494/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524494/</a>	A16SW (NE)	28	4	501940 240490
84	<b>BGS Boreholes</b> BGS Reference: Tl04sw160 Drilled Length (m): 32.31 Borehole Name: Lbc Wheeler Mill 7/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524514/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524514/</a>	A15SE (N)	32	4	501750 240560
85	<b>BGS Boreholes</b> BGS Reference: Tl04sw148 Drilled Length (m): 14.1 Borehole Name: Lbc Wheeler Mill 9/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524502/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524502/</a>	A14SE (NW)	36	4	500980 240550
86	<b>BGS Boreholes</b> BGS Reference: Tl04sw248 Drilled Length (m): 32.92 Borehole Name: Gt Ouse R.A/Cegb Site Invest 11 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524602/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524602/</a>	A16SW (NE)	43	4	501870 240530
87	<b>BGS Boreholes</b> BGS Reference: Tl04sw175 Drilled Length (m): 38.4 Borehole Name: Lbc Wheeler Mill 1/68 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524529/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524529/</a>	A15NE (N)	50	4	501680 240750

BGS Boreholes	Version	Update Cycle
<b>BGS Boreholes</b> British Geological Survey - National Geoscience Information Service	August 2014	Quarterly

Contact Details	Contact Logo
<p><b>4 British Geological Survey - Enquiry Service</b></p> <p>British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG</p> <p>Telephone: 0115 936 3143            Fax: 0115 936 3276            Email: enquiries@bgs.ac.uk            Website: www.bgs.ac.uk</p>	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
<p><b>- Landmark Information Group Limited</b></p> <p>Imperium, Imperial Way, Reading, Berkshire, RG2 0TD</p> <p>Telephone: 0844 844 9952            Fax: 0844 844 9951            Email: customerservices@landmarkinfo.co.uk            Website: www.landmarkinfo.co.uk</p>	 <p><b>LANDMARK</b><sup>®</sup> Information Group</p>



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## Groundwater Vulnerability

### General

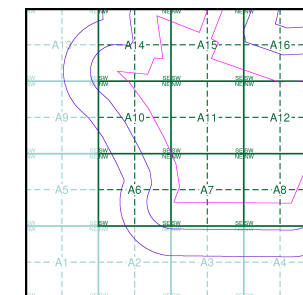
- ▭ Specified Site
- ▭ Specified Buffer(s)
- X Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

- |   |  |
|---|--|
| <p><b>Major Aquifer (Highly Permeable)</b></p> <ul style="list-style-type: none"> <li><span style="background-color: purple; width: 15px; height: 15px; display: inline-block;"></span> High (H) 1, 2, 3, U</li> <li><span style="background-color: pink; width: 15px; height: 15px; display: inline-block;"></span> Intermediate (I) 1, 2</li> <li><span style="background-color: lightpink; width: 15px; height: 15px; display: inline-block;"></span> Low</li> </ul> <p><b>Minor Aquifer (Variably Permeable)</b></p> <ul style="list-style-type: none"> <li><span style="background-color: brown; width: 15px; height: 15px; display: inline-block;"></span> High (H) 1, 2, 3, U</li> <li><span style="background-color: tan; width: 15px; height: 15px; display: inline-block;"></span> Intermediate (I) 1, 2</li> <li><span style="background-color: lighttan; width: 15px; height: 15px; display: inline-block;"></span> Low</li> </ul> <p><b>Non Aquifer (Negligibly Permeable)</b></p> <ul style="list-style-type: none"> <li><span style="background-color: green; width: 15px; height: 15px; display: inline-block;"></span></li> </ul> <p><b>Water or Sea</b></p> <ul style="list-style-type: none"> <li><span style="background-color: lightblue; width: 15px; height: 15px; display: inline-block;"></span></li> </ul> <p><b>Drift Deposit</b></p> <ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; border-bottom: 1px dotted black;"></span></li> </ul> | <p><b>Soil Classes</b></p> <ul style="list-style-type: none"> <li><span style="background-color: purple; width: 15px; height: 15px; display: inline-block;"></span> High (H) 1, 2, 3, U</li> <li><span style="background-color: pink; width: 15px; height: 15px; display: inline-block;"></span> Intermediate (I) 1, 2</li> <li><span style="background-color: lightpink; width: 15px; height: 15px; display: inline-block;"></span> Low</li> <li><span style="background-color: brown; width: 15px; height: 15px; display: inline-block;"></span> High (H) 1, 2, 3, U</li> <li><span style="background-color: tan; width: 15px; height: 15px; display: inline-block;"></span> Intermediate (I) 1, 2</li> <li><span style="background-color: lighttan; width: 15px; height: 15px; display: inline-block;"></span> Low</li> <li><span style="background-color: green; width: 15px; height: 15px; display: inline-block;"></span></li> <li><span style="background-color: lightblue; width: 15px; height: 15px; display: inline-block;"></span></li> <li><span style="display: inline-block; width: 15px; height: 15px; border-bottom: 1px dotted black;"></span></li> </ul> |
|---|--|

### Site Sensitivity Context Map - Slice A



### Order Details

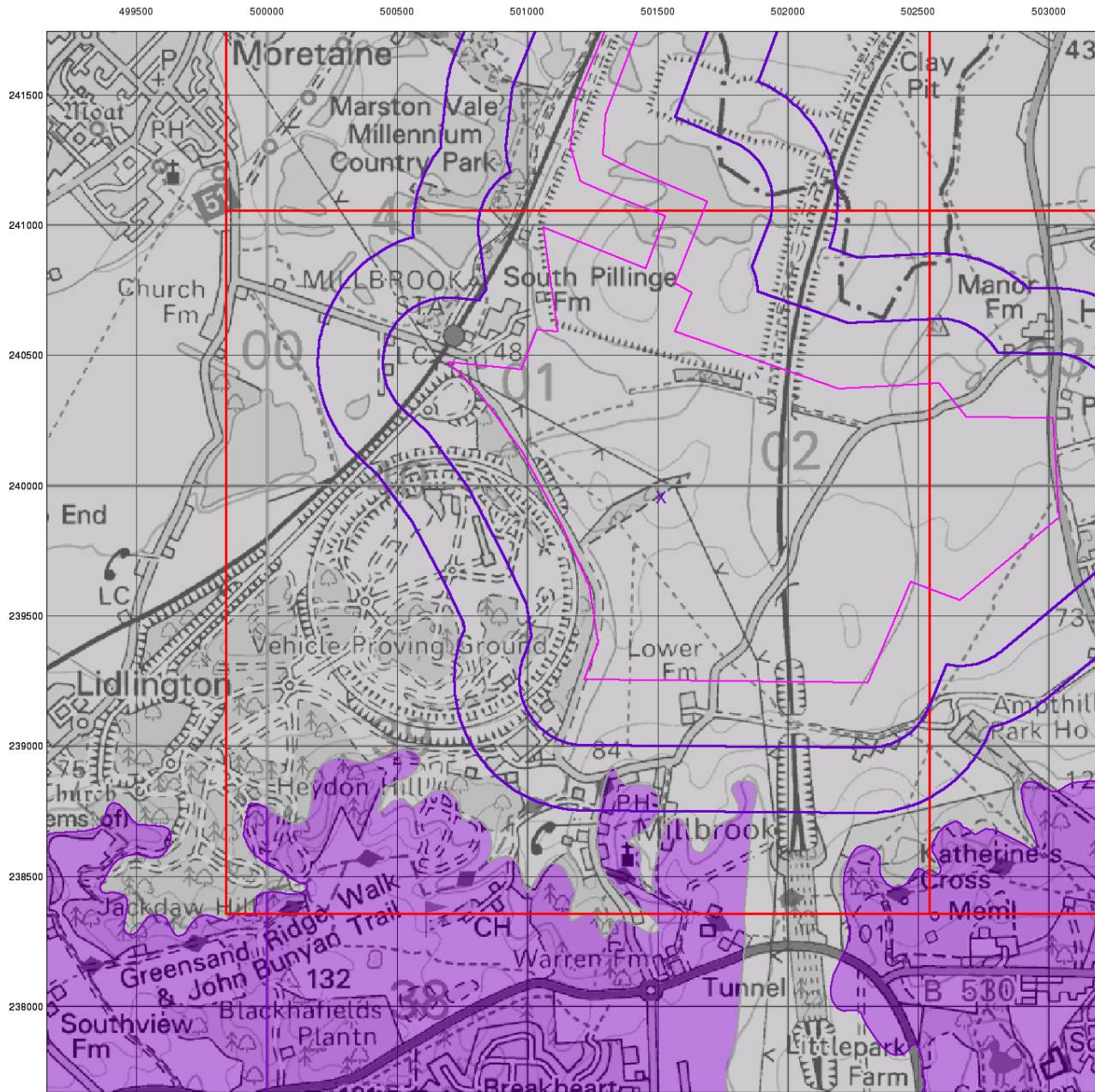
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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0 1 km



## Bedrock Aquifer Designation

### General

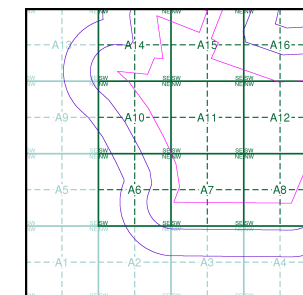
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### 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

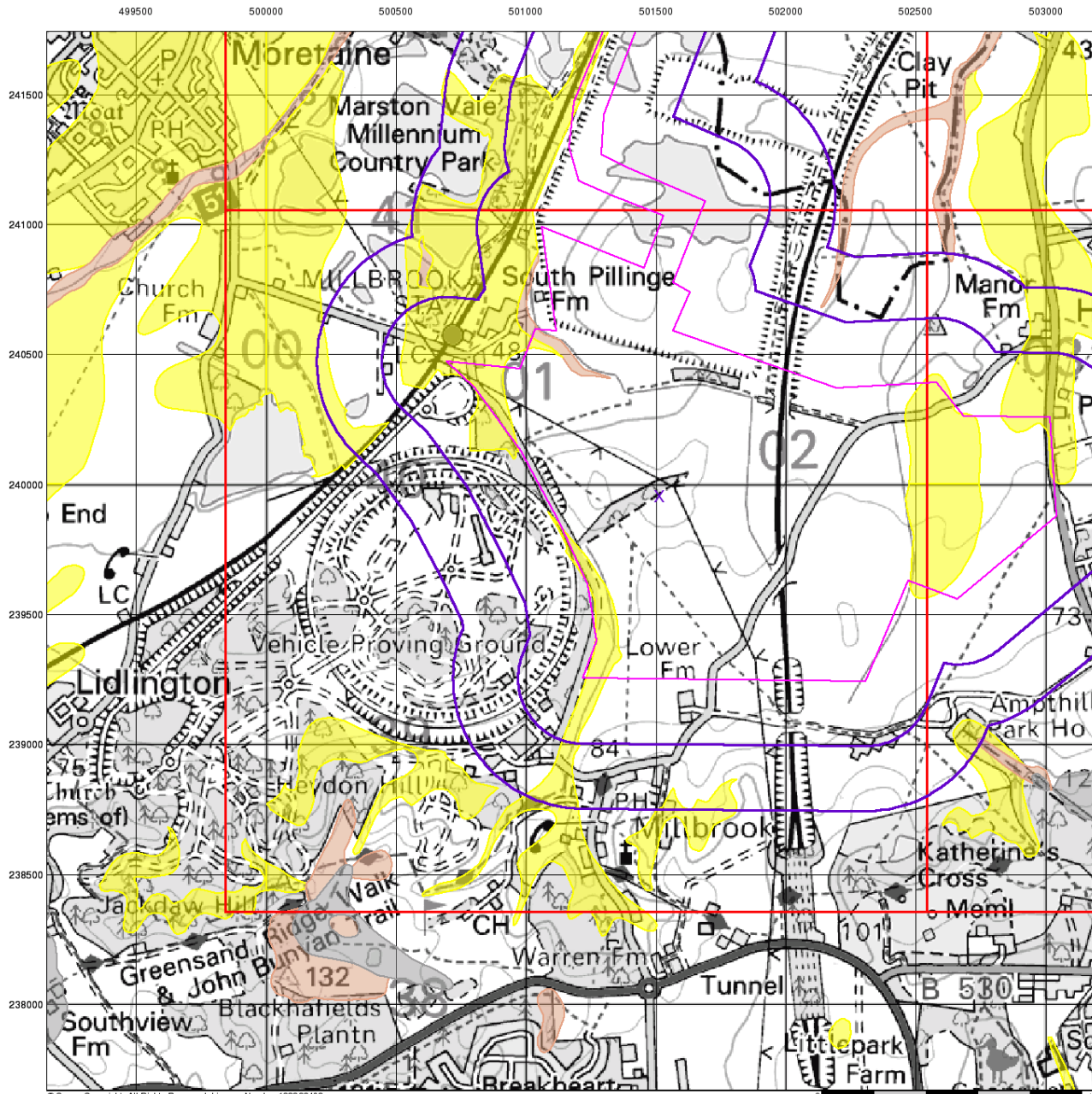
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
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 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

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## Superficial Aquifer Designation

### General

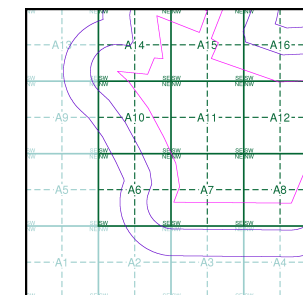
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### 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: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

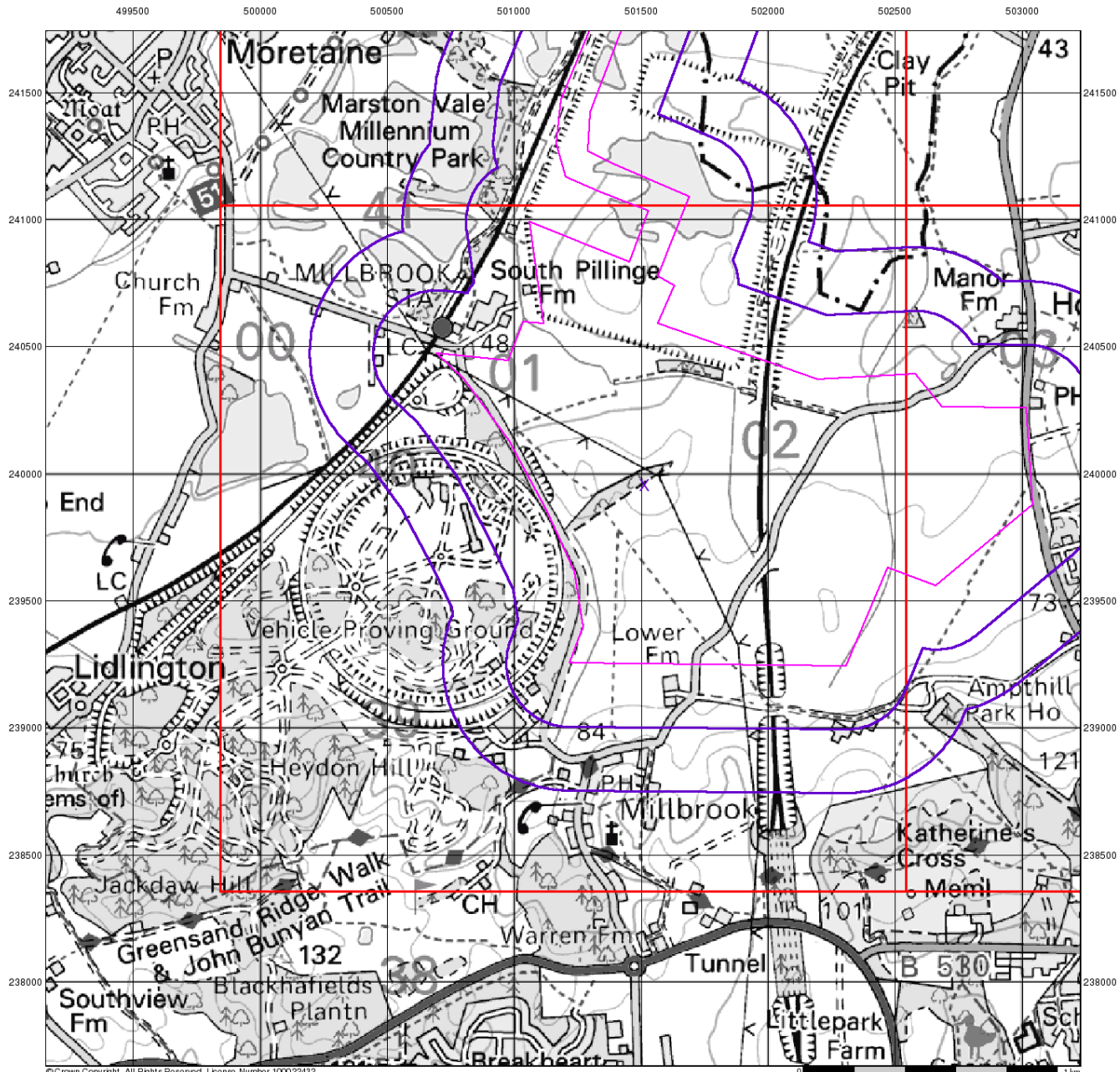
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## Source Protection Zones

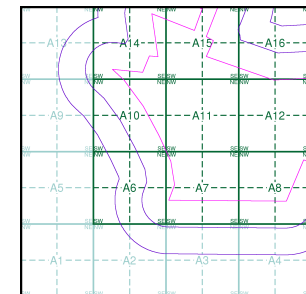
### General

- 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

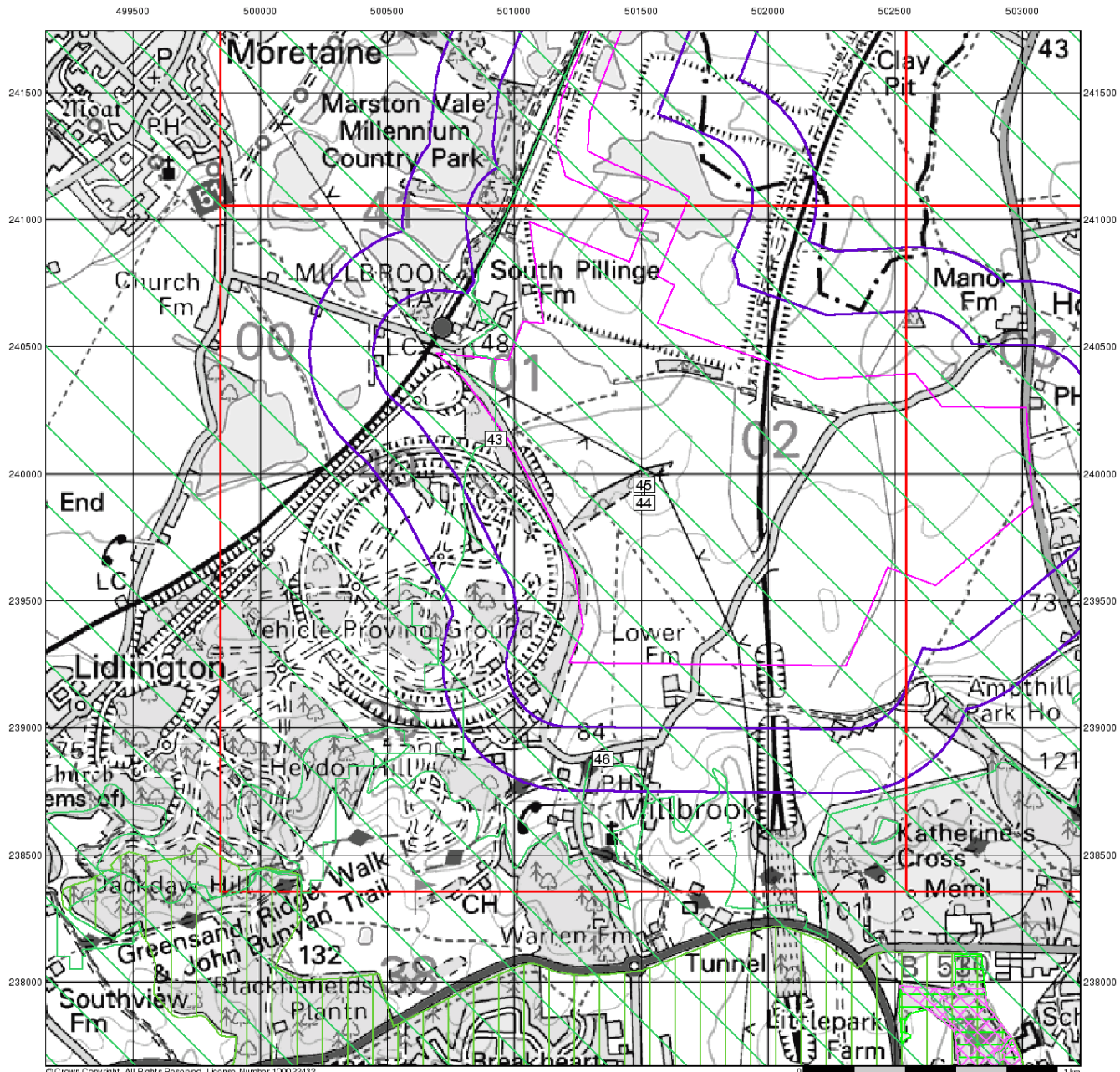
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

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## Sensitive Land Uses

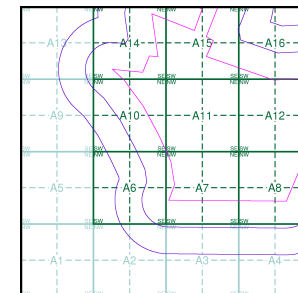
### General

-  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: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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# Historical Mapping Legends

## Ordnance Survey County Series 1:10,560

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

## Ordnance Survey Plan 1:10,000

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

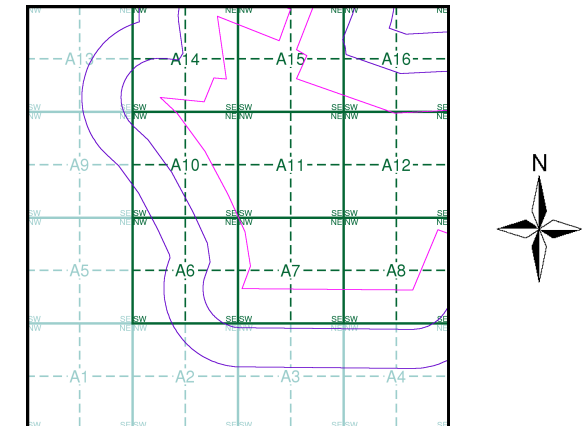
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, 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)
	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
Bedfordshire	1:10,560	1883 - 1884	2
Buckinghamshire	1:10,560	1885	3
Bedfordshire	1:10,560	1901 - 1902	4
Bedfordshire	1:10,560	1927	5
Bedfordshire	1:10,560	1938 - 1947	6
Bedfordshire	1:10,560	1947 - 1948	7
Ordnance Survey Plan	1:10,000	1960	8
Ordnance Survey Plan	1:10,000	1978	9
Ordnance Survey Plan	1:10,000	1982 - 1983	10
Ordnance Survey Plan	1:10,000	1990	11
10K Raster Mapping	1:10,000	2006	12
VectorMap Local	1:10,000	2014	13

## Historical Map - Slice A



## Order Details

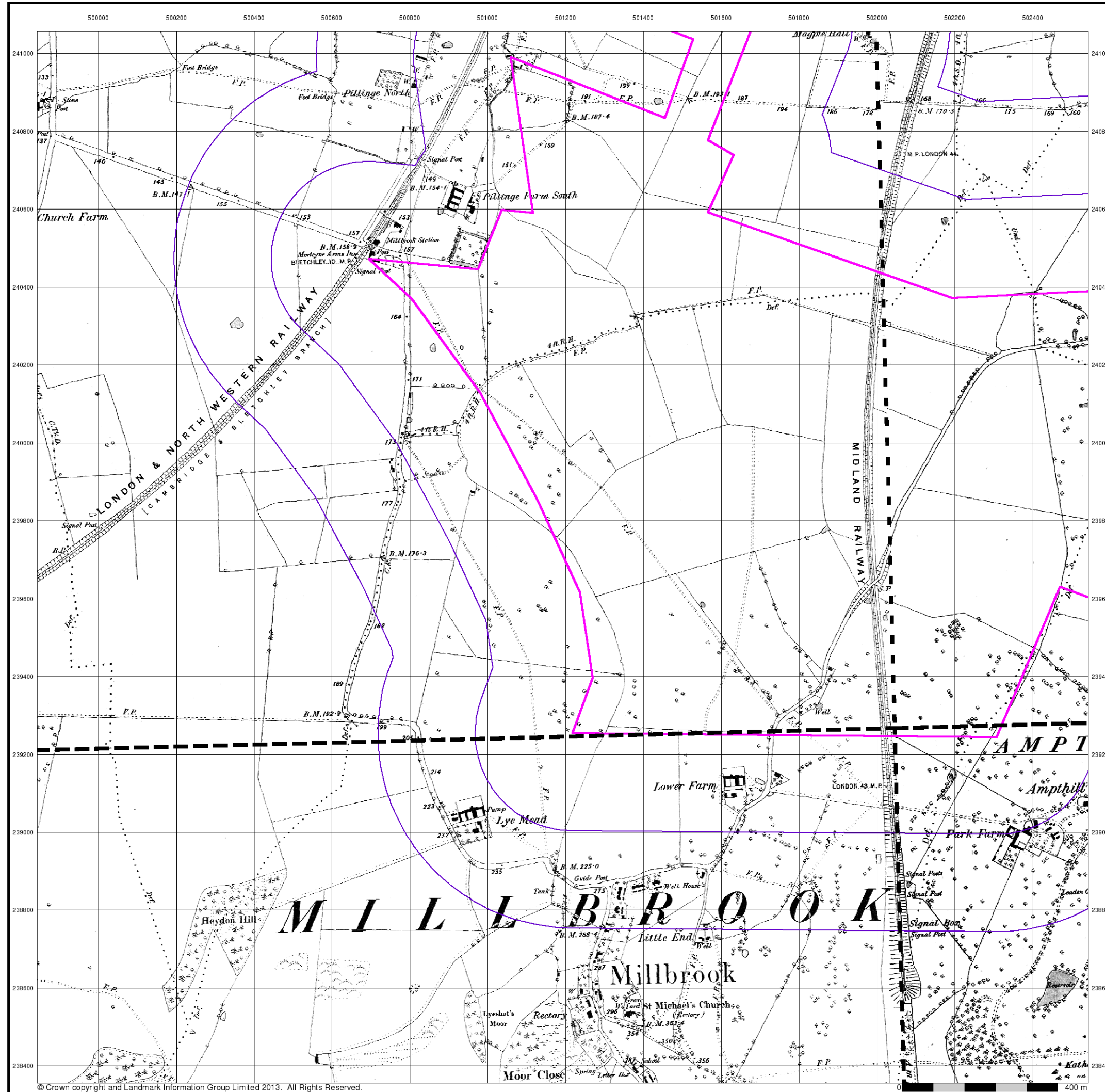
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

## Site Details

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**Bedfordshire**

**Published 1883 - 1884**

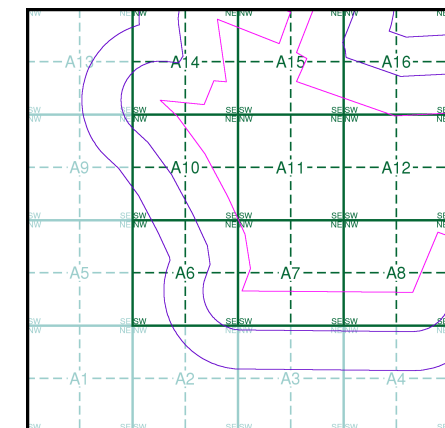
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

021NW 1883 1:10,560	021NE 1884 1:10,560
021SW 1883 1:10,560	021SE 1884 1:10,560

**Historical Map - Slice A**



**Order Details**

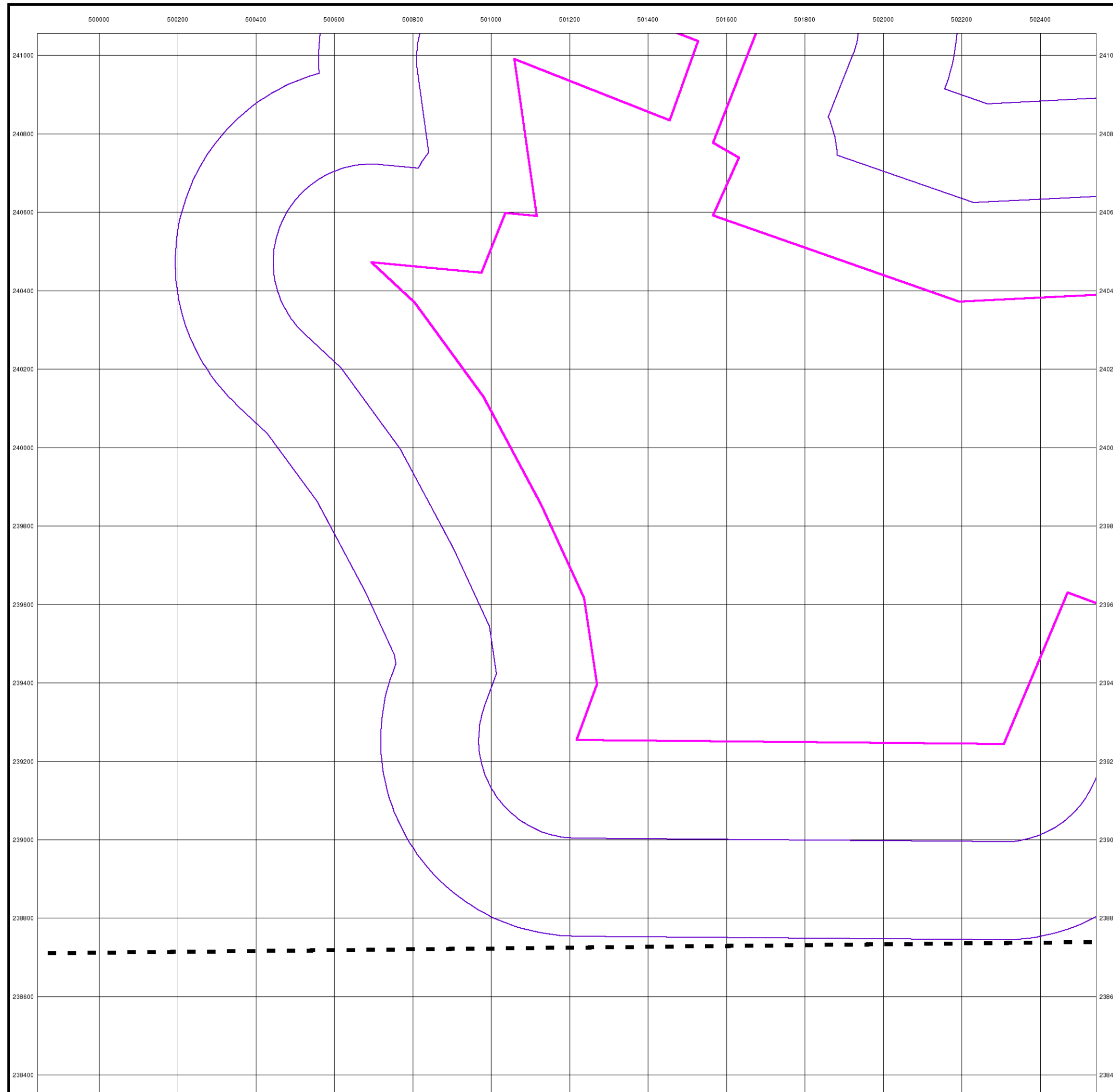
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

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0 400 m



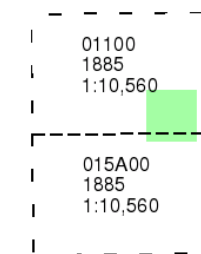
## Buckinghamshire

Published 1885

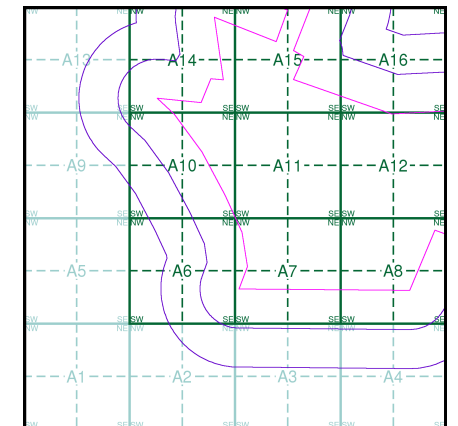
Source map scale - 1:10,560

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

### Map Name(s) and Date(s)



### Historical Map - Slice A



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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Bedfordshire

Published 1901 - 1902

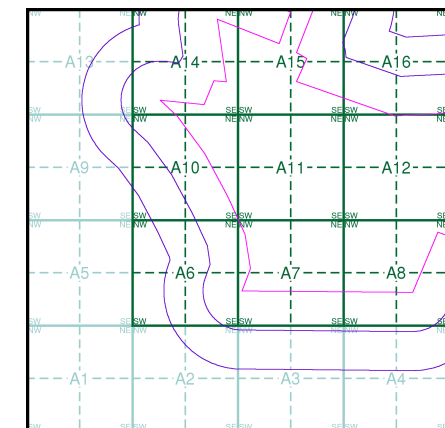
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

021NW 1901 1:10,560	021NE 1901 1:10,560
021SW 1902 1:10,560	021SE 1902 1:10,560

Historical Map - Slice A



Order Details

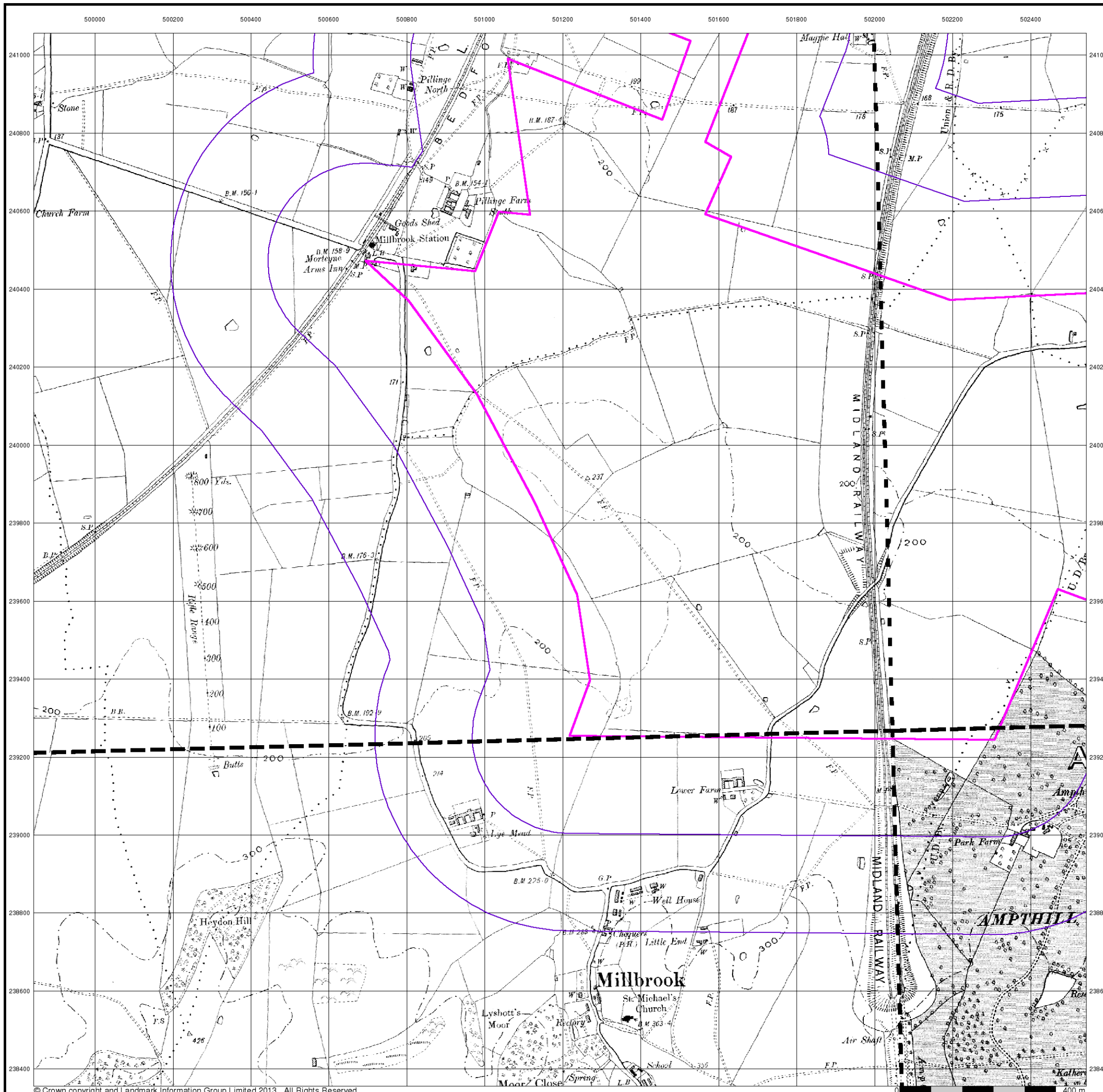
Order Number: 60770728\_1\_1  
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Site Details

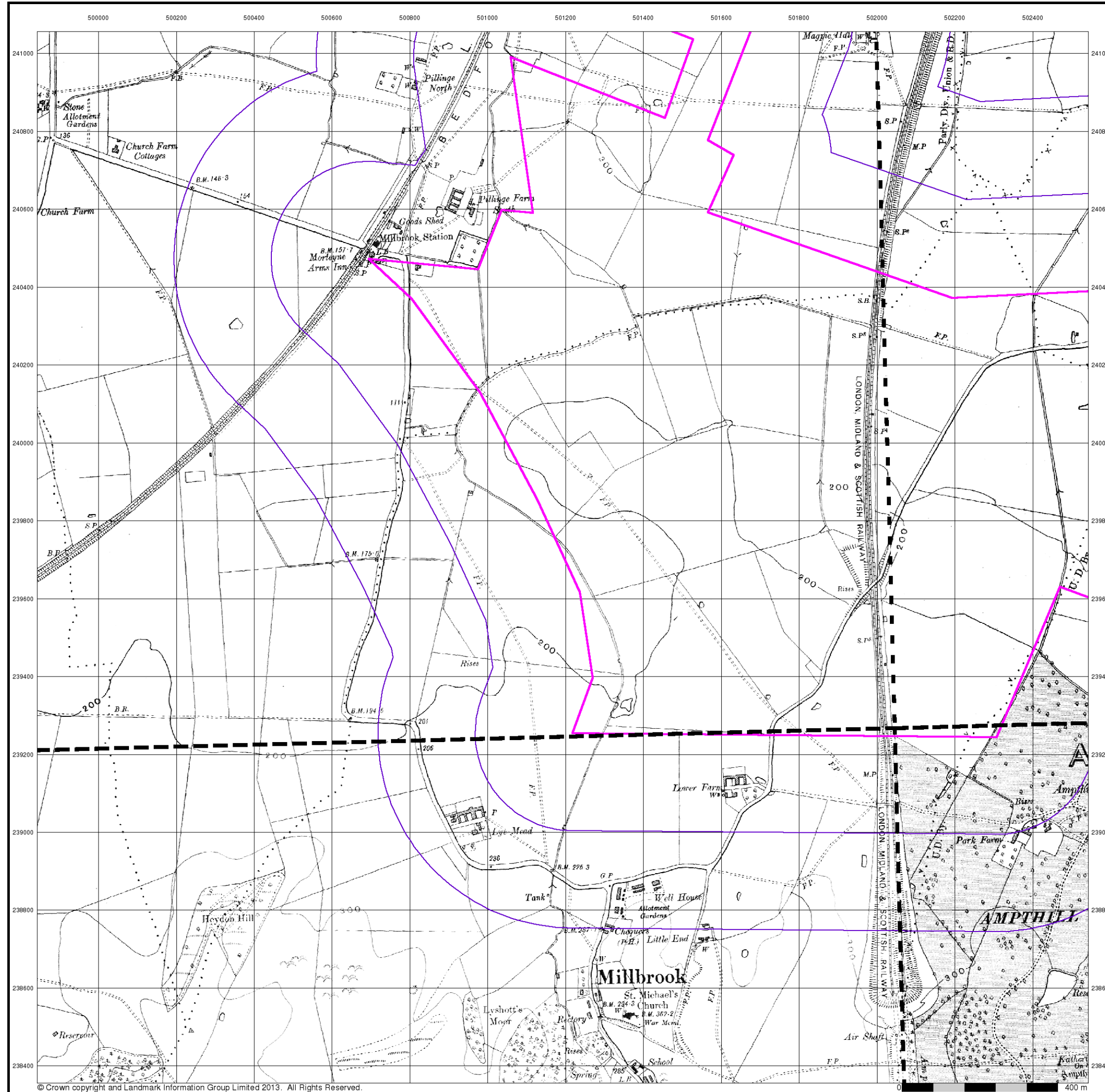
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**Bedfordshire**  
**Published 1927**

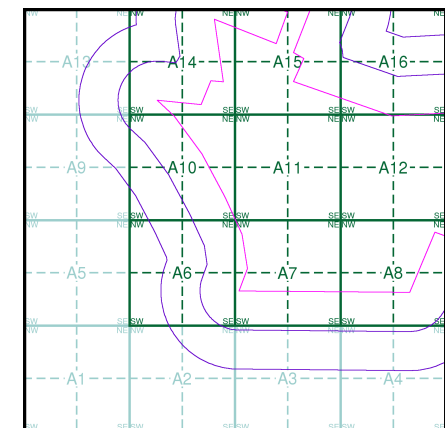
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

021NW 1927 1:10,560	021NE 1927 1:10,560
021SW 1927 1:10,560	021SE 1927 1:10,560

**Historical Map - Slice A**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

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Bedfordshire

Published 1938 - 1947

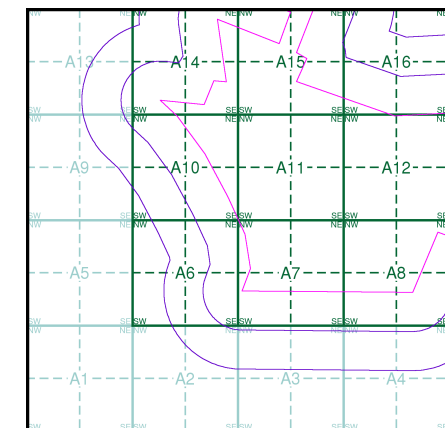
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps.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

Map Name(s) and Date(s)

021NW 1938 1:10,560	021NE 1938 1:10,560
021SW 1947 1:10,560	021SE 1938 1:10,560

Historical Map - Slice A



Order Details

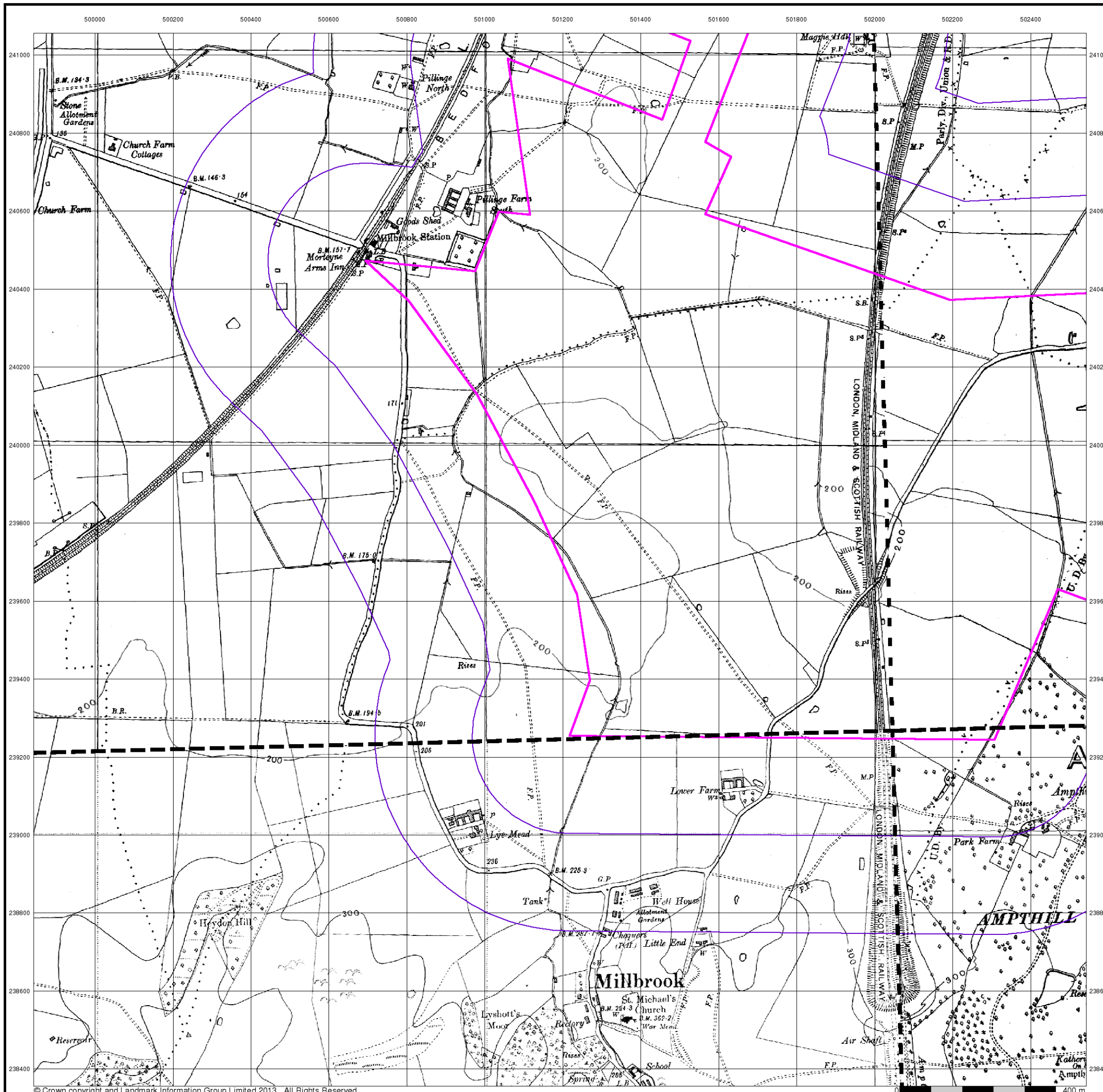
Order Number: 60770728\_1\_1  
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 National Grid Reference: 501510, 239960  
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 Site Area (Ha): 240.61  
 Search Buffer (m): 500

Site Details

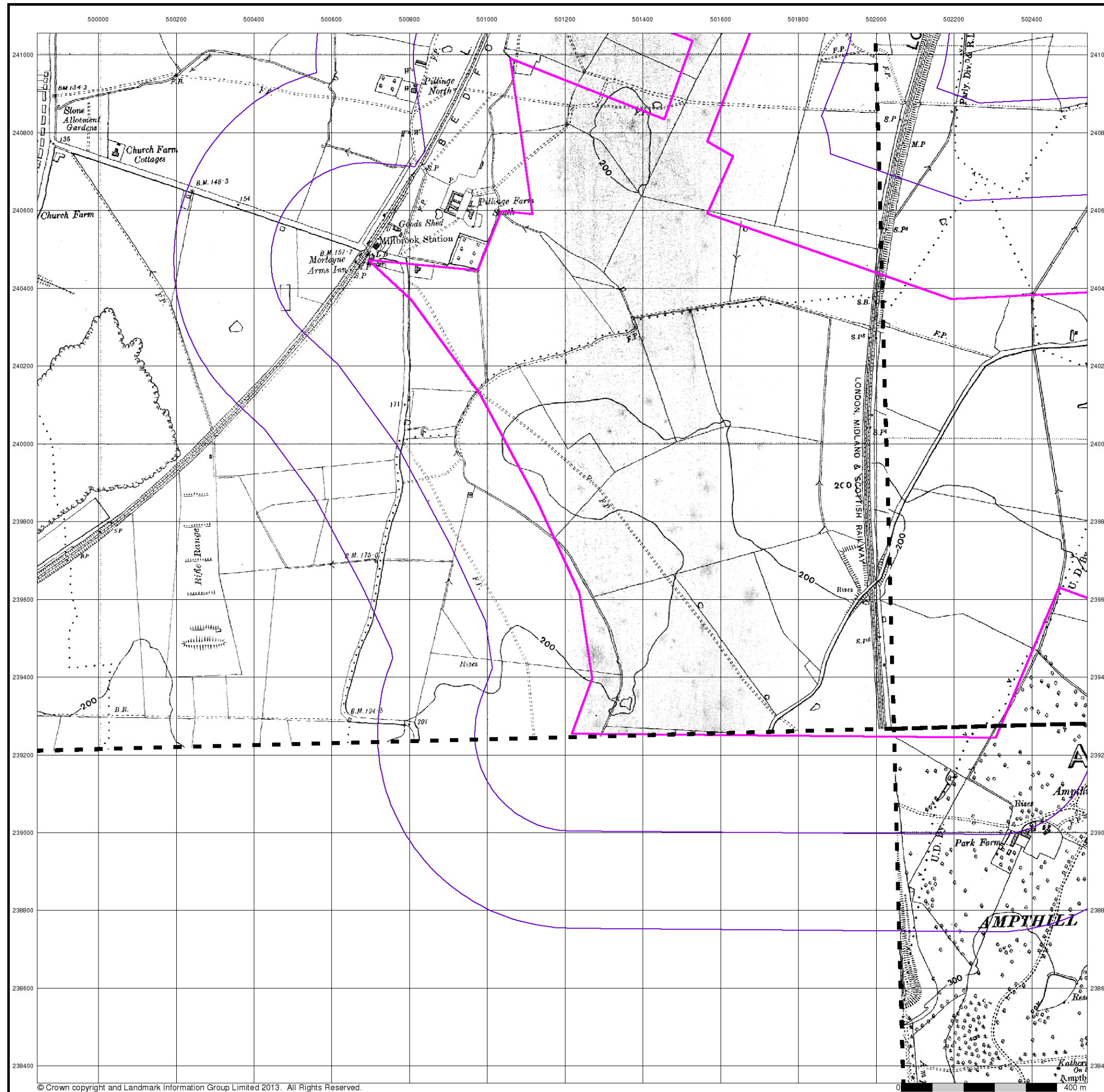
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
## Bedfordshire

Published 1947 - 1948

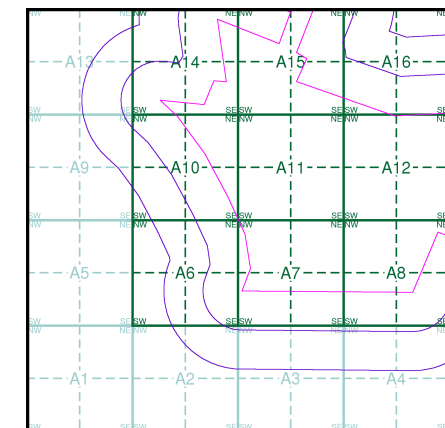
Source map scale - 1:10,560

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

### Map Name(s) and Date(s)

021NW 1947 1:10,560	021NE 1948 1:10,560
	
021SE 1947 1:10,560	

### Historical Map - Slice A



### Order Details

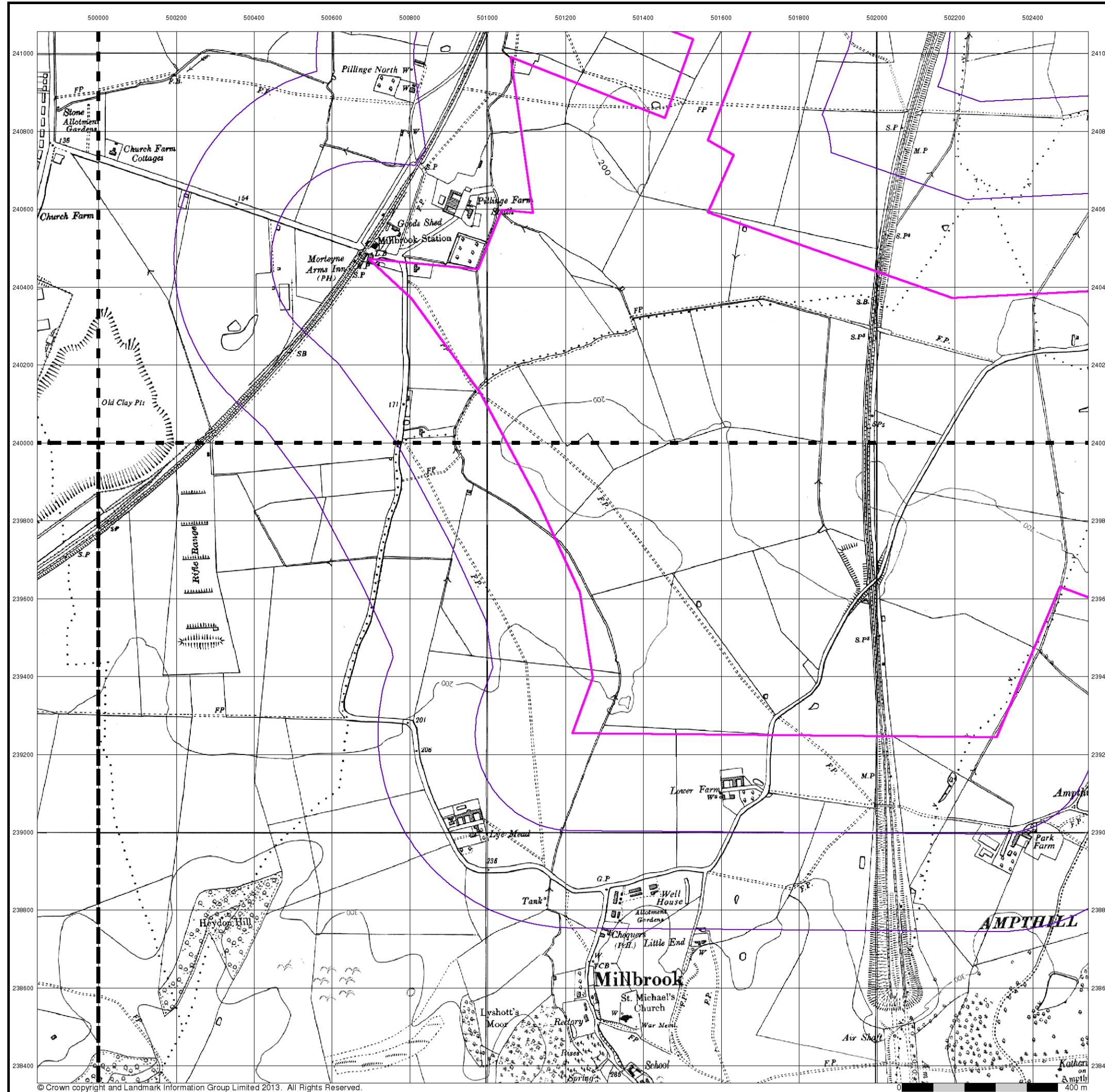
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

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### Ordnance Survey Plan

Published 1960

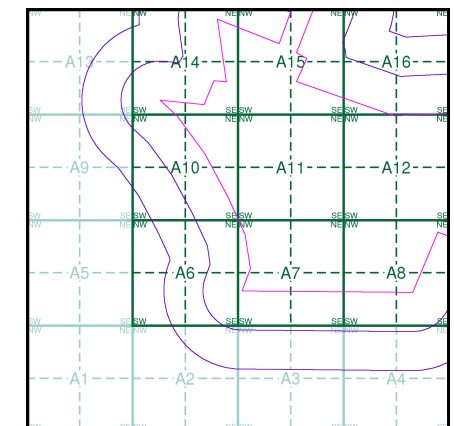
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP94SE	TL04SW
1960	1960
1:10,560	1:10,560
SP93NE	TL03NW
1960	1960
1:10,560	1:10,560

### Historical Map - Slice A



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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



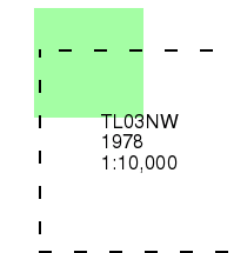
### Ordnance Survey Plan

Published 1978

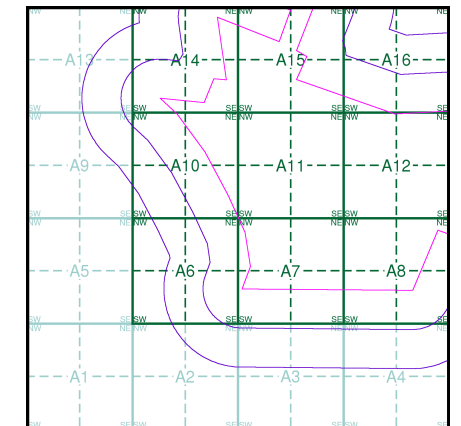
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)



### Historical Map - Slice A



### Order Details

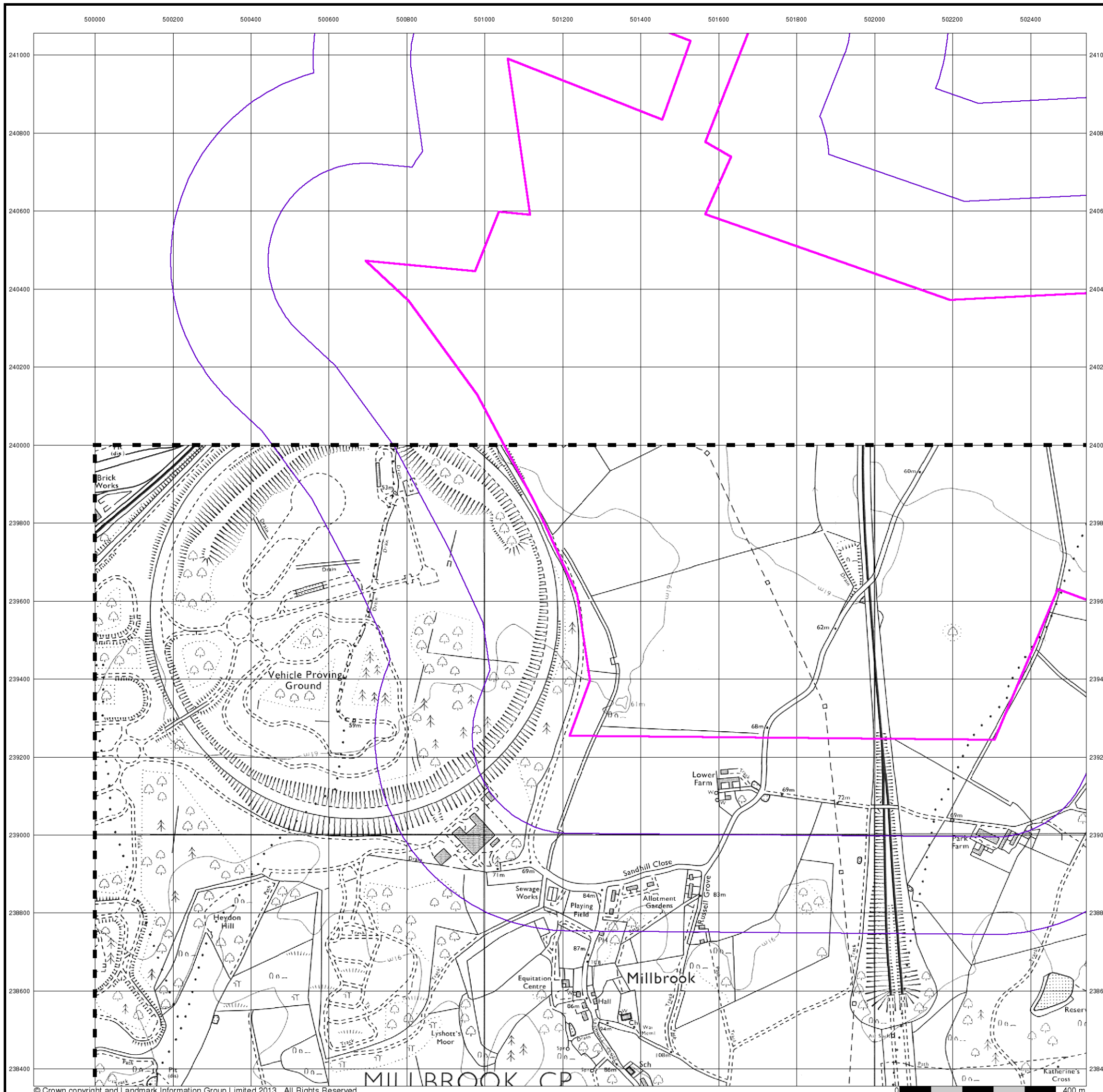
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 500

### Site Details

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### Ordnance Survey Plan

Published 1982 - 1983

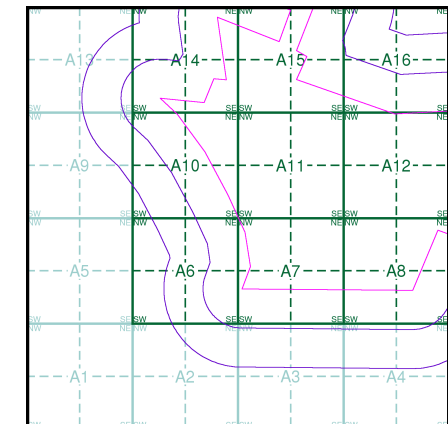
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP94SE	TL04SW
1983	1982
1:10,000	1:10,000
SP93NE	
1982	
1:10,000	

### Historical Map - Slice A



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

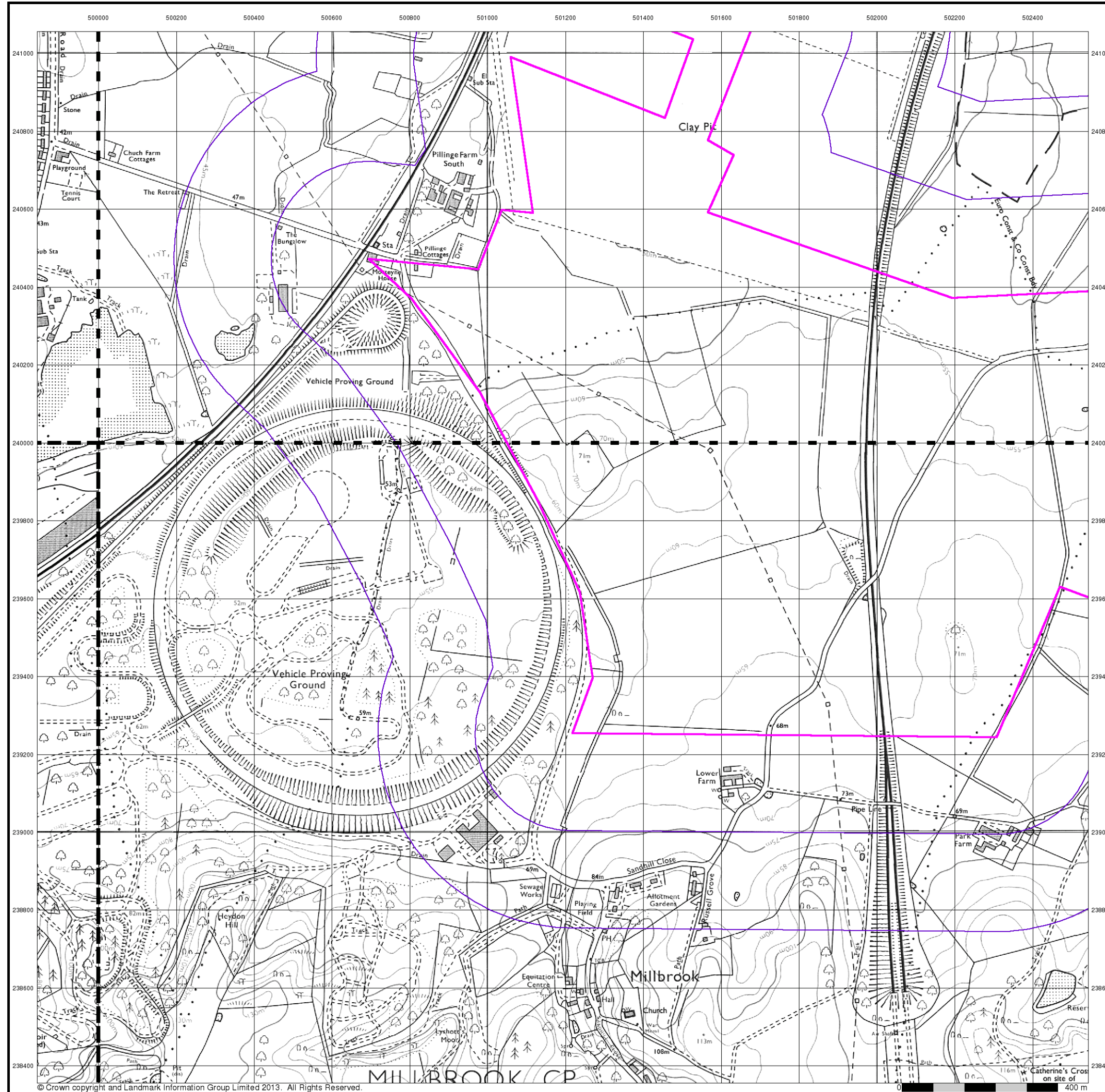
### Site Details

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## Ordnance Survey Plan

Published 1990

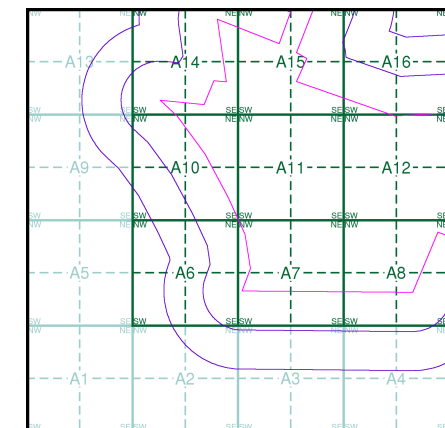
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP94SE	TL04SW
1990	1990
1:10,000	1:10,000
SP93NE	TL03NW
1990	1990
1:10,000	1:10,000

### Historical Map - Slice A



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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 Fax: 0844 844 9951  
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### 10k Raster Mapping

Published 2006

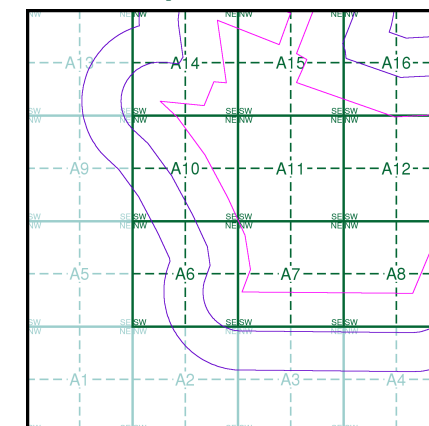
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP94SE	TL04SW
2006	2006
1:10,000	1:10,000
SP93NE	TL03NW
2006	2006
1:10,000	1:10,000

### Historical Map - Slice A



### Order Details

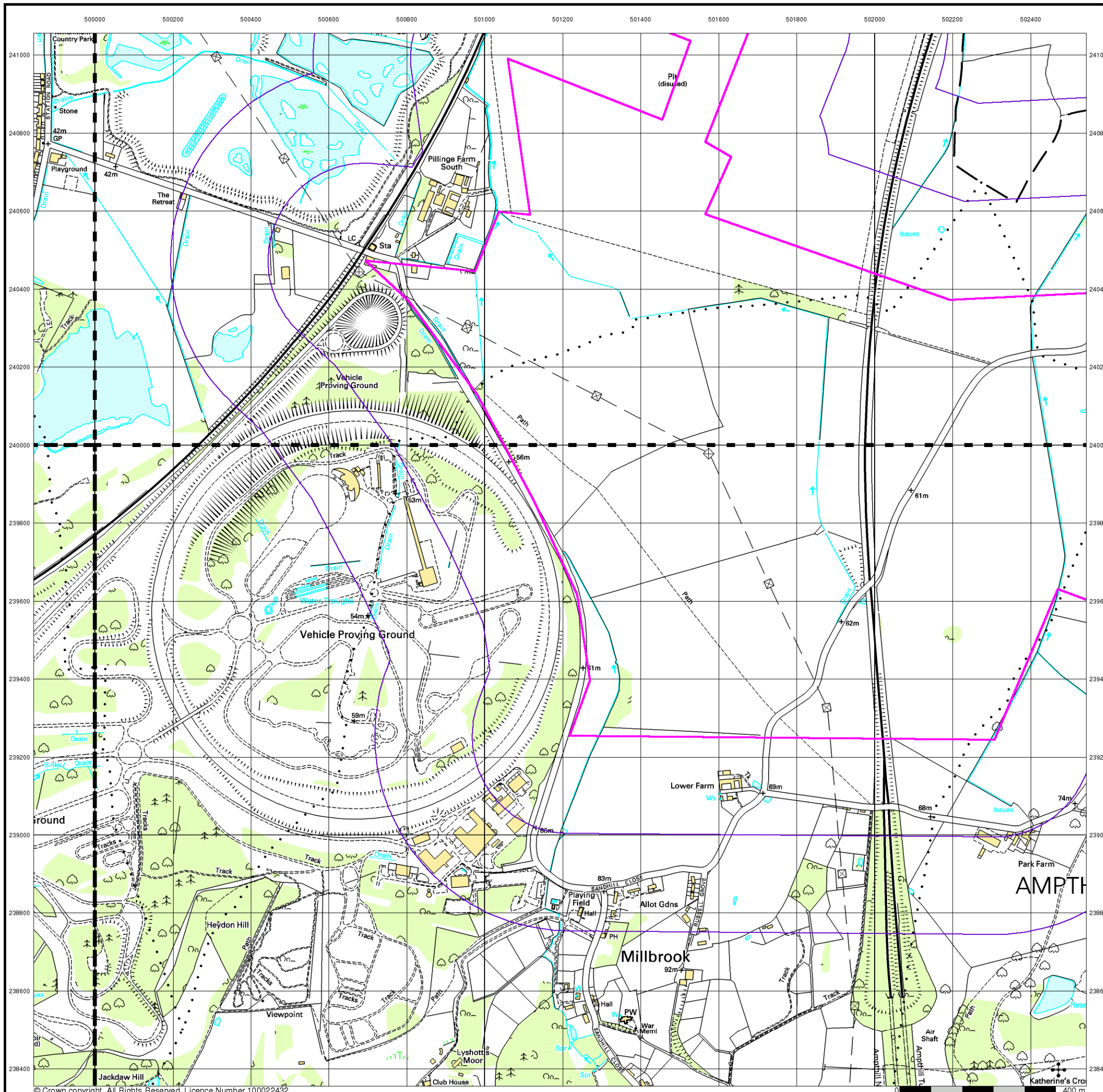
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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### VectorMap Local

Published 2014

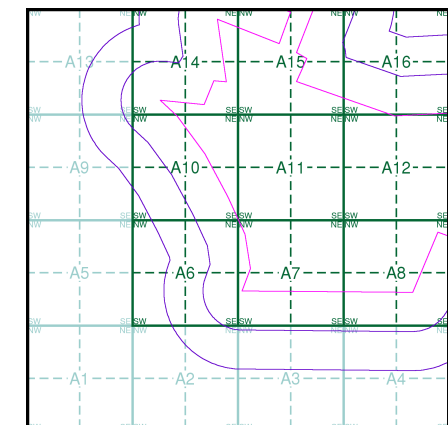
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

SP94SE 2014 Variable	TL04SW 2014 Variable
SP93NE 2014 Variable	TL03NW 2014 Variable

### Historical Map - Slice A



### Order Details

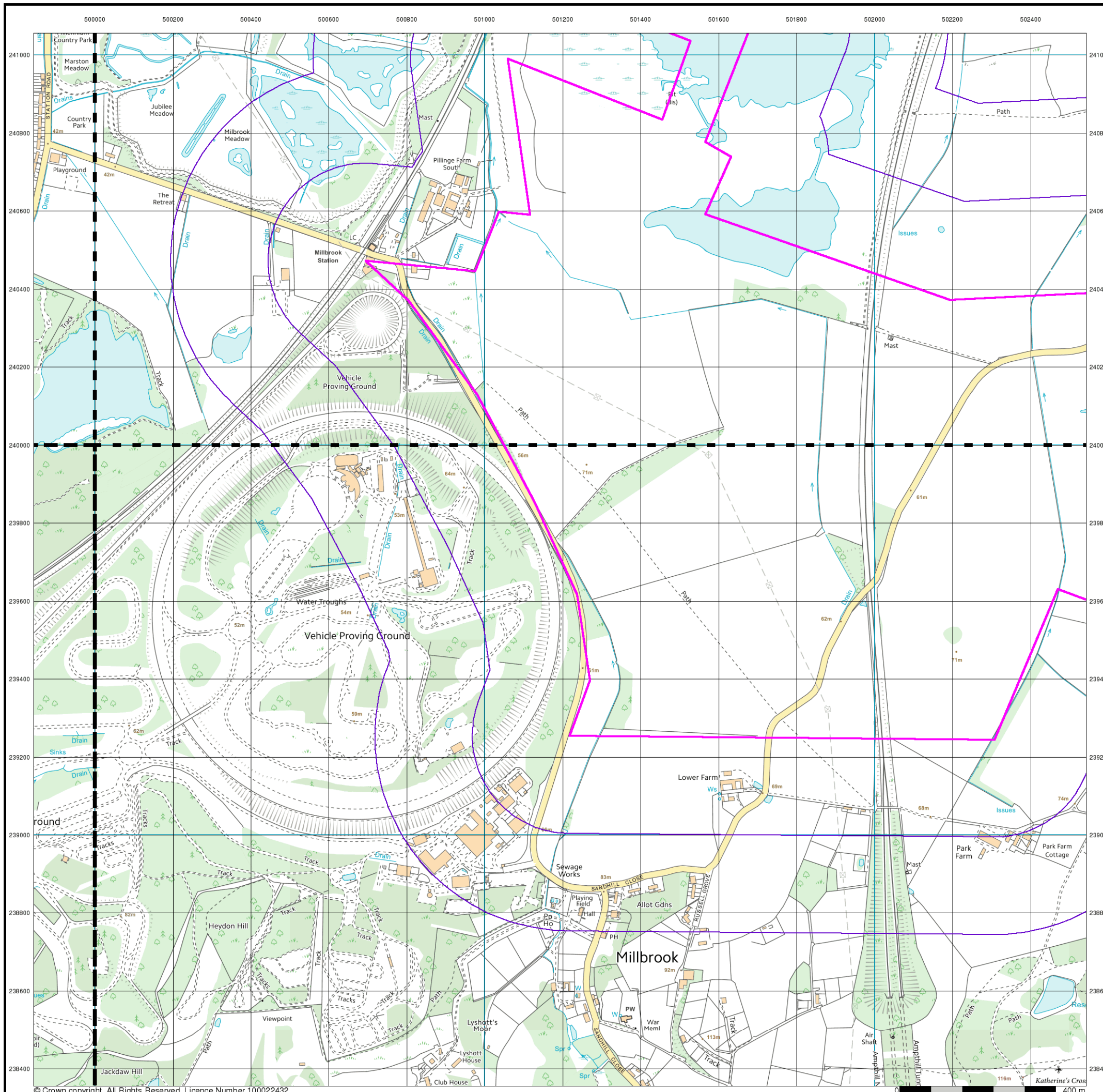
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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



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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 (Location)
- 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

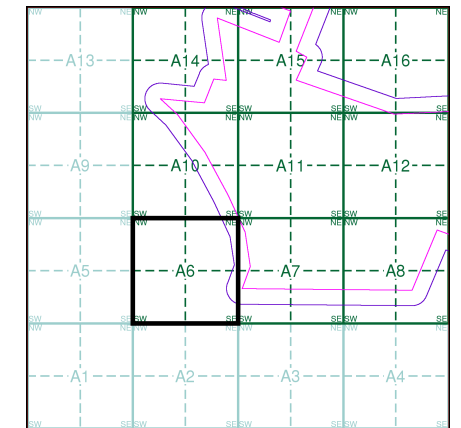
**Geological**

- BGS Recorded Mineral Site

**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment A6**

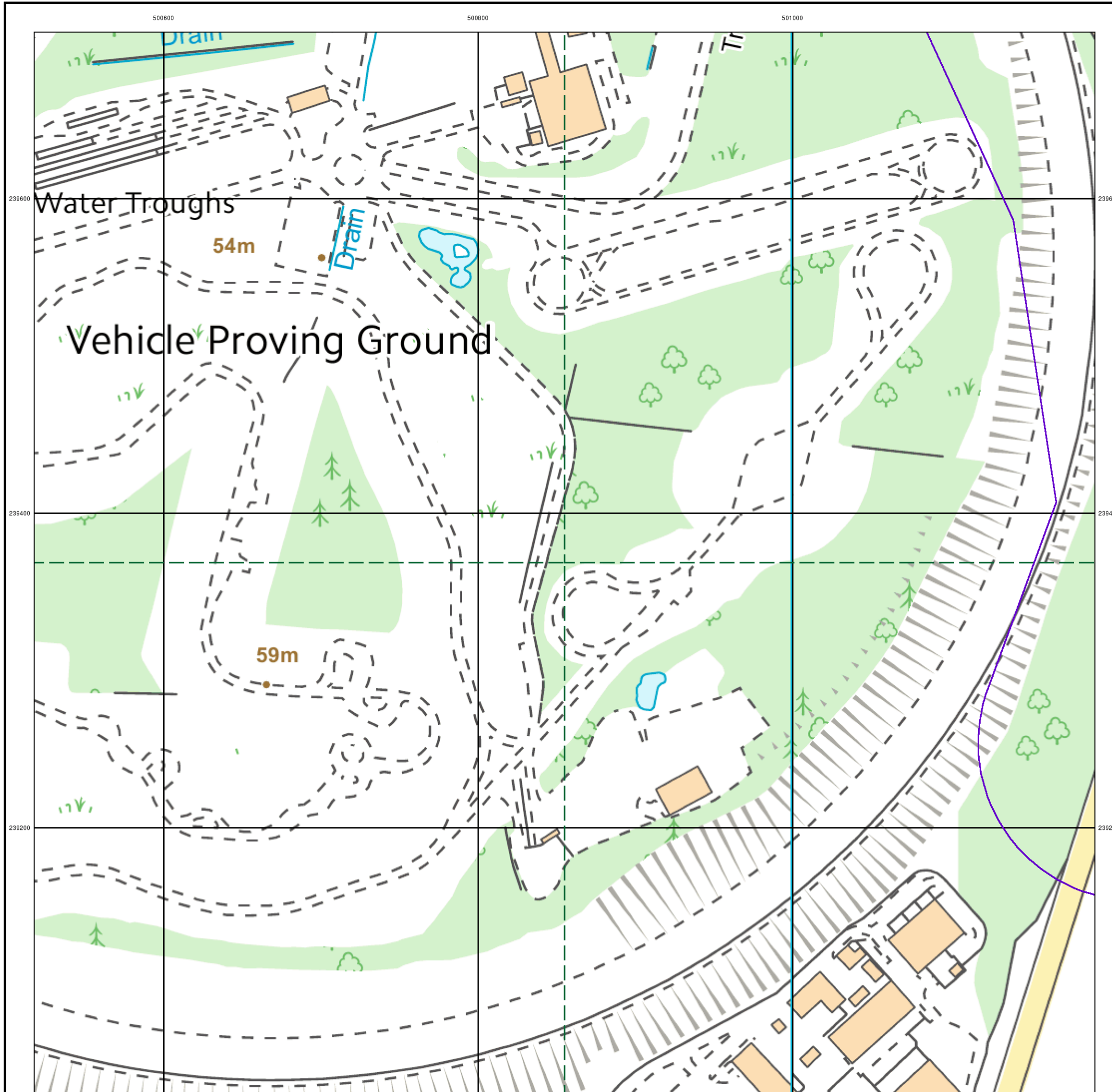


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





**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
- BGS Recorded Mineral Site

**Waste**

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- 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

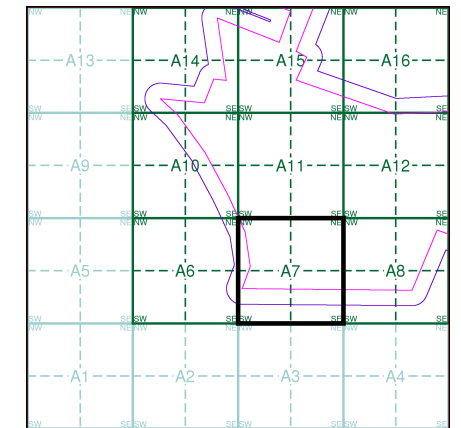
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment A7**

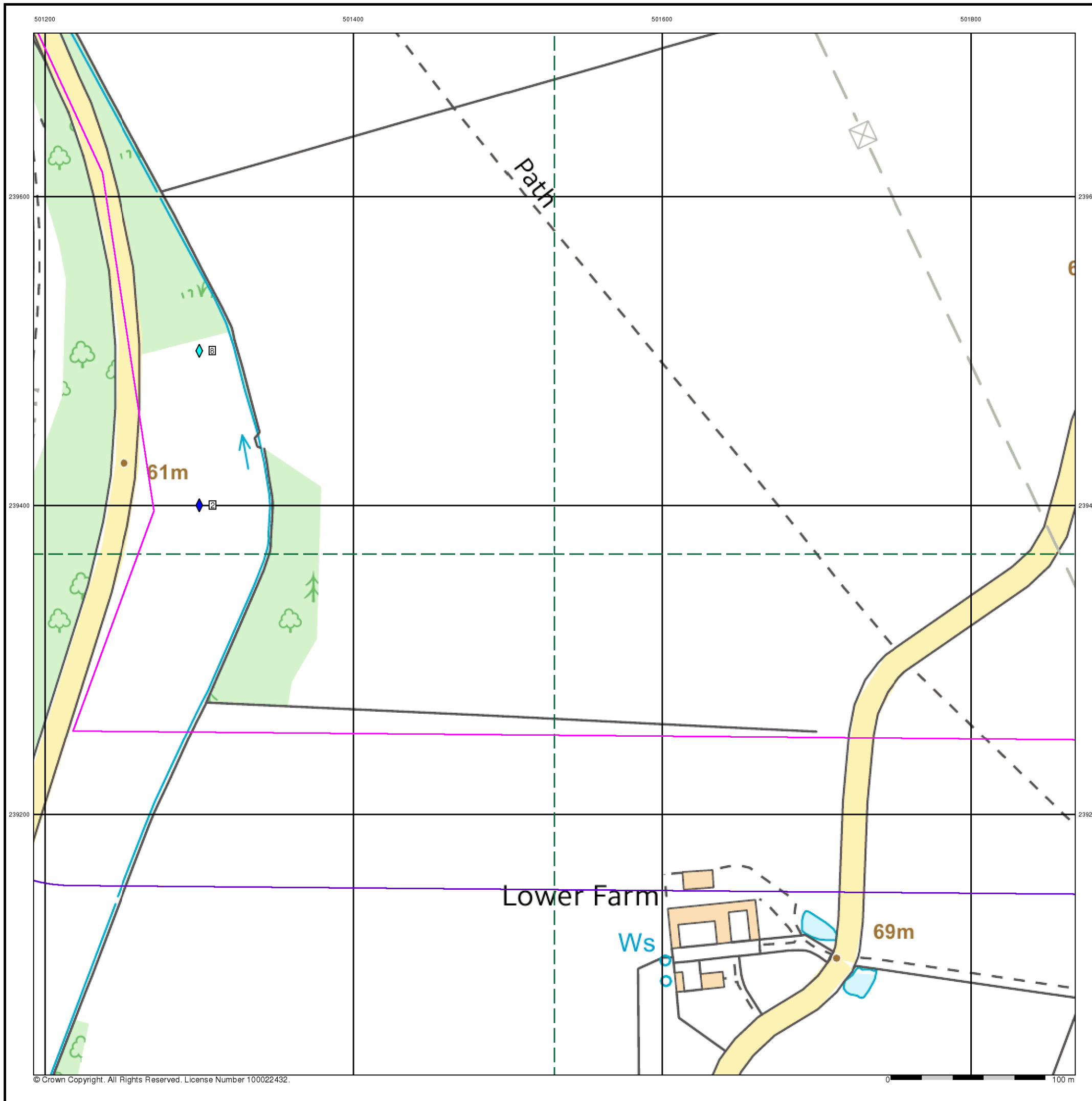


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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 Enforcement
- 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

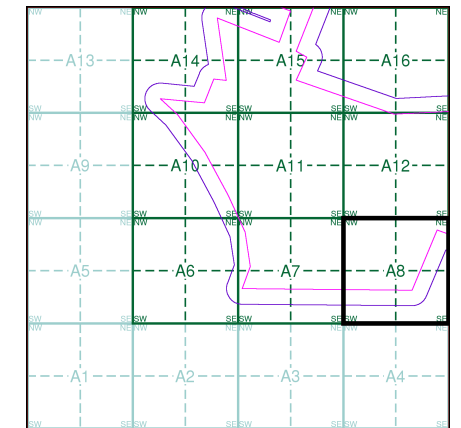
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment A8**

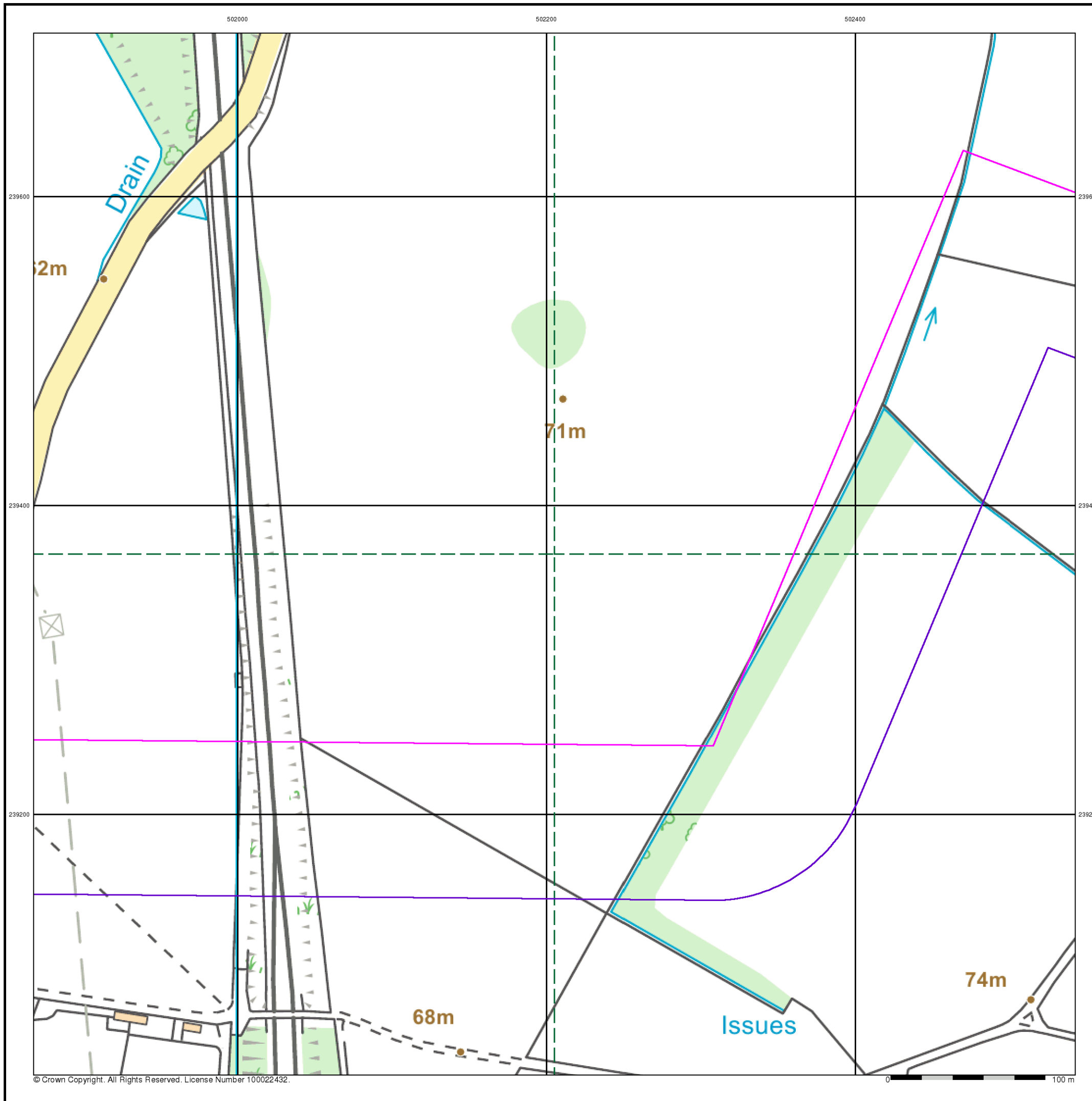


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

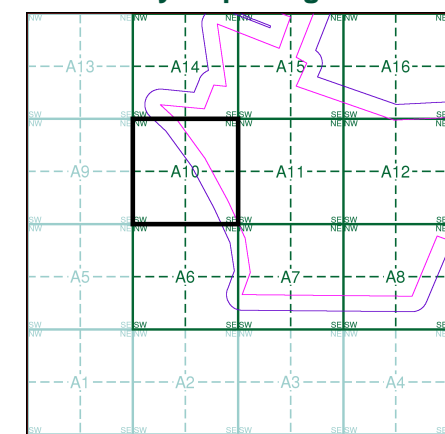
**Geological**

- BGS Recorded Mineral Site

**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment A10**

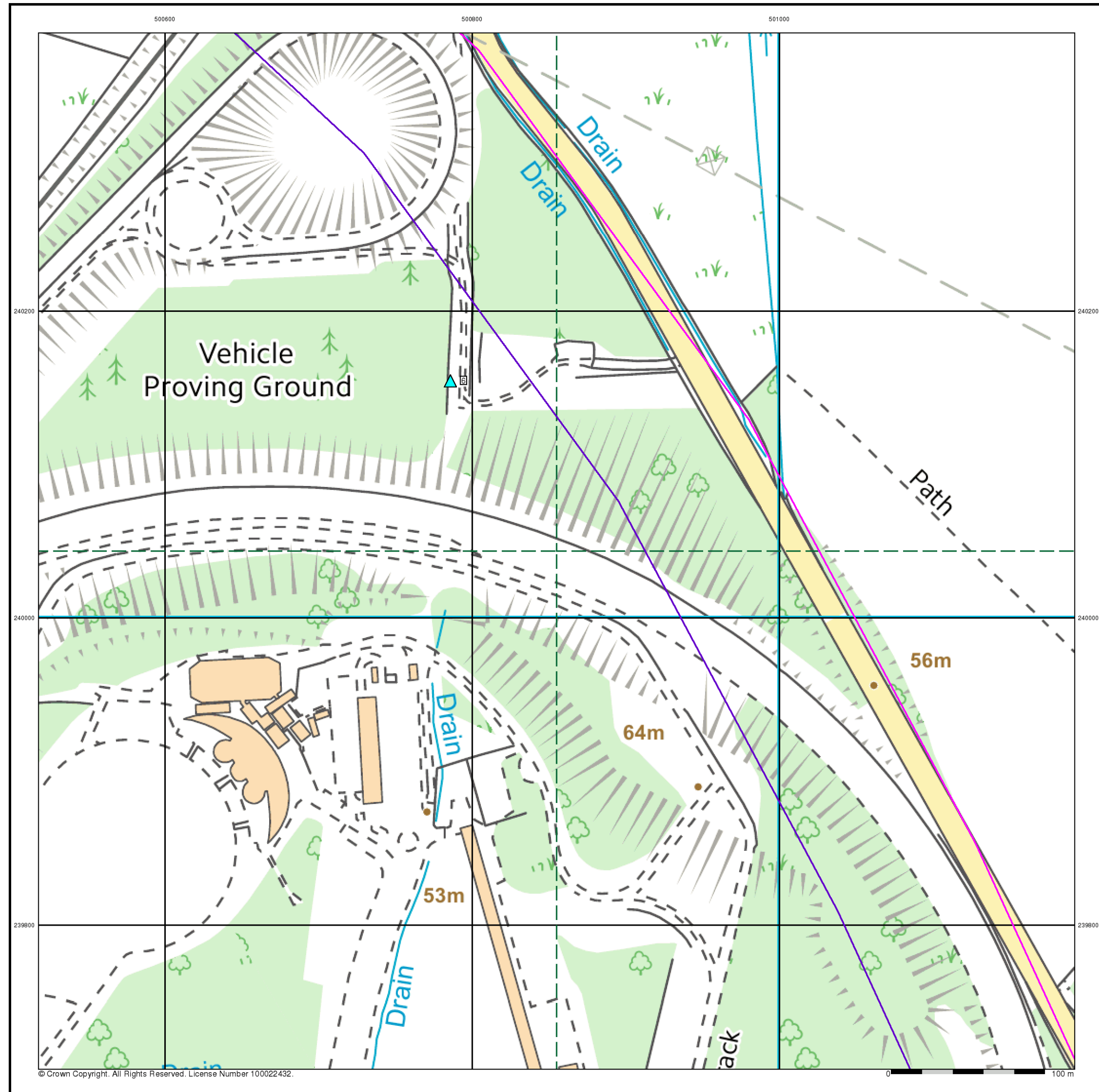


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

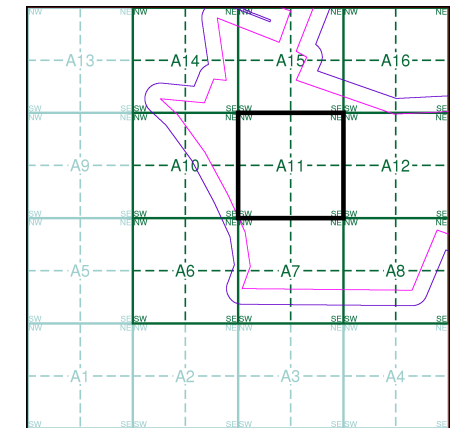
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment A11**

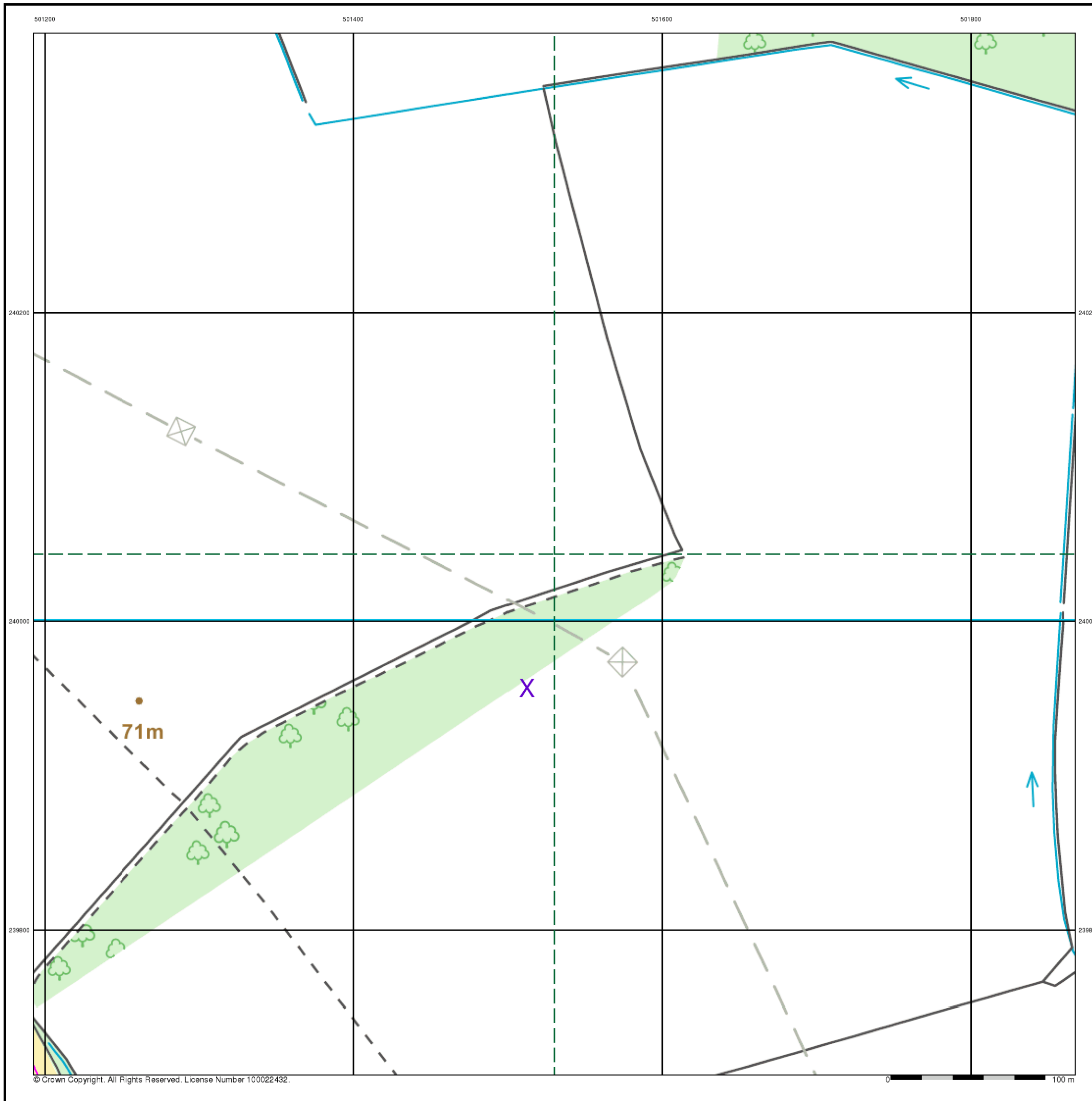


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

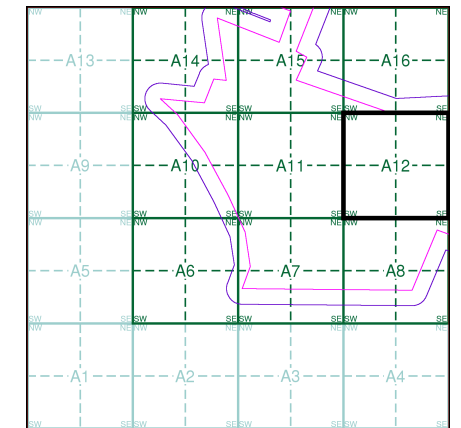
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment A12**

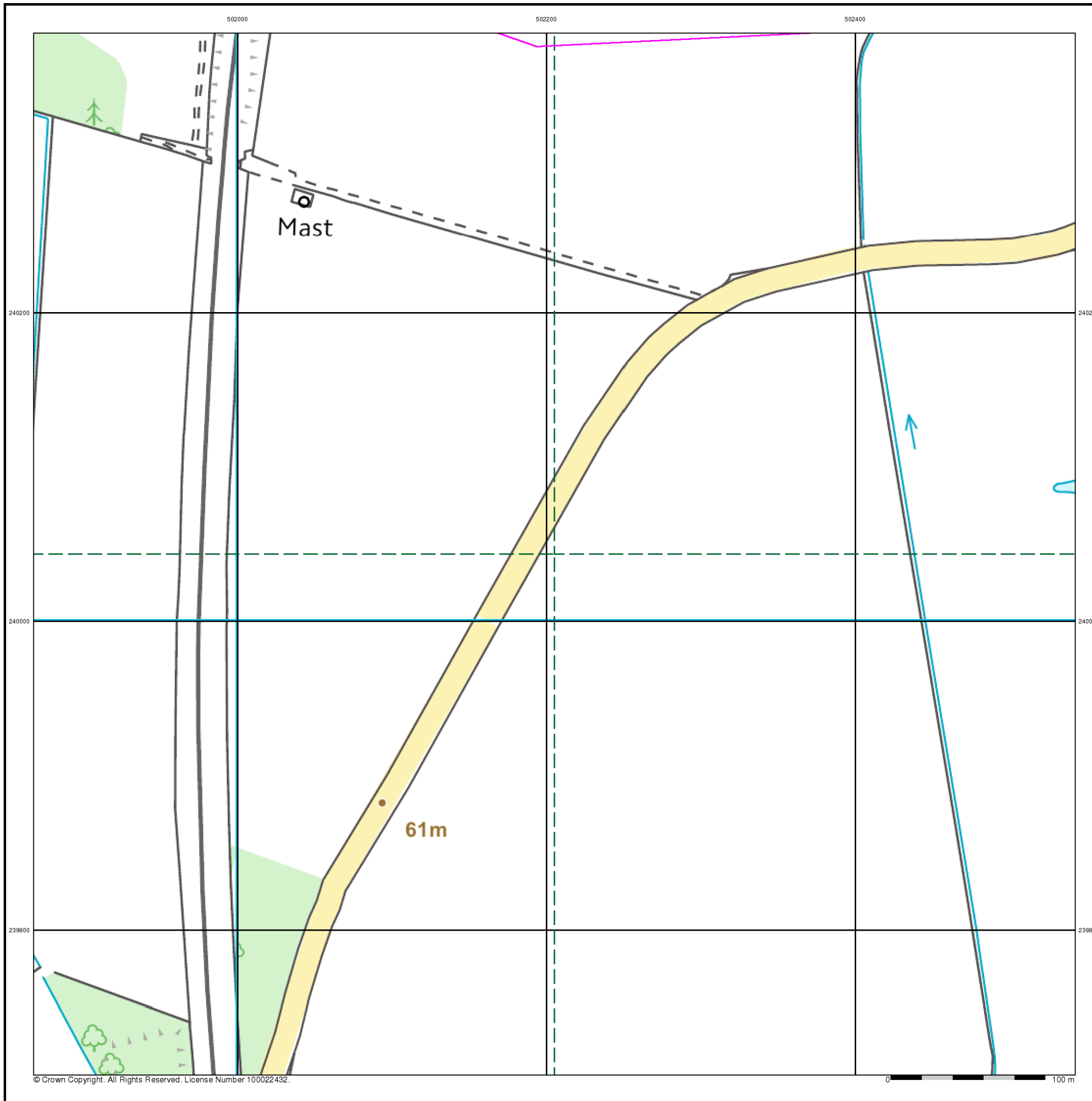


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

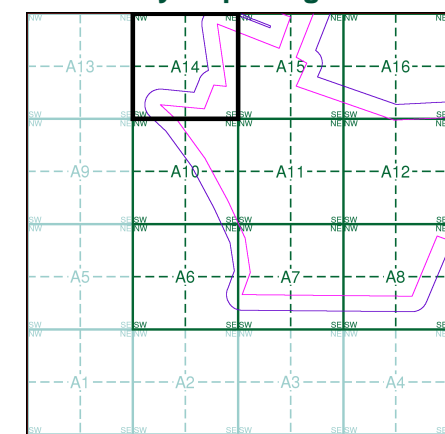
**Geological**

- ▼ BGS Recorded Mineral Site

**Industrial Land Use**

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry
- ✕ COMAH Site
- ✕ Explosive Site
- ✕ NIHS Site
- ✕ Planning Hazardous Substance Consent
- ✕ Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment A14**

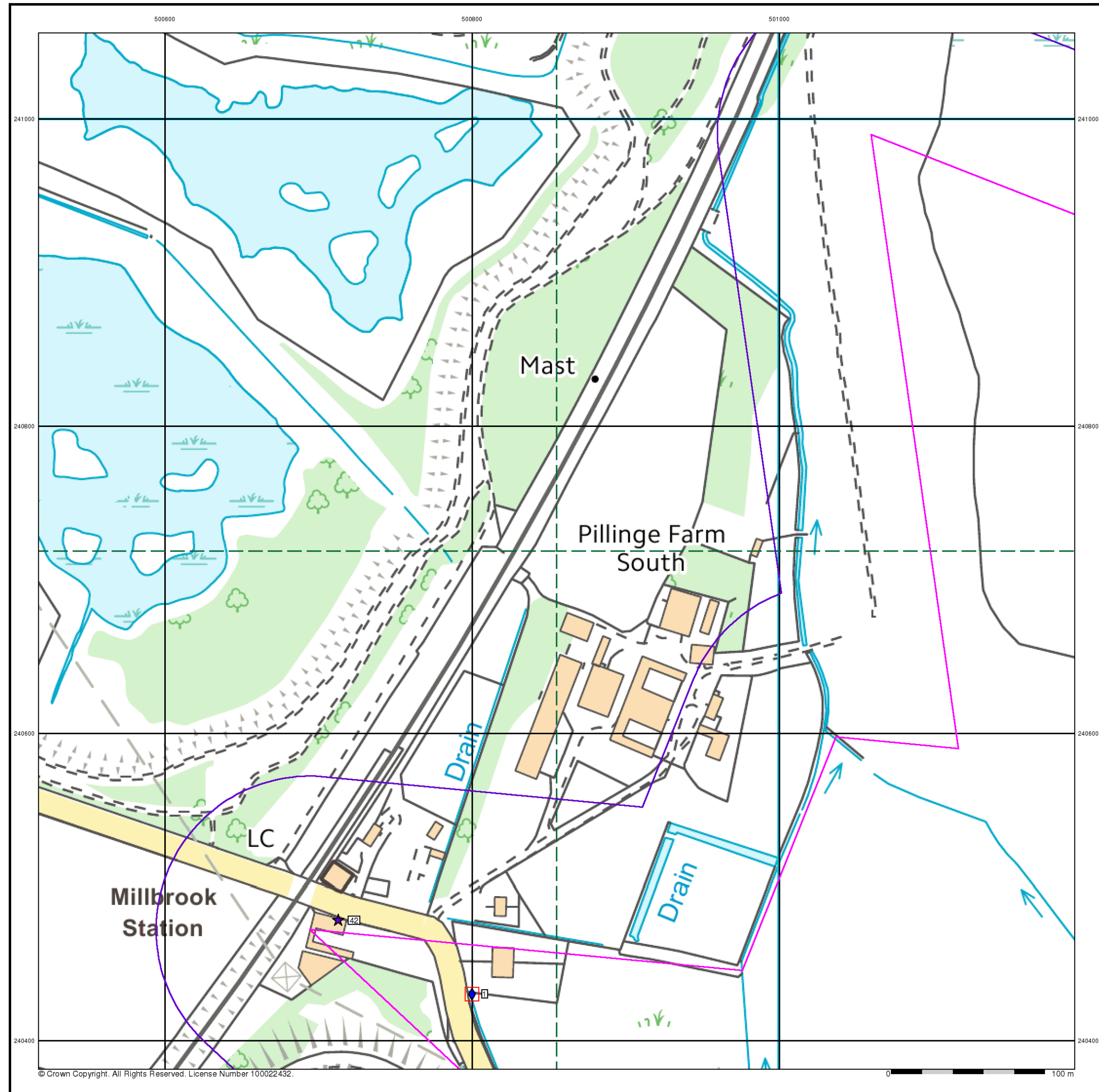


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

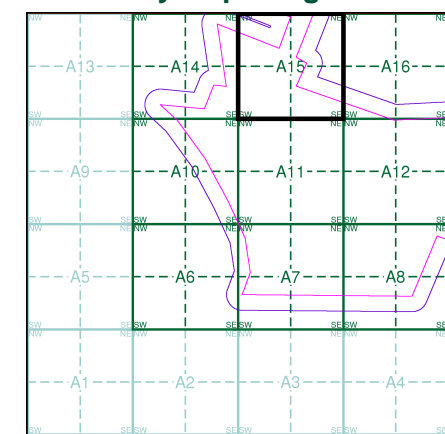
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment A15**

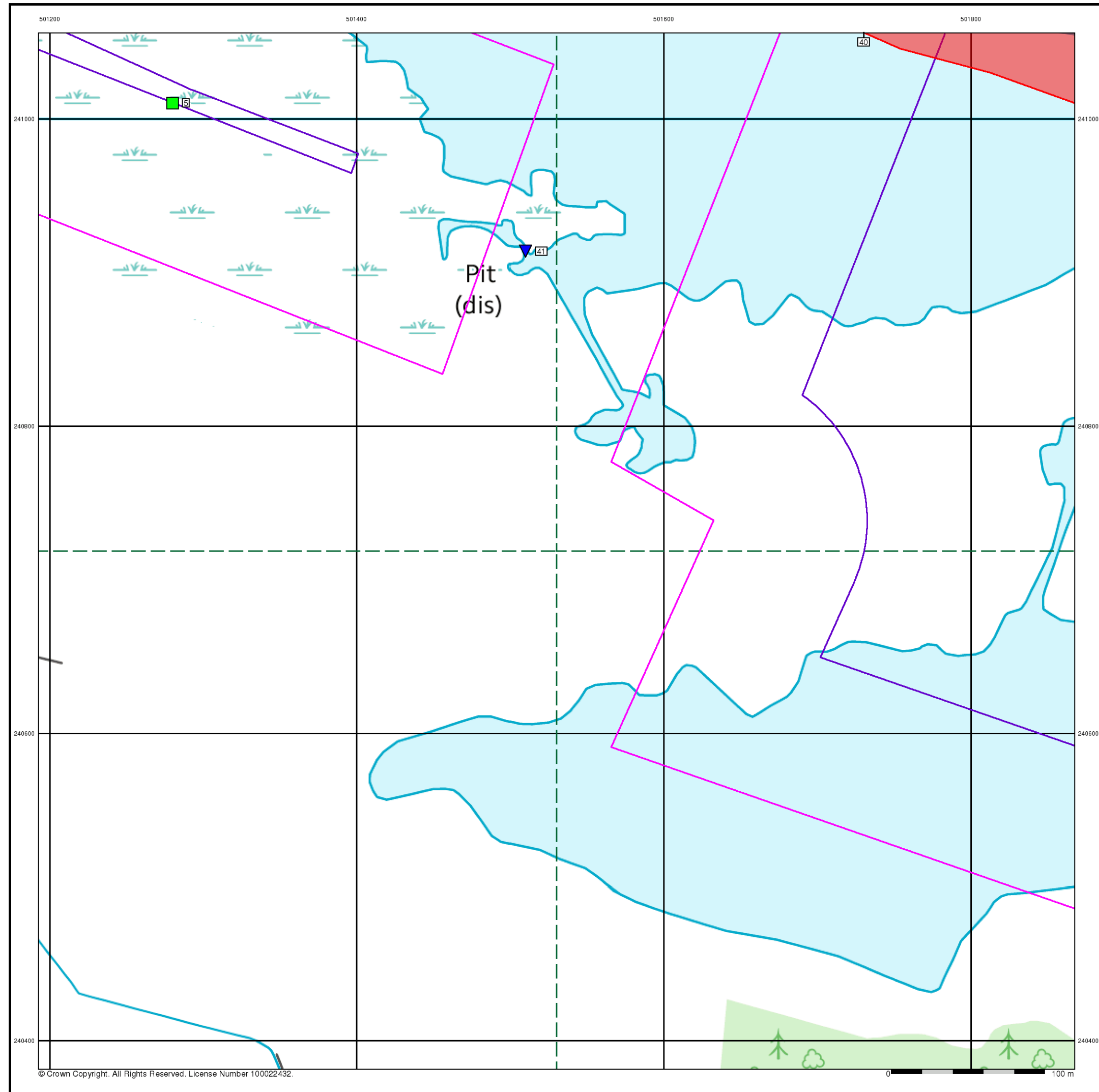


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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 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

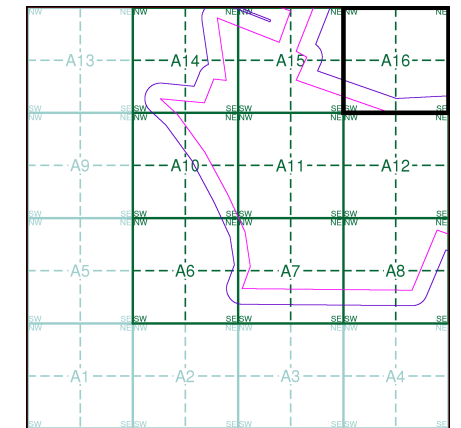
**Geological**

- BGS Recorded Mineral Site

**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment A16**

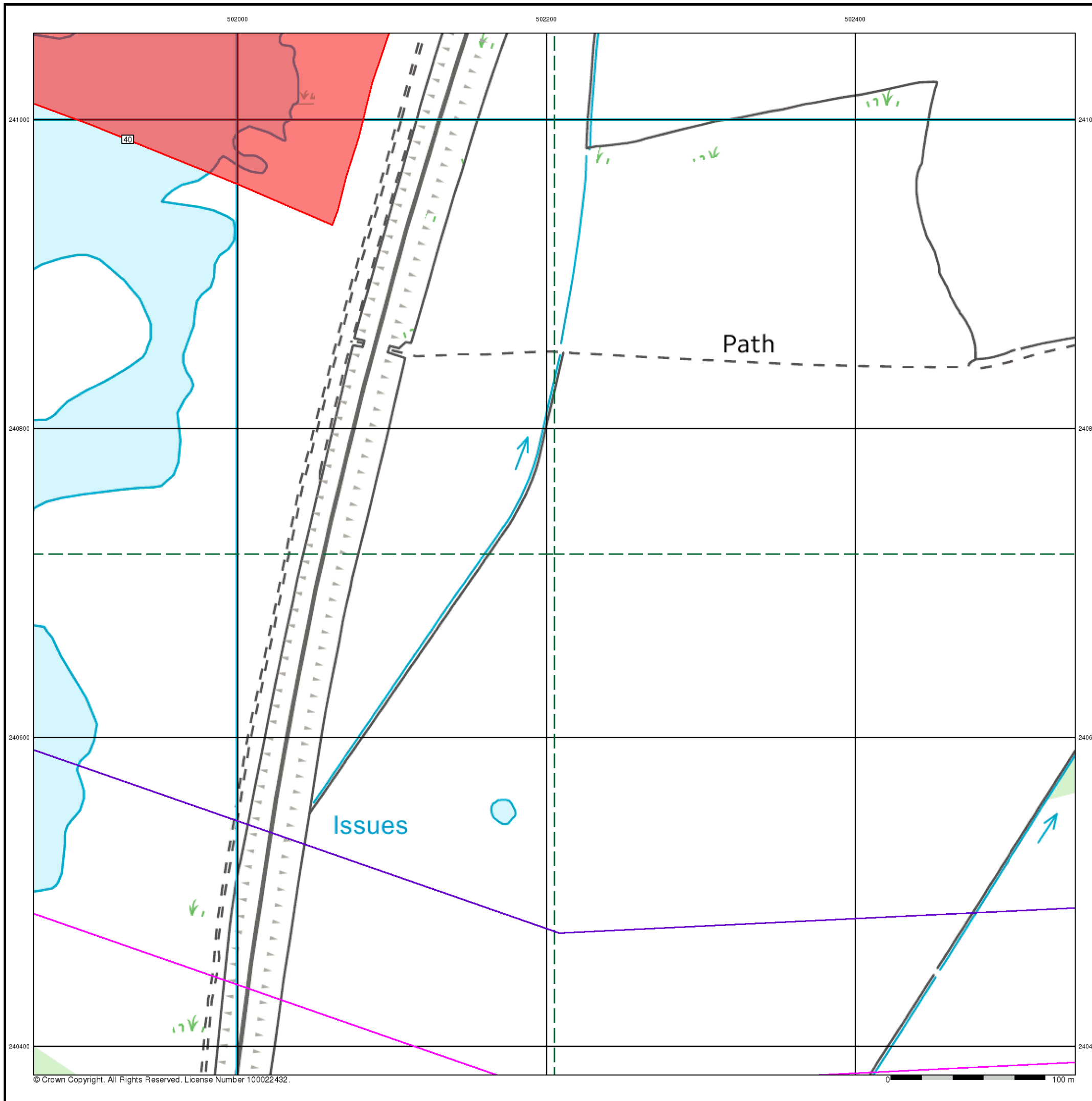


**Order Details**

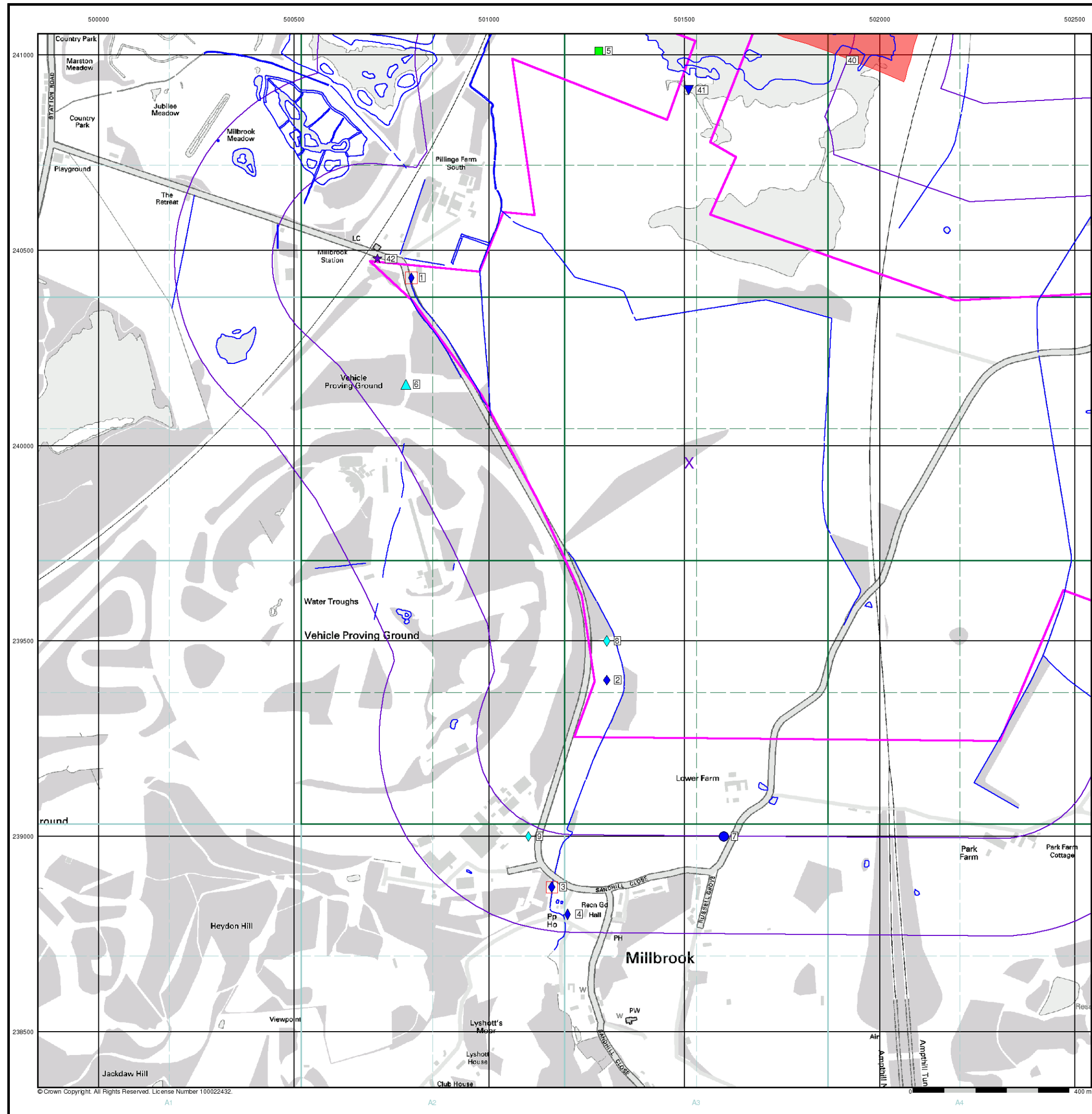
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby

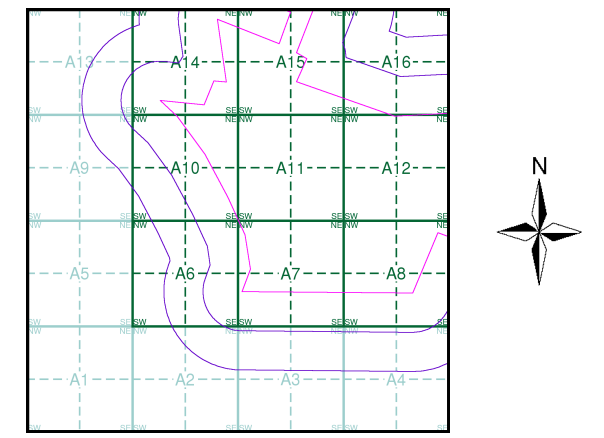






- General**
- Specified Site
  - Specified Buffer(s)
  - Bearing Reference Point
  - Map ID
  - Several of Type at Location
- Agency and Hydrological**
- Contaminated Land Register Entry or Notice (Location)
  - Contaminated Land Register Entry or Notice
  - Discharge Consent
  - Enforcement or Prohibition 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
- Hazardous Substances**
- COMAH Site
  - Explosive Site
  - NIHHS Site
  - Planning Hazardous Substance Consent
  - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
  - Fuel Station Entry

**Site Sensitivity Map - Slice A**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**  
 Millbrook Power Project, Green Lane, Stewartby

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

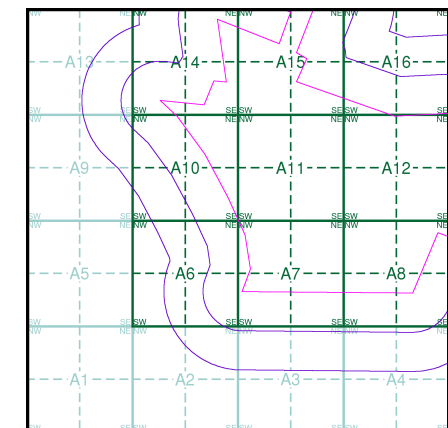
**General**

- 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**

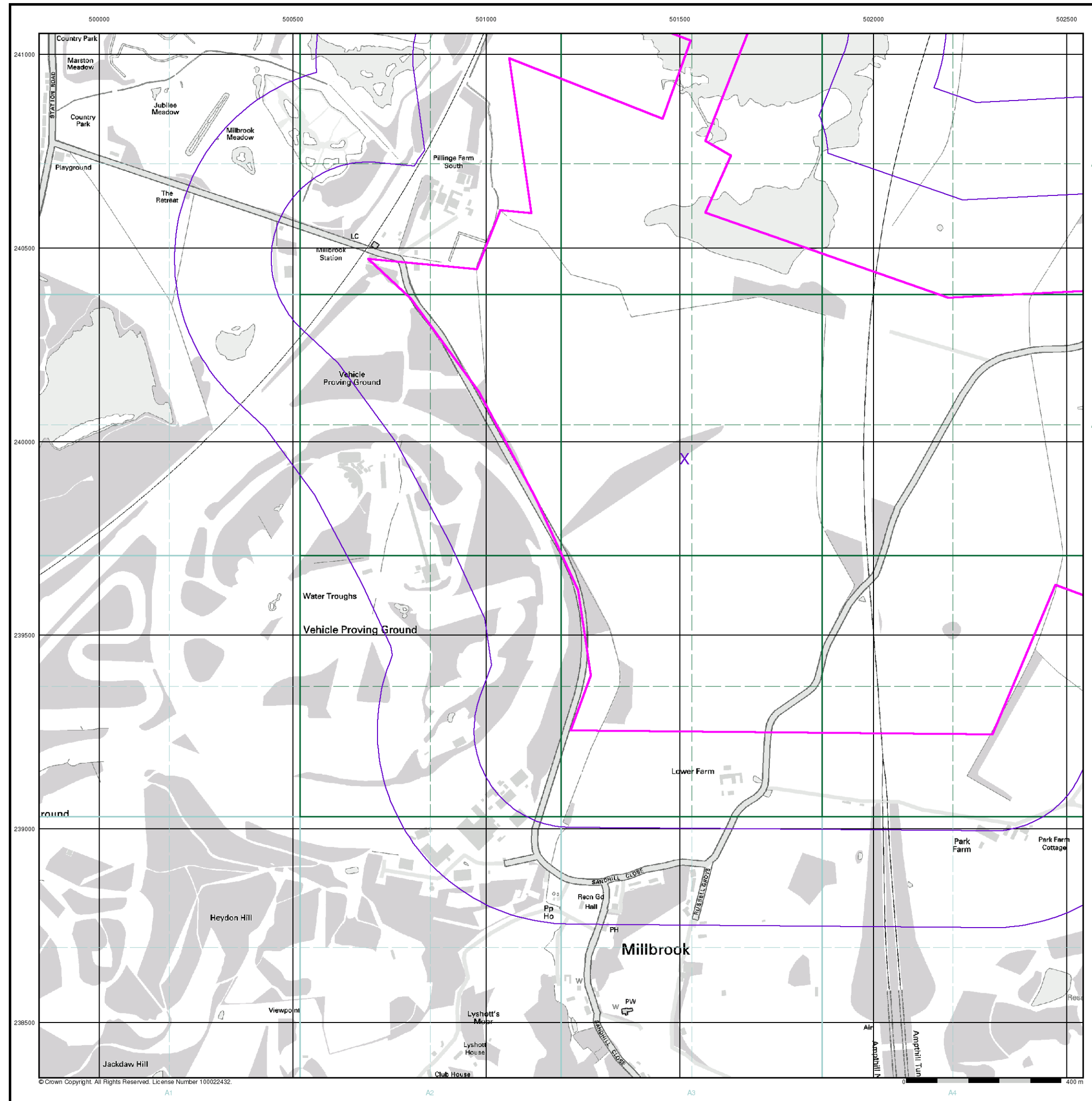


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**General**

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

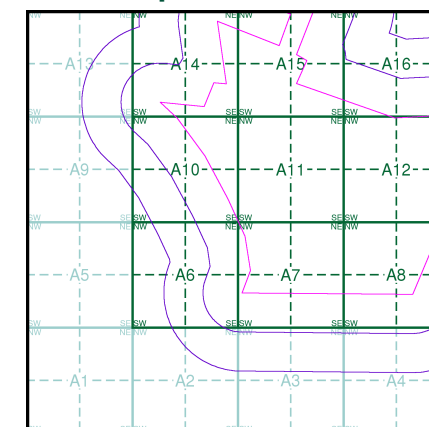
**Agency and Hydrological (Boreholes)**

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

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

A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

**Borehole Map - Slice A**

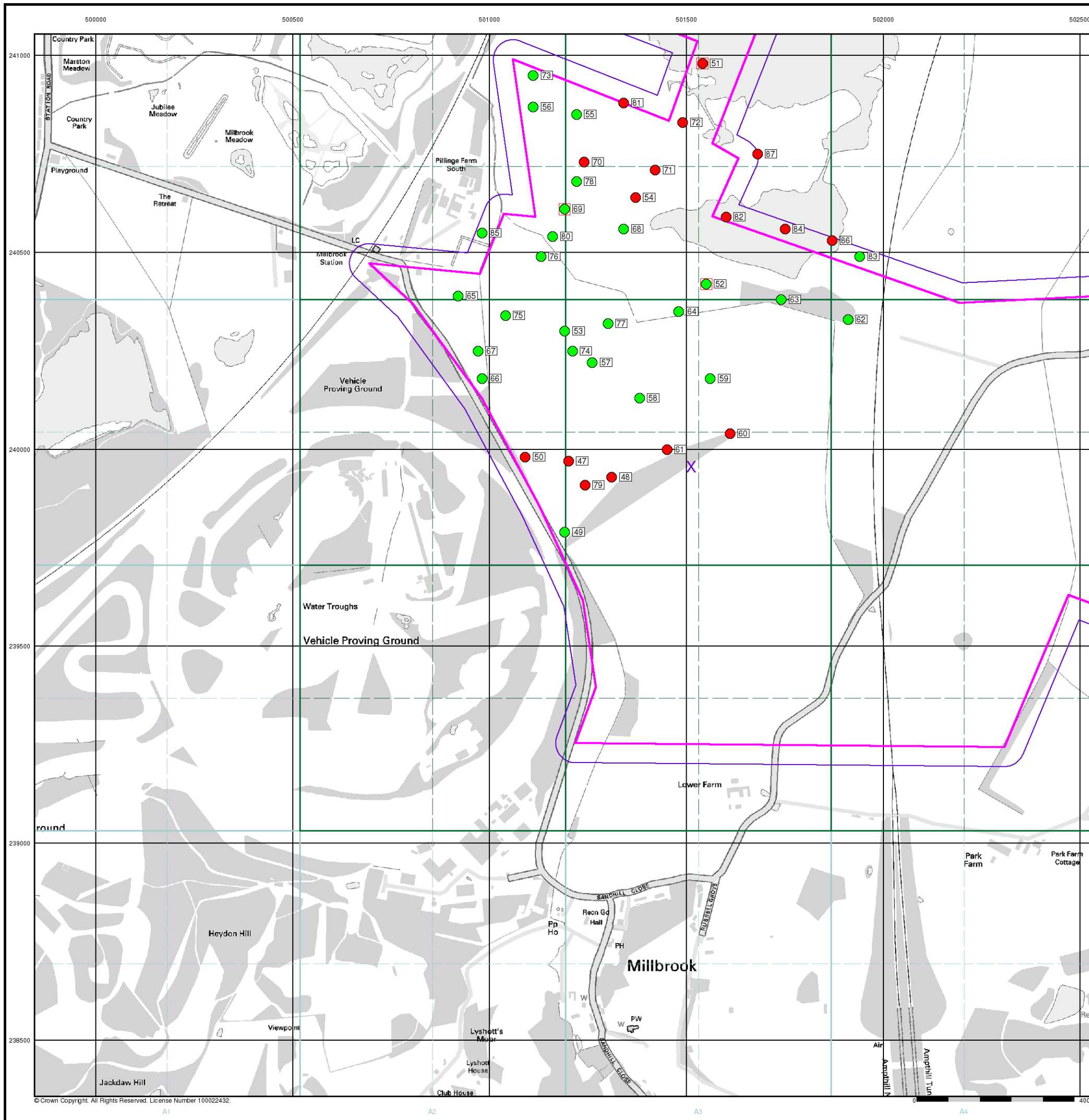


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**General**

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

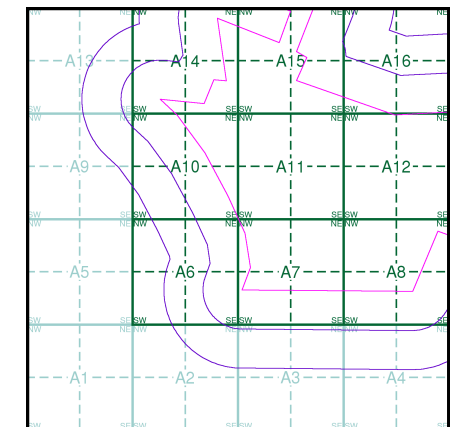
**Detailed River Network Data**

- |                          |                                     |
|--------------------------|-------------------------------------|
| Primary River            | Extended Culvert (greater than 50m) |
| Secondary River          | Underground River (inferred)        |
| Tertiary River           | Underground River (local knowledge) |
| Canal                    | Downstream of High Water Mark       |
| Canal Tunnel             | Downstream of Seaward Extension     |
| Undefined River          | Not assigned River feature          |
| Lake/Reservoir           |                                     |
| Offline Drainage Feature |                                     |

**Contours (height in metres)**

- Standard Contour 105 100 95
- Master Contour 105 100 95
- Spot Height \*167.3
- MLW Mean Low Water
- MHW Mean High Water

**EANRW Detailed River Network Map - Slice A**

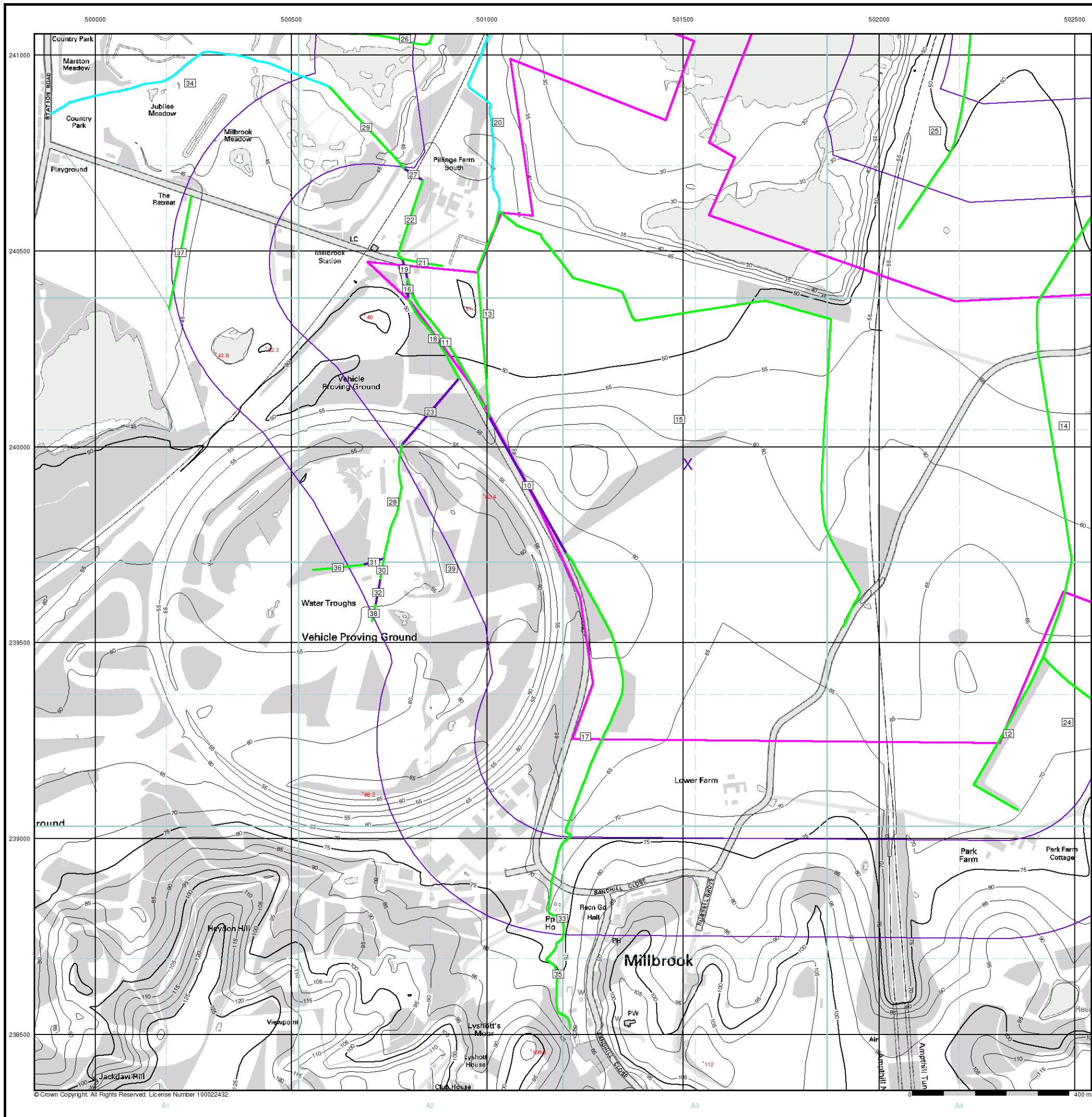


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



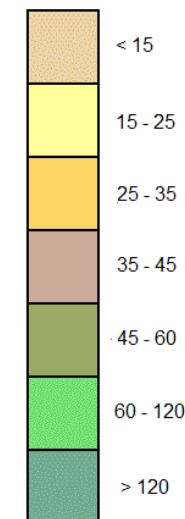


**General**

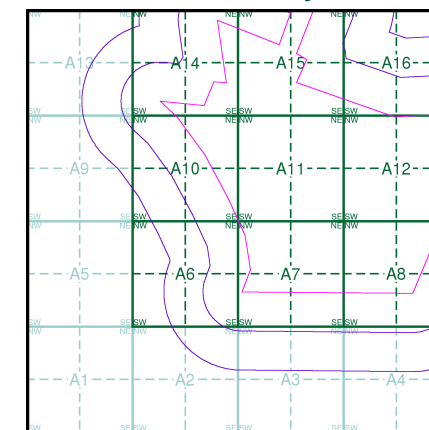
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

**Estimated Soil Chemistry Arsenic**

Arsenic Concentrations mg/kg



**Estimated Soil Chemistry Arsenic - Slice A**



**Order Details**

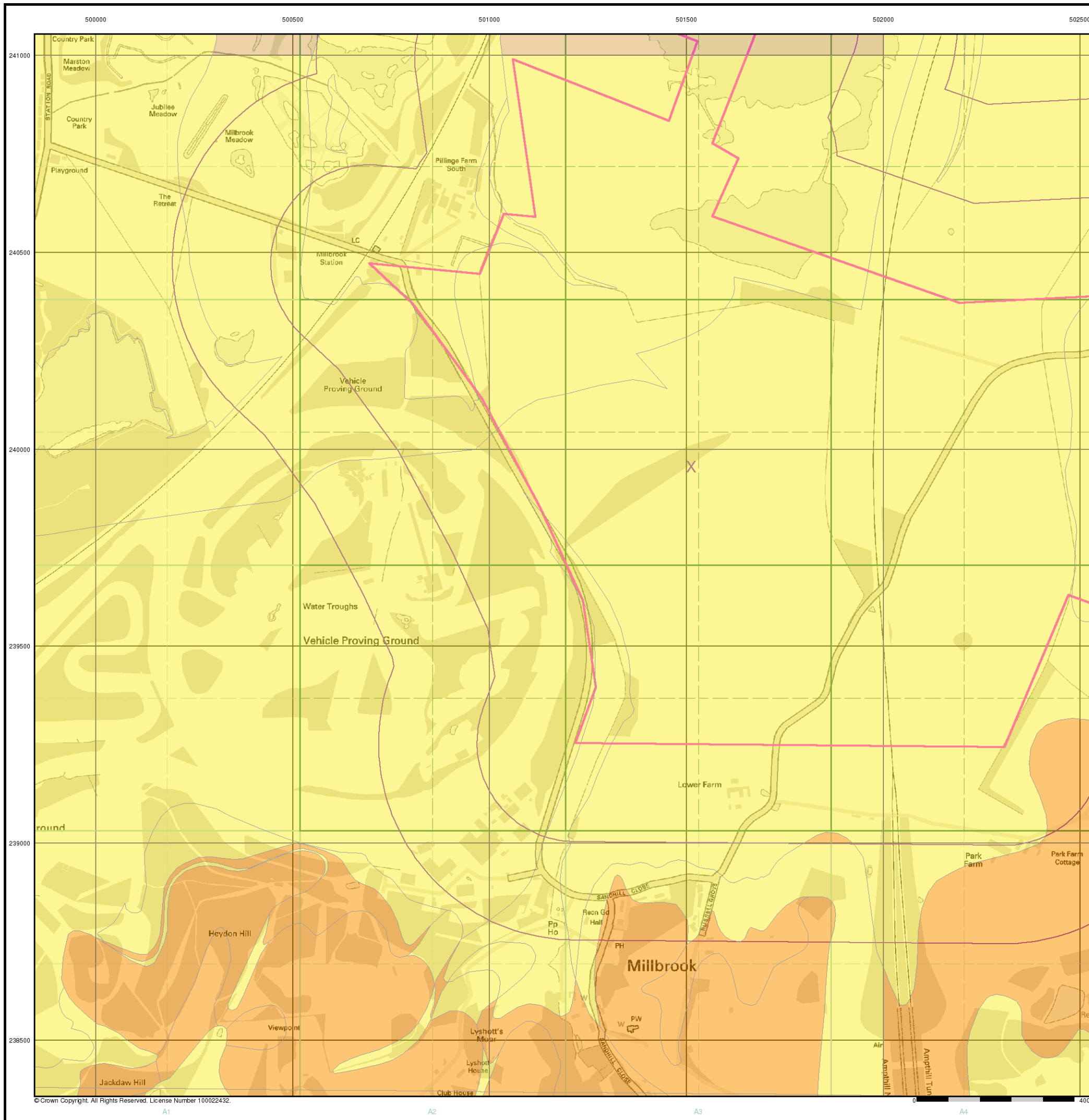
Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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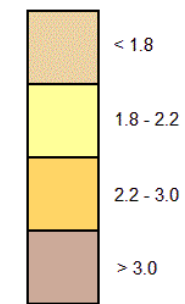


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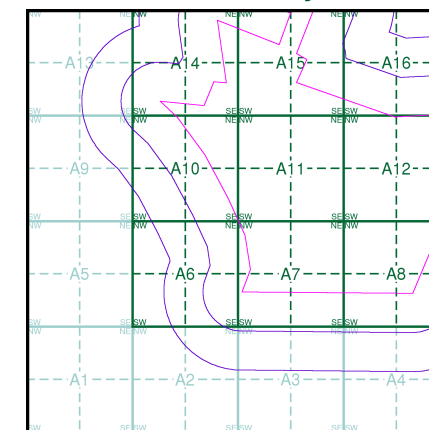
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

**Estimated Soil Chemistry Cadmium**

Cadmium Concentrations mg/kg



**Estimated Soil Chemistry Cadmium - Slice A**



**Order Details**

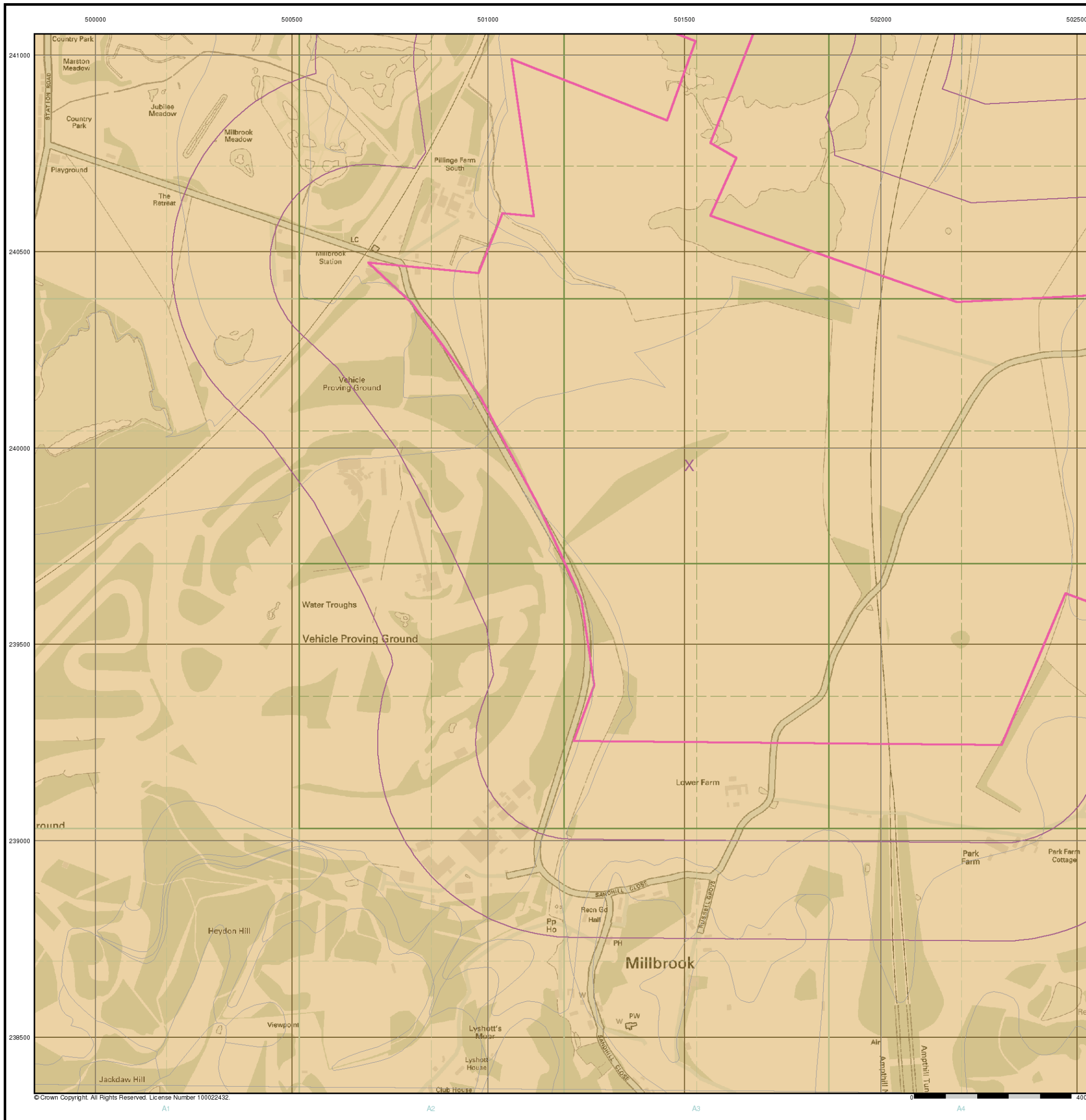
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 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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

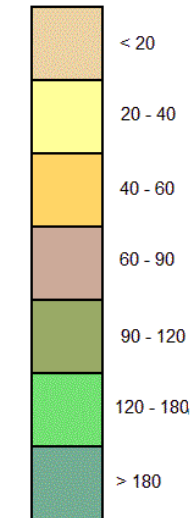


**General**

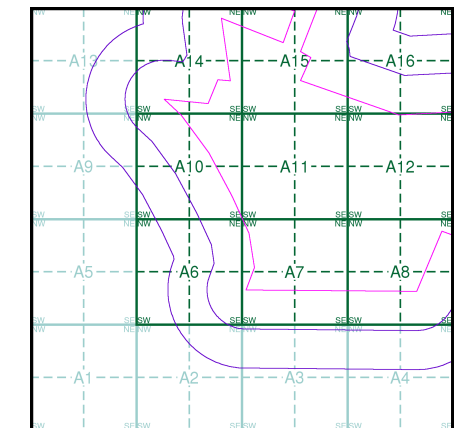
○ Specified Site    
 ○ Specified Buffer(s)    
 X Bearing Reference Point

**Estimated Soil Chemistry Chromium**

Chromium Concentrations mg/kg



**Estimated Soil Chemistry Chromium - Slice A**

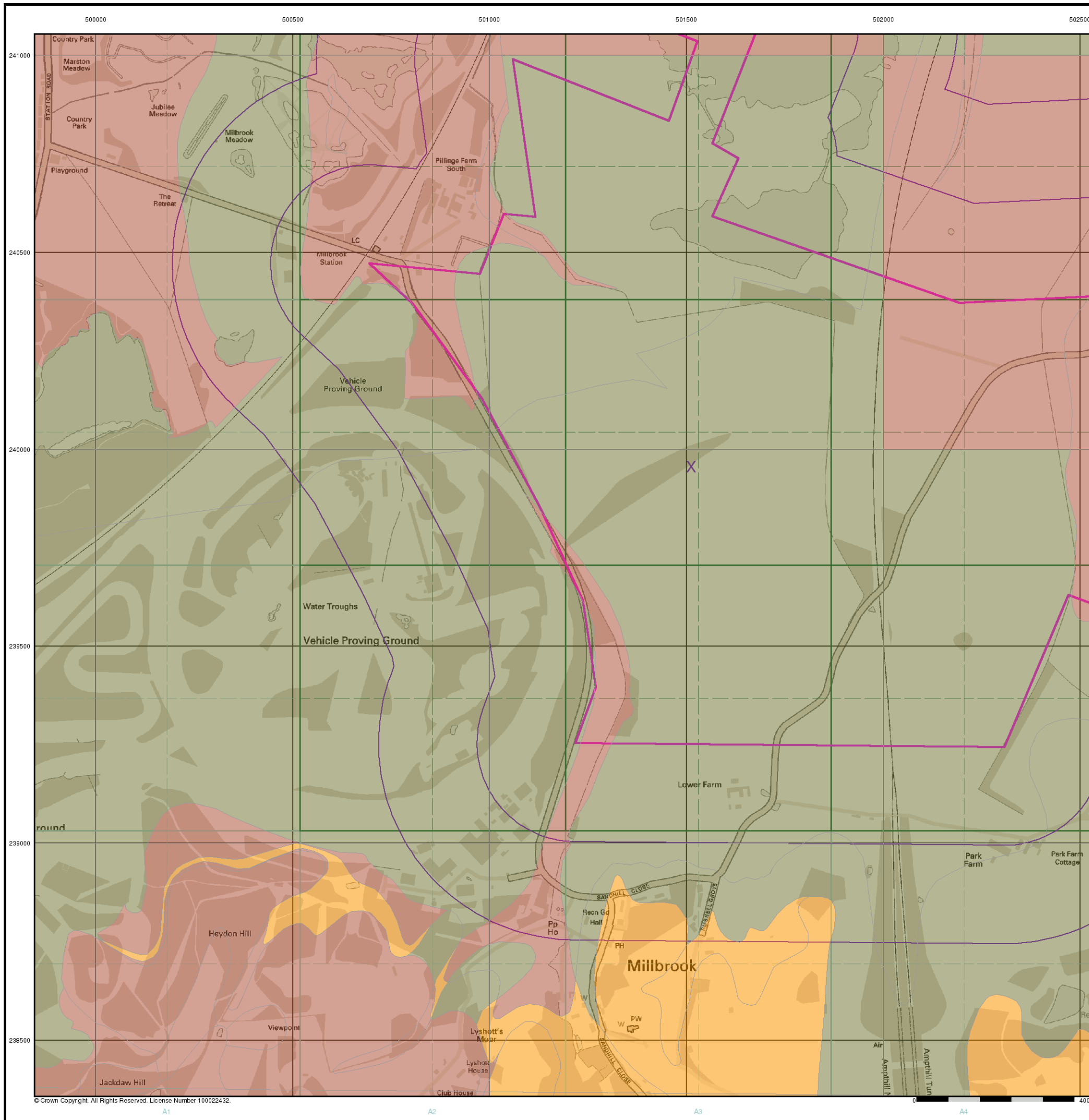


**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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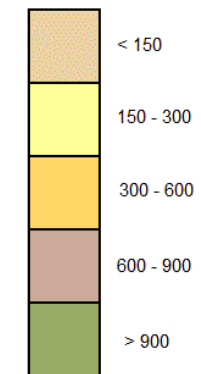


**General**

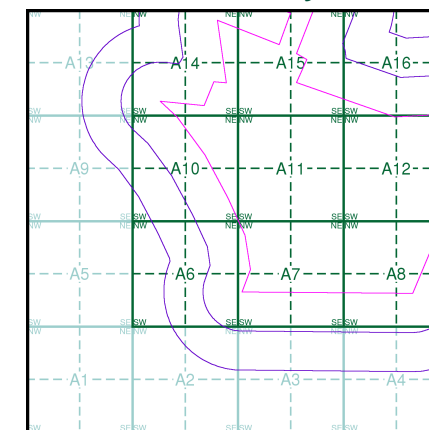
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

**Estimated Soil Chemistry Lead**

Lead Concentrations mg/kg



**Estimated Soil Chemistry Lead - Slice A**



**Order Details**

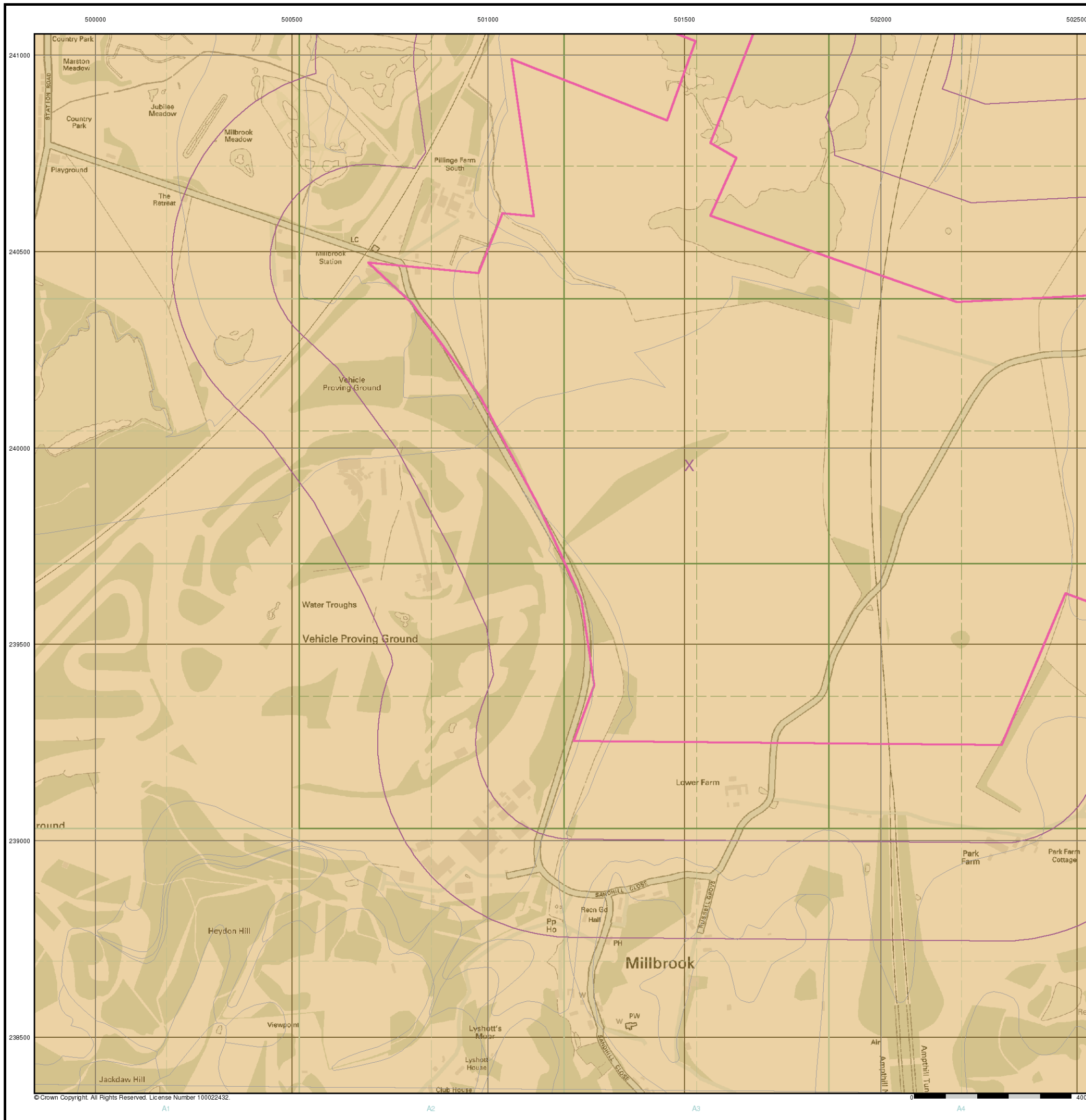
Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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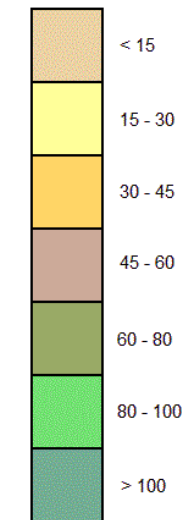


**General**

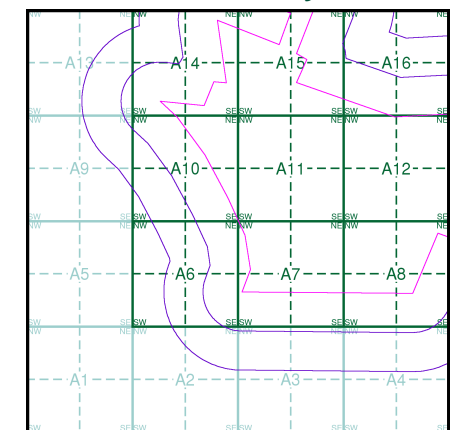
- Specified Site
- Specified Buffer(s)
- X Bearing Reference Point

**Estimated Soil Chemistry Nickel**

Nickel Concentrations mg/kg



**Estimated Soil Chemistry Nickel - Slice A**

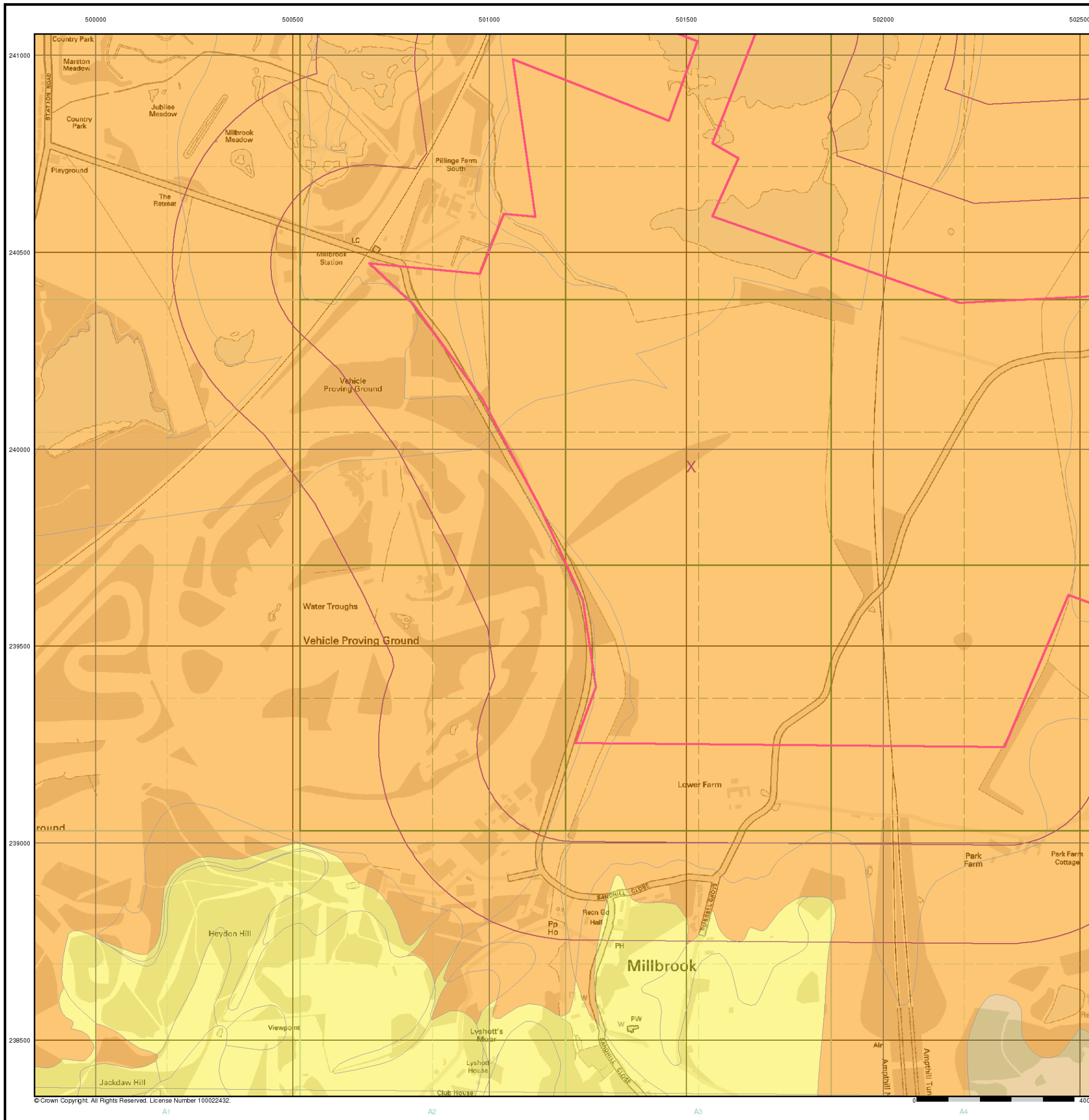


**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **Police Call Box**  
**B.R. Bridle Road**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**London Borough Boundary**  
**Symbol marking point where boundary mereing changes**  
**Beer House**   **Pillar, Pole or Post**  
**Boundary Post or Stone**   **Post Office**  
**Capstan, Crane**   **Public Convenience**  
**Chimney**   **Public House**  
**Drinking Fountain**   **Pump**  
**Electricity Pillar or Post**   **Signal Box or Bridge**  
**Fire Alarm Pillar**   **Signal Post or Light**  
**Foot Bridge**   **Spring**  
**Guide Post**   **Tank or Track**  
**Hydrant or Hydraulic**   **Telephone Call Box**  
**Level Crossing**   **Telephone Call Post**  
**Manhole**   **Trough**  
**Mile Post or Mooring Post**   **Water Point, Water Tap**  
**Mile Stone**   **Well**  
**Normal Tidal Limit**   **Wind Pump**

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

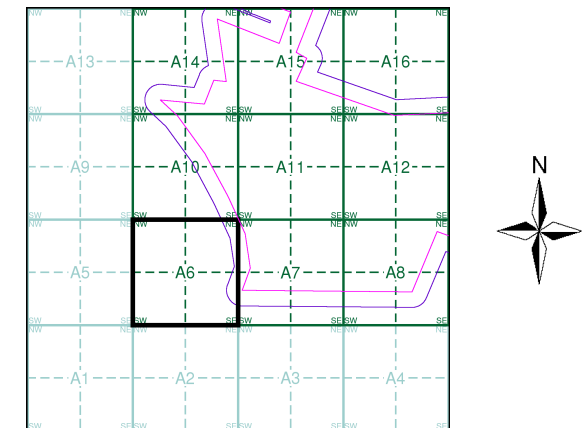
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**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)**  
**Barracks**   **Pillar, Pole or Post**  
**Battery**   **Post Office**  
**Cemetery**   **Public Convenience**  
**Chimney**   **Pump**  
**Cistern**   **Pumping Station**  
**Dismtd Rly**   **Place of Worship**  
**Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**Electricity Pole, Pillar**   **Signal Box or Bridge**  
**Electricity Sub Station**   **Signal Post or Light**  
**Filter Bed**   **Spring**  
**Fountain / Drinking Ftn.**   **Tank or Track**  
**Gas Valve Compound**   **Trough**  
**Gas Governor**   **Wind Pump**  
**Guide Post**   **Water Point, Water Tap**  
**Manhole**   **Works (building or area)**  
**Mile Post or Mile Stone**   **Well**



## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Large-Scale National Grid Data	1:2,500	1993	7

## Historical Map - Segment A6



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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

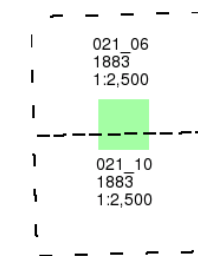


Bedfordshire  
Published 1883

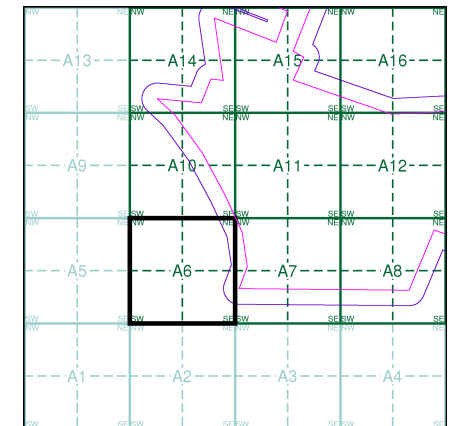
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A6



Order Details

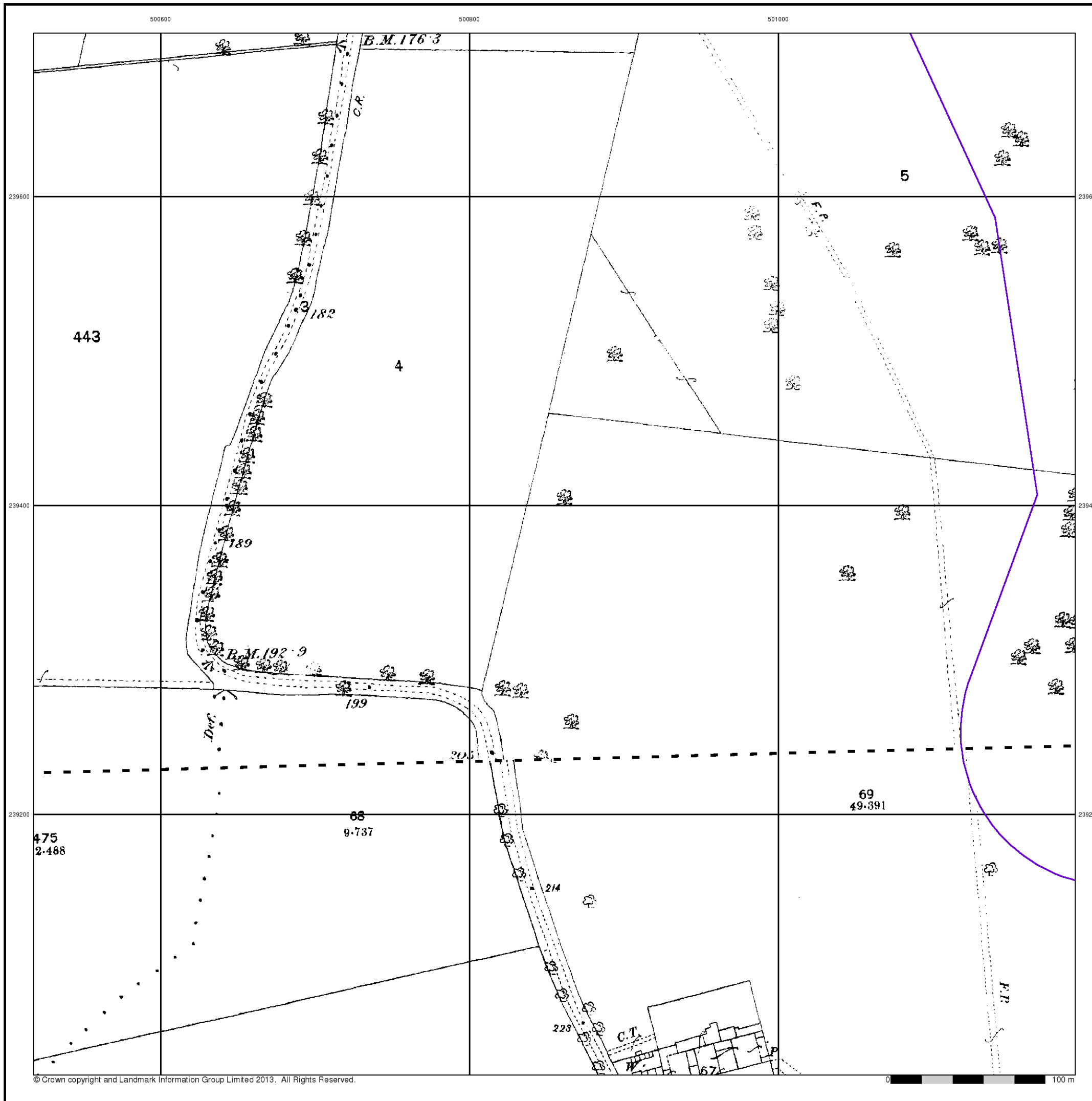
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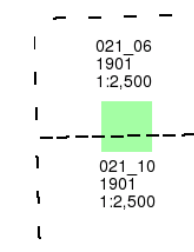
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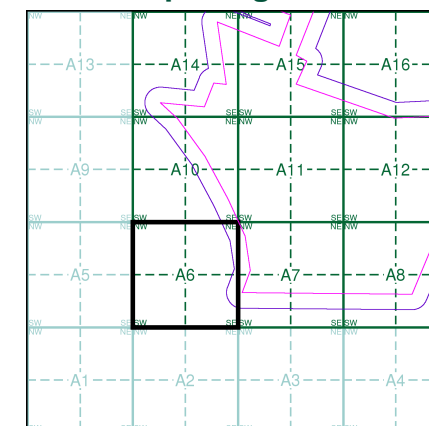
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Map Name(s) and Date(s)



Historical Map - Segment A6



Order Details

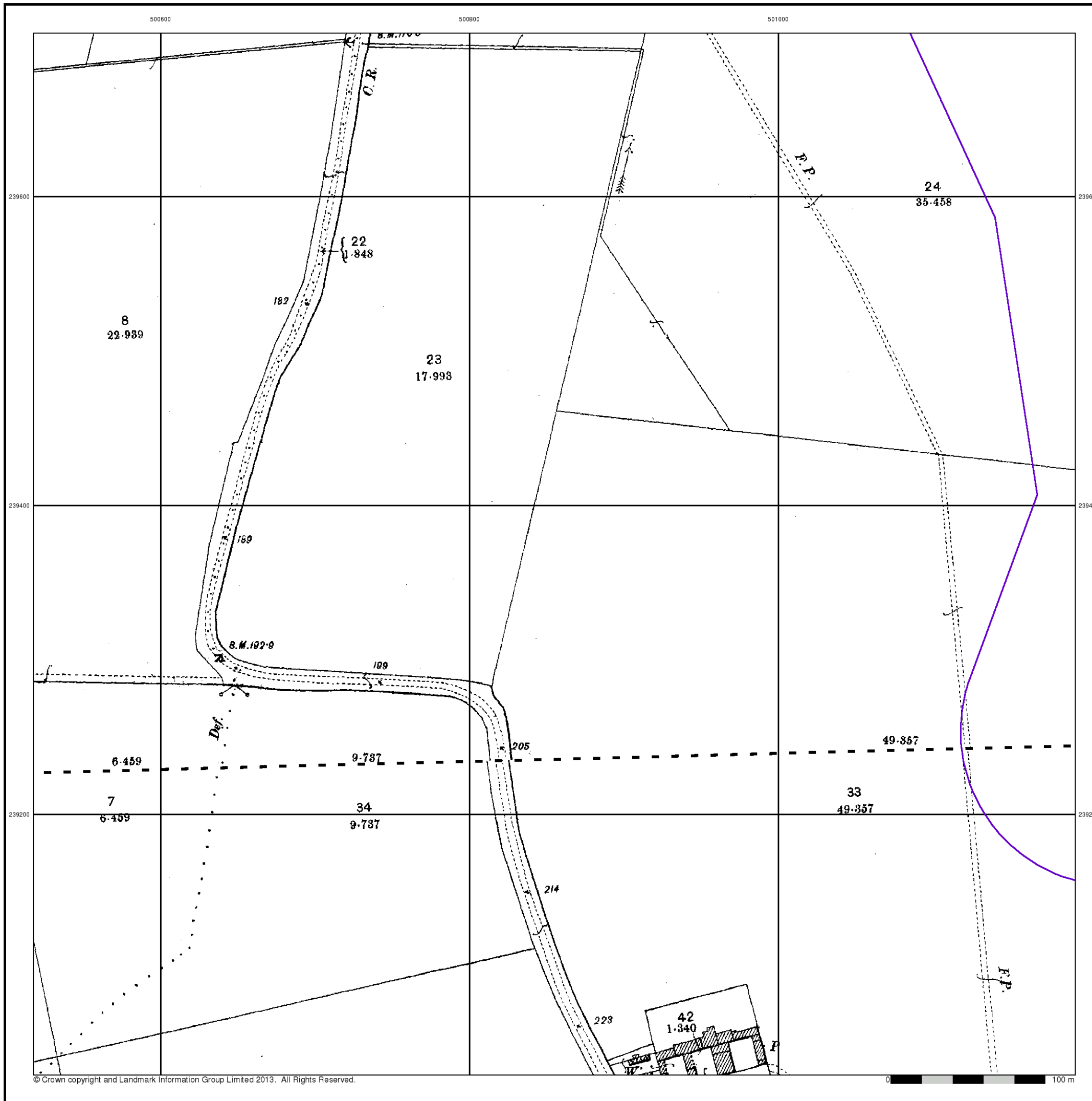
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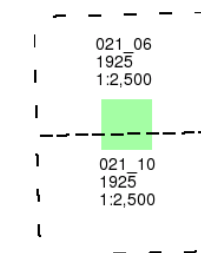
Bedfordshire

Published 1925

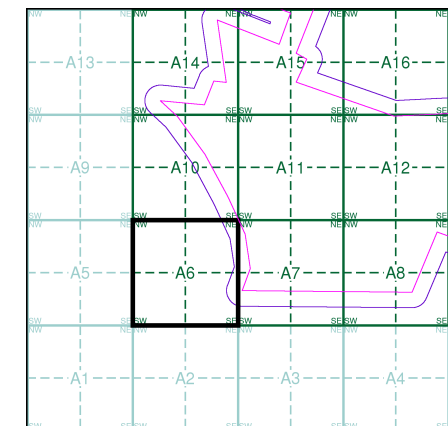
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Historical Map - Segment A6



Order Details

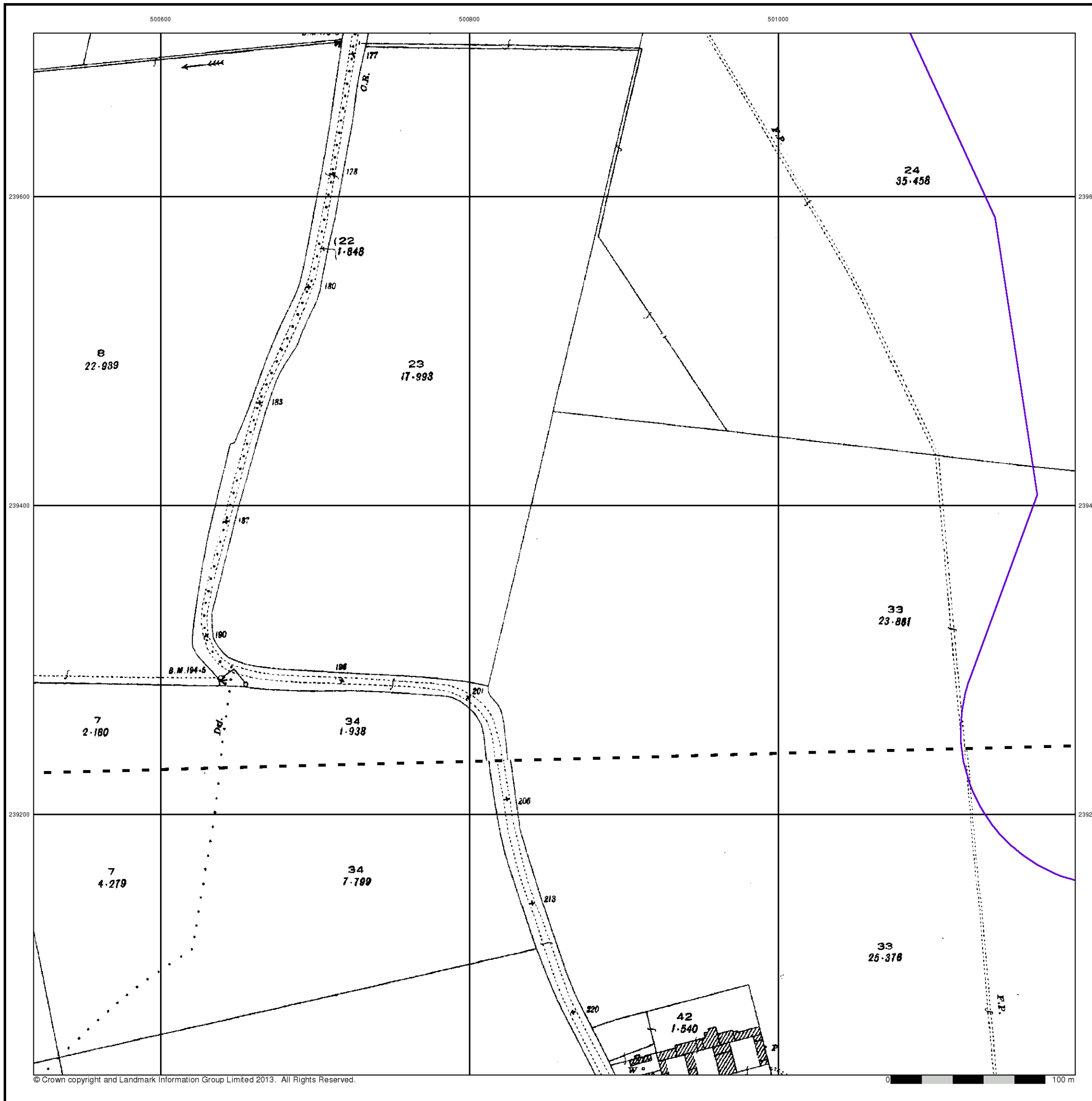
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Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

Millbrook Power Project, Green Lane, Stewartby

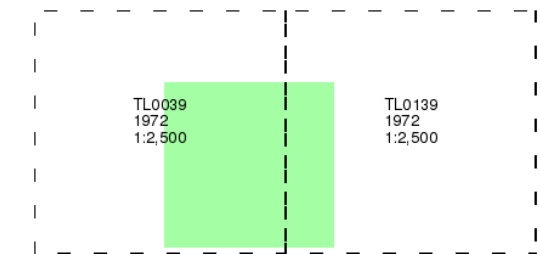


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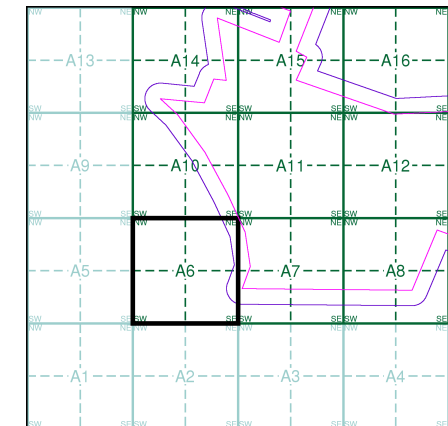


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**Map Name(s) and Date(s)**



**Historical Map - Segment A6**

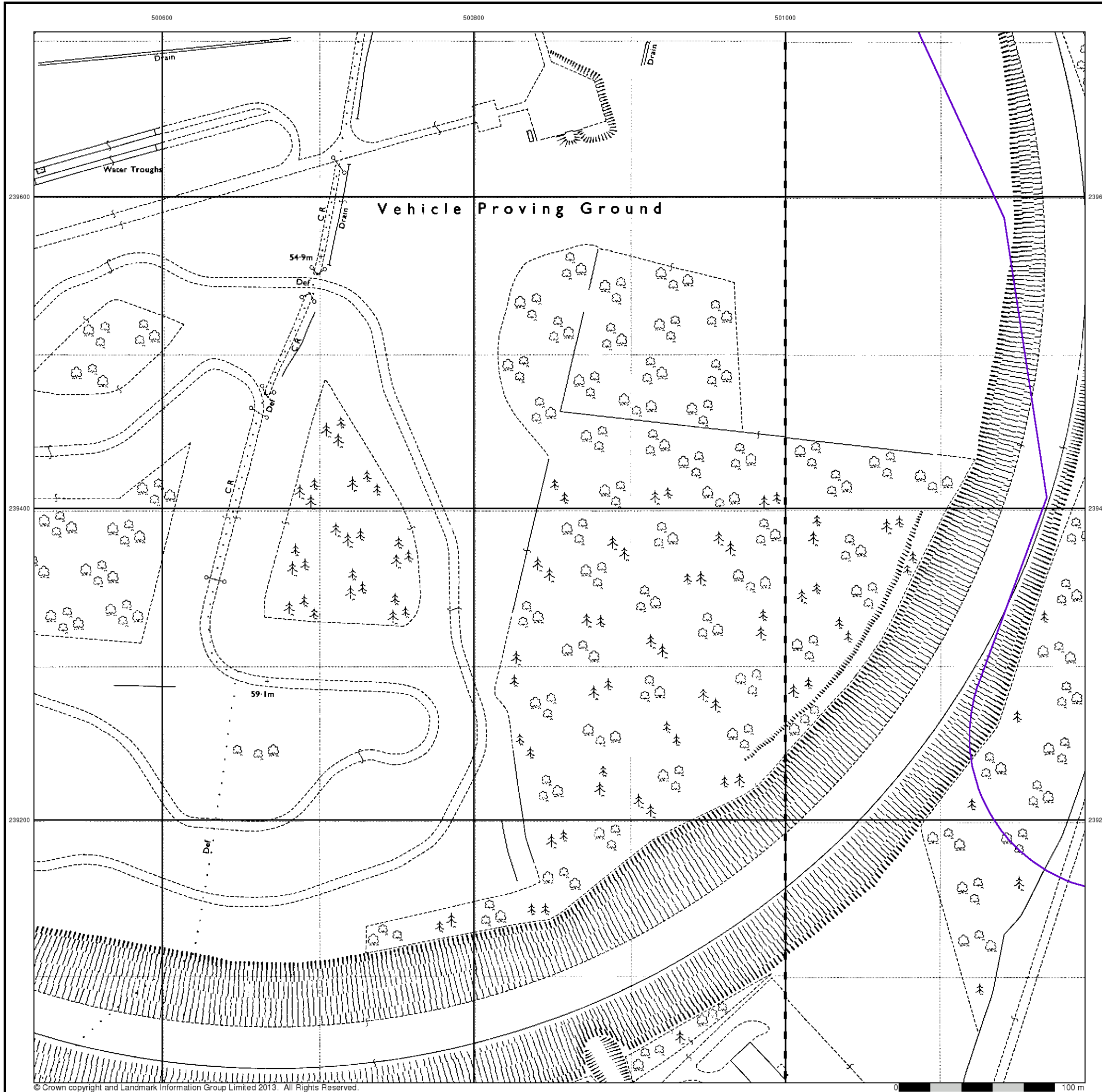


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**Site Details**

Millbrook Power Project, Green Lane, Stewartby



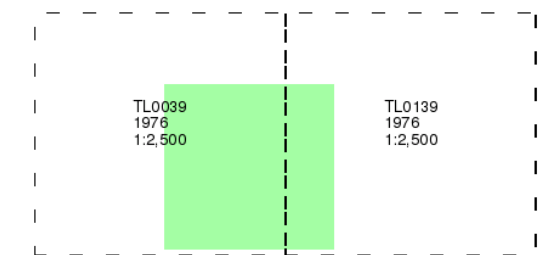
**Supply of Unpublished Survey Information**

**Published 1976**

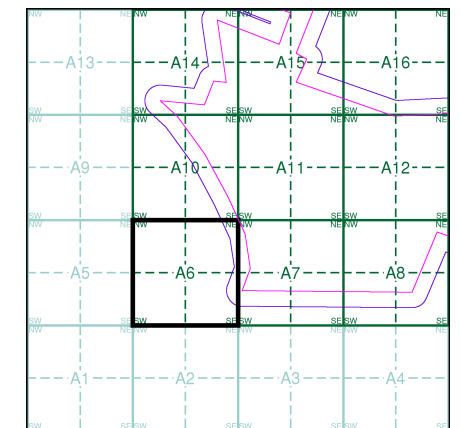
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A6**

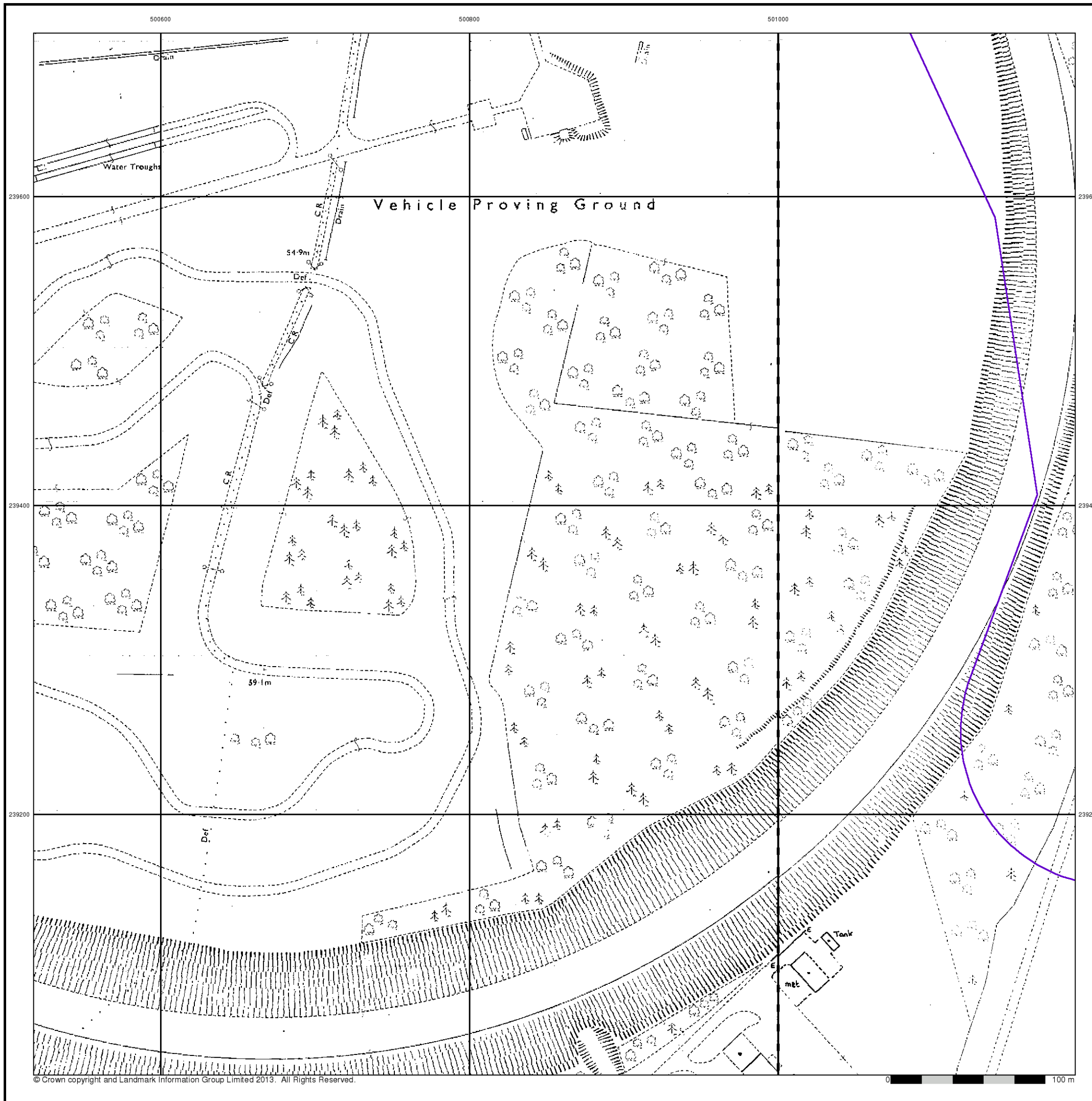


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





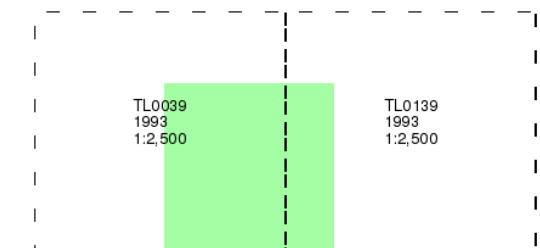
### Large-Scale National Grid Data

Published 1993

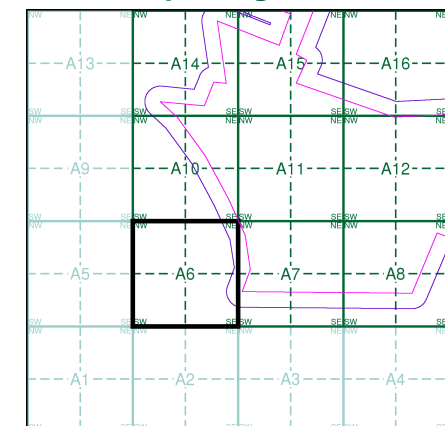
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment A6



### Order Details

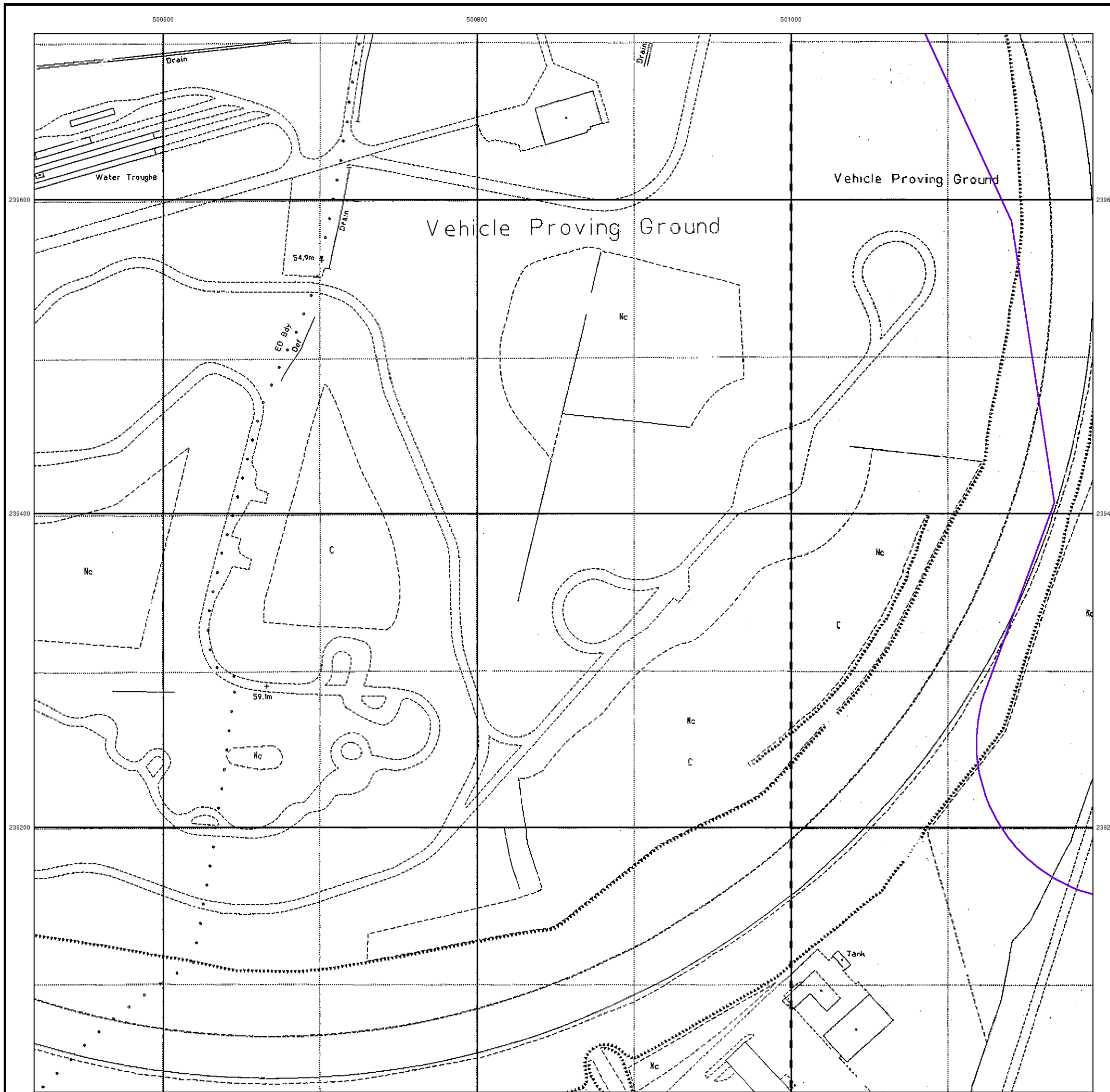
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

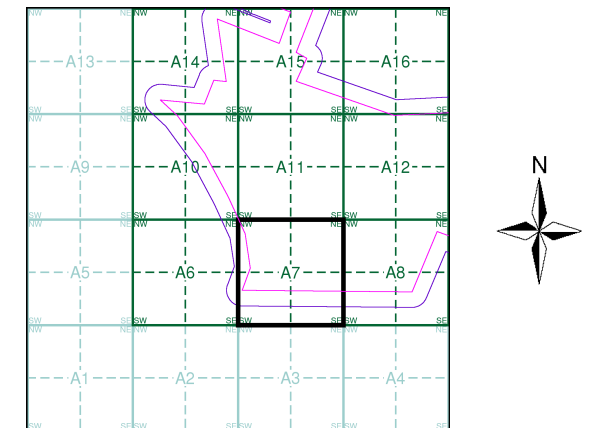
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Large-Scale National Grid Data	1:2,500	1993	7

## Historical Map - Segment A7



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
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## Site Details

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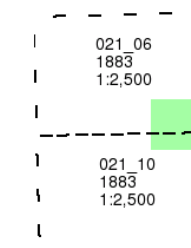


**Bedfordshire**  
**Published 1883**

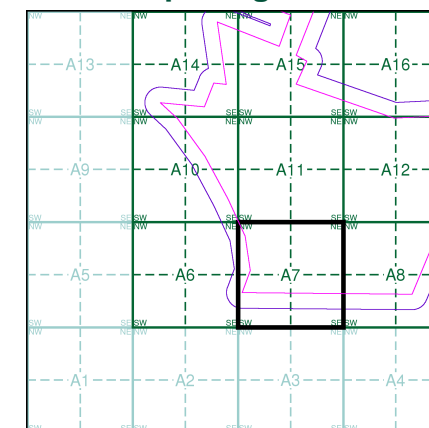
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A7**



**Order Details**

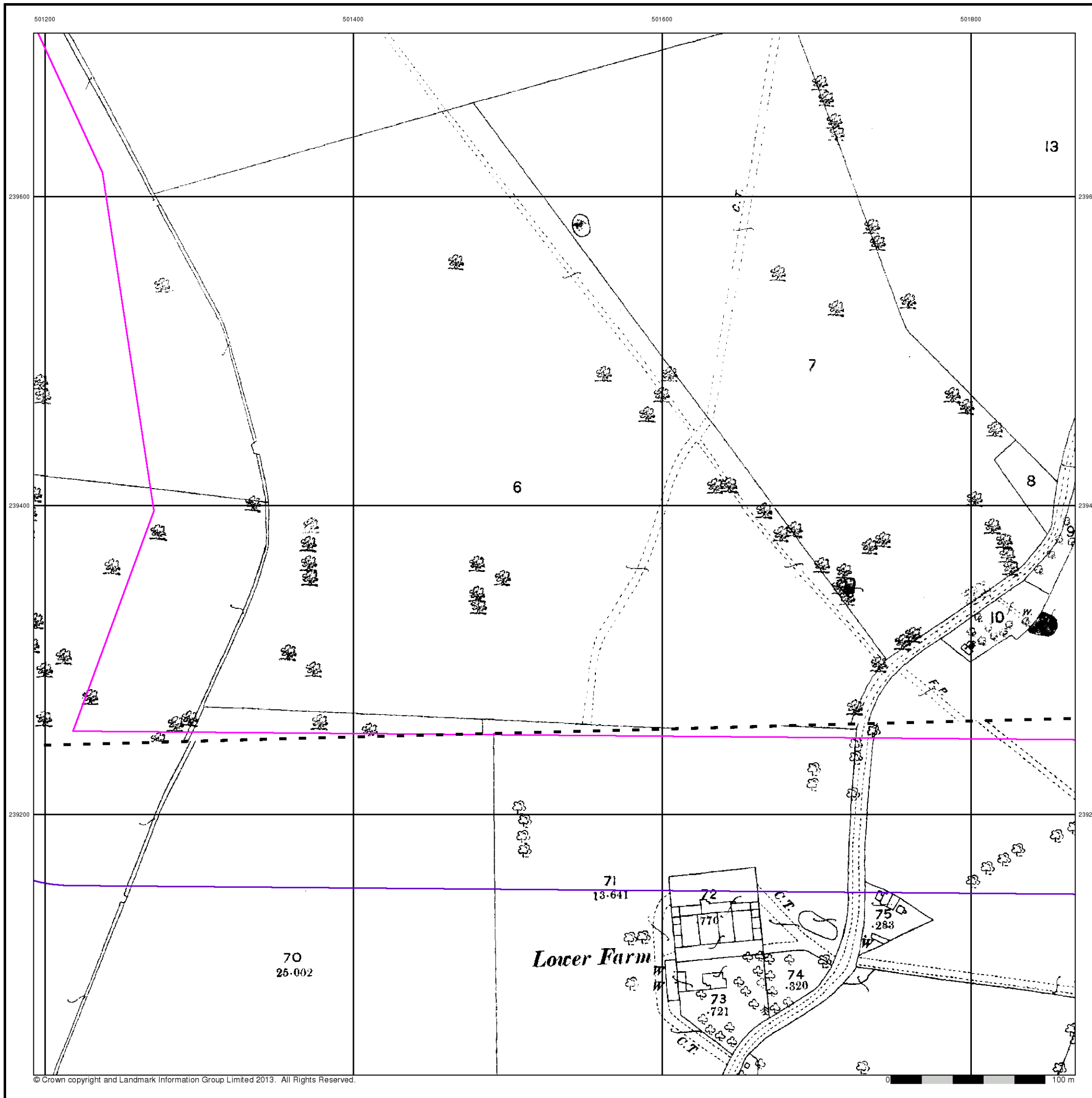
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Millbrook Power Project, Green Lane, Stewartby

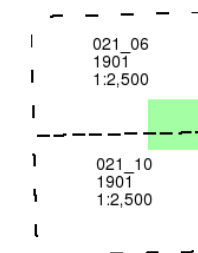


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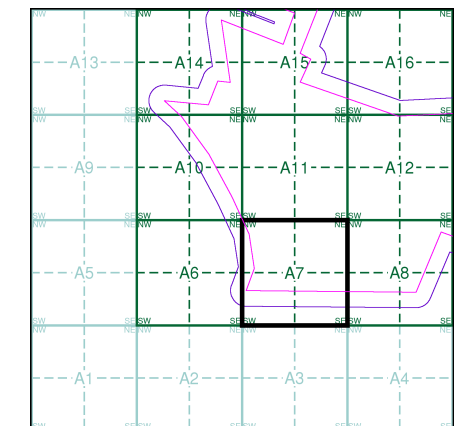


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**Historical Map - Segment A7**

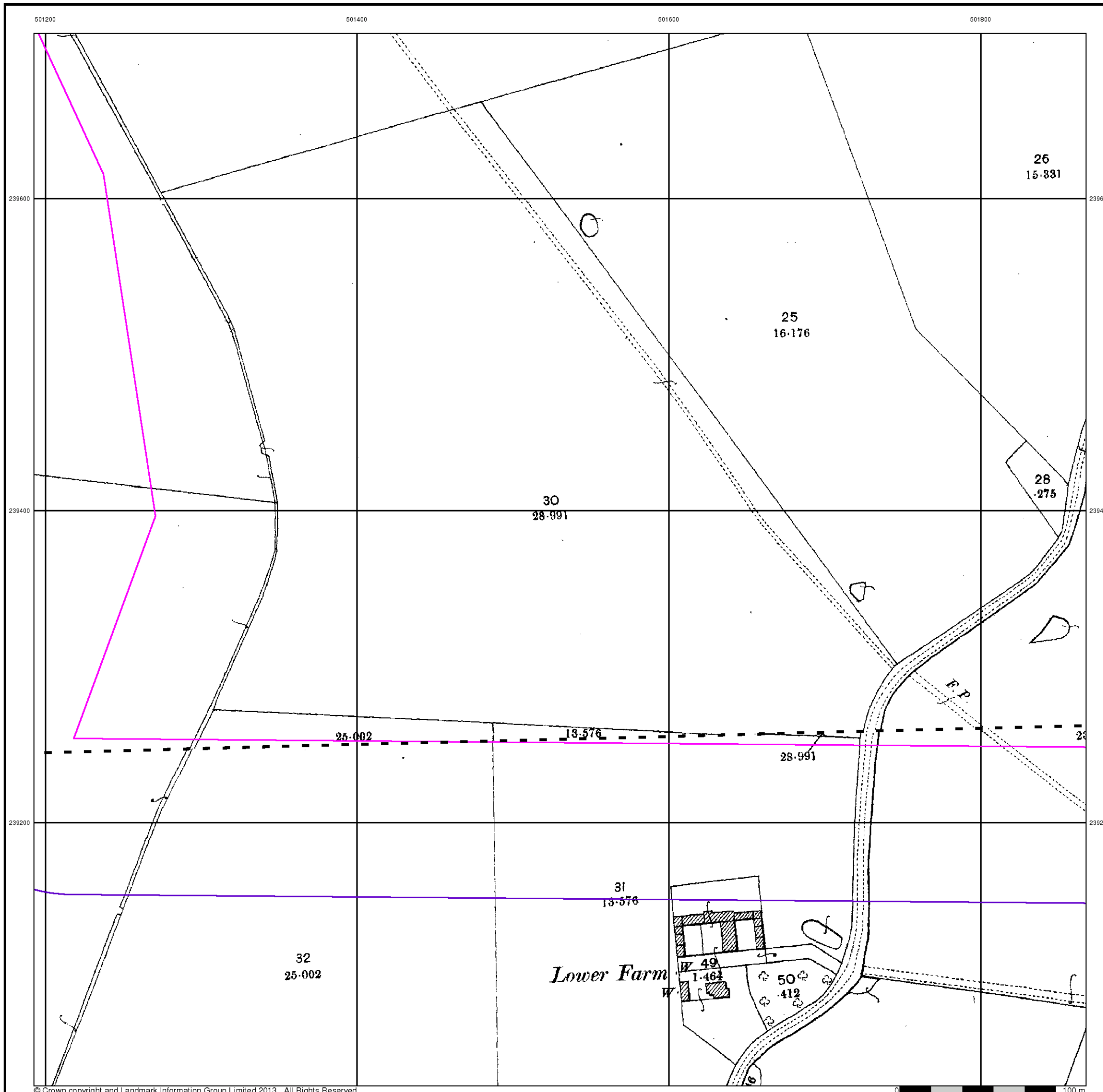


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Millbrook Power Project, Green Lane, Stewartby





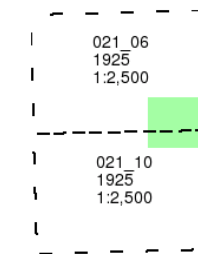
Bedfordshire

Published 1925

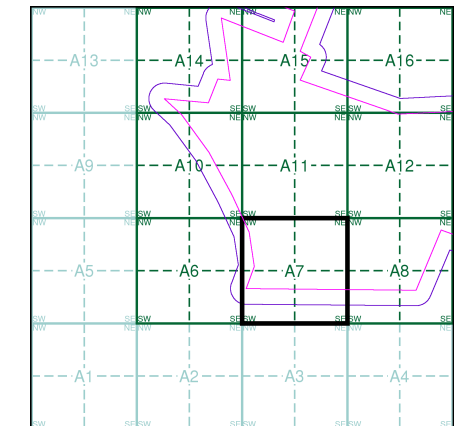
Source map scale - 1:2,500

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

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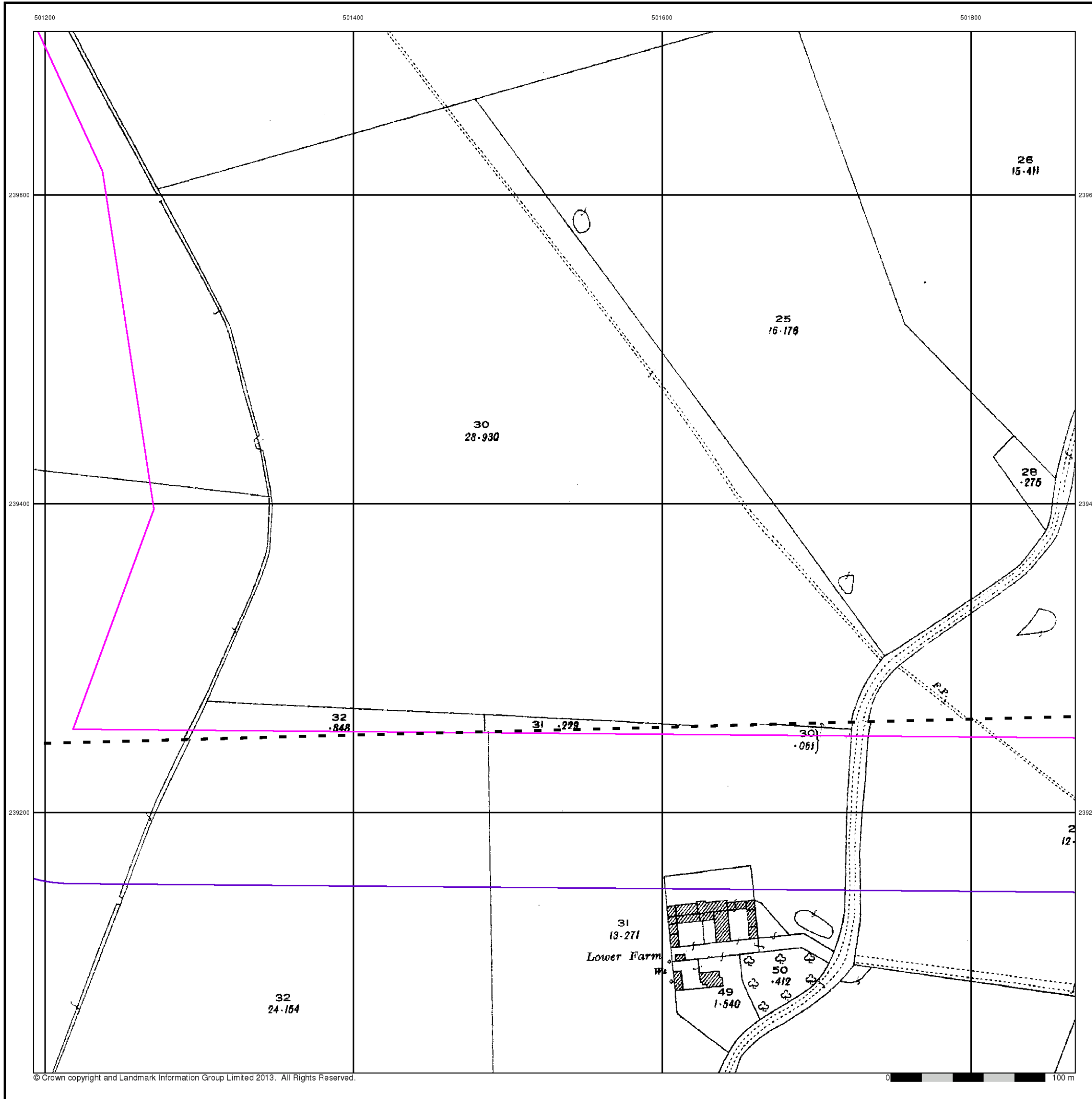
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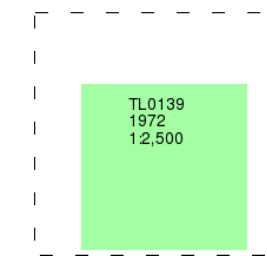


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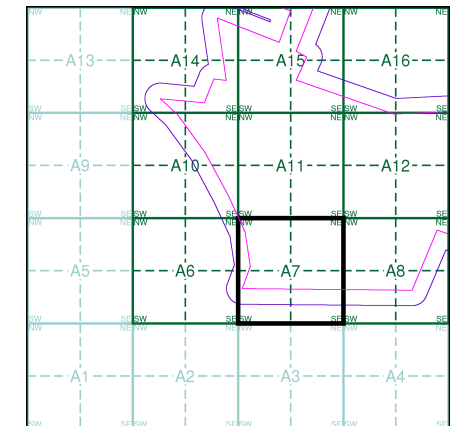


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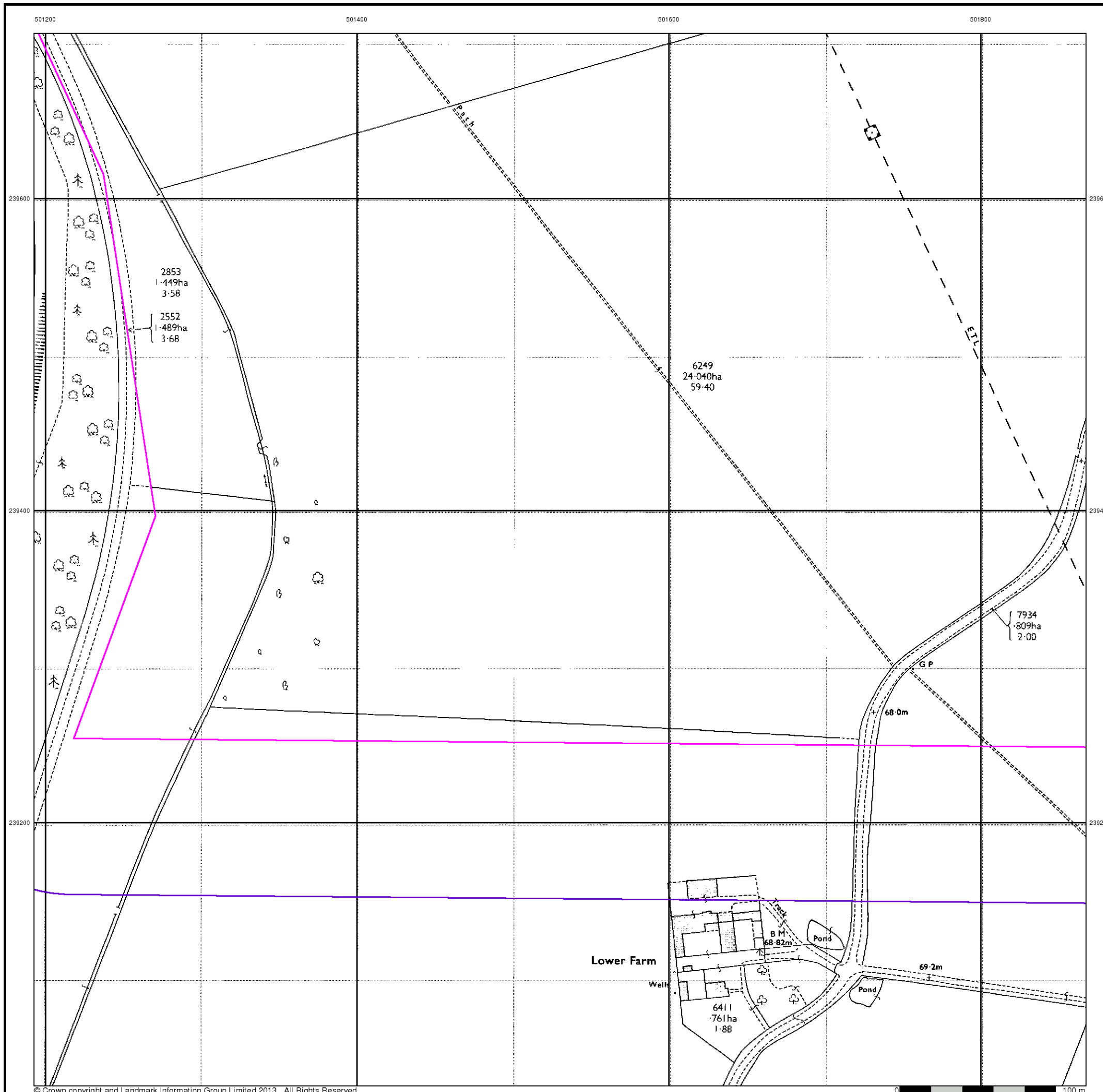


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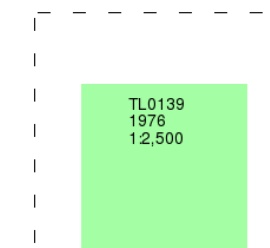
**Supply of Unpublished Survey Information**

**Published 1976**

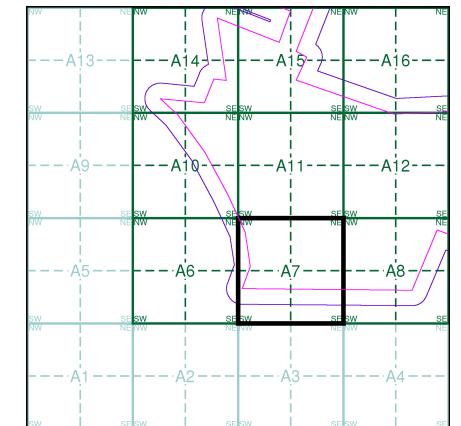
**Source map scale - 1:2,500**

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**Historical Map - Segment A7**

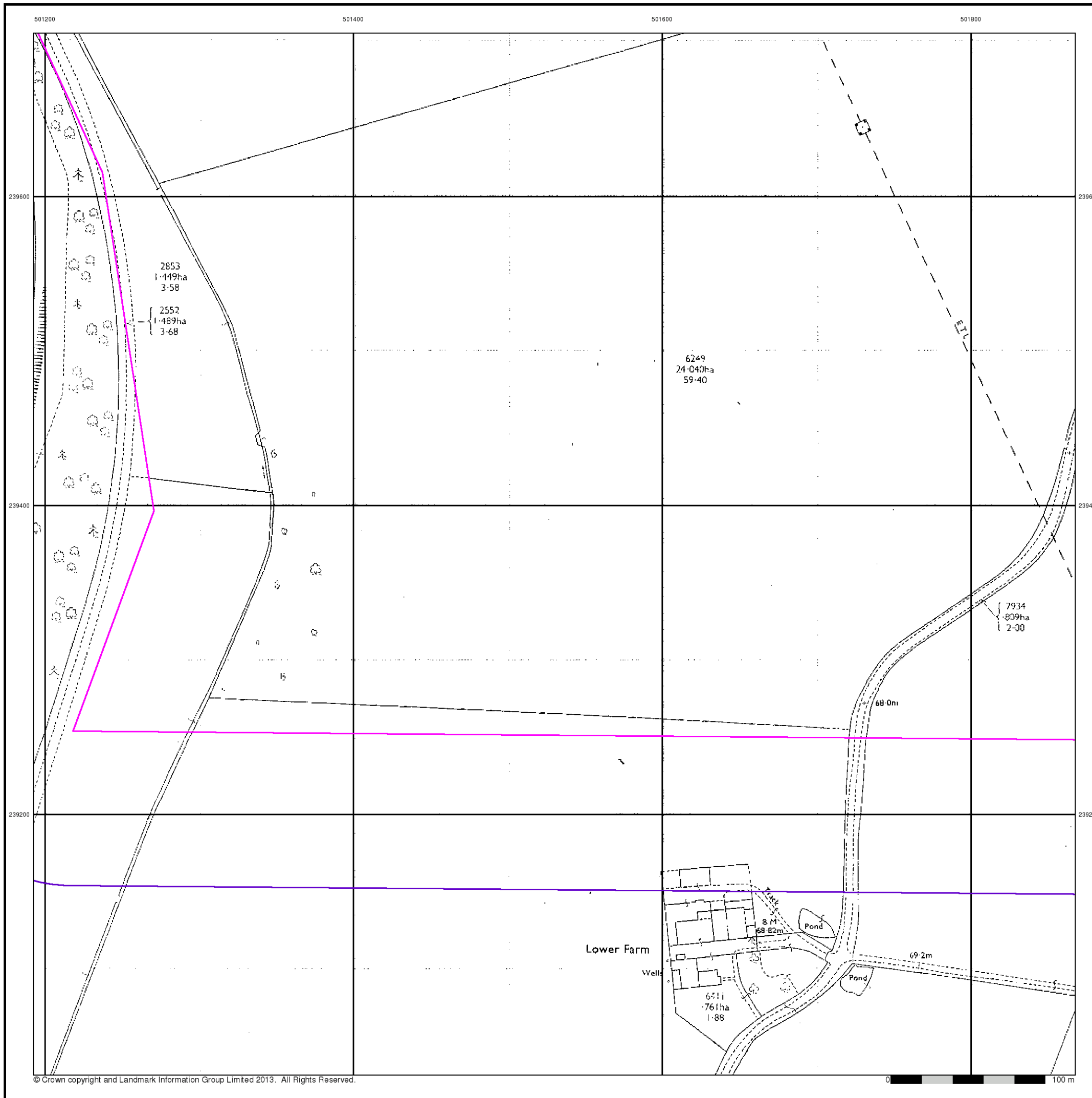


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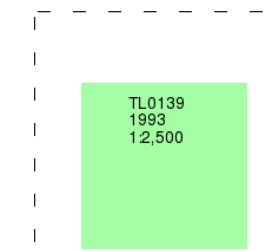
### Large-Scale National Grid Data

Published 1993

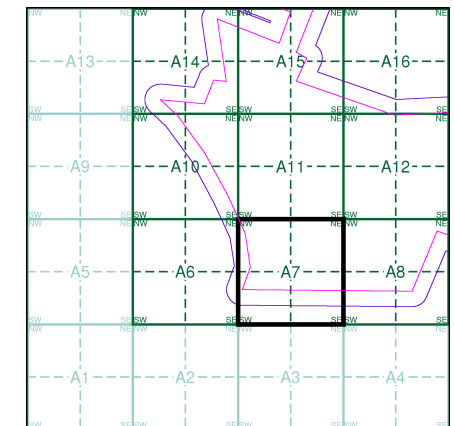
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment A7



### Order Details

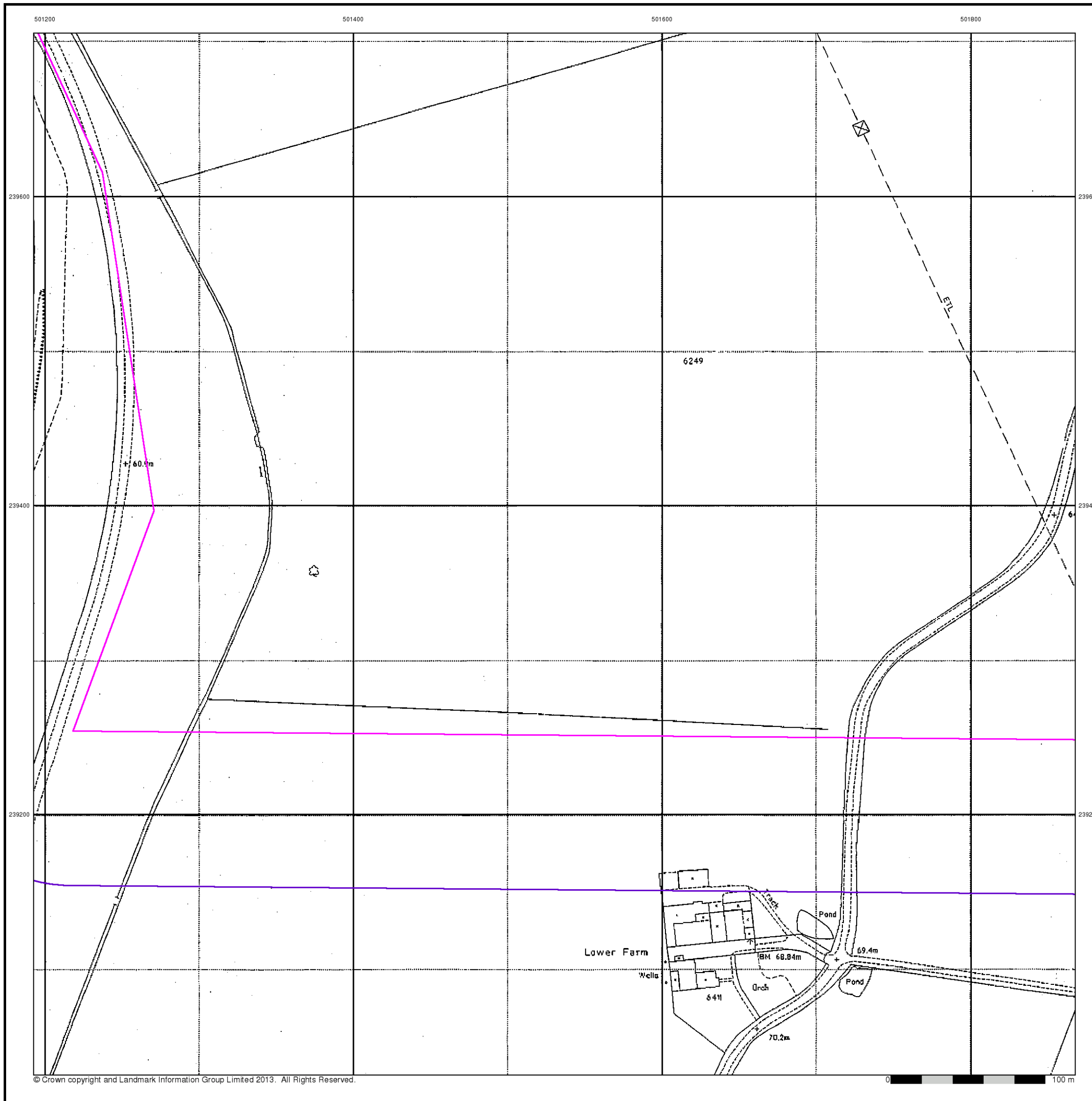
Order Number:	60770728_1_1
Customer Ref:	31116
National Grid Reference:	501510, 239960
Slice:	A
Site Area (Ha):	240.61
Search Buffer (m):	100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



Tel:	0844 844 9952
Fax:	0844 844 9951
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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

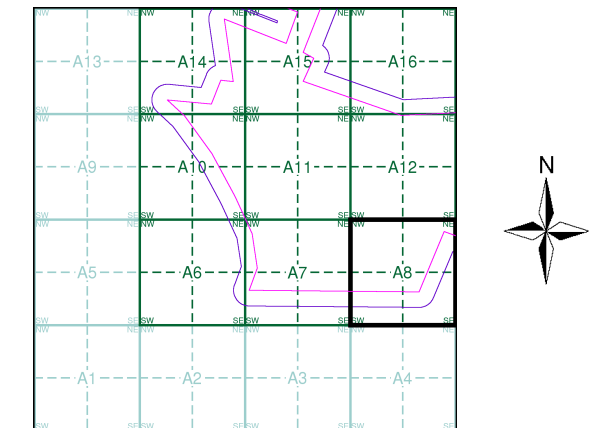
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Large-Scale National Grid Data	1:2,500	1993	7

## Historical Map - Segment A8



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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





**Bedfordshire**  
**Published 1883**

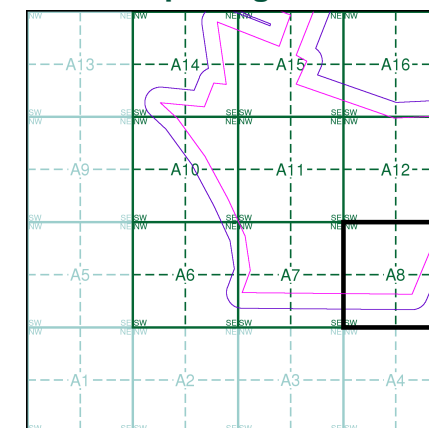
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**

021_06 1883 1:2,500	021_07 1883 1:2,500
021_10 1883 1:2,500	021_11 1883 1:2,500

**Historical Map - Segment A8**



**Order Details**

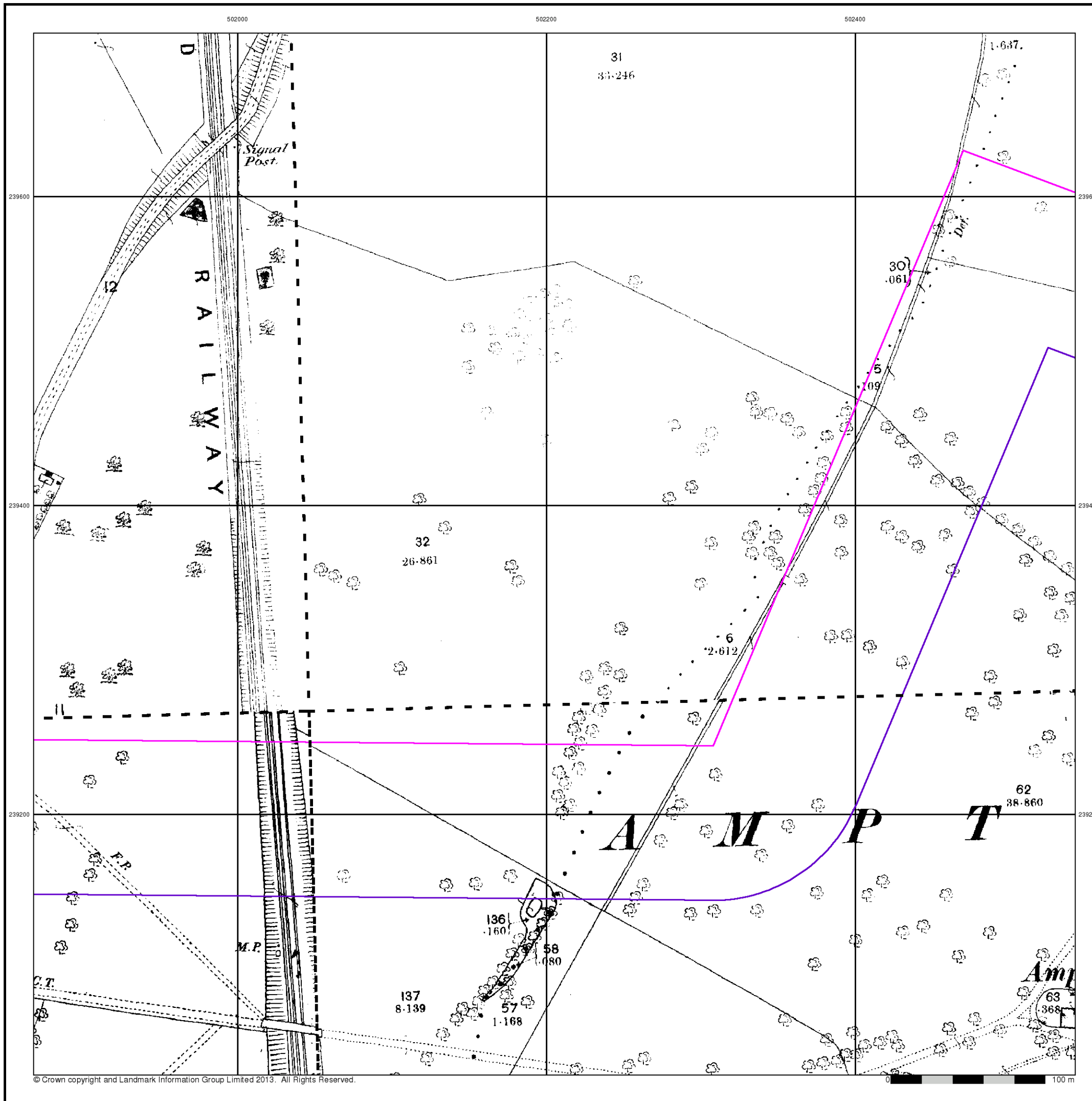
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

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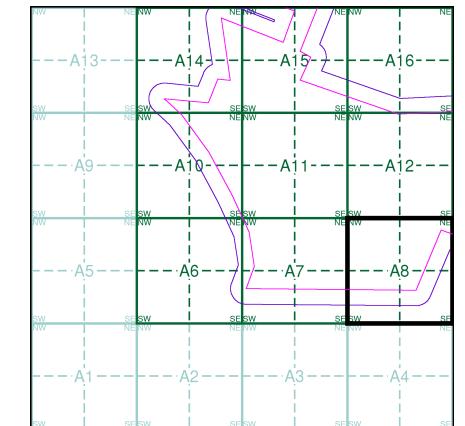


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain.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

**Map Name(s) and Date(s)**

021_06 1901 1:2,500	021_07 1901 1:2,500
021_10 1901 1:2,500	021_11 1901 1:2,500

**Historical Map - Segment A8**

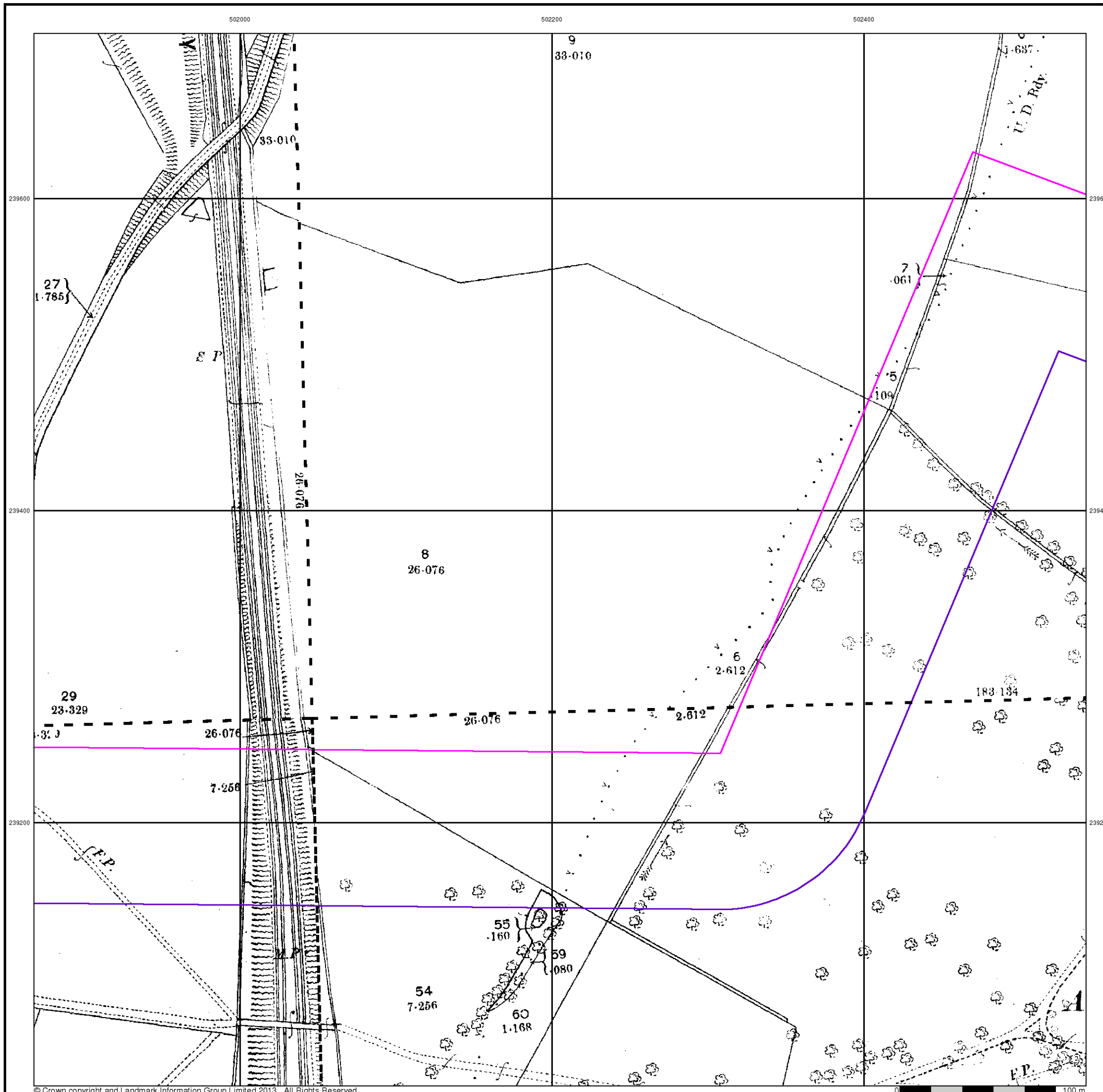


**Order Details**

Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





**Bedfordshire**  
**Published 1925**

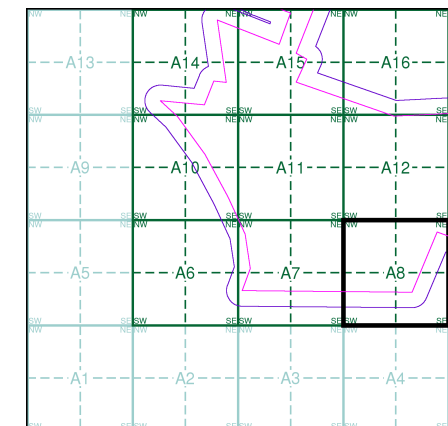
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**

021_06 1925 1:2,500	021_07 1925 1:2,500
021_10 1925 1:2,500	021_11 1925 1:2,500

**Historical Map - Segment A8**



**Order Details**

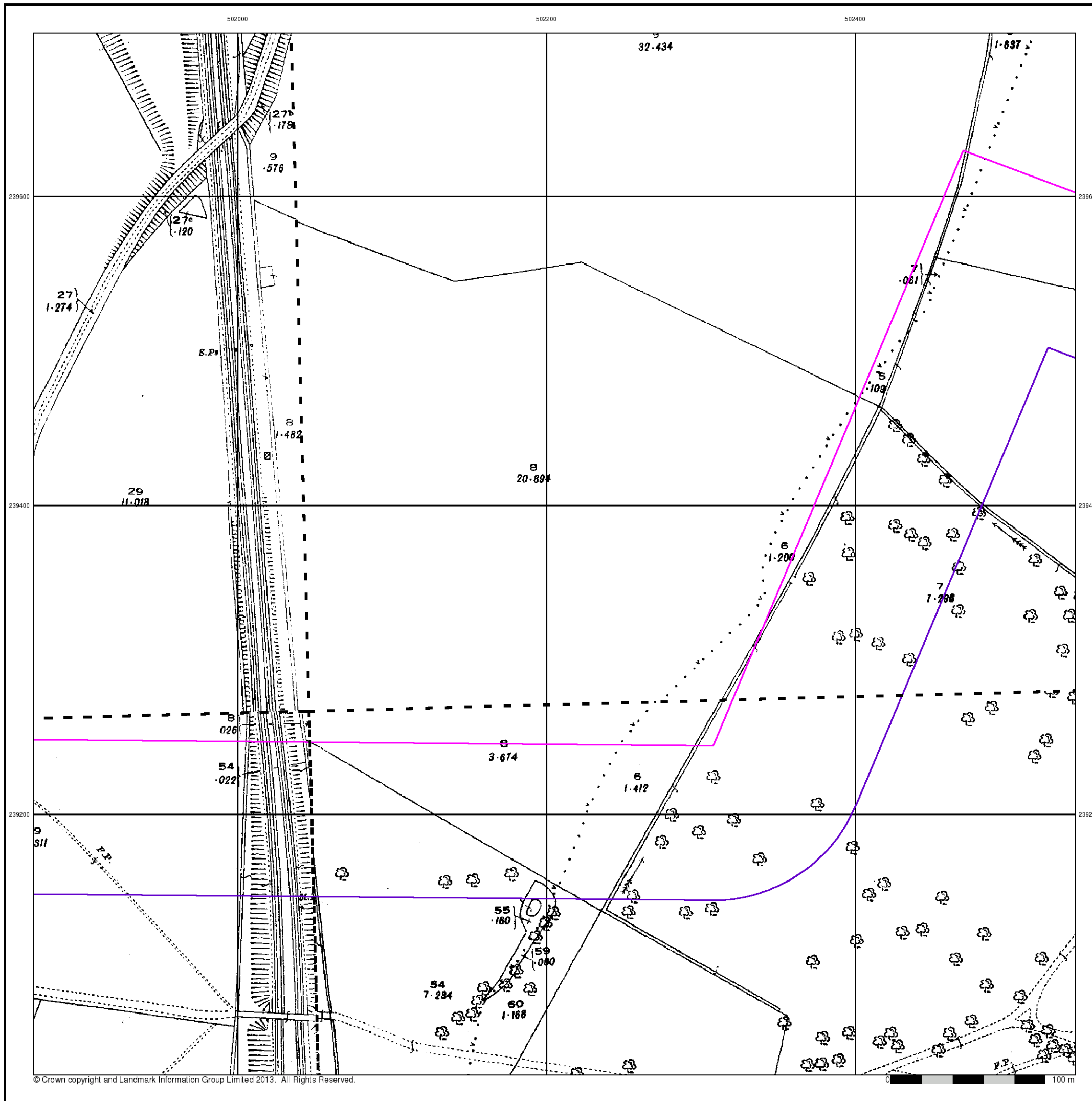
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby

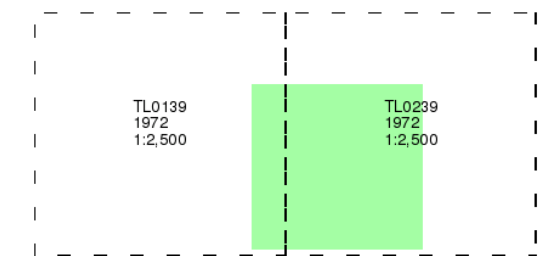


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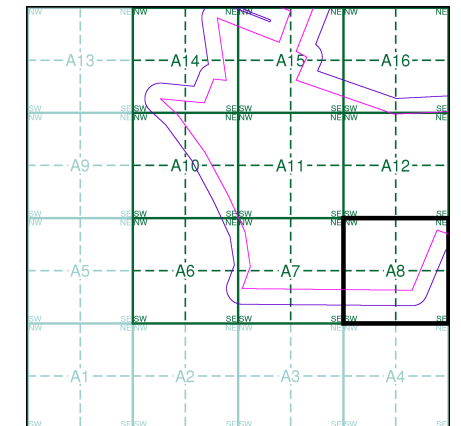


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain.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

**Map Name(s) and Date(s)**



**Historical Map - Segment A8**

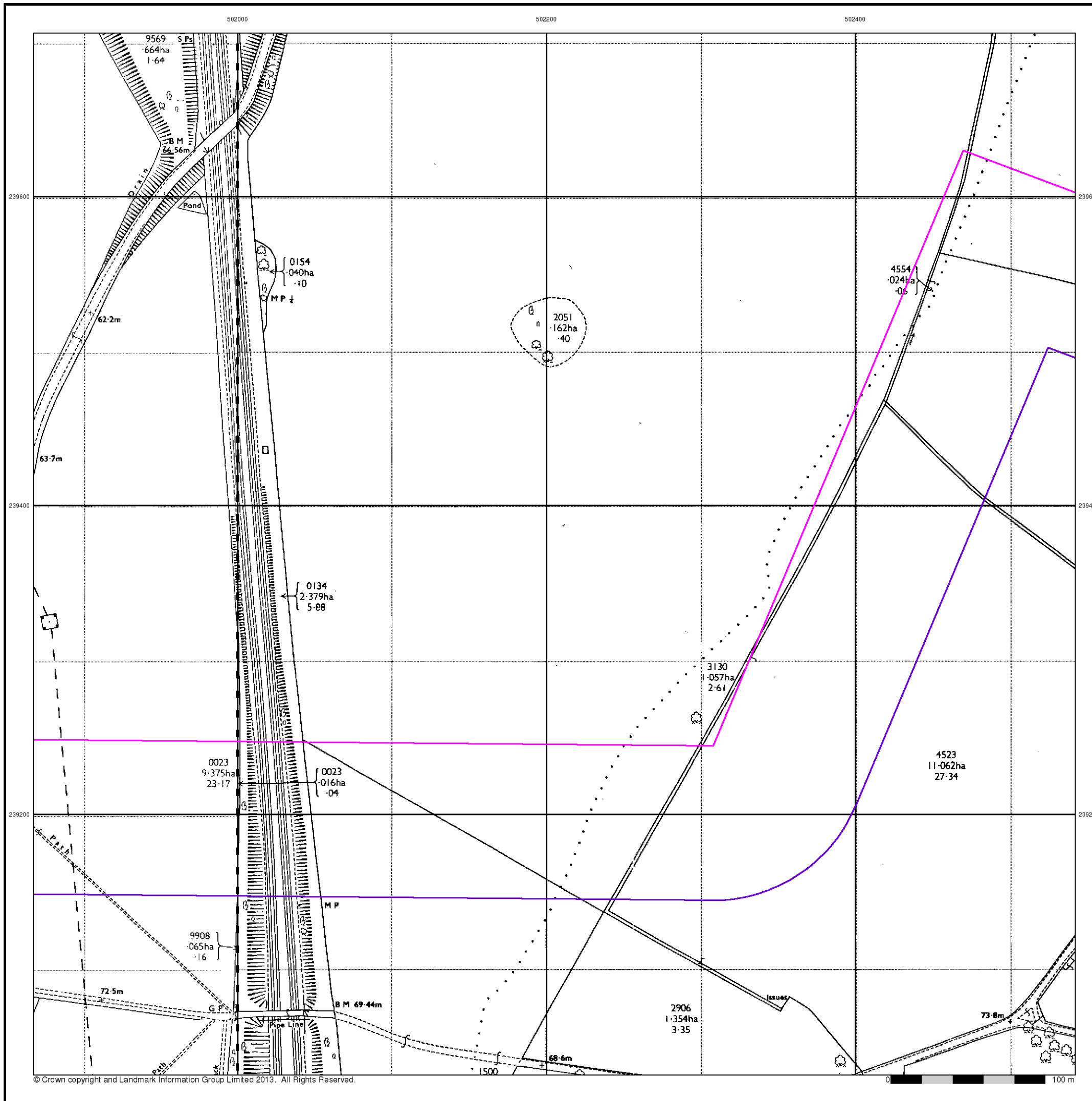


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



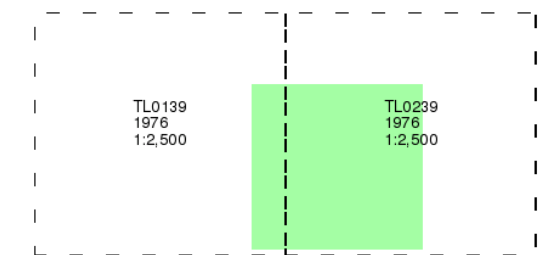
**Supply of Unpublished Survey Information**

**Published 1976**

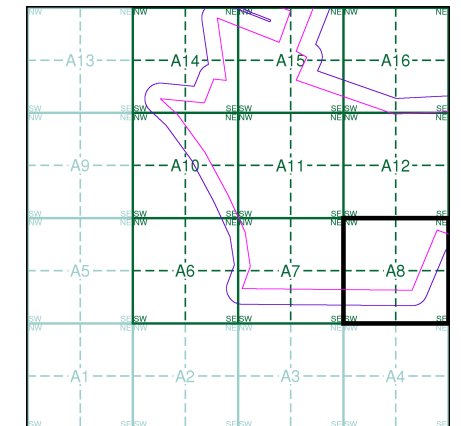
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A8**

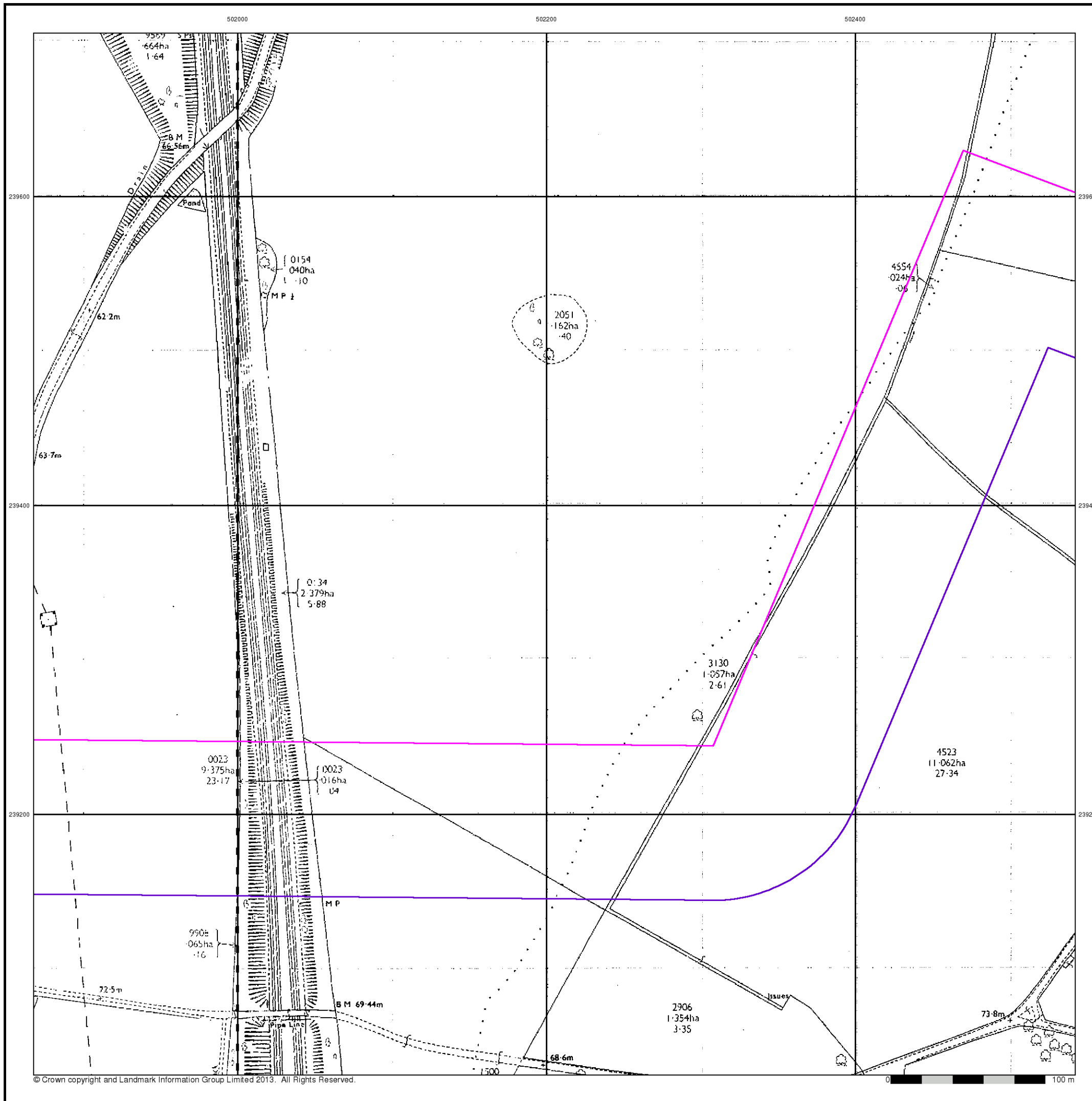


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





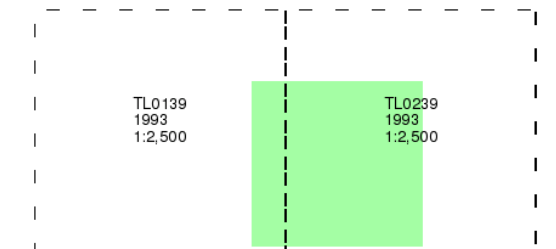
### Large-Scale National Grid Data

Published 1993

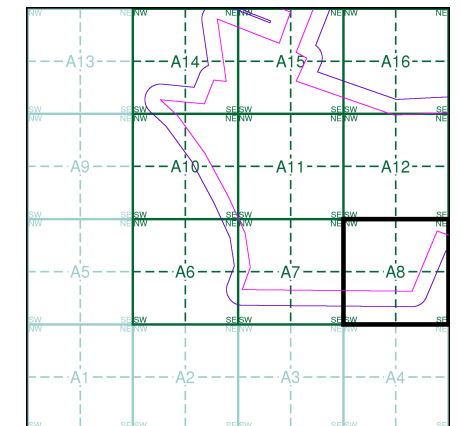
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment A8



### Order Details

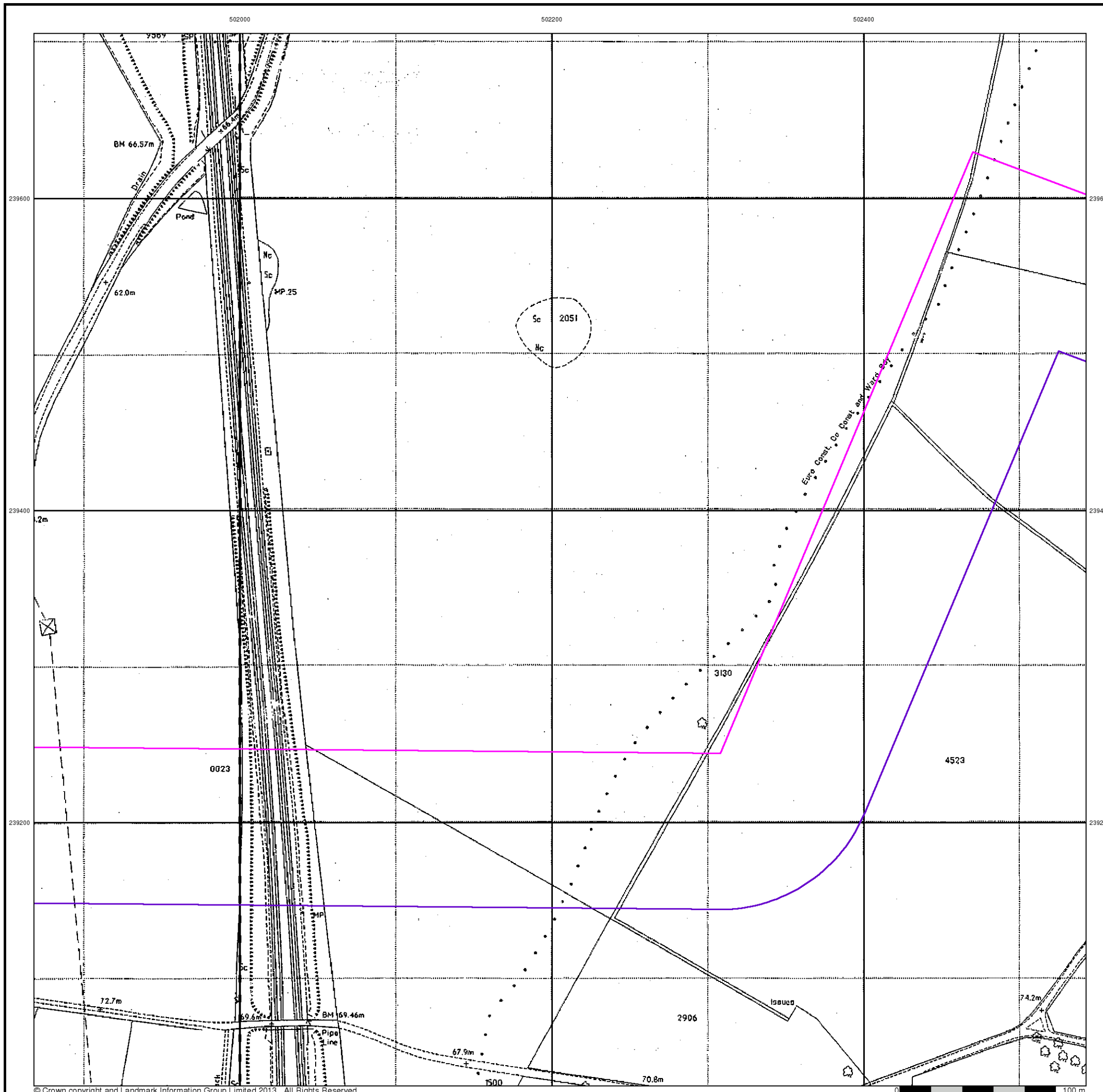
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

### Site Details

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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** **Altitude at Trig. Station**  
**B.M. 325.9** **Bench Mark** **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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** **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** **Bench Mark** **Antiquity (site of)**  
**Cave Entrance** **Triangulation Station** **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

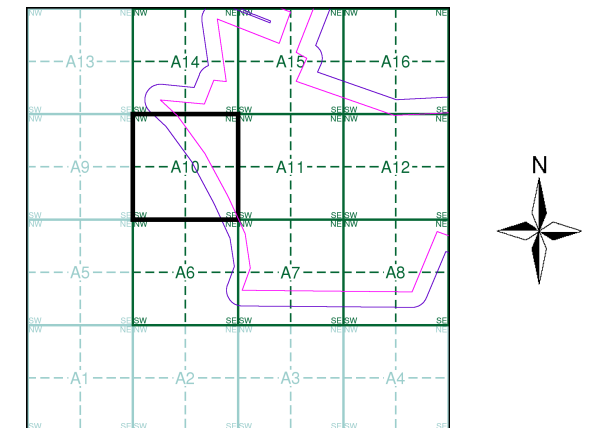
**Cliff** **Slopes** **Top**  
**Rock** **Rock (scattered)**  
**Boulders** **Boulders (scattered)**  
**Positioned Boulder** **Scree**  
**Non-Coniferous Tree (surveyed)** **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)** **Coniferous Trees (not surveyed)**  
**Orchard Tree** **Scrub** **Bracken**  
**Coppice, Osier** **Reeds** **Marsh, Saltings**  
**Rough Grassland** **Heath** **Culvert**  
**Direction of water flow** **Triangulation Station** **Antiquity (site of)**  
**Electricity Transmission Line** **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar **SB, S Br** Signal Box or Bridge  
**EI 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 Governor **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972 - 1976	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Large-Scale National Grid Data	1:2,500	1993	7

## Historical Map - Segment A10



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



Tel: 0844 844 9952  
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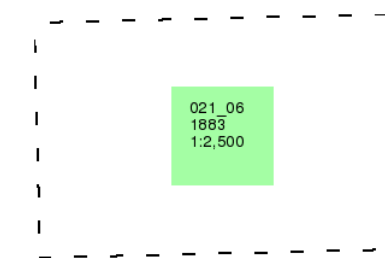


**Bedfordshire**  
**Published 1883**

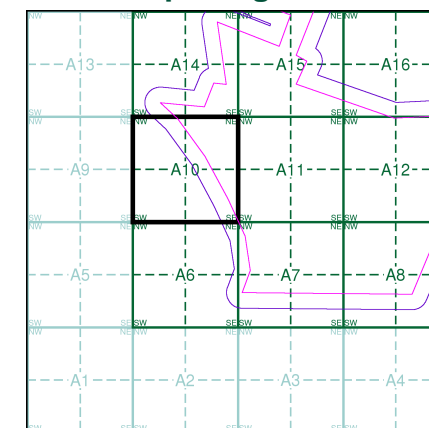
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A10**



**Order Details**

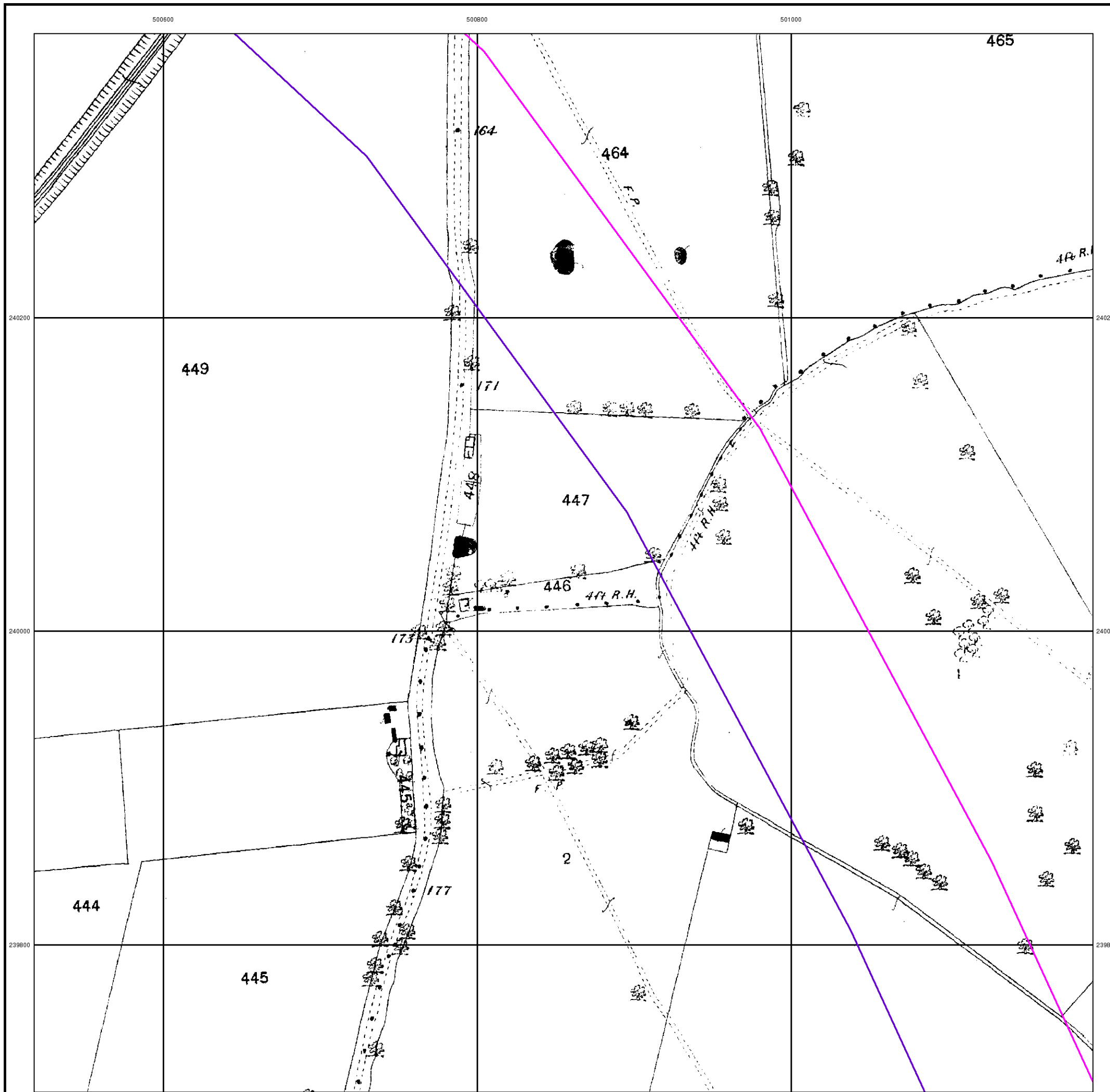
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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







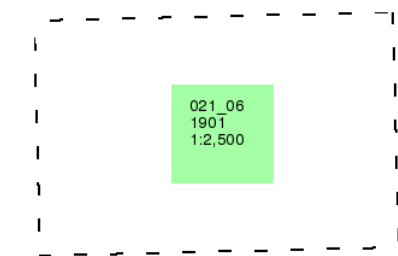
Bedfordshire

Published 1901

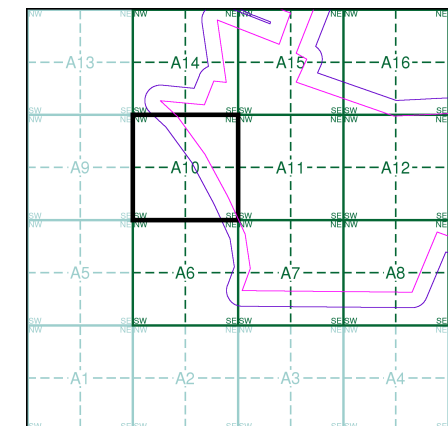
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A10



Order Details

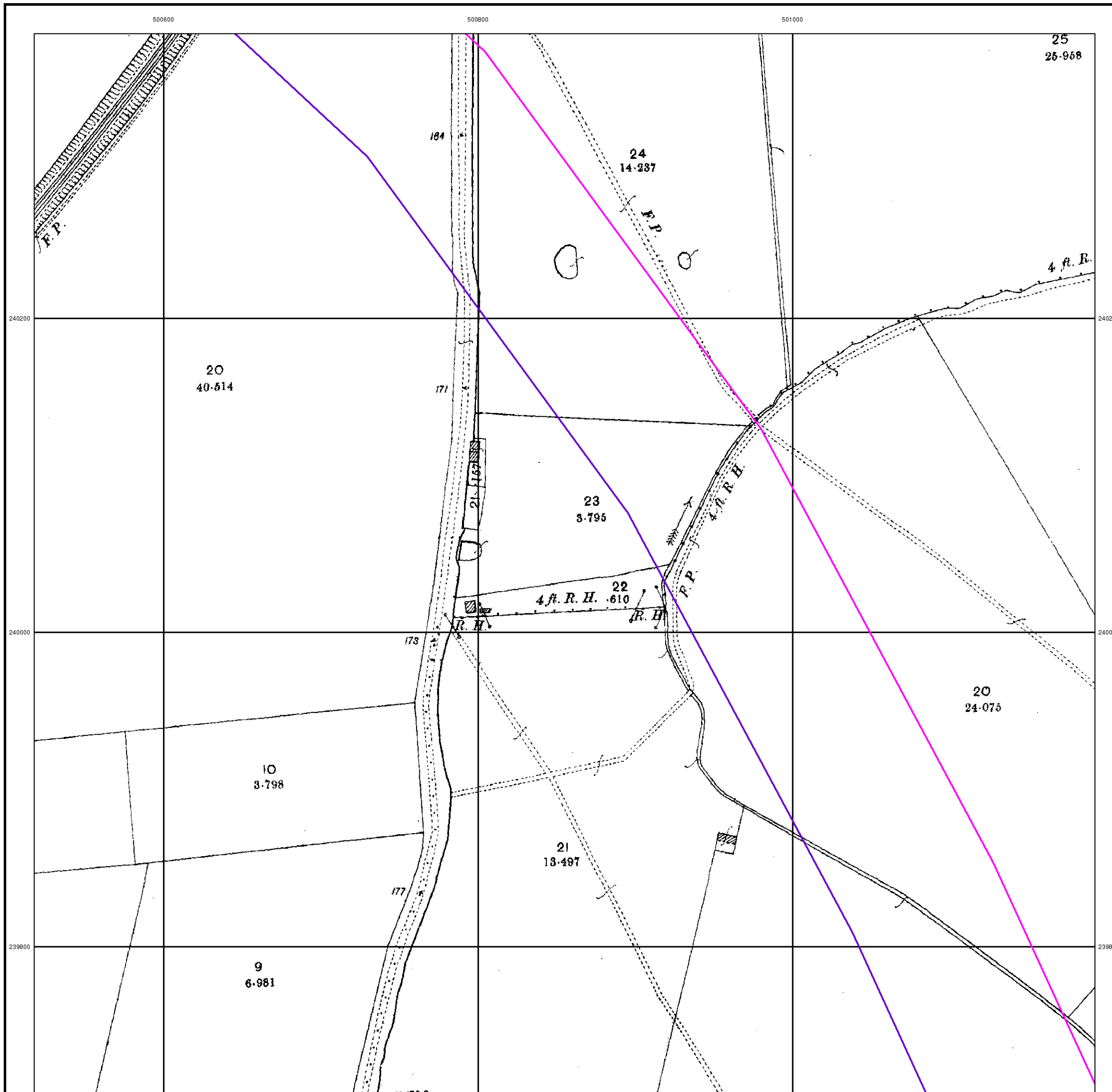
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

Millbrook Power Project, Green Lane, Stewartby



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



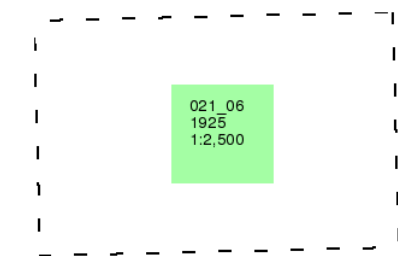


**Bedfordshire**  
**Published 1925**

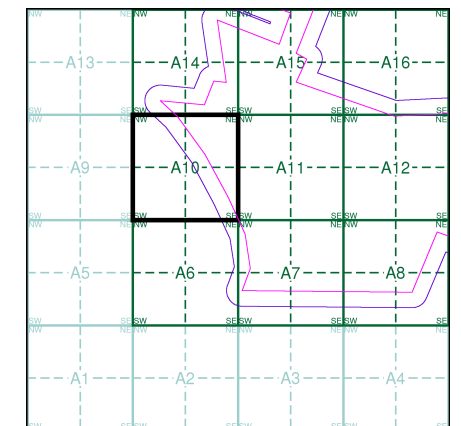
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A10**



**Order Details**

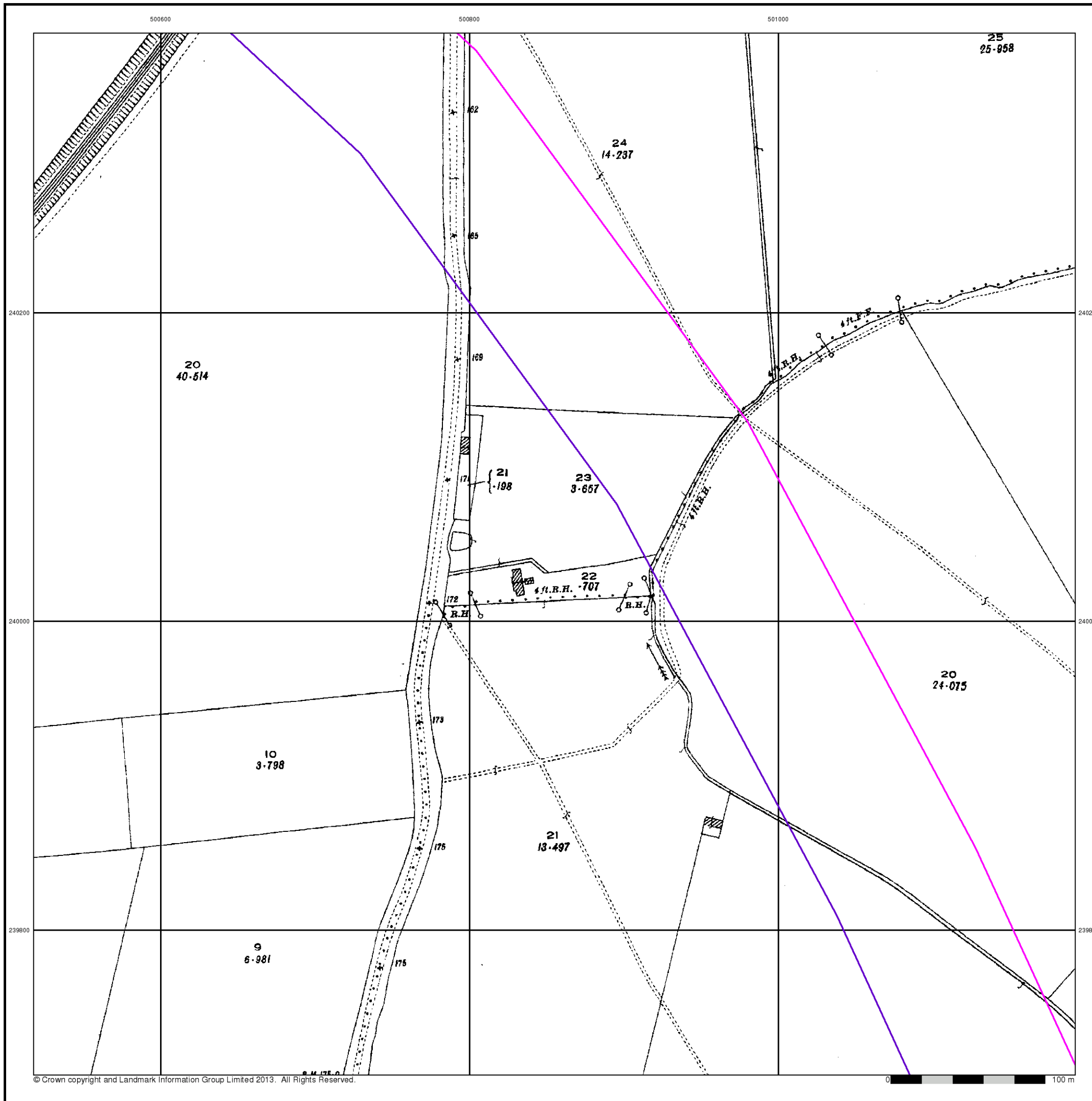
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
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### Ordnance Survey Plan

Published 1972 - 1976

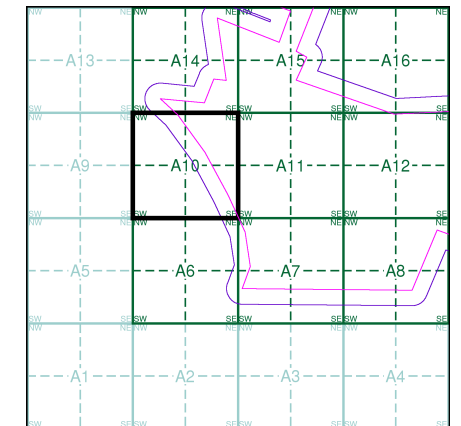
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0040 1976 12,500	TL0140 1976 12,500
TL0039 1972 12,500	TL0139 1972 12,500

### Historical Map - Segment A10



### Order Details

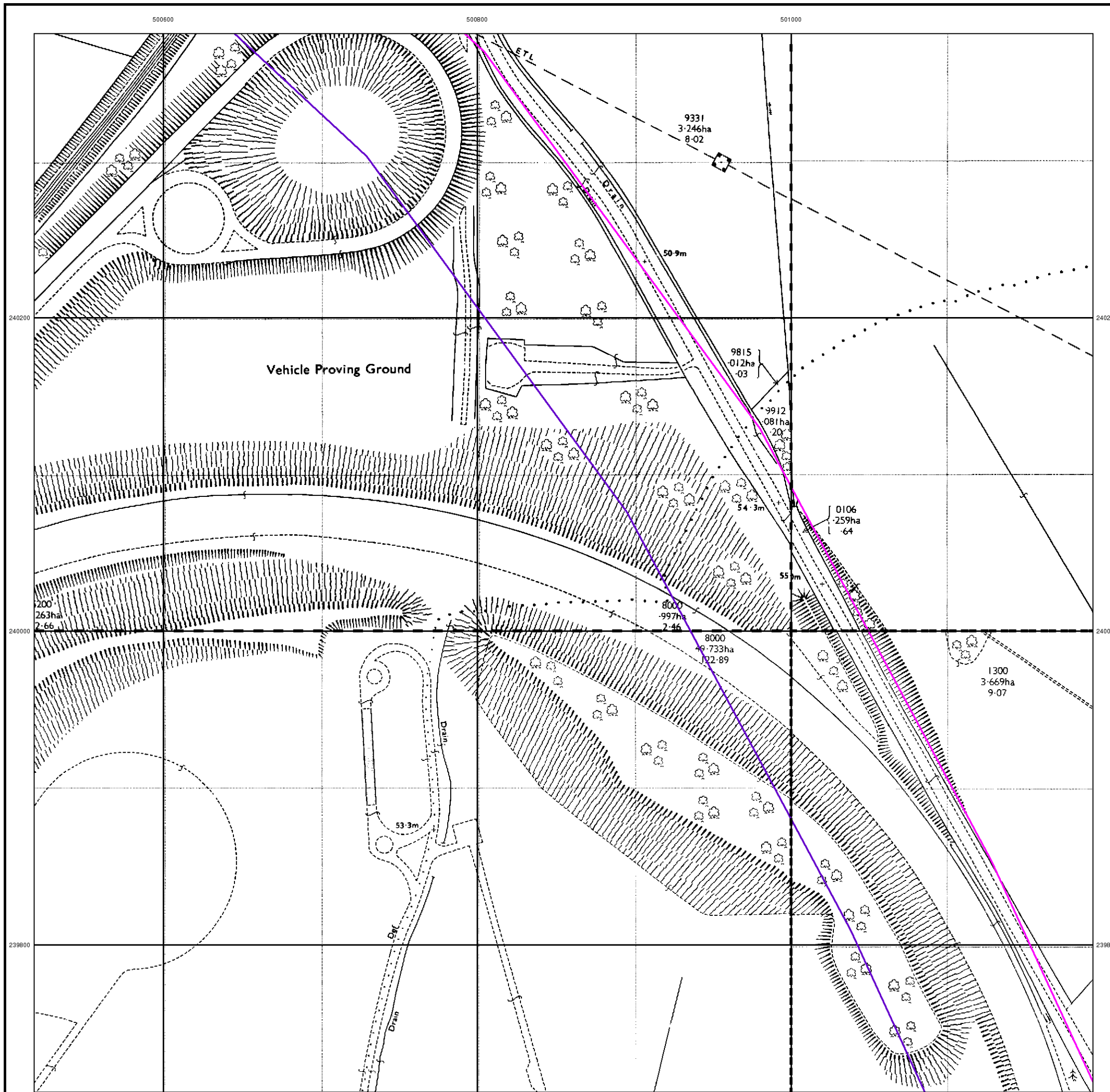
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

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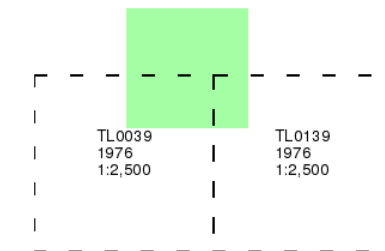
## Supply of Unpublished Survey Information

Published 1976

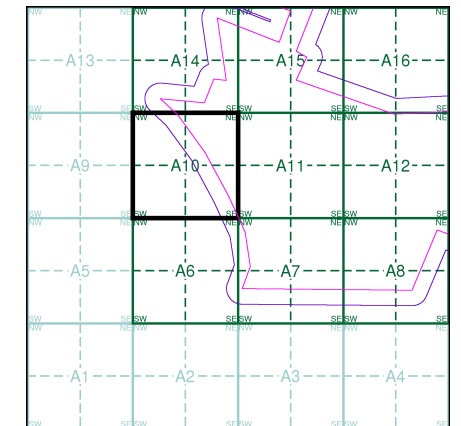
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment A10



### Order Details

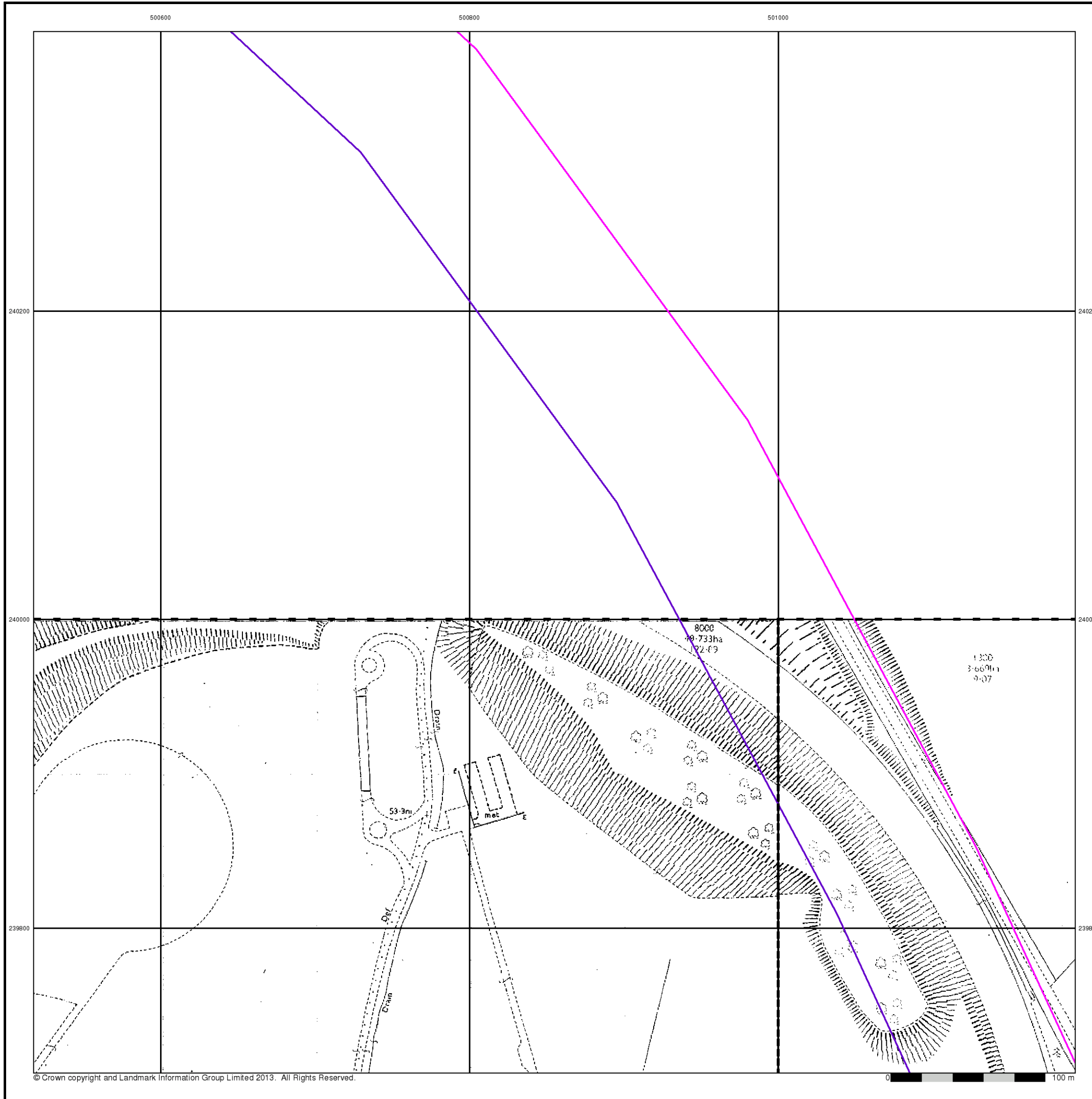
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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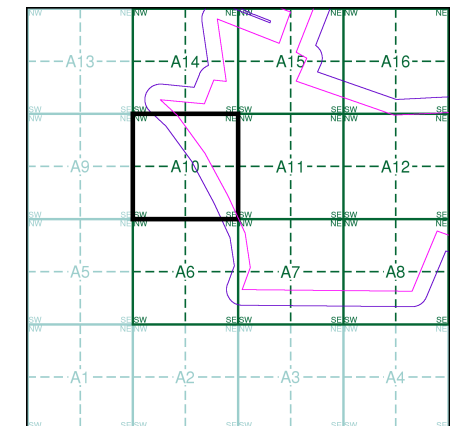


'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

**Map Name(s) and Date(s)**

TL0040 1993 1:2,500	TL0140 1993 1:2,500
TL0039 1993 1:2,500	TL0139 1993 1:2,500

**Historical Map - Segment A10**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



# 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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

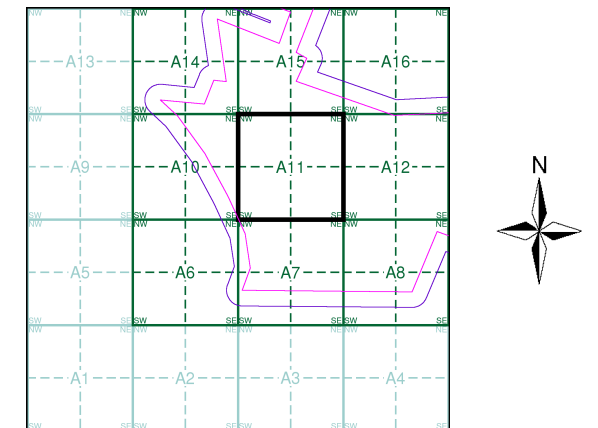
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972 - 1976	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Large-Scale National Grid Data	1:2,500	1993	7

## Historical Map - Segment A11



## Order Details

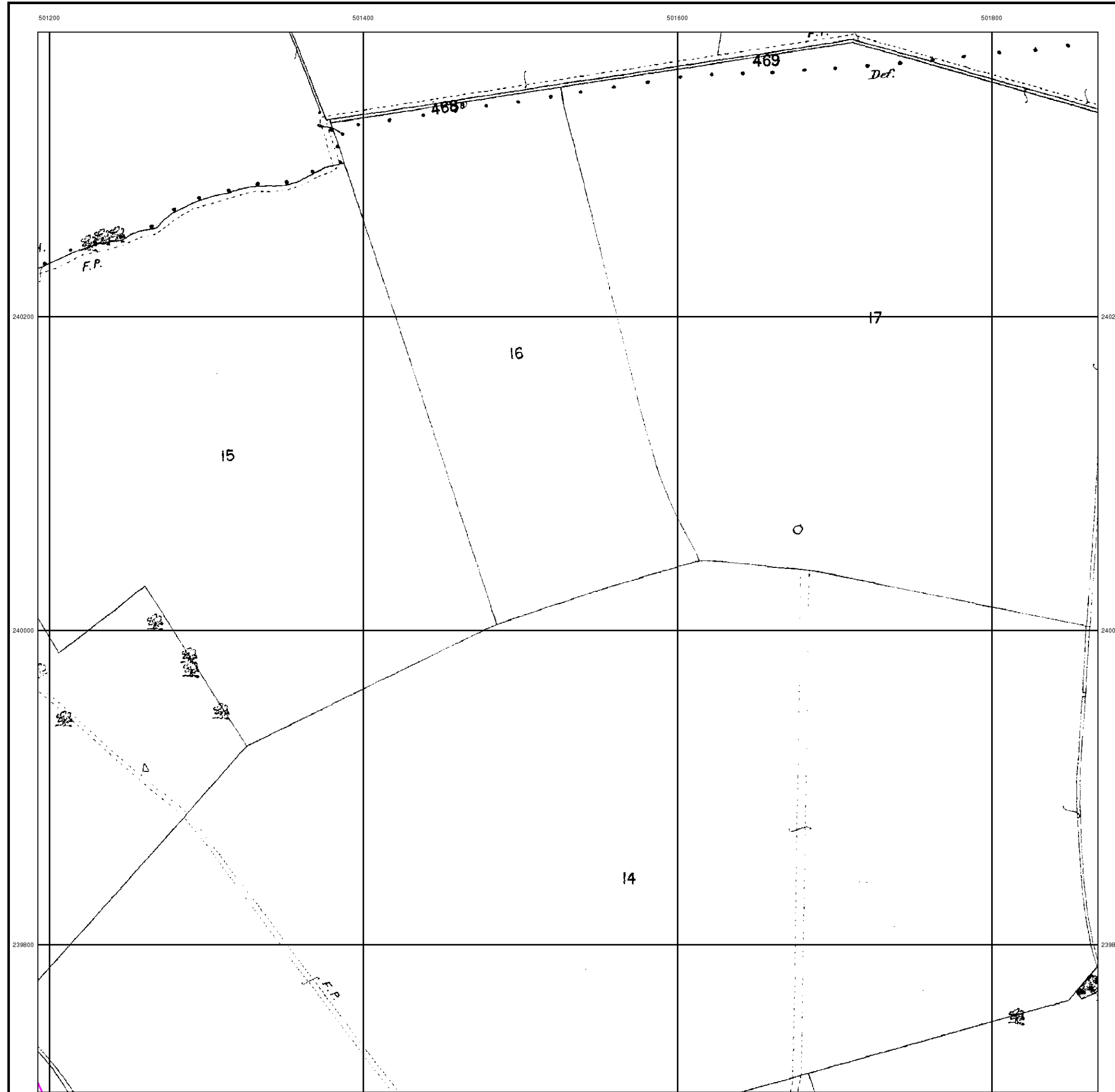
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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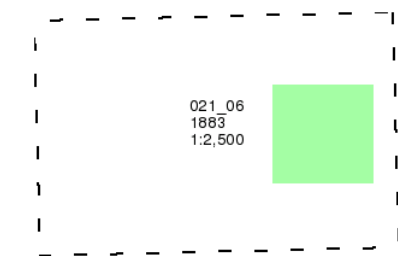


**Bedfordshire**  
**Published 1883**

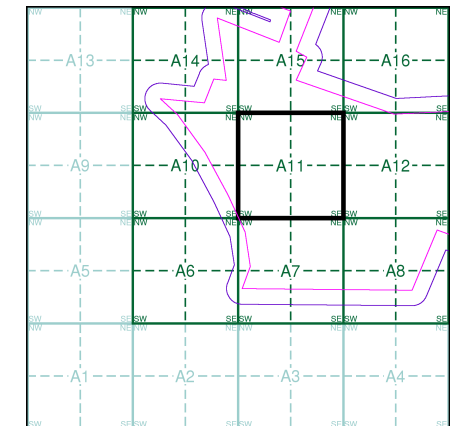
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A11**



**Order Details**

Order Number: 60770728\_1\_1  
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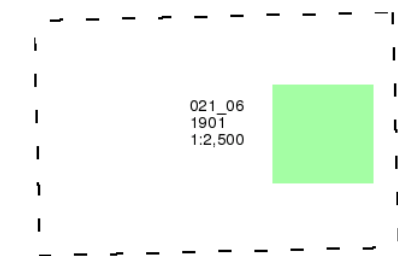
Bedfordshire

Published 1901

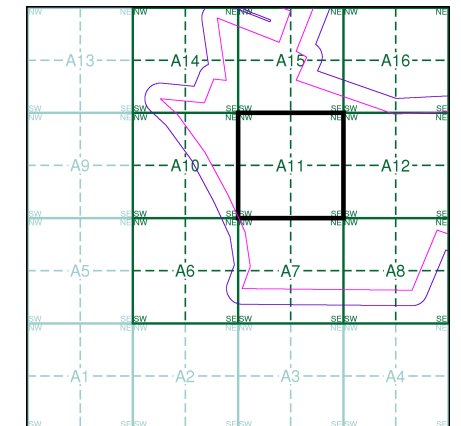
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A11



Order Details

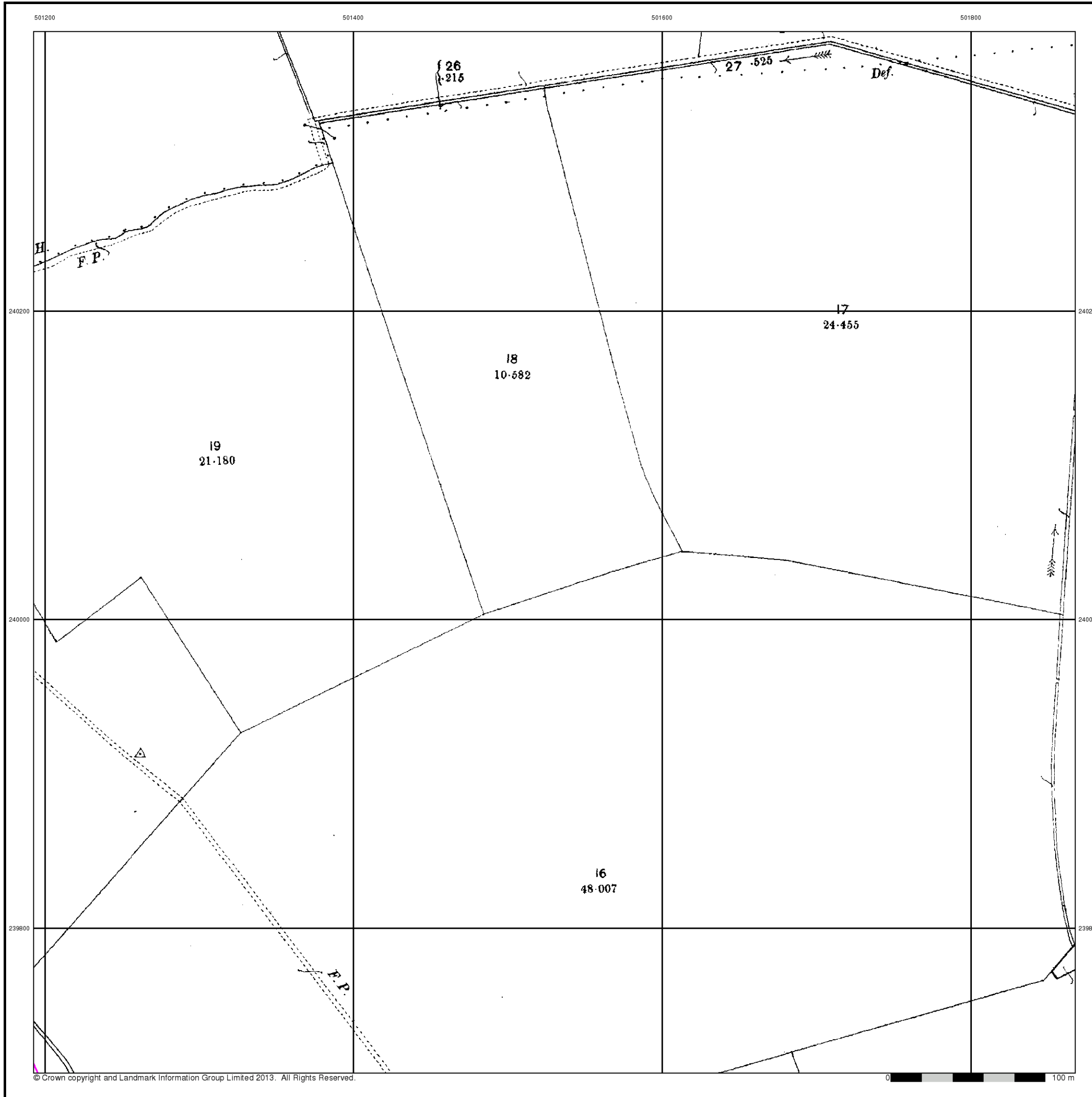
Order Number: 60770728\_1\_1  
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Slice: A  
Site Area (Ha): 240.61  
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Site Details

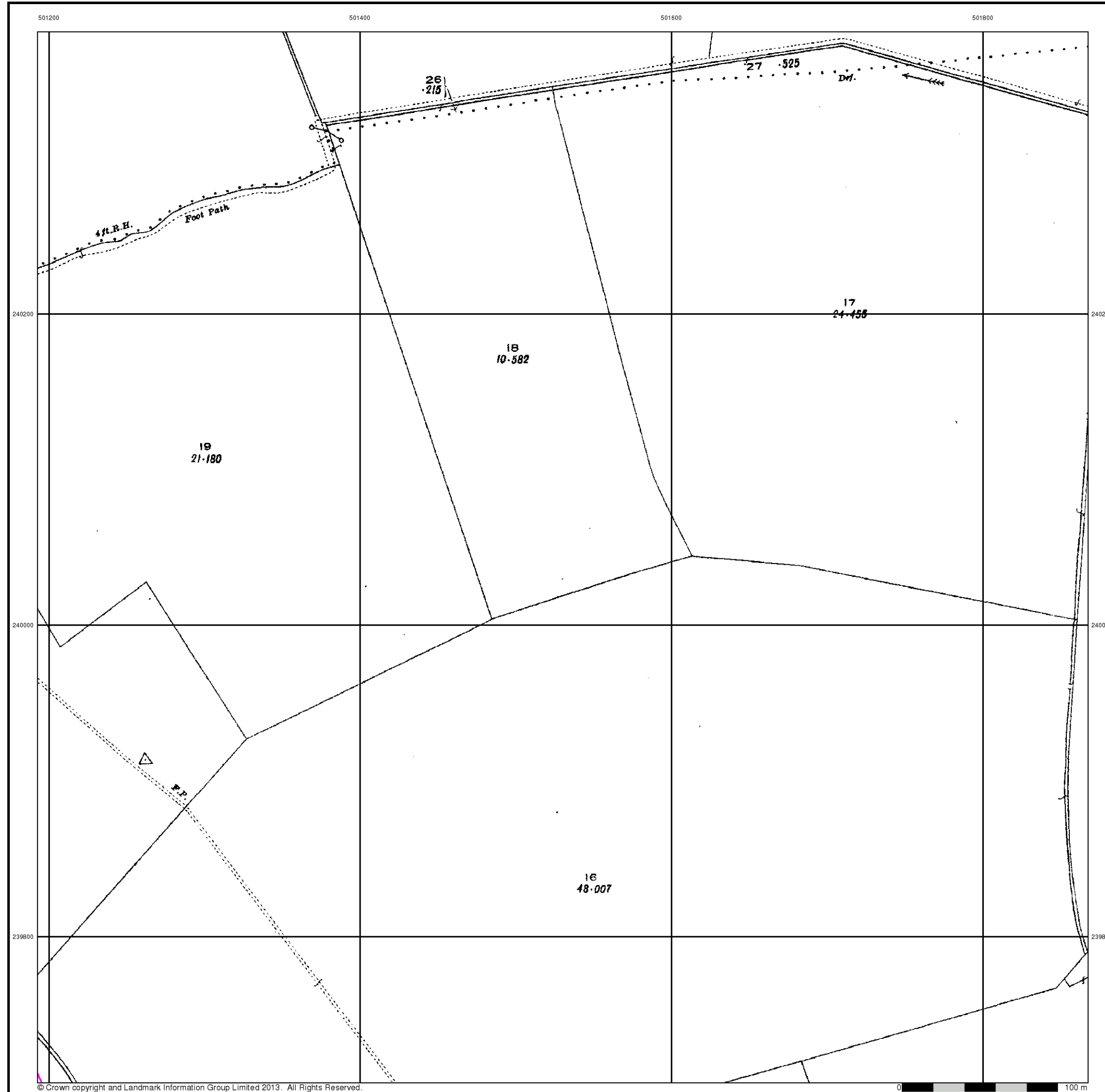
Millbrook Power Project, Green Lane, Stewartby



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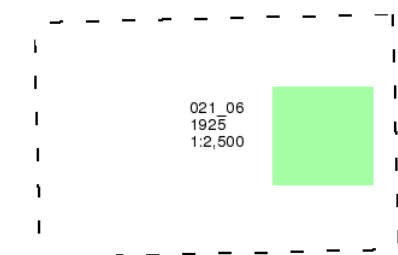


**Bedfordshire**  
**Published 1925**

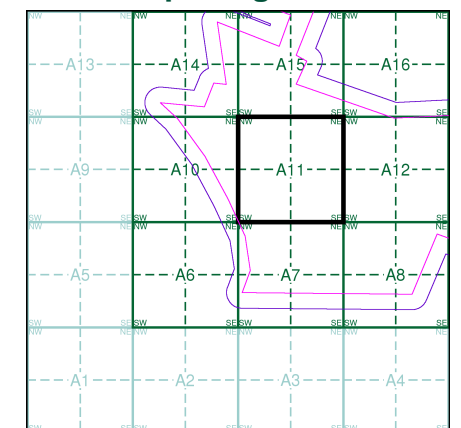
**Source map scale - 1:2,500**

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**Map Name(s) and Date(s)**



**Historical Map - Segment A11**



**Order Details**

Order Number: 60770728\_1\_1  
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### Ordnance Survey Plan

Published 1972 - 1976

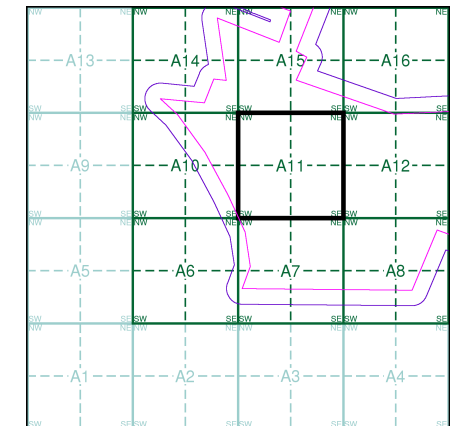
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0140
1976
1:2,500
TL0139
1972
1:2,500

### Historical Map - Segment A11



### Order Details

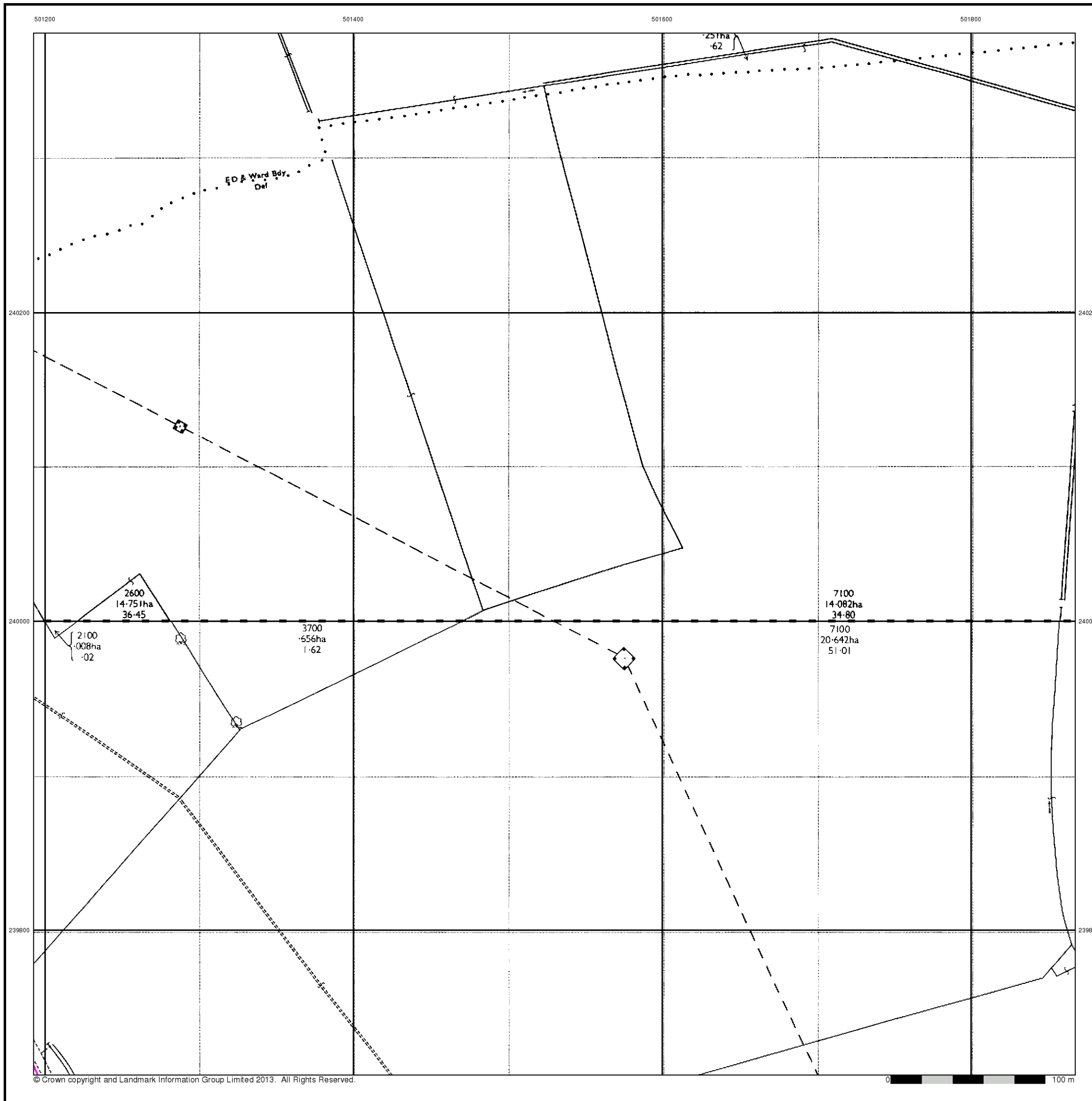
Order Number: 60770728\_1\_1  
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 National Grid Reference: 501510, 239960  
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501200

501400

501600

501800



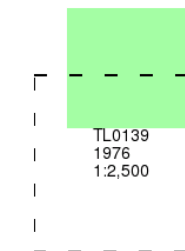
### Supply of Unpublished Survey Information

Published 1976

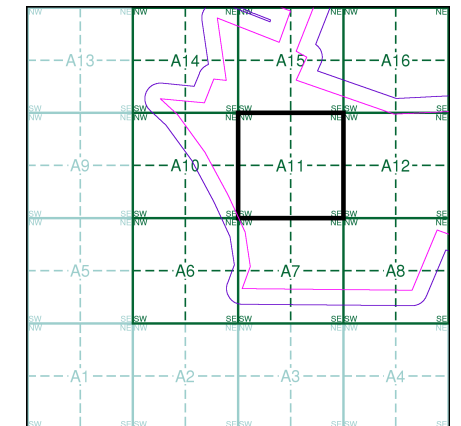
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment A11



### Order Details

Order Number: 60770728\_1\_1  
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240200

240200

240000

240000

239800

239800



### Large-Scale National Grid Data

Published 1993

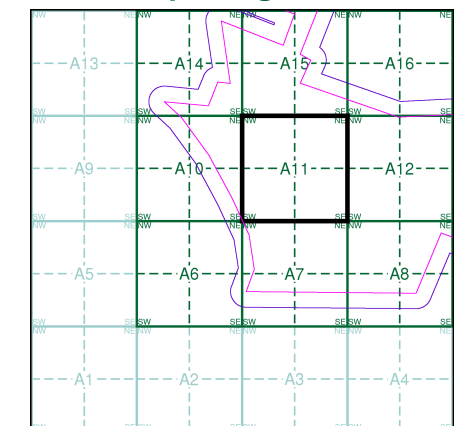
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0140	1993	1:2,500
TL0139	1993	1:2,500

### Historical Map - Segment A11



### Order Details

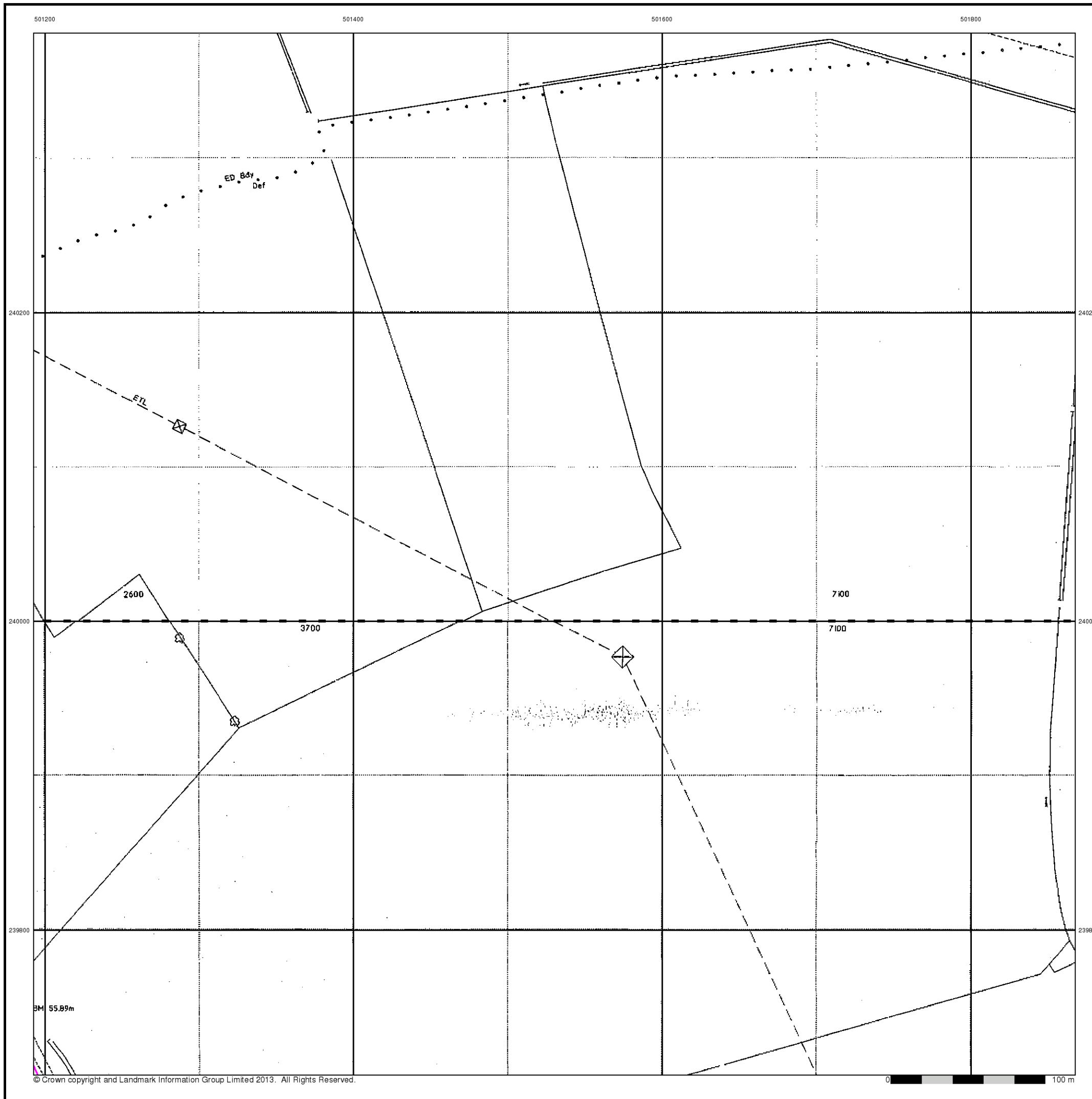
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
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# Historical Mapping Legends

## 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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

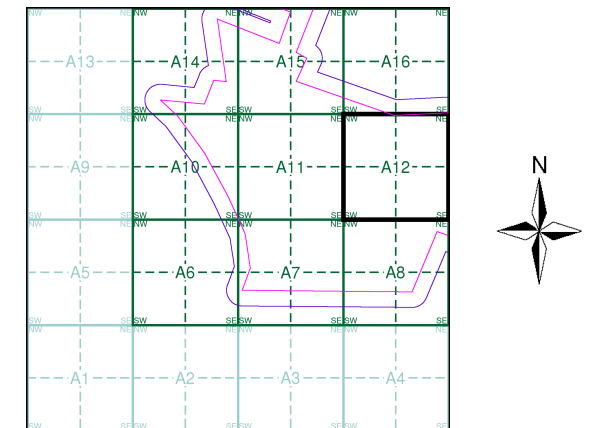
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972 - 1976	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Large-Scale National Grid Data	1:2,500	1993	7

## Historical Map - Segment A12



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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

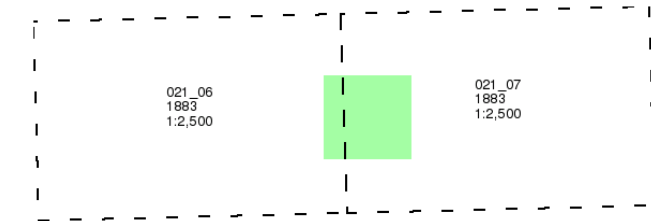


**Bedfordshire**  
**Published 1883**

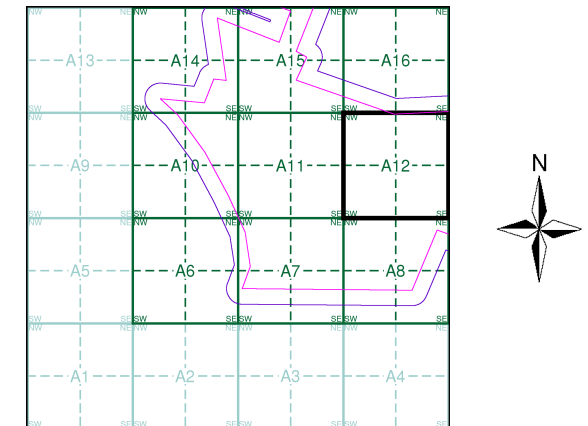
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A12**



**Order Details**

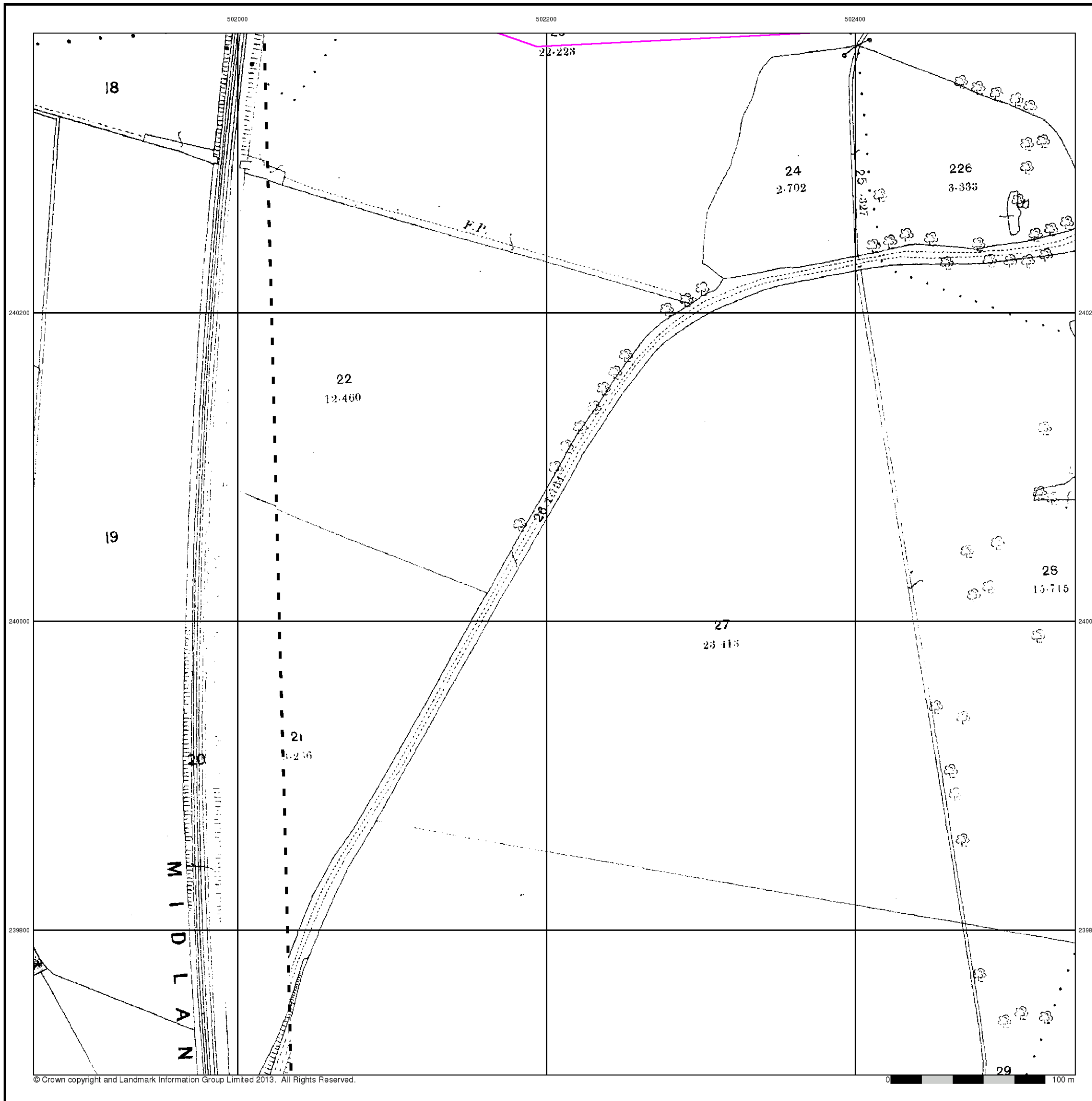
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby

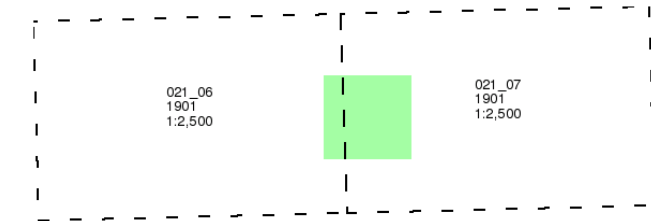


Tel: 0844 844 9952  
Fax: 0844 844 9951  
Web: www.envirocheck.co.uk

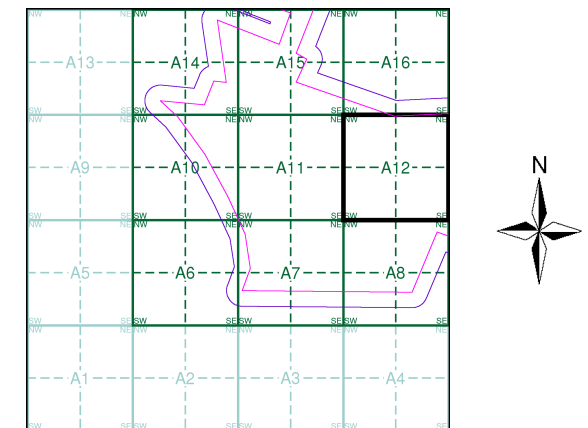


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain.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

**Map Name(s) and Date(s)**



**Historical Map - Segment A12**

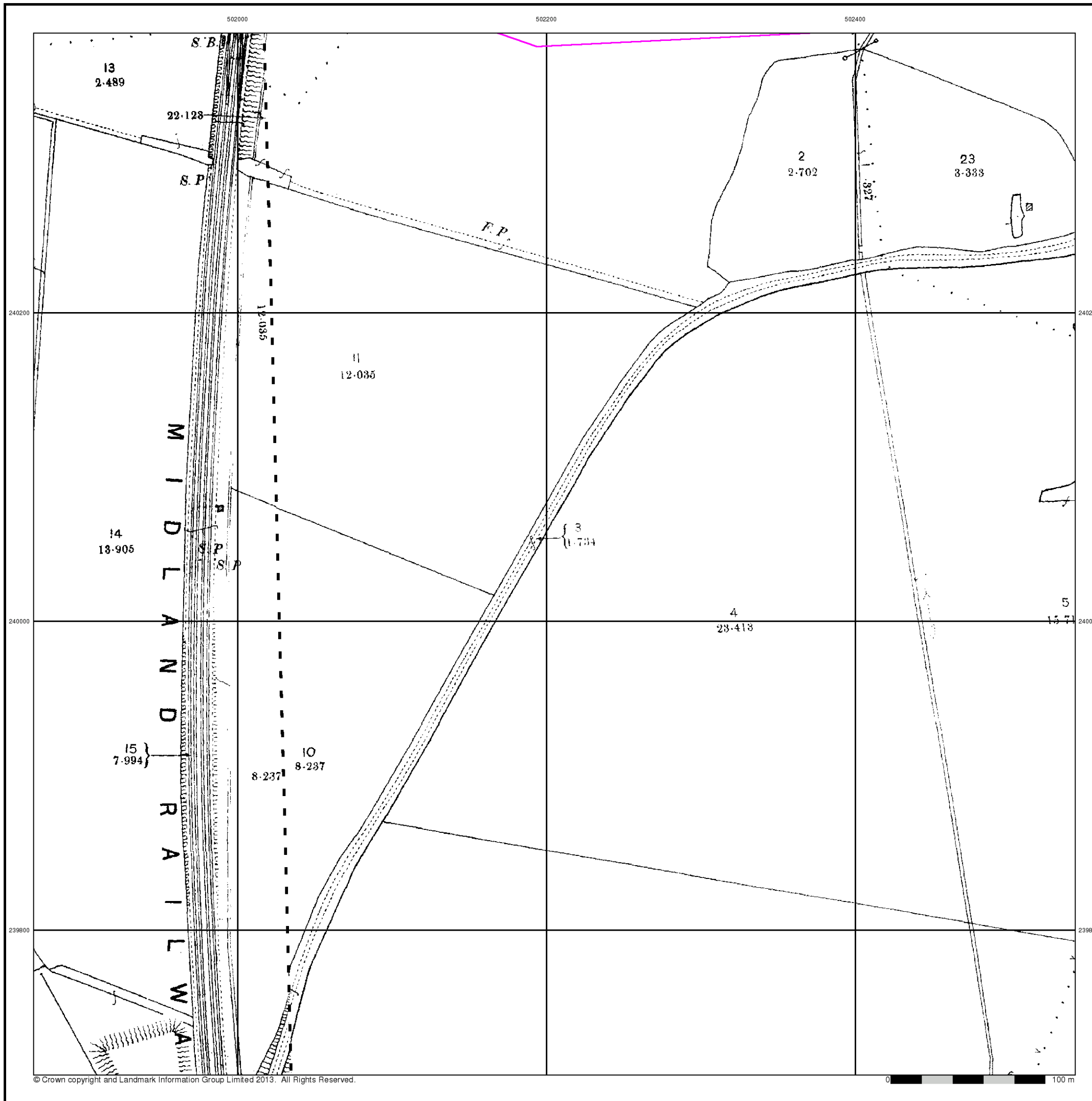


**Order Details**

Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



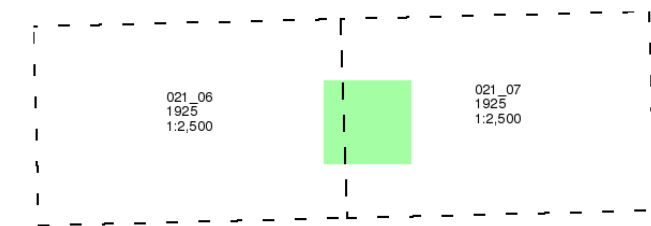


**Bedfordshire**  
**Published 1925**

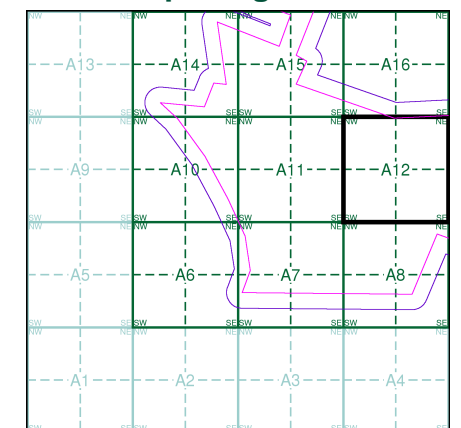
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A12**



**Order Details**

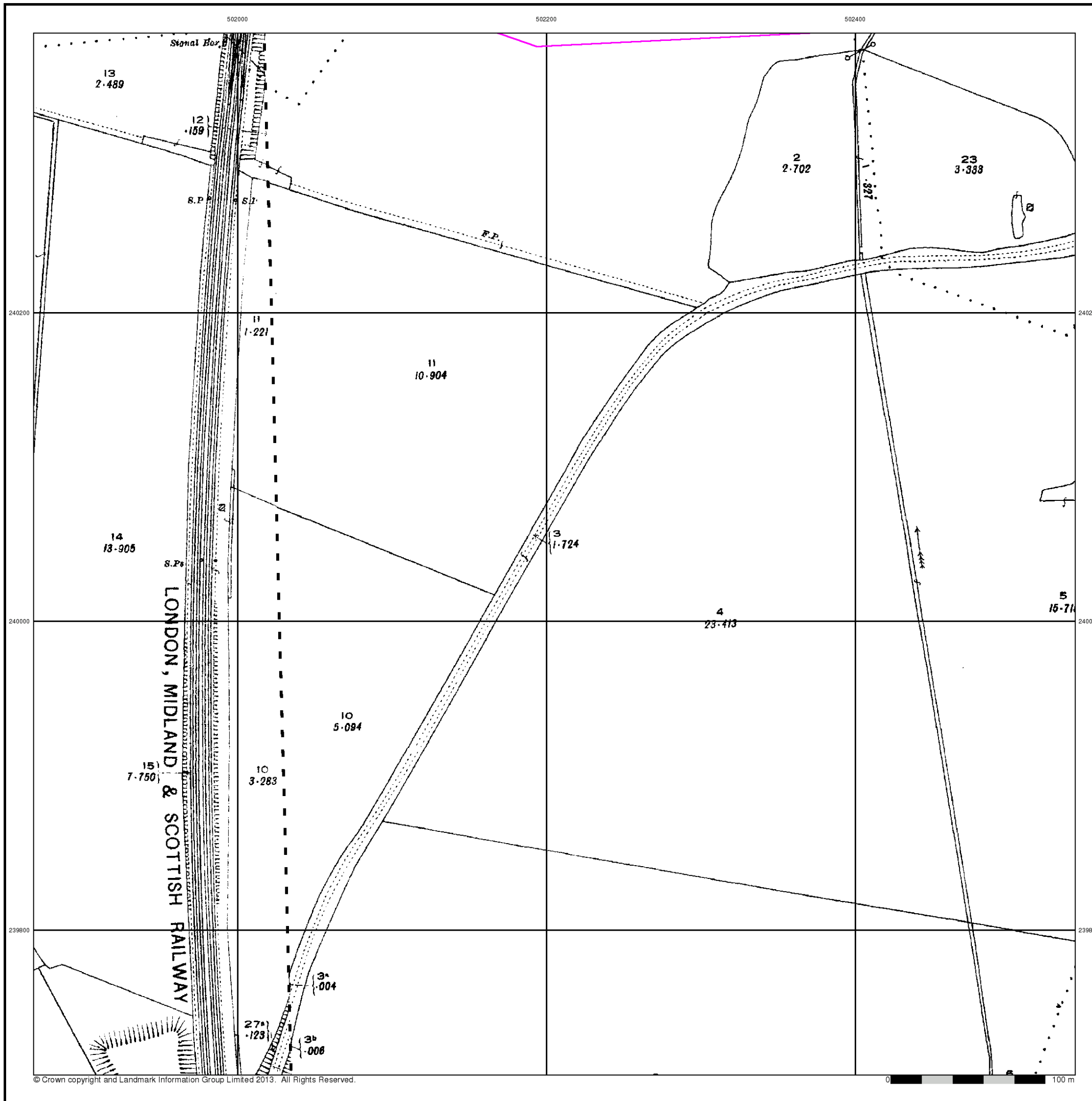
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

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**Ordnance Survey Plan**

**Published 1972 - 1976**

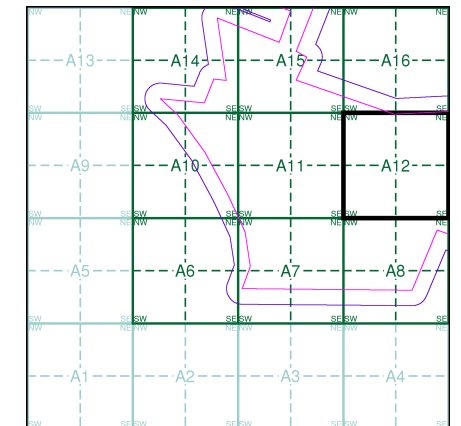
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**

TL0140 1976 12,500	TL0240 1975 12,500
TL0139 1972 12,500	TL0239 1972 12,500

**Historical Map - Segment A12**

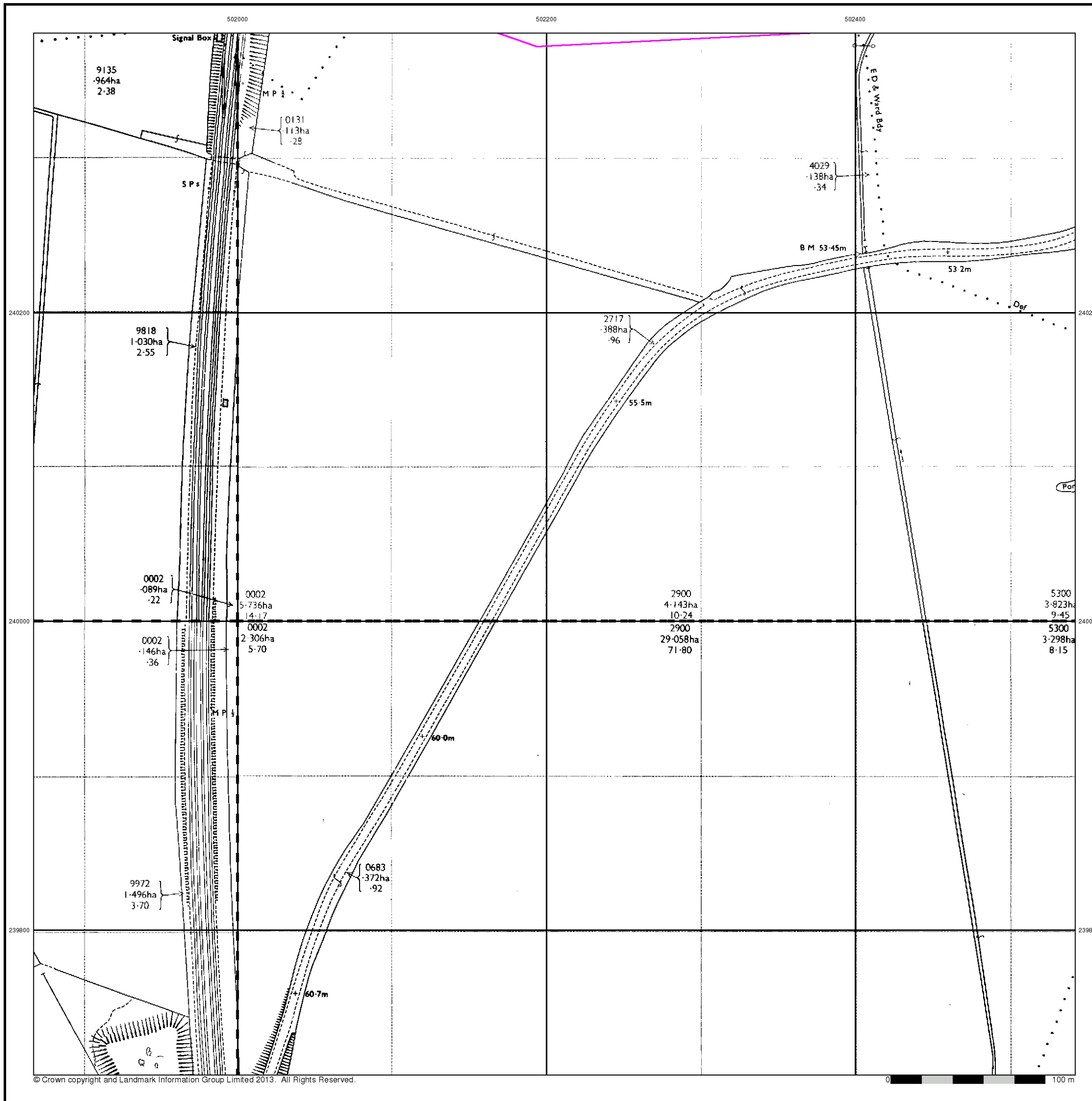


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





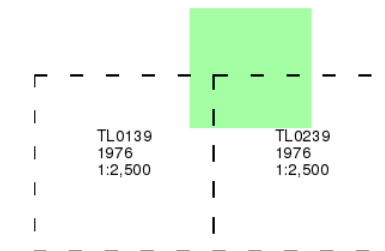
## Supply of Unpublished Survey Information

Published 1976

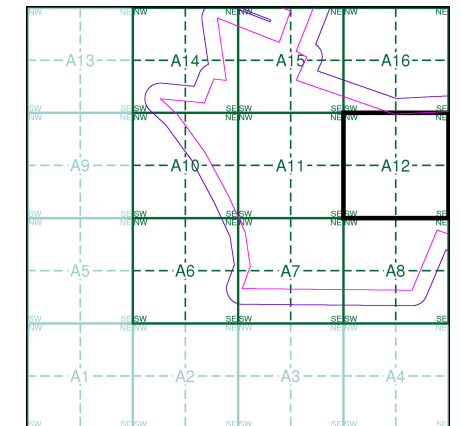
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment A12



### Order Details

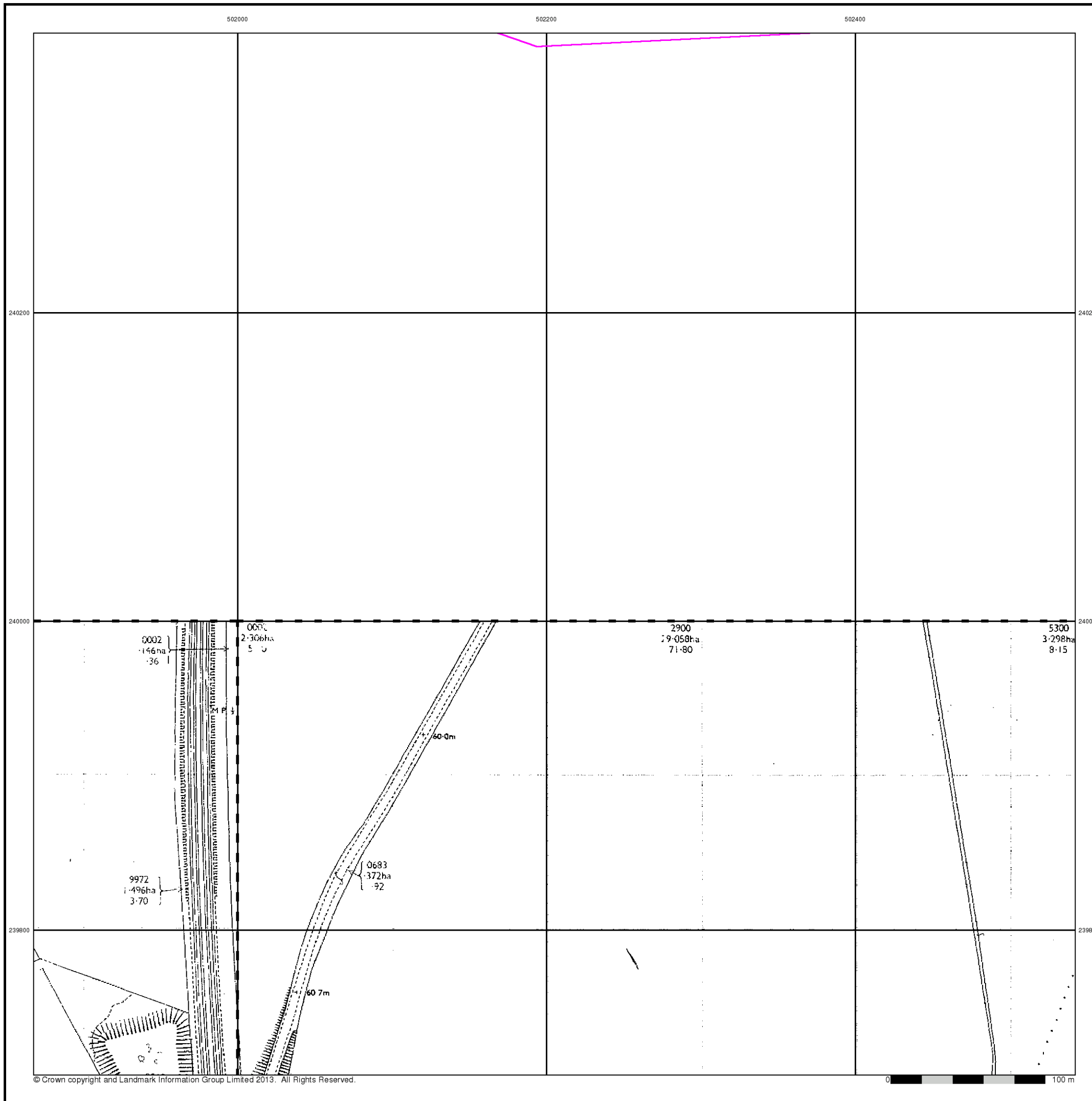
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

### Site Details

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Web: www.envirocheck.co.uk





### Large-Scale National Grid Data

Published 1993

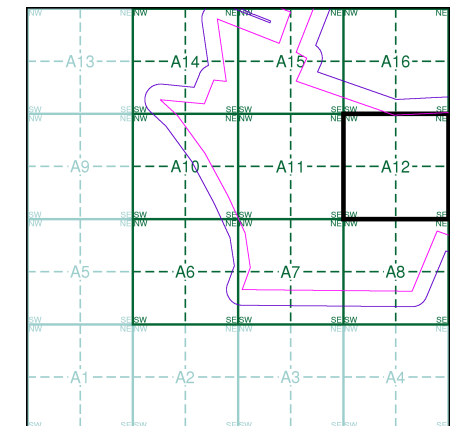
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0140 1993 1:2,500	TL0240 1993 1:2,500
TL0139 1993 1:2,500	TL0239 1993 1:2,500

### Historical Map - Segment A12



### Order Details

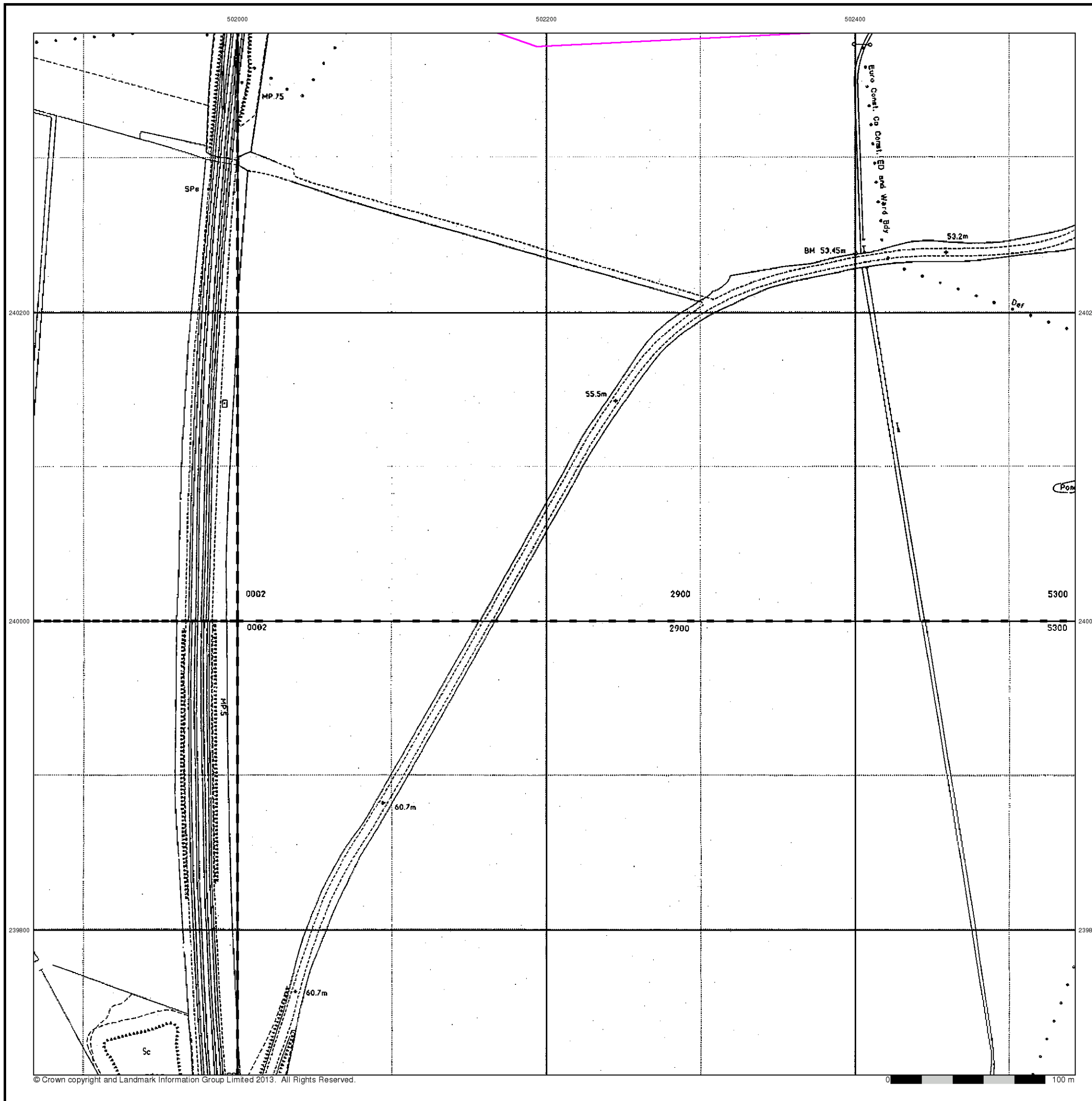
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

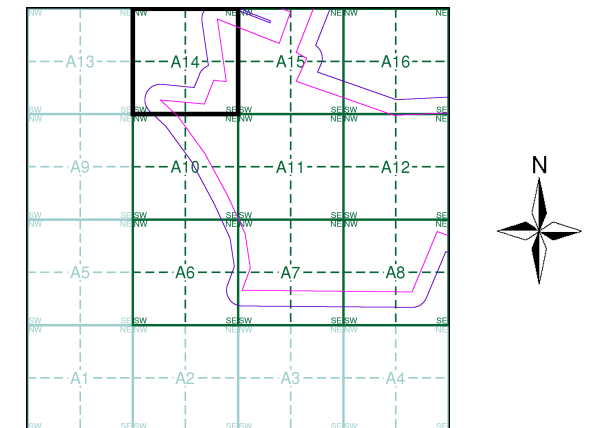
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1976	5
Large-Scale National Grid Data	1:2,500	1993	6

## Historical Map - Segment A14



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



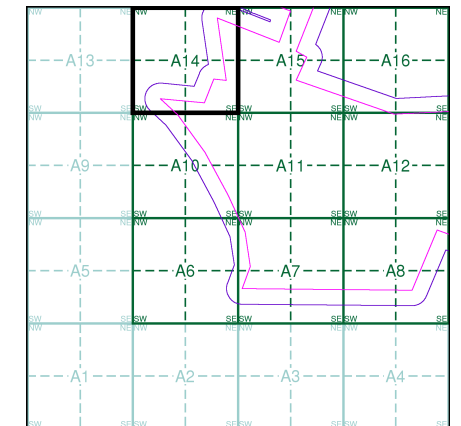
Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

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

**Map Name(s) and Date(s)**

021_02
1883
1:2,500
021_06
1883
1:2,500

**Historical Map - Segment A14**

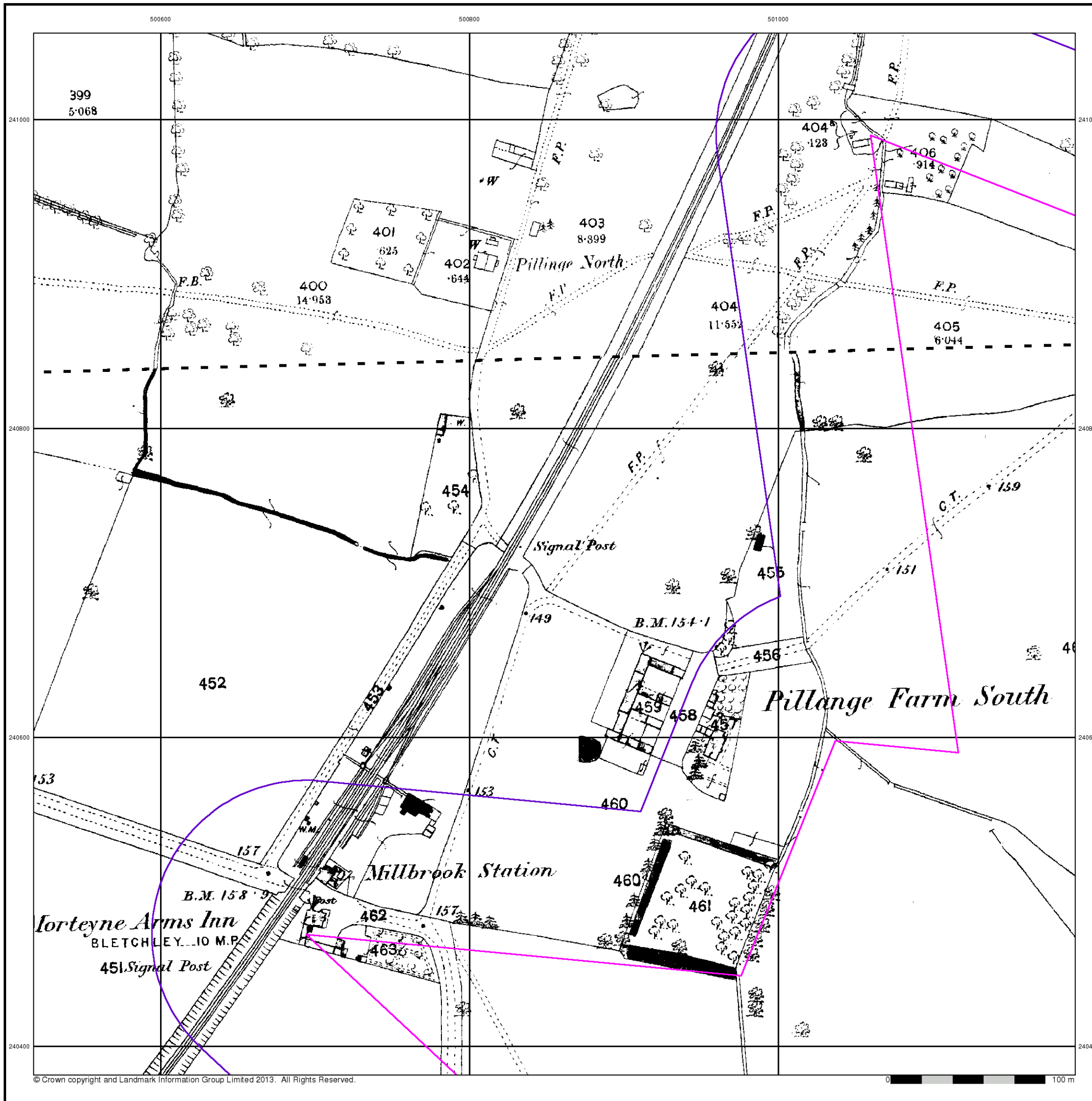


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





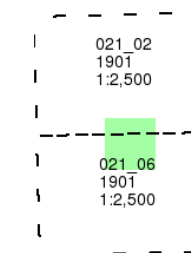
Bedfordshire

Published 1901

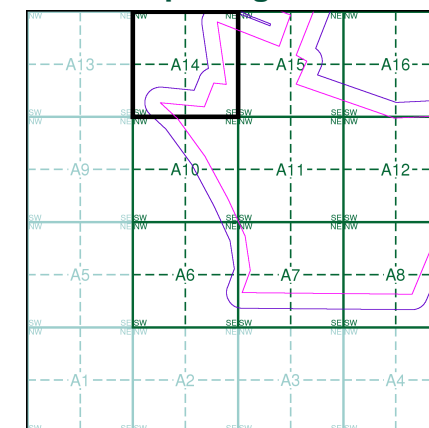
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A14



Order Details

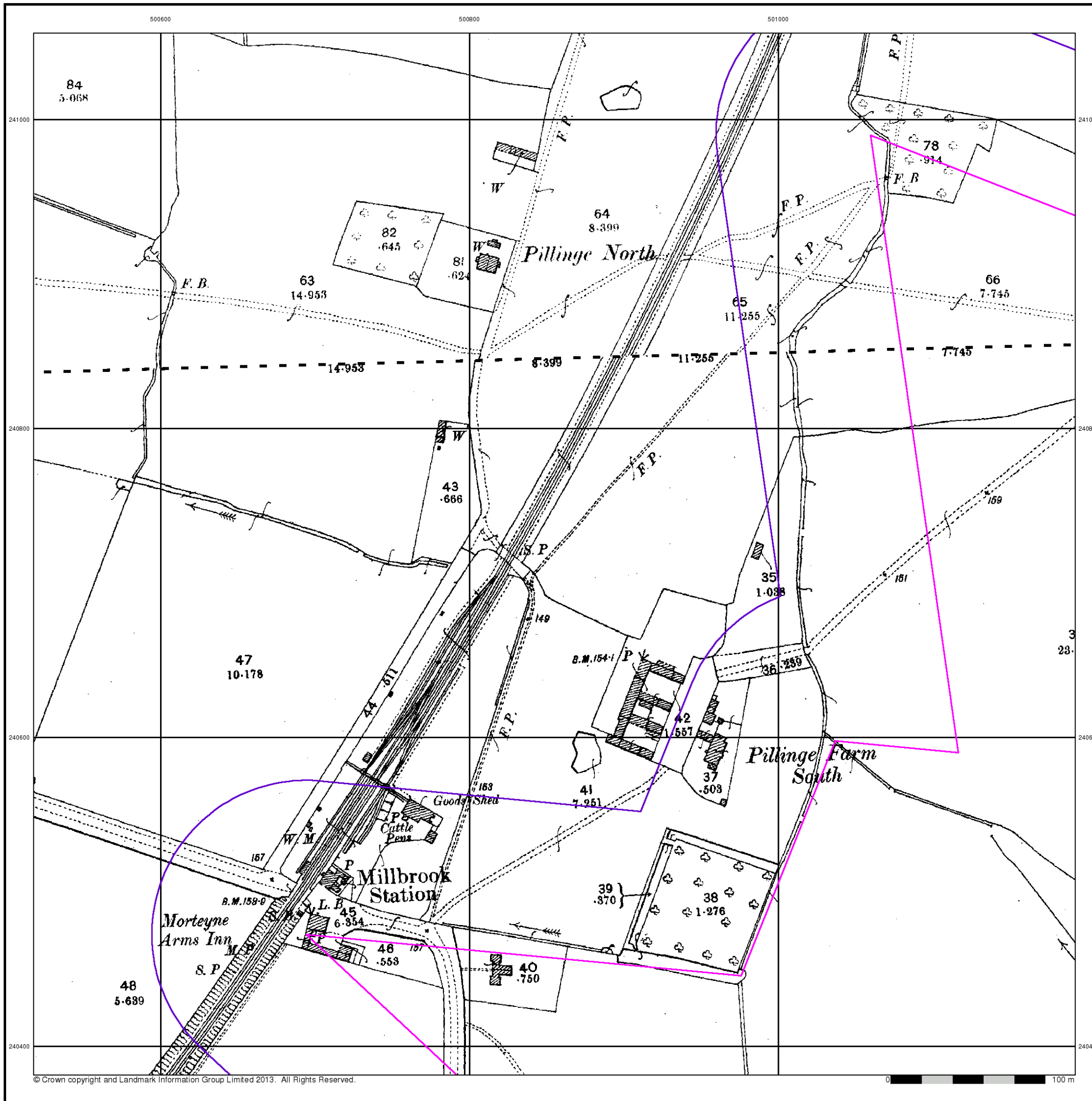
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

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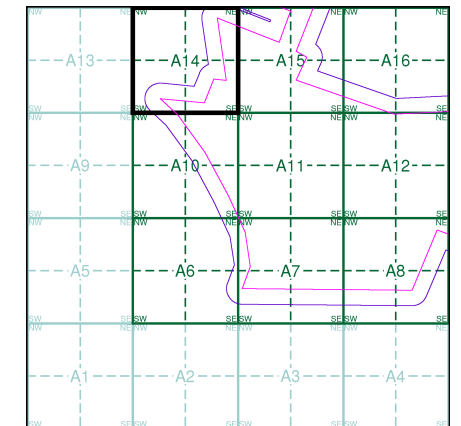


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain.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

**Map Name(s) and Date(s)**

021_02
1925
1:2,500
021_06
1925
1:2,500

**Historical Map - Segment A14**

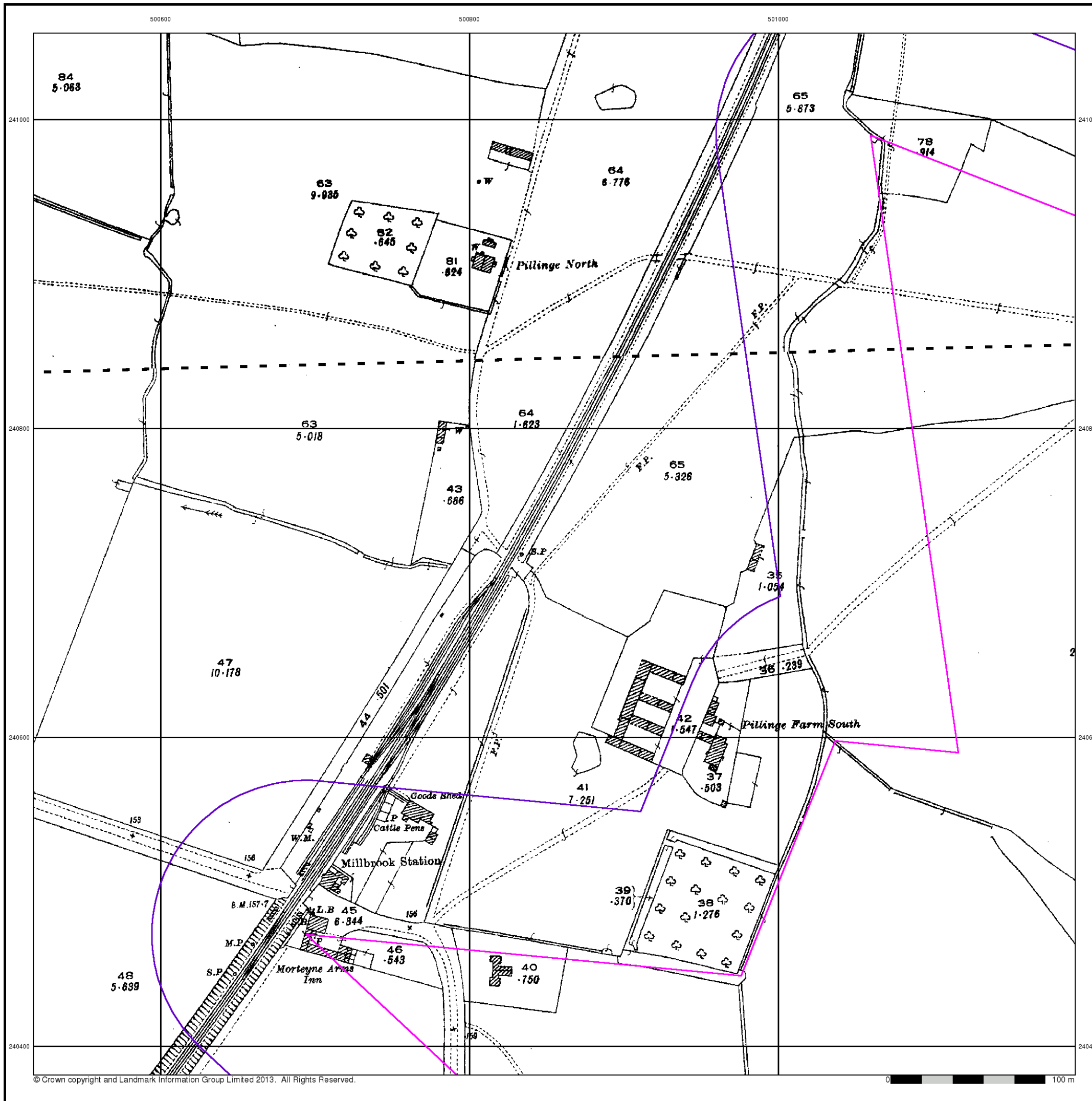


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



## Ordnance Survey Plan

Published 1976

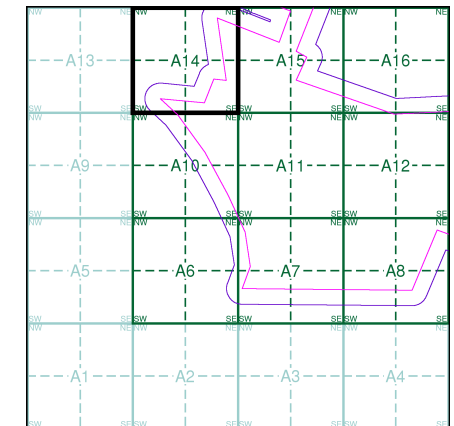
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0041 1976 12,500	TL0141 1976 12,500
TL0040 1976 12,500	TL0140 1976 12,500

### Historical Map - Segment A14

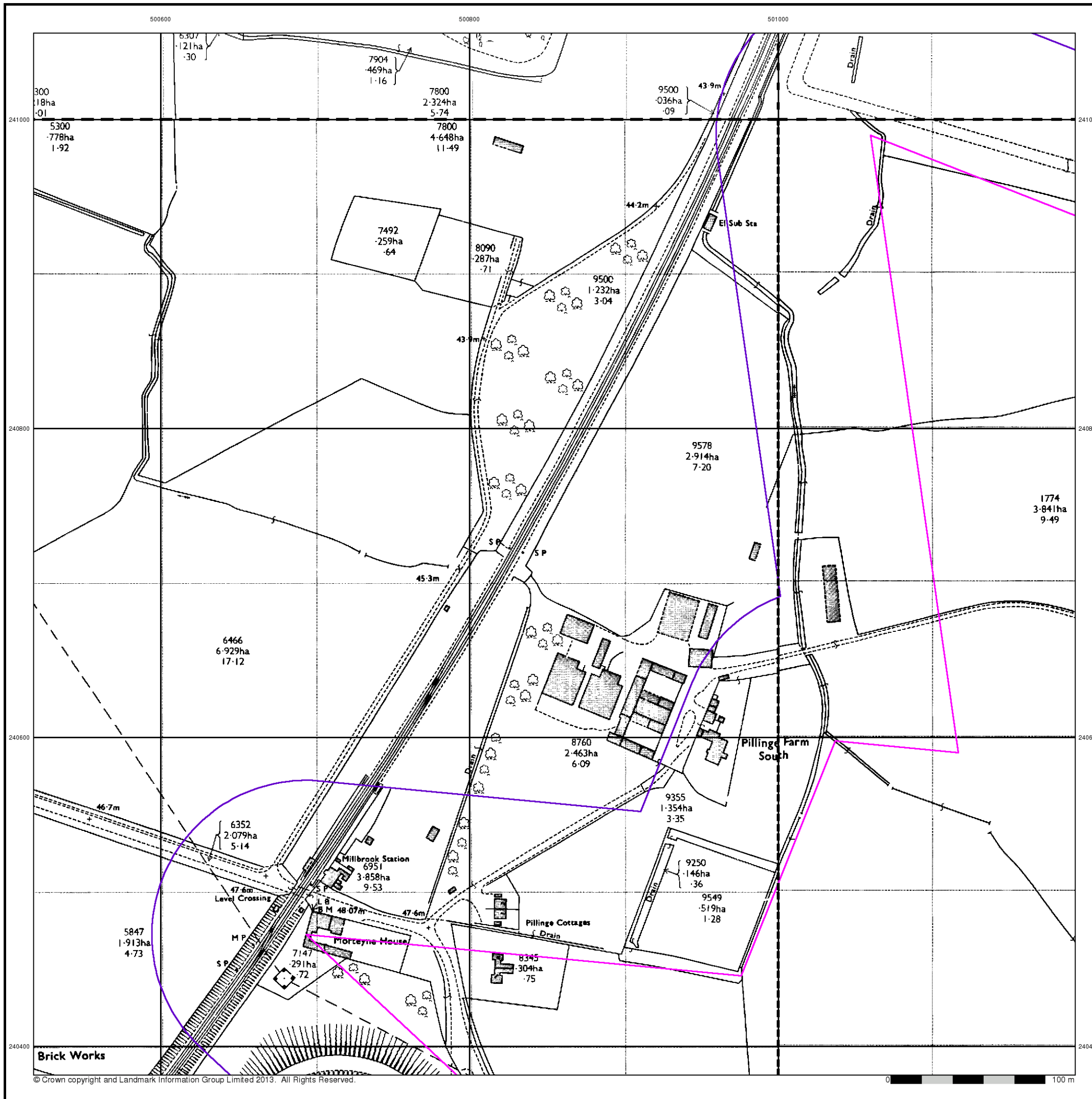


### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby







### Large-Scale National Grid Data

Published 1993

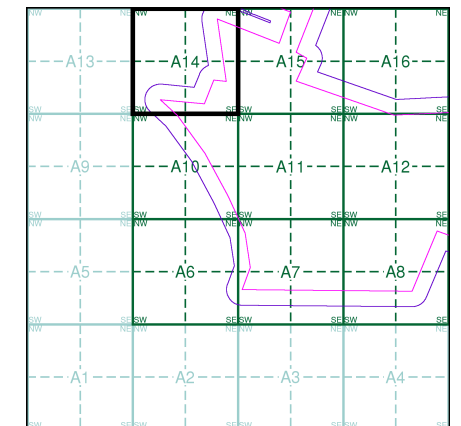
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0041 1993 1:2,500	TL0141 1993 1:2,500
TL0040 1993 1:2,500	TL0140 1993 1:2,500

### Historical Map - Segment A14



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **Police Call Box**  
**B.R. Bridle Road**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**London Borough Boundary**  
**Symbol marking point where boundary mereing changes**  
**Beer House**   **Pillar, Pole or Post**  
**Boundary Post or Stone**   **Post Office**  
**Capstan, Crane**   **Public Convenience**  
**Chimney**   **Public House**  
**Drinking Fountain**   **Pump**  
**Electricity Pillar or Post**   **Signal Box or Bridge**  
**Fire Alarm Pillar**   **Signal Post or Light**  
**Foot Bridge**   **Spring**  
**Guide Post**   **Tank or Track**  
**Hydrant or Hydraulic**   **Telephone Call Box**  
**Level Crossing**   **Telephone Call Post**  
**Manhole**   **Trough**  
**Mile Post or Mooring Post**   **Water Point, Water Tap**  
**Mile Stone**   **Well**  
**Normal Tidal Limit**   **Wind Pump**

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

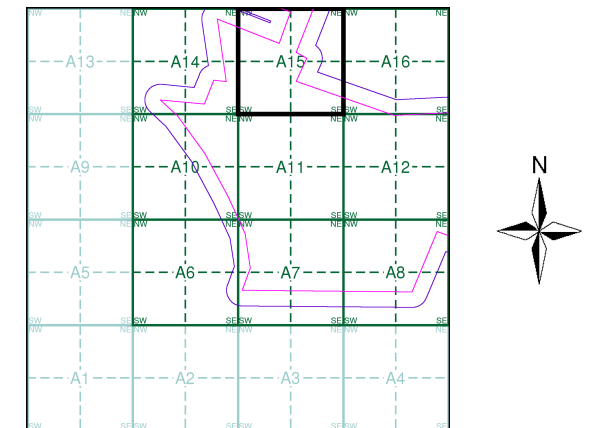
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**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)**  
**Barracks**   **Pillar, Pole or Post**  
**Battery**   **Post Office**  
**Cemetery**   **Public Convenience**  
**Chimney**   **Pump**  
**Cistern**   **Pumping Station**  
**Dismtd Rly**   **Place of Worship**  
**Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**Electricity Pole, Pillar**   **Signal Box or Bridge**  
**Electricity Sub Station**   **Signal Post or Light**  
**Filter Bed**   **Spring**  
**Fountain / Drinking Ftn.**   **Tank or Track**  
**Gas Valve Compound**   **Trough**  
**Gas Governor**   **Wind Pump**  
**Guide Post**   **Water Point, Water Tap**  
**Manhole**   **Works (building or area)**  
**Mile Post or Mile Stone**   **Well**



## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1976	5
Large-Scale National Grid Data	1:2,500	1993	6

## Historical Map - Segment A15



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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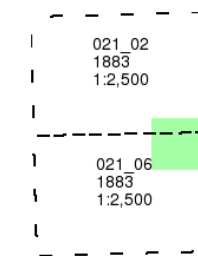
Bedfordshire

Published 1883

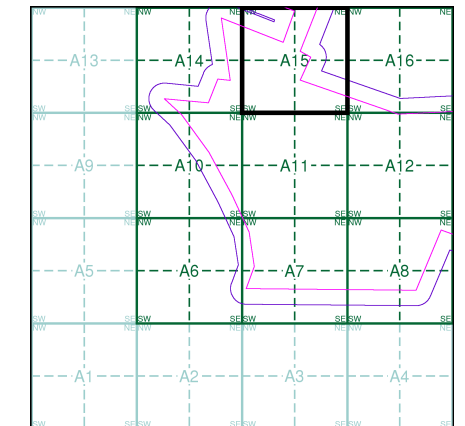
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A15



Order Details

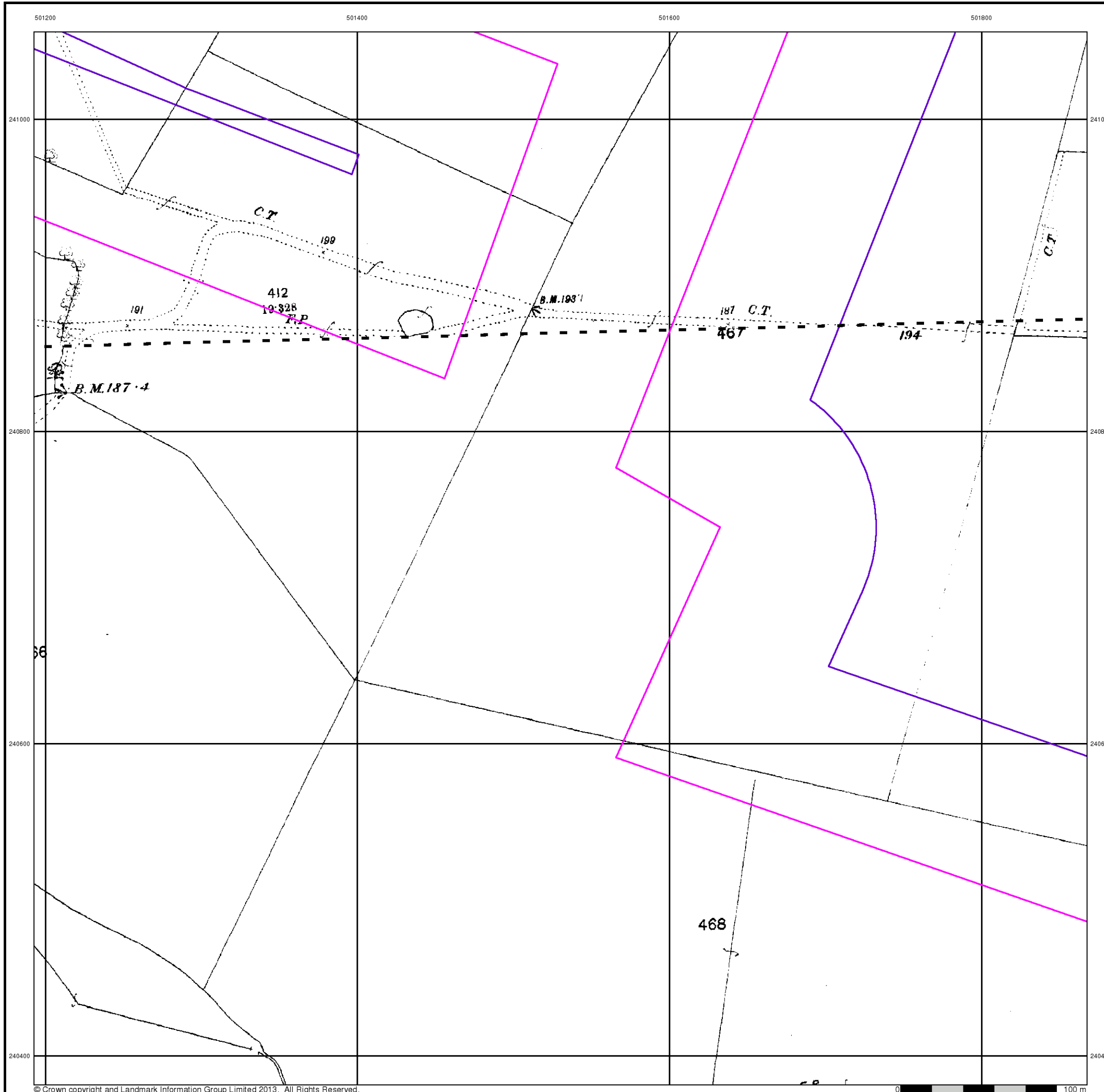
Order Number: 60770728\_1\_1
Customer Ref: 31116
National Grid Reference: 501510, 239960
Slice: A
Site Area (Ha): 240.61
Search Buffer (m): 100

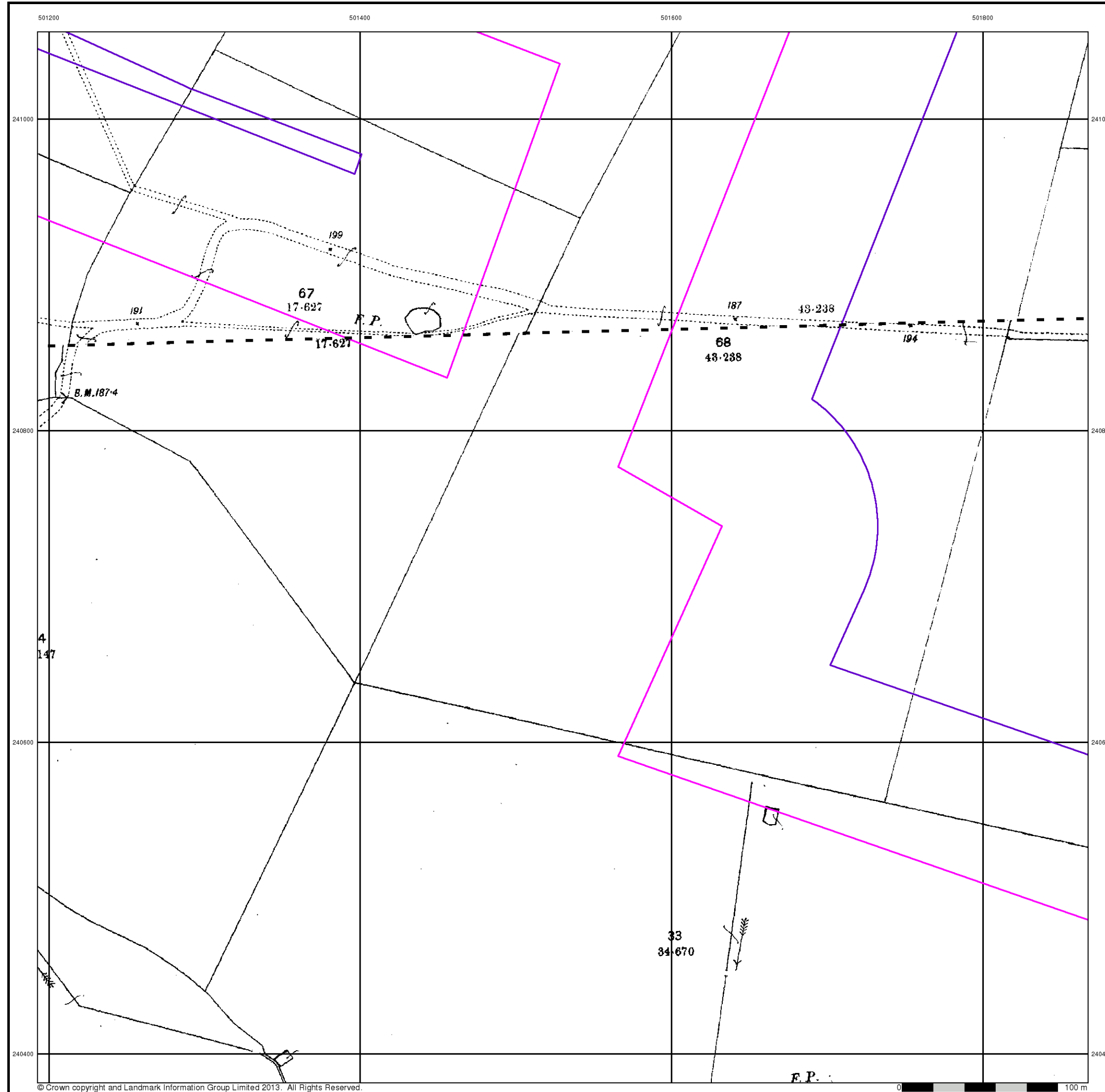
Site Details

Millbrook Power Project, Green Lane, Stewartby



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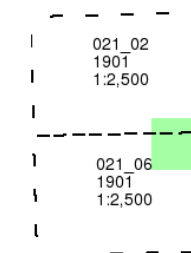
**Bedfordshire**

**Published 1901**

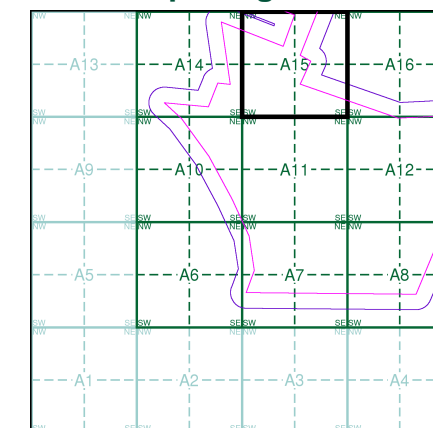
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A15**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

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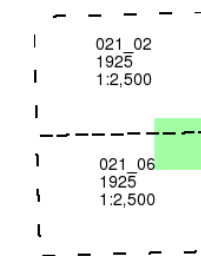


**Bedfordshire  
Published 1925**

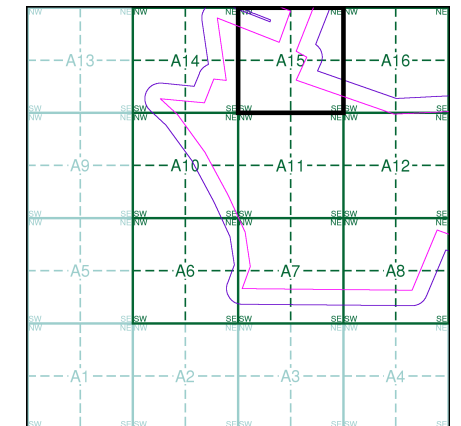
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment A15**



**Order Details**

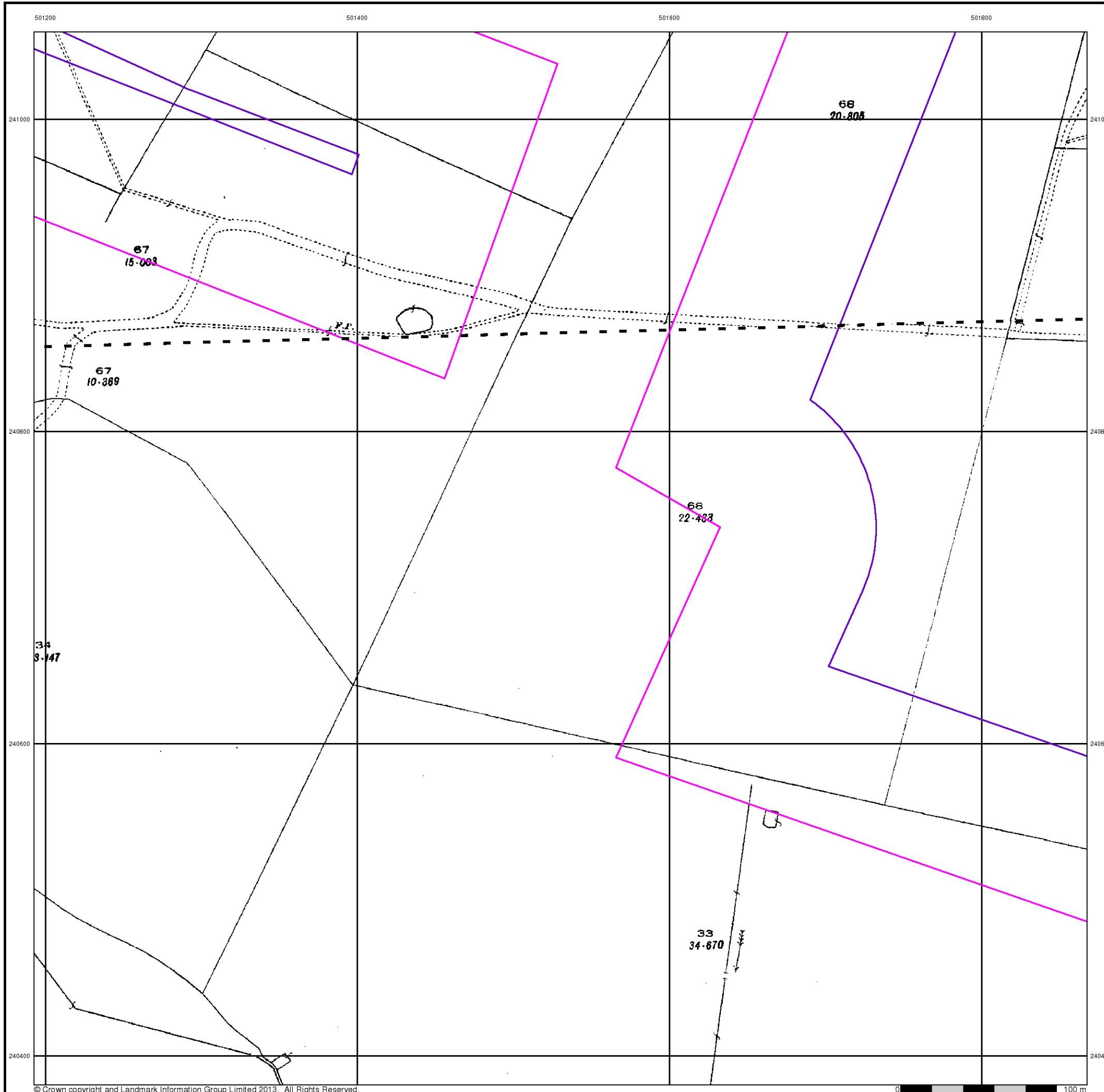
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

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### Ordnance Survey Plan

Published 1976

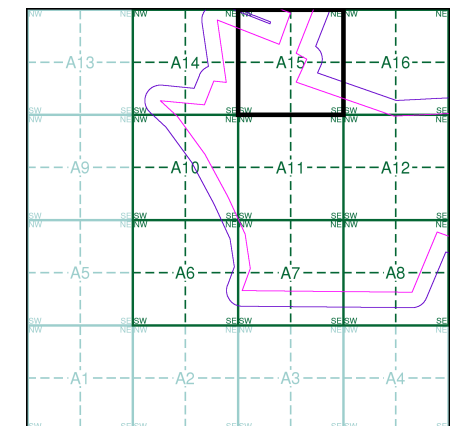
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0141
1976
1:2,500
TL0140
1976
1:2,500

### Historical Map - Segment A15



### Order Details

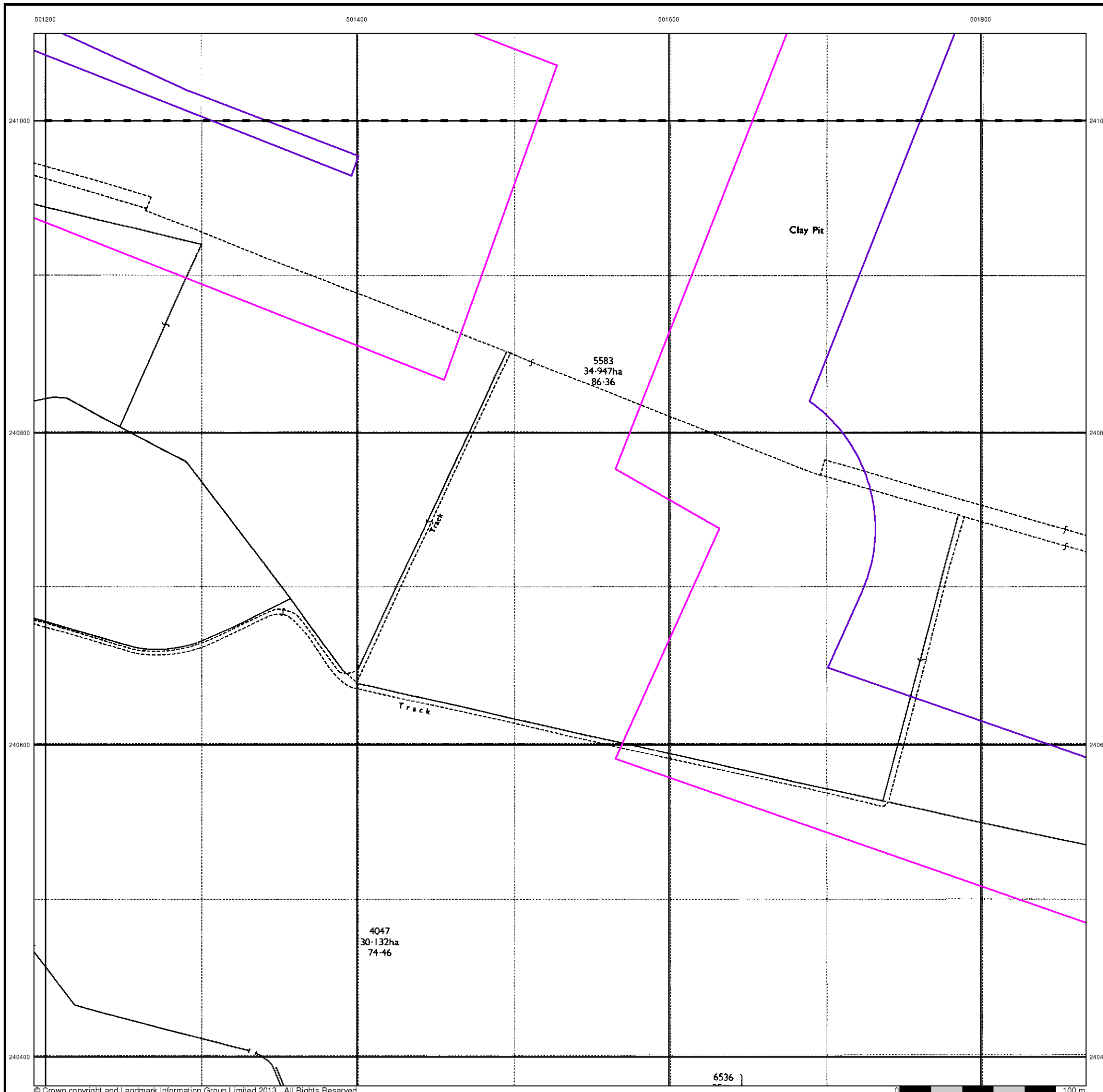
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

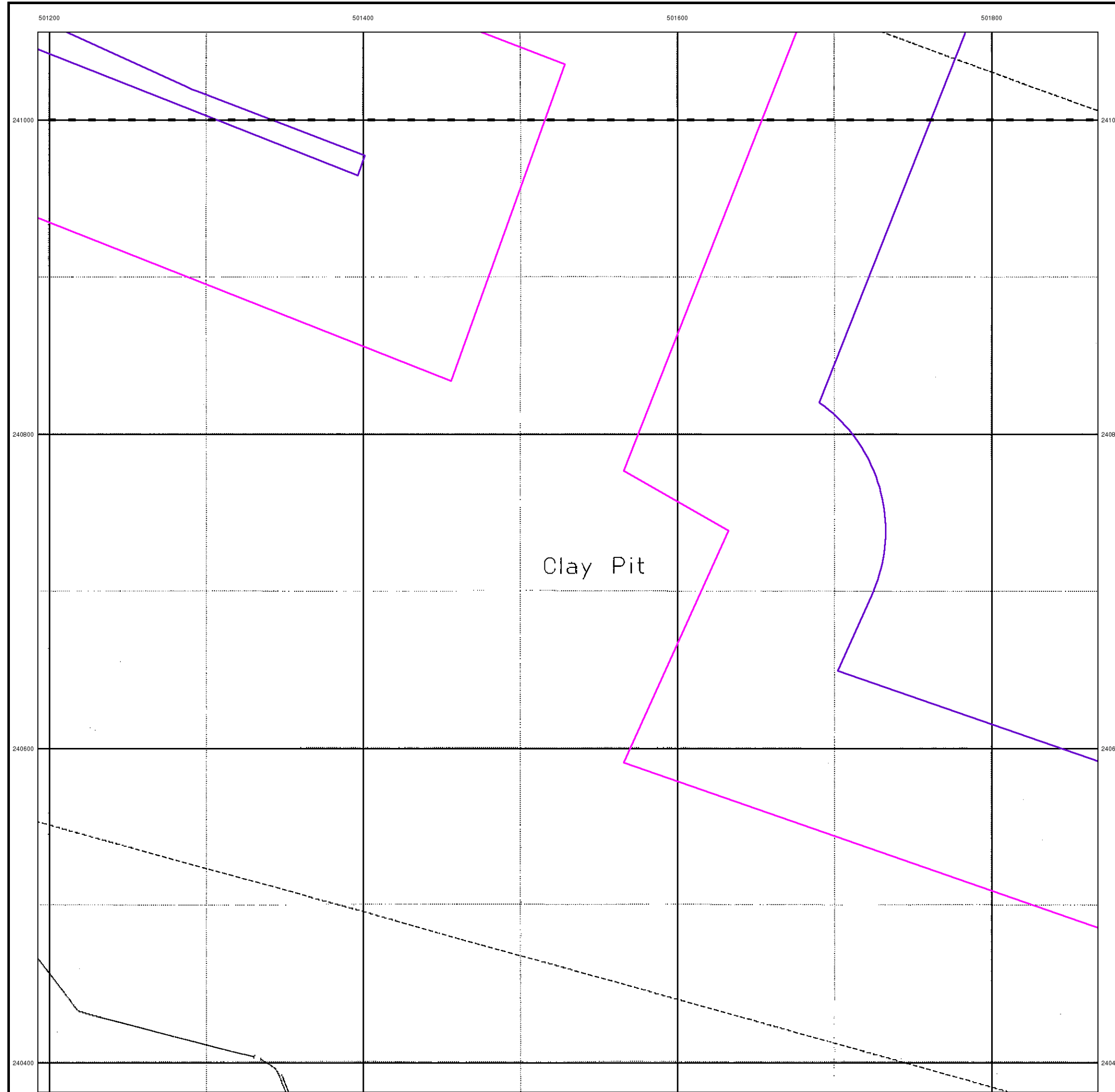
### Site Details

Millbrook Power Project, Green Lane, Stewartby



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





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## Large-Scale National Grid Data

Published 1993

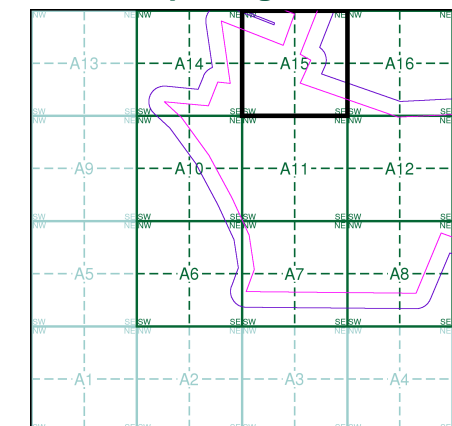
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0141	1993	1:2,500
TL0140	1993	1:2,500

### Historical Map - Segment A15



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **Police Call Box**  
**B.R. Bridle Road**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**London Borough Boundary**  
**Symbol marking point where boundary mereing changes**  
**Beer House**   **Pillar, Pole or Post**  
**Boundary Post or Stone**   **Post Office**  
**Capstan, Crane**   **Public Convenience**  
**Chimney**   **Public House**  
**Drinking Fountain**   **Pump**  
**Electricity Pillar or Post**   **Signal Box or Bridge**  
**Fire Alarm Pillar**   **Signal Post or Light**  
**Foot Bridge**   **Spring**  
**Guide Post**   **Tank or Track**  
**Hydrant or Hydraulic**   **Telephone Call Box**  
**Level Crossing**   **Telephone Call Post**  
**Manhole**   **Trough**  
**Mile Post or Mooring Post**   **Water Point, Water Tap**  
**Mile Stone**   **Well**  
**Normal Tidal Limit**   **Wind Pump**

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

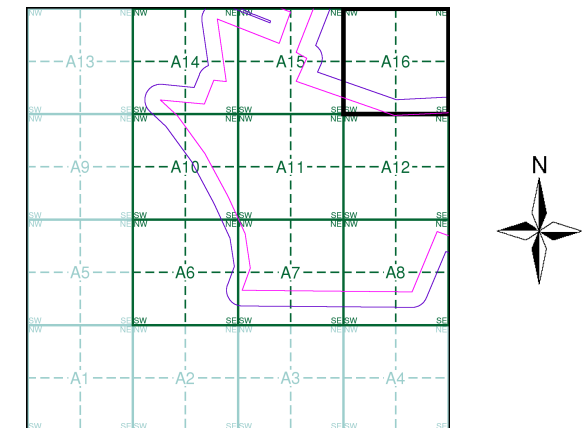
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**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)**  
**Barracks**   **Pillar, Pole or Post**  
**Battery**   **Post Office**  
**Cemetery**   **Public Convenience**  
**Chimney**   **Pump**  
**Cistern**   **Pumping Station**  
**Dismtd Rly**   **Place of Worship**  
**Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**Electricity Pole, Pillar**   **Signal Box or Bridge**  
**Electricity Sub Station**   **Signal Post or Light**  
**Filter Bed**   **Spring**  
**Fountain / Drinking Ftn.**   **Tank or Track**  
**Gas Valve Compound**   **Trough**  
**Gas Governor**   **Wind Pump**  
**Guide Post**   **Water Point, Water Tap**  
**Manhole**   **Works (building or area)**  
**Mile Post or Mile Stone**   **Well**



## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1975 - 1976	5
Large-Scale National Grid Data	1:2,500	1993	6

## Historical Map - Segment A16



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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





**Bedfordshire**  
**Published 1883**

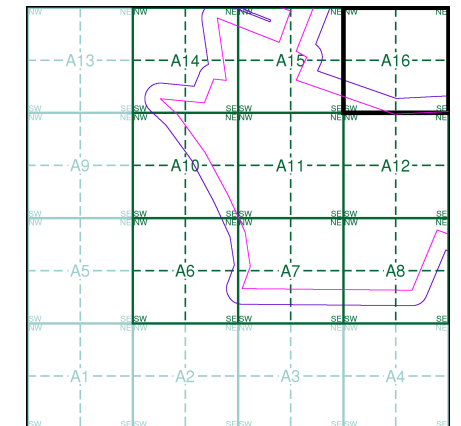
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**

021_02 1883 1:2,500	021_03 1883 1:2,500
021_06 1883 1:2,500	021_07 1883 1:2,500

**Historical Map - Segment A16**



**Order Details**

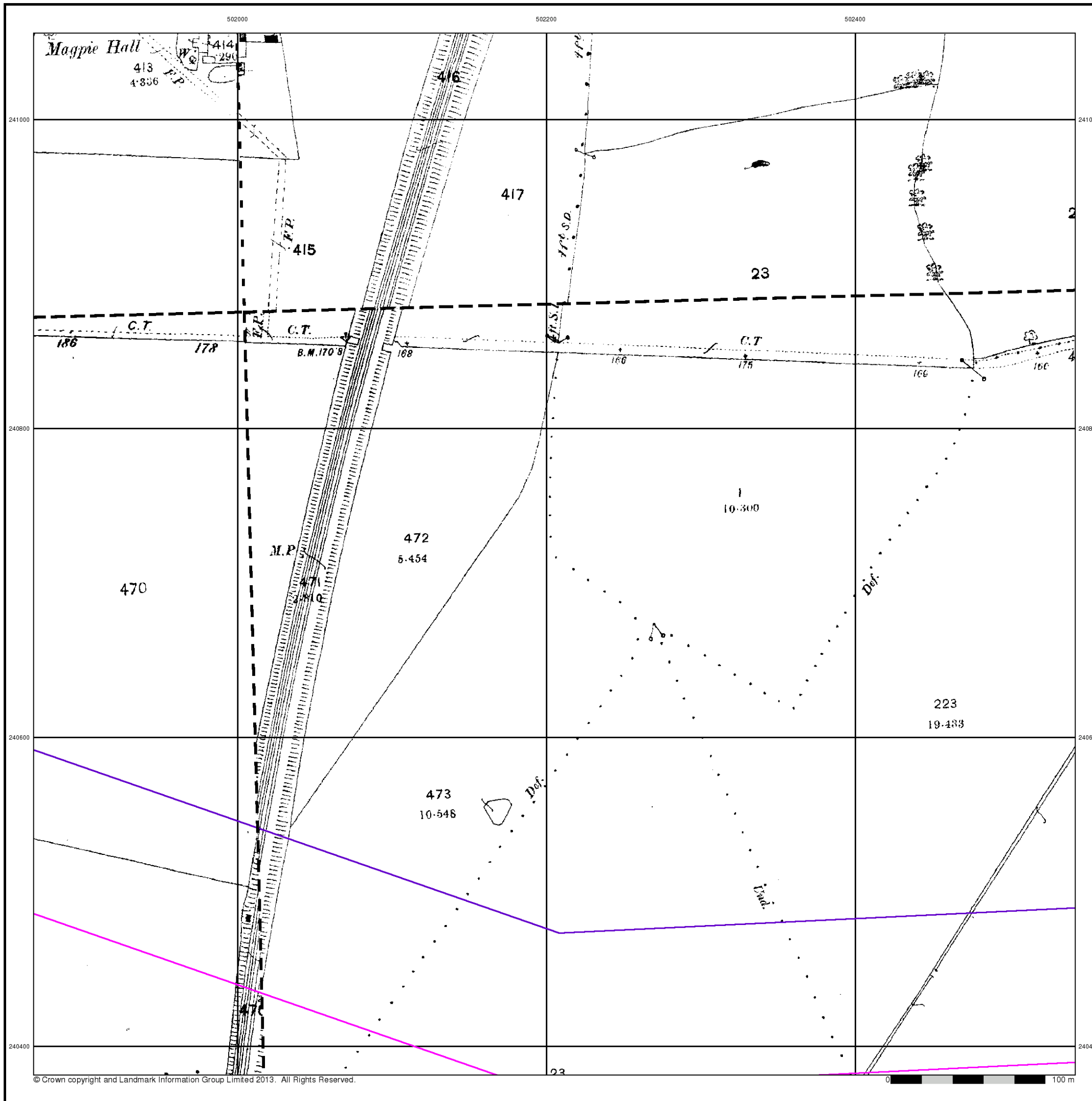
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501510, 239960  
Slice: A  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

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Bedfordshire

Published 1901

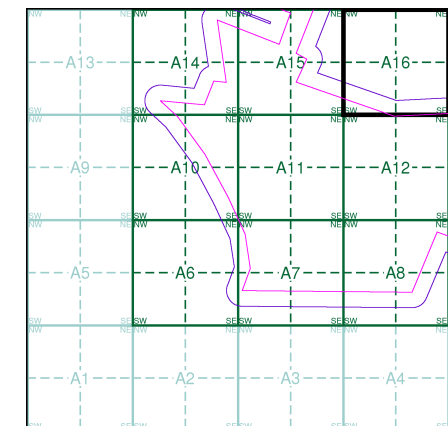
Source map scale - 1:2,500

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

Map Name(s) and Date(s)

021_02 1901 1:2,500	021_03 1901 1:2,500
021_06 1901 1:2,500	021_07 1901 1:2,500

Historical Map - Segment A16



Order Details

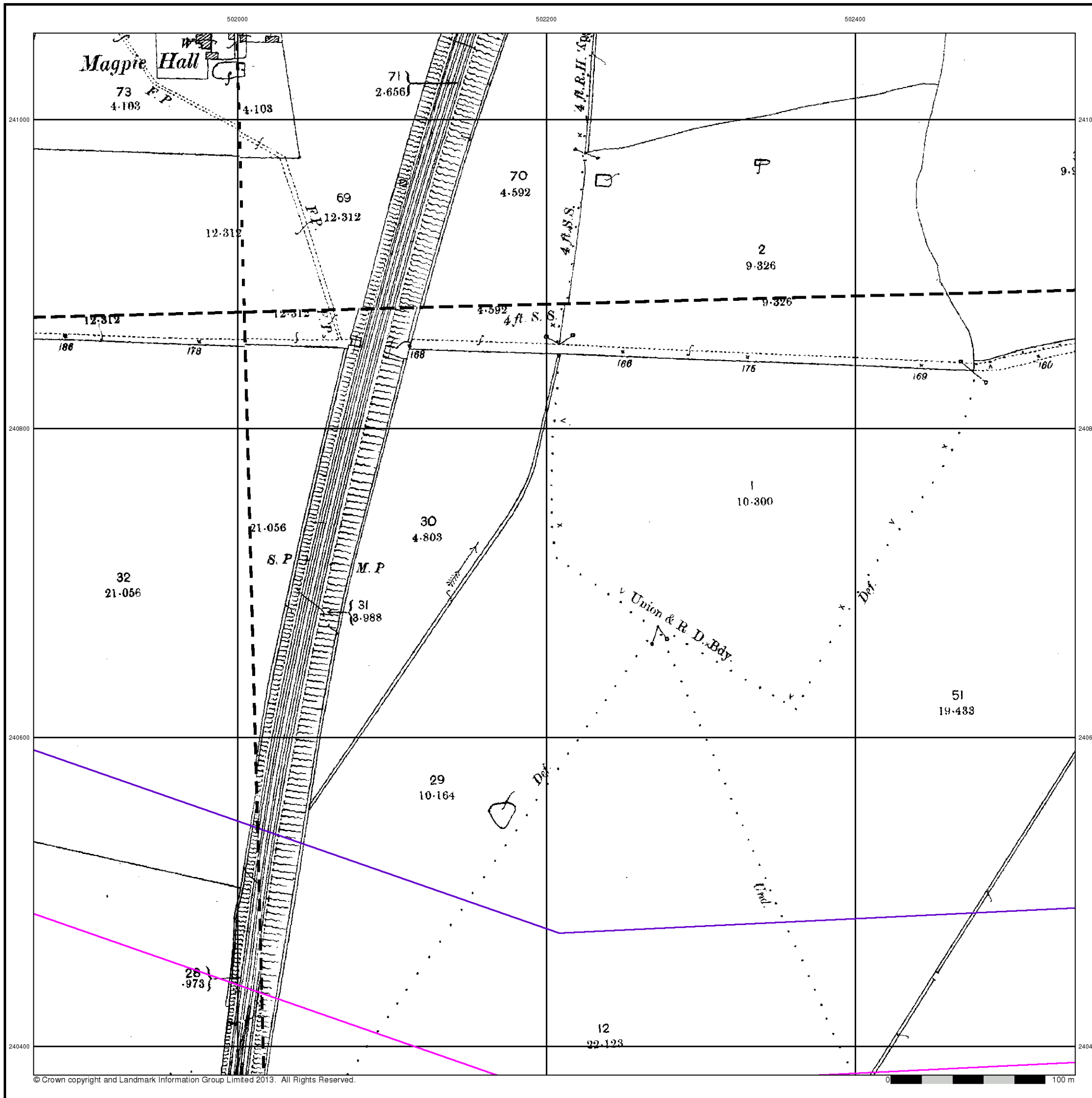
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

Site Details

Millbrook Power Project, Green Lane, Stewartby



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





Bedfordshire

Published 1925

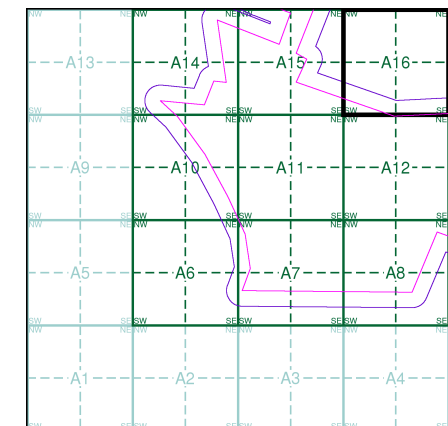
Source map scale - 1:2,500

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

Map Name(s) and Date(s)

021_02 1925 1:2,500	021_03 1925 1:2,500
021_06 1925 1:2,500	021_07 1925 1:2,500

Historical Map - Segment A16



Order Details

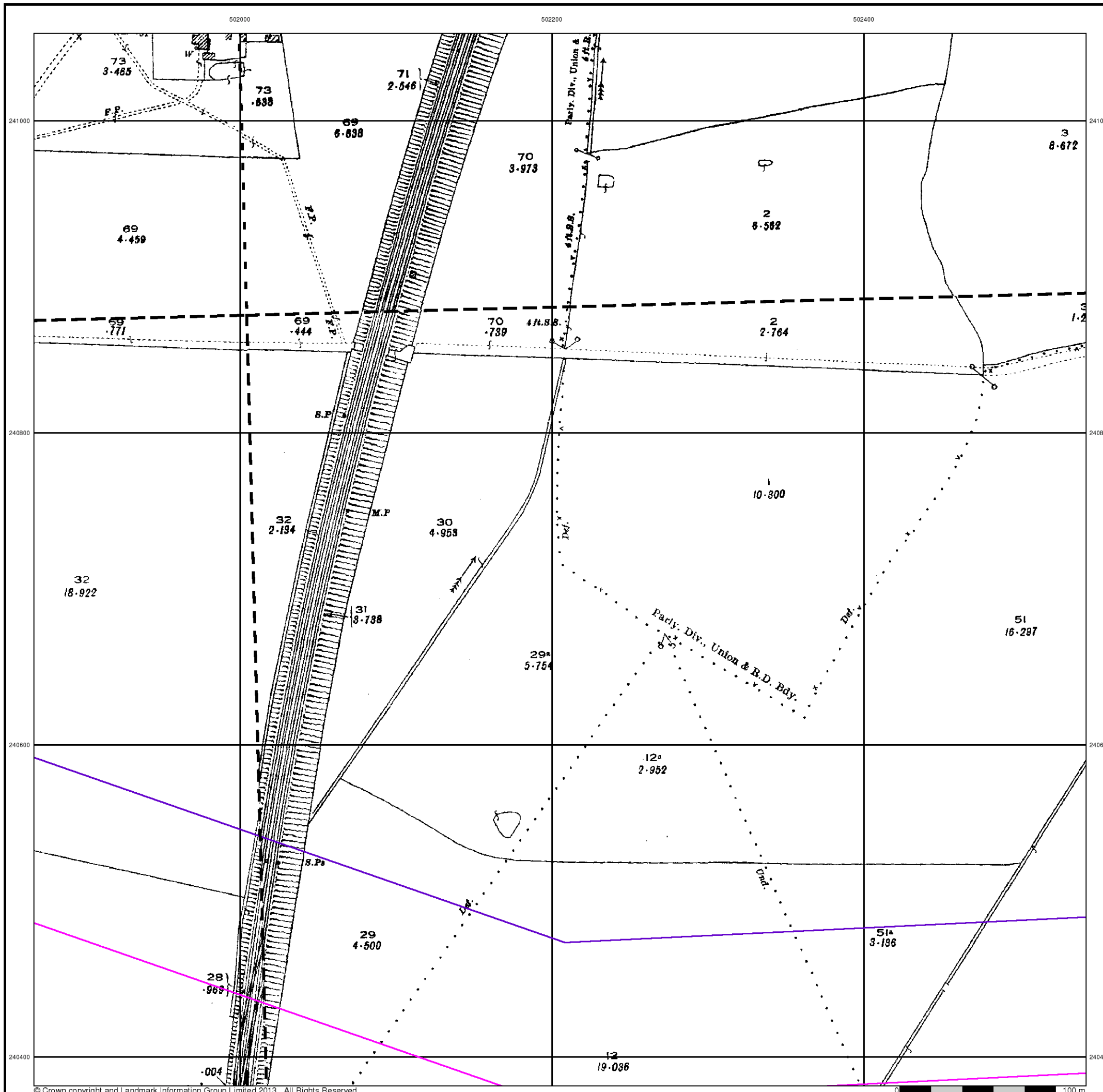
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

Site Details

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### Ordnance Survey Plan

Published 1975 - 1976

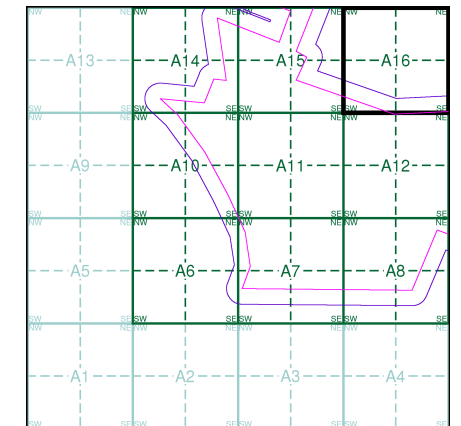
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0141 1976 12,500	TL0241 1975 12,500
TL0140 1976 12,500	TL0240 1975 12,500

### Historical Map - Segment A16



### Order Details

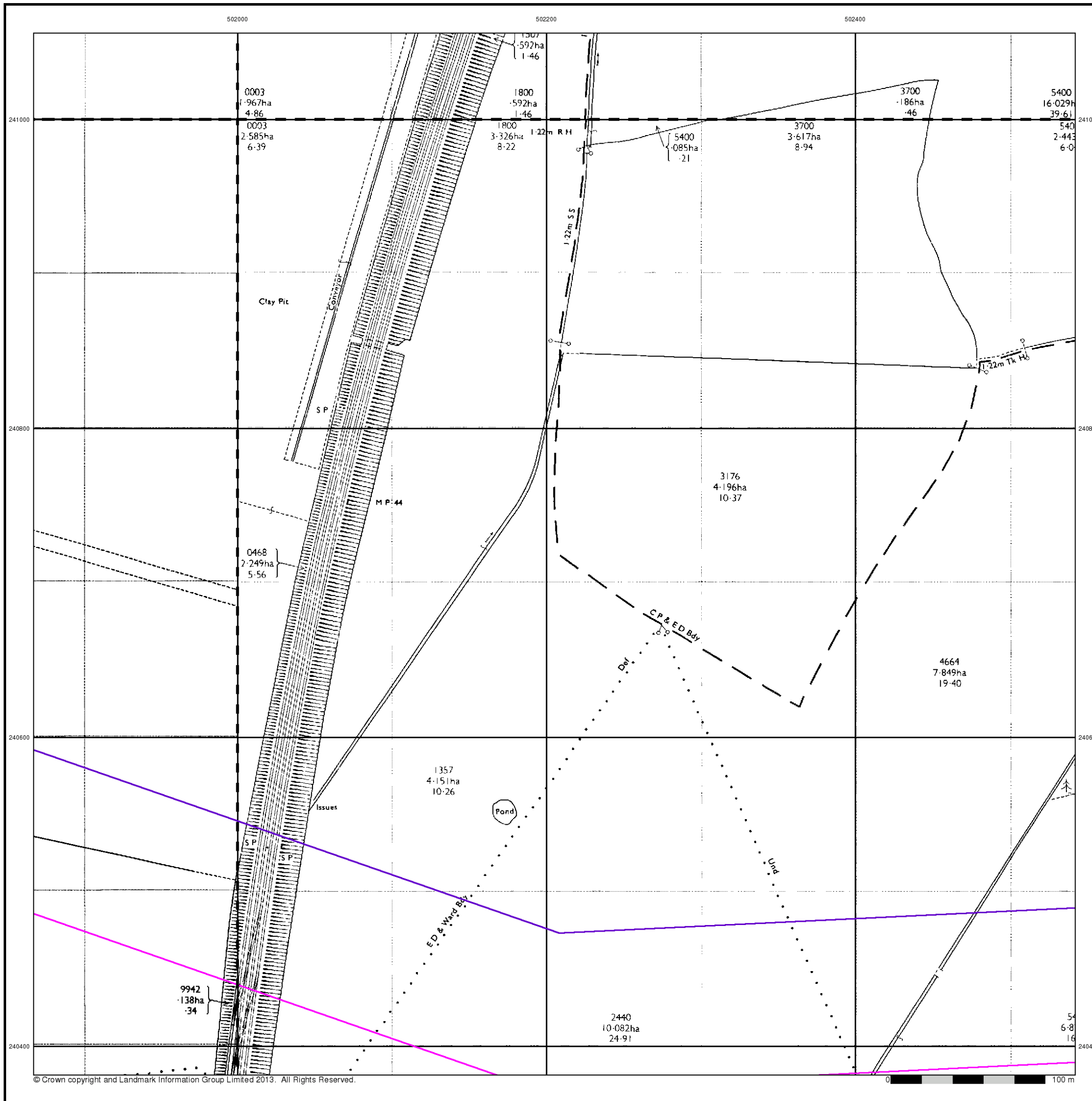
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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### Large-Scale National Grid Data

Published 1993

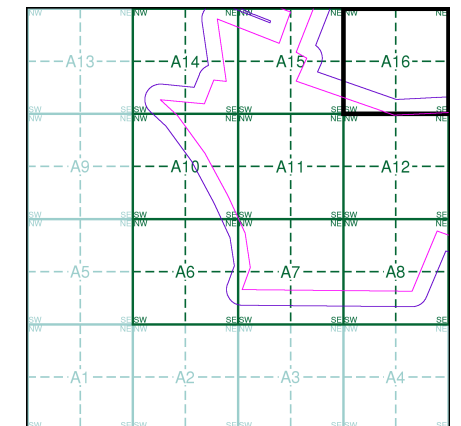
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0141 1993 1:2,500	TL0241 1993 1:2,500
TL0140 1993 1:2,500	TL0240 1993 1:2,500

### Historical Map - Segment A16



### Order Details

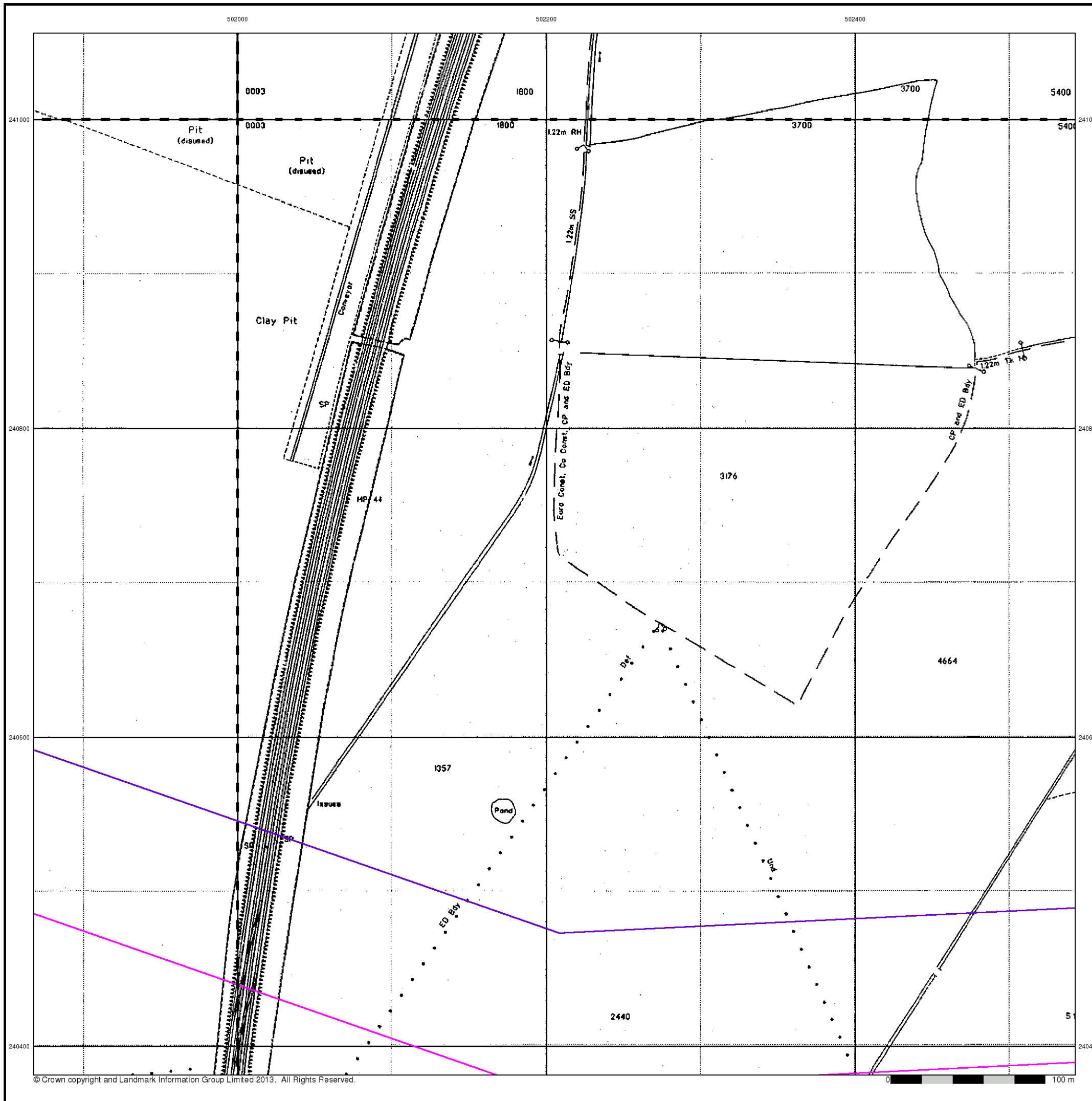
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501510, 239960  
 Slice: A  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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



## Envirocheck<sup>®</sup> Report:

### BGS Boreholes Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

502970, 239970

**Slice:**

B

**Site Area (Ha):**

240.61

**Borehole Search Buffer (m):**

50

#### Site Details:

Millbrook Power Project

Green Lane

Stewartby

#### Client Details:

Ms K Riley

Brett Consulting Ltd

Caversham Bridge House

Waterman Place

Reading

Berkshire

RG1 8DN

Data Type	Page Number	On Site	0 to 50m
BGS Boreholes (50m)	pg 1	1	1

## Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

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

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A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

## Report Version v49.0

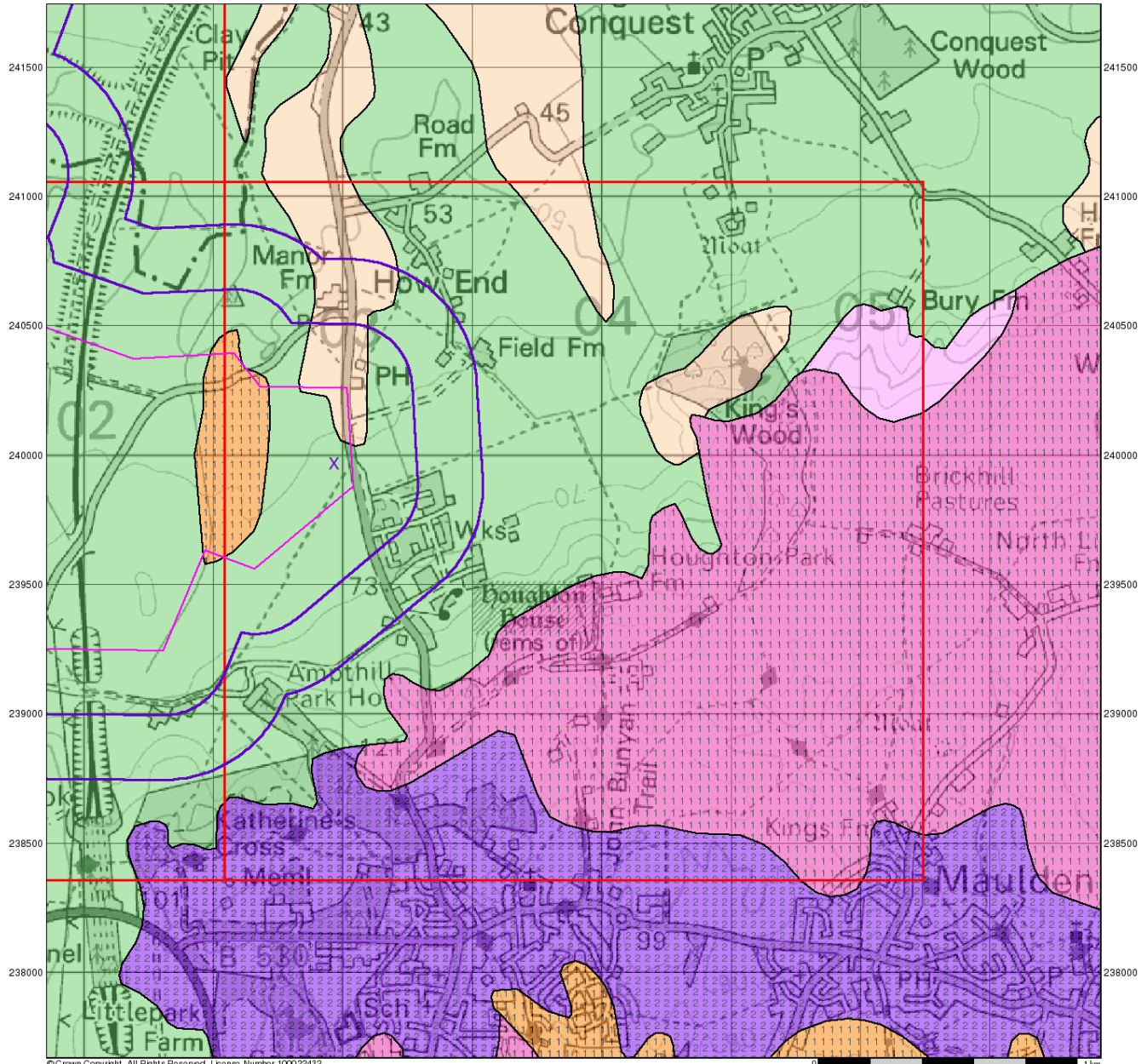
Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
26	<b>BGS Boreholes</b> BGS Reference: T104sw3 Drilled Length (m): 3.1 Borehole Name: Ampthill By-Pass 1 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524357/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524357/</a>	B9NW (NW)	0	4	502560 240270
27	<b>BGS Boreholes</b> BGS Reference: T104sw5 Drilled Length (m): 5.3 Borehole Name: A418 Crossing 18 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524359/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524359/</a>	B9NE (NE)	22	4	503050 240070



BGS Boreholes	Version	Update Cycle
<b>BGS Boreholes</b> British Geological Survey - National Geoscience Information Service	August 2014	Quarterly

Contact Details	Contact Logo
<p><b>4 British Geological Survey - Enquiry Service</b></p> <p>British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG</p> <p>Telephone: 0115 936 3143            Fax: 0115 936 3276            Email: enquiries@bgs.ac.uk            Website: www.bgs.ac.uk</p>	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
<p><b>- Landmark Information Group Limited</b></p> <p>Imperium, Imperial Way, Reading, Berkshire, RG2 0TD</p> <p>Telephone: 0844 844 9952            Fax: 0844 844 9951            Email: customerservices@landmarkinfo.co.uk            Website: www.landmarkinfo.co.uk</p>	 <p><b>LANDMARK</b><sup>®</sup> Information Group</p>

502000 502500 503000 503500 504000 504500 505000 505500



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## Groundwater Vulnerability

### General

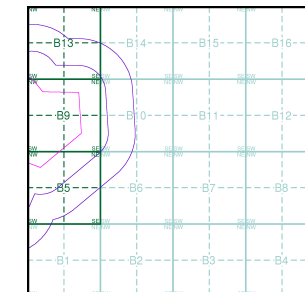
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

- |   |  |                       |
|---|--|-----------------------|
| <b>Major Aquifer (Highly Permeable)</b>   |  | High (H) 1, 2, 3, U   |
|   |  | Intermediate (I) 1, 2 |
|   |  | Low                   |
| <b>Minor Aquifer (Variably Permeable)</b> |  | High (H) 1, 2, 3, U   |
|   |  | Intermediate (I) 1, 2 |
|   |  | Low                   |
| <b>Non Aquifer (Negligibly Permeable)</b> |  |                       |
| <b>Water or Sea</b>                       |  |                       |
| <b>Drift Deposit</b>                      |  |                       |

### Site Sensitivity Context Map - Slice B



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

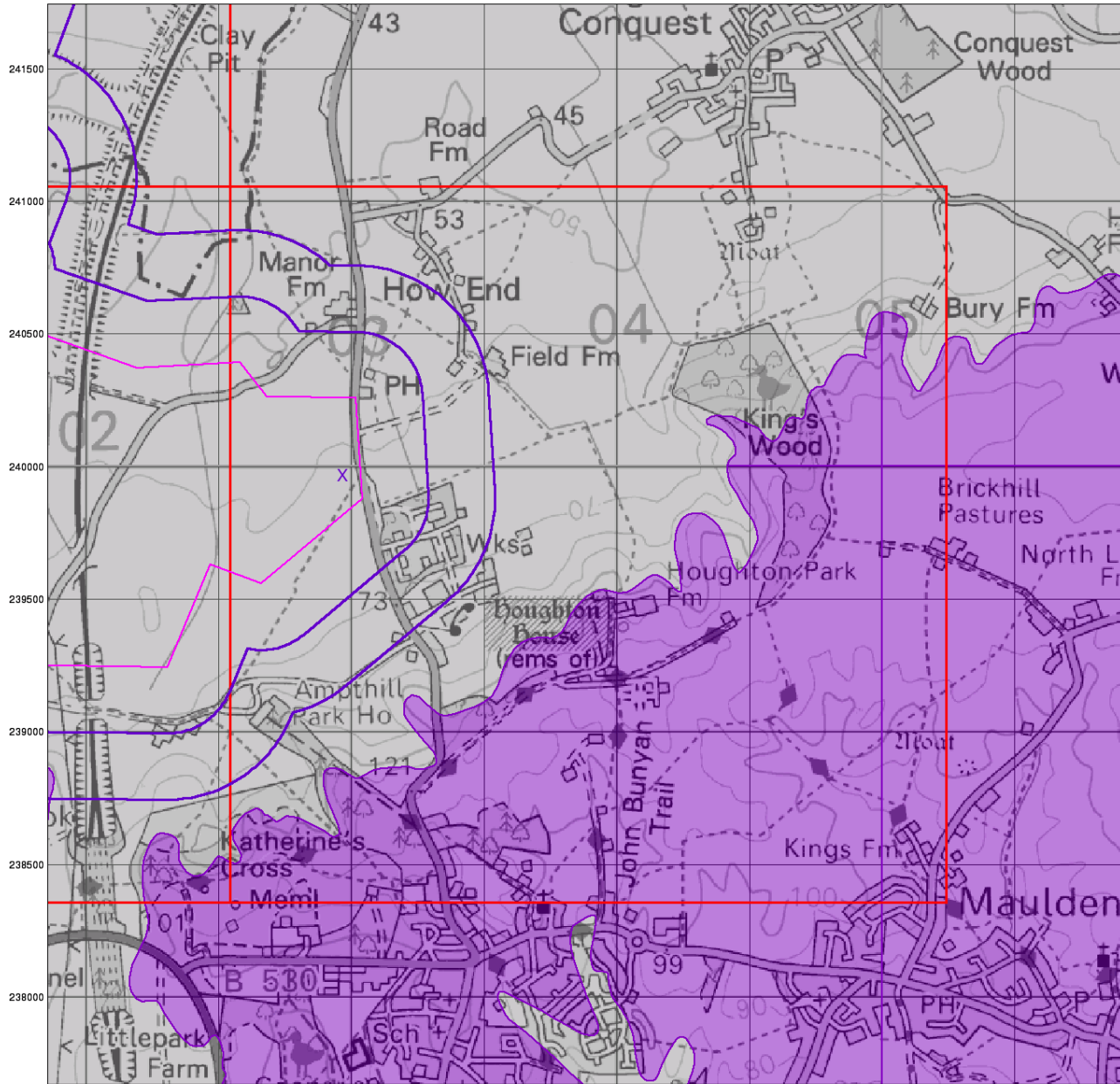
### Site Details

Millbrook Power Project, Green Lane, Stewartby



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502000 502500 503000 503500 504000 504500 505000 505500



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0 1 km



## Bedrock Aquifer Designation

### General

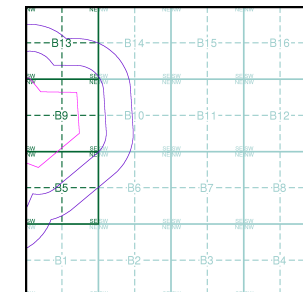
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### 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

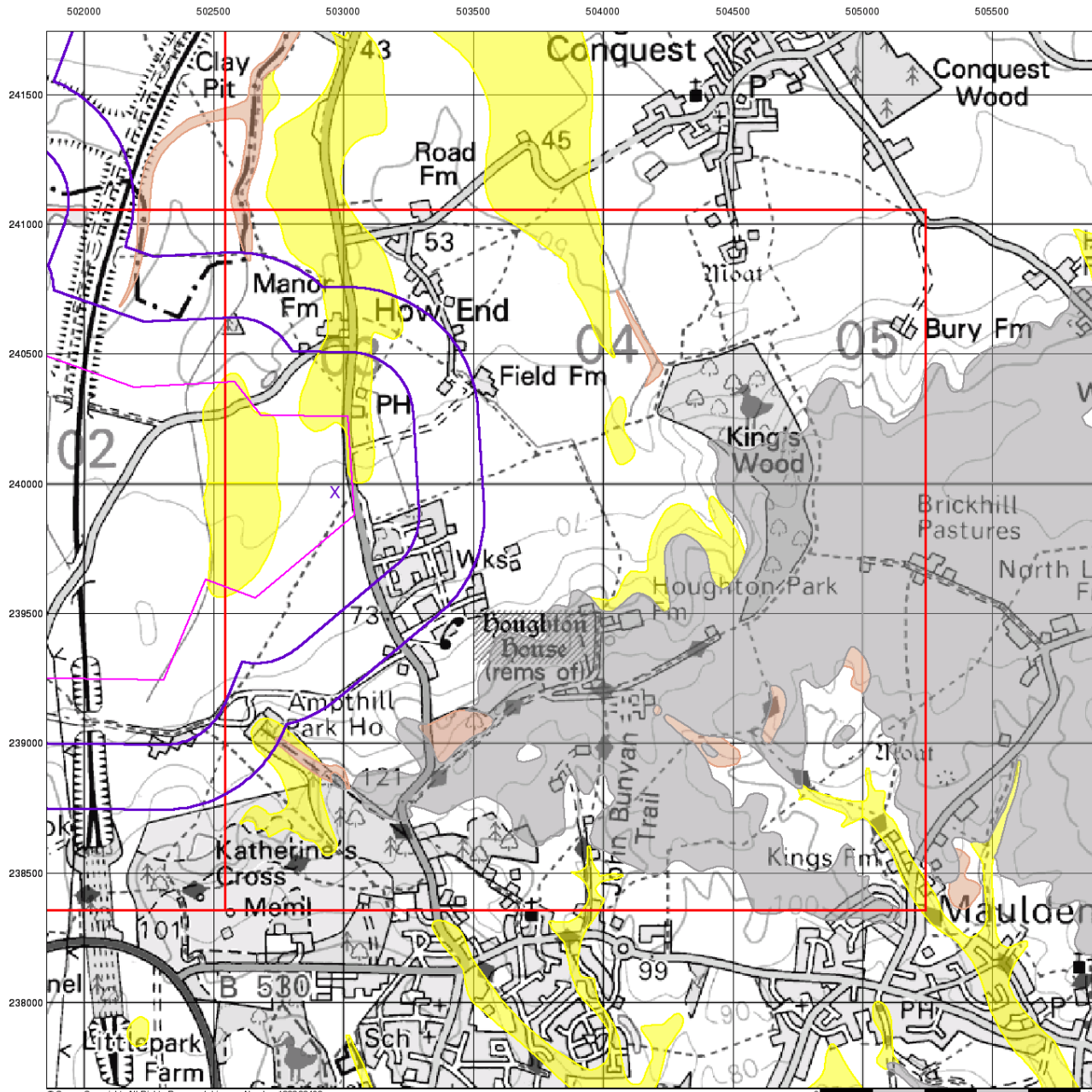
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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## Superficial Aquifer Designation

### General

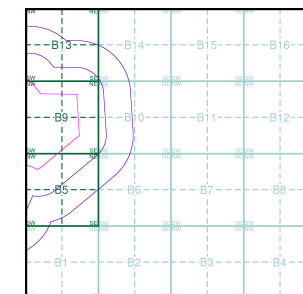
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### 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

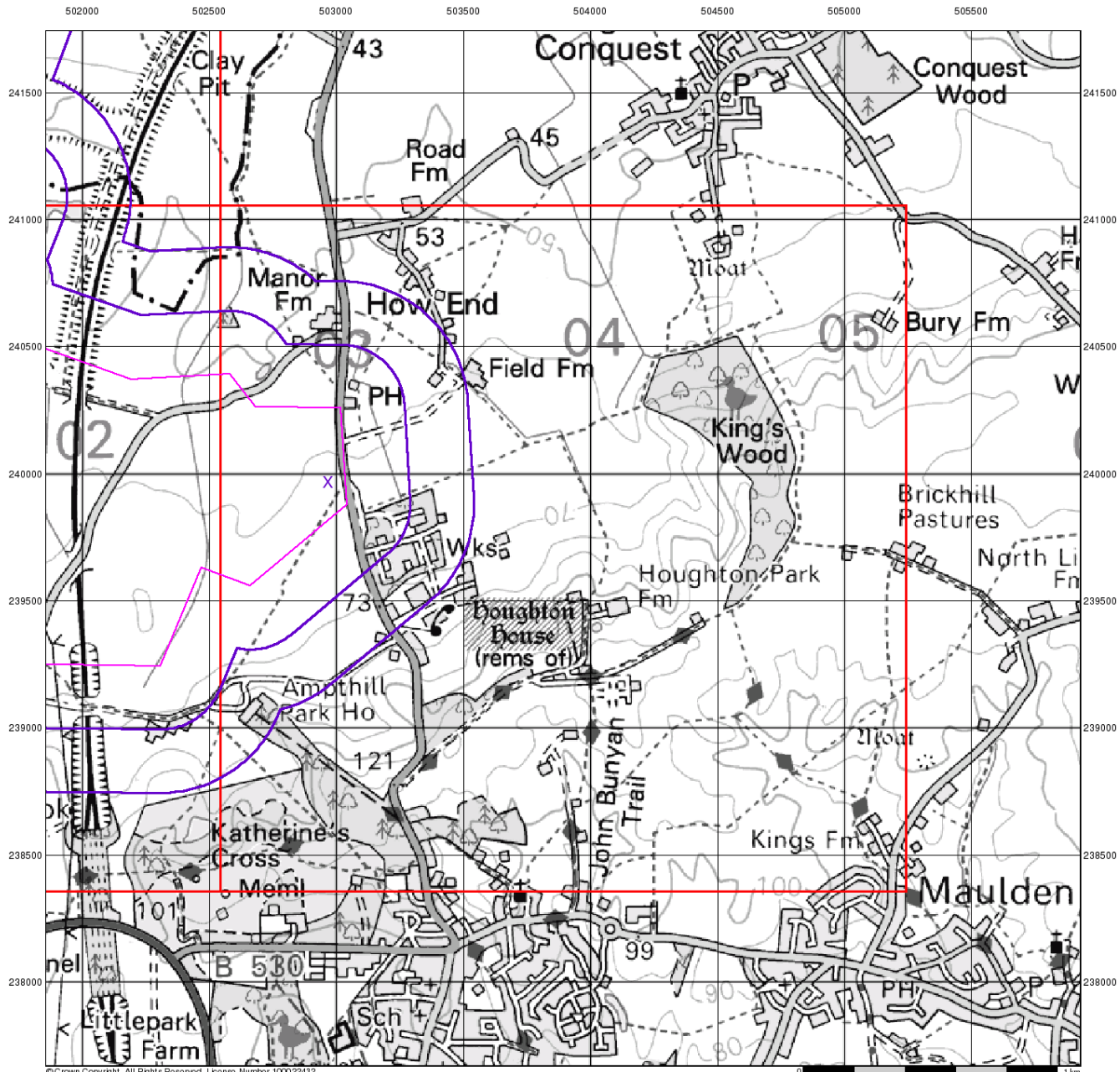
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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## Source Protection Zones

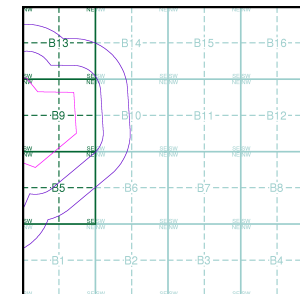
### General

- 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

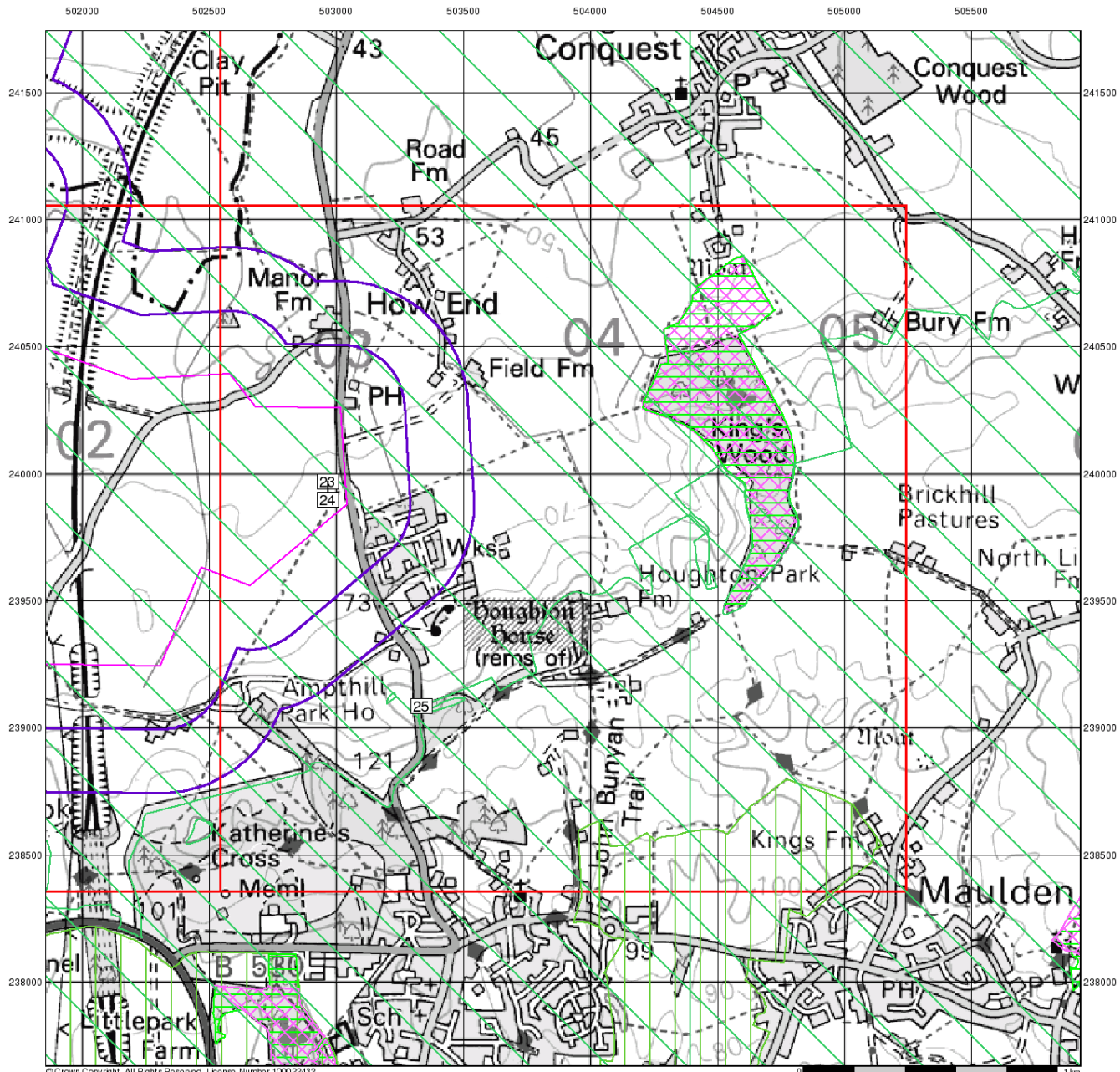
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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## Sensitive Land Uses

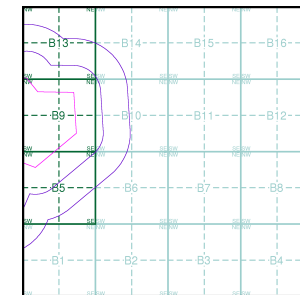
### General

- 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: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

502970, 239970

**Slice:**

B

**Site Area (Ha):**

240.61

**Search Buffer (m):**

500

#### Site Details:

Millbrook Power Project  
Green Lane  
Stewartby

#### Client Details:

Ms K Riley  
Brett Consulting Ltd  
Caversham Bridge House  
Waterman Place  
Reading  
Berkshire  
RG1 8DN

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	7
Hazardous Substances	8
Geological	9
Industrial Land Use	-
Sensitive Land Use	14
Data Currency	15
Data Suppliers	19
Useful Contacts	20

## Introduction

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

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## Report Version v49.0



Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Agency &amp; Hydrological</b>				
Contaminated Land Register Entries and Notices				
Discharge Consents	pg 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	pg 1			6
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 2	Yes		
Pollution Incidents to Controlled Waters				
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality				
River Quality Biology Sampling Points				
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions	pg 2	1	2	
Water Industry Act Referrals	pg 2			2
Groundwater Vulnerability	pg 3	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 3	Yes	n/a	n/a
Superficial Aquifer Designations	pg 3	Yes	n/a	n/a
Source Protection Zones				
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
Detailed River Network Lines	pg 3	Yes	Yes	Yes
Detailed River Network Offline Drainage				

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Waste</b>				
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				
<b>Hazardous Substances</b>				
Control of Major Accident Hazards Sites (COMAH)				
Explosive Sites	pg 8			1
Notification of Installations Handling Hazardous Substances (NIHHS)				
Planning Hazardous Substance Consents				
Planning Hazardous Substance Enforcements				
<b>Geological</b>				
BGS 1:625,000 Solid Geology	pg 9	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 9	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 12	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 12	Yes		n/a
Potential for Running Sand Ground Stability Hazards	pg 12	Yes		n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 12	Yes		n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Industrial Land Use</b>				
Contemporary Trade Directory Entries (50m)				n/a
Fuel Station Entries				
<b>Sensitive Land Use</b>				
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 14	2		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	<p><b>Discharge Consents</b></p> <p>Operator: Frontline Inns Limited  Property Type: Sewage Disposal Works - Other  Location: The Chequers Public House Ampthill Road, Houghton Conquest, Bedford, Beds, Mk45 3jp  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Prcnf17990  Permit Version: 1  Effective Date: 21st May 2007  Issued Date: 5th March 2007  Revocation Date: 21st May 2019  Discharge Type: Sewage And Trade Combined - Unspecified  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Seasonal Soakaway  <b>Status: New Consent (Water Resources Act 1991, Section 88 &amp; Schedule 10 as amended by Environment Act 1995)</b>  Positional Accuracy: Located by supplier to within 10m</p>	B9NE (N)	53	2	503070 240255
2	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Lockheed Martin Uk Insys Ltd  Location: Reddings Wood, AMPTHILL, MK45 2HD  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: Ppc/Mb/62  Dated: Not Supplied  Process Type: Local Authority Pollution Prevention and Control  Description: PG4/1 Processes for the surface treatment of metals  <b>Status: Authorisation revokedRevoked</b>  Positional Accuracy: Manually positioned to the address or location</p>	B6NW (SE)	294	3	503246 239667
2	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Lockheed Martin Uk Insys Ltd  Location: Reddings Wood, Ampthill, BEDFORD, Bedfordshire, MK45  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: Ppc/Mb/21  Dated: 1st March 1994  Process Type: Local Authority Pollution Prevention and Control  Description: PG6/23 Coating of metal and plastic  <b>Status: Permitted</b>  Positional Accuracy: Manually positioned to the address or location</p>	B6NW (SE)	300	3	503242 239655
2	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Hunting Engineering Plc  Location: Ampthill, MK45  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: Epa/Mb/31  Dated: Not Supplied  Process Type: Local Authority Air Pollution Control  Description: Part B - General Coating Process (No Specific Reference)  <b>Status: Authorisation revokedRevoked</b>  Positional Accuracy: Manually positioned to the address or location</p>	B6NW (SE)	307	3	503258 239661
2	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Insys Ltd  Location: Reddings Wood, Ampthill, BEDFORD, Bedfordshire, MK45  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: EPA/MB/21A  Dated: 1st March 1994  Process Type: Local Authority Air Pollution Control  Description: PG6/32 Adhesive coating  <b>Status: Site Closed</b>  Positional Accuracy: Manually positioned to the address or location</p>	B6NW (SE)	317	3	503251 239641
2	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Lockheed Martin Uk Insys Ltd  Location: Reddings Wood, Ampthill, Mk45 2hd  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: PPC/MB/62  Dated: Not Supplied  Process Type: Local Authority Pollution Prevention and Control  Description: PG4/1 Processes for the surface treatment of metals  <b>Status: Authorisation revokedRevoked</b>  Positional Accuracy: Manually positioned to the address or location</p>	B6NW (SE)	345	3	503257 239609

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
2	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Lockheed Martin Uk Insys Ltd            Location: Reddings Wood, Ampthill, Mk45 2hd            Authority: Central Bedfordshire Council, Environmental Health Department            Permit Reference: PPC/MB/21            Dated: 5th November 2008            Process Type: Local Authority Pollution Prevention and Control            Description: PG6/32 Adhesive coating  <b>Status: Authorisation revoked</b>            Positional Accuracy: Manually positioned to the address or location</p>	B6NW (SE)	347	3	503254 239604
	<p><b>Nearest Surface Water Feature</b></p>	B5NW (SW)	0	-	502657 239673
3	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son            Licence Number: 6/33/12/*S/0067            Permit Version: 100            Location: Pond At Ampthill            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 April            Authorised End: 30 September            Permit Start Date: 1st November 1996            Permit End Date: Not Supplied            Positional Accuracy: Located by supplier to within 10m</p>	B5NW (SW)	0	2	502700 239695
4	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son            Licence Number: 6/33/12/*S/0067            Permit Version: 100            Location: Pond At Ampthill            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 April            Authorised End: 30 September            Permit Start Date: 1st November 1996            Permit End Date: Not Supplied            Positional Accuracy: Located by supplier to within 10m</p>	B13SW (N)	139	2	502800 240400
5	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son            Licence Number: 6/33/12/*S/0067            Permit Version: 100            Location: Pond At Ampthill            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 April            Authorised End: 30 September            Permit Start Date: 1st November 1996            Permit End Date: Not Supplied            Positional Accuracy: Located by supplier to within 10m</p>	B13SE (N)	241	2	502900 240500
6	<p><b>Water Industry Act Referrals</b></p> <p>Name: Lockheed Martin Uk Insys Ltd            Location: LOCKHEED MARTIN UK INSYS LTD, REDDINGS WOOD, REDDINGS WOOD, AMPTHILL, BEDFORDSHIRE, MK45 2HD            Authority: Environment Agency, Anglian Region            Permit Reference: Bu3833            Dated: 28th February 2003            Process Type: Permissions or amendments to discharge under the Water Industry Act 1991            Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations  <b>Status: Authorisation either revoked or cancelled</b>            Positional Accuracy: Manually positioned to the address or location</p>	B10SW (SE)	310	2	503313 239730

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	<p><b>Water Industry Act Referrals</b></p> <p>Name: Lockheed Martin Uk Insys Ltd            Location: LOCKHEED MARTIN UK INSYS LTD, REDDINGS WOOD, AMPTHILL, BEDFORD, BEDFORDSHIRE, MK45 2HD            Authority: Environment Agency, Anglian Region            Permit Reference: CB0803            Dated: 16th January 2007            Process Type: Permissions or amendments to discharge under the Water Industry Act 1991            Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations  <b>Status: Application cancelled</b>            Positional Accuracy: Automatically positioned to the address</p>	B6NW (SE)	345	2	503256 239608
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants            Map Sheet: Sheet 31 Bedfordshire            Scale: 1:100,000</p>	B9SW (W)	0	2	502711 239987
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Not classified            Map Sheet: Sheet 31 Bedfordshire            Scale: 1:100,000</p>	B9SE (E)	0	2	502966 239968
	<p><b>Groundwater Vulnerability</b></p> <p>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 31 Bedfordshire            Scale: 1:100,000</p>	B9NE (N)	0	2	503000 240052
	<p><b>Drift Deposits</b></p> <p>None</p>				
	<p><b>Bedrock Aquifer Designations</b></p> <p>Aquifer Designation: Unproductive Strata</p>	B9SE (E)	0	4	502966 239968
	<p><b>Bedrock Aquifer Designations</b></p> <p>Aquifer Designation: Unproductive Strata</p>	B9SE (N)	0	4	502966 240001
	<p><b>Superficial Aquifer Designations</b></p> <p>Aquifer Designation: Secondary Aquifer - Undifferentiated</p>	B9SW (W)	0	4	502754 239933
	<p><b>Superficial Aquifer Designations</b></p> <p>Aquifer Designation: Secondary Aquifer - Undifferentiated</p>	B9SW (W)	0	4	502745 240001
	<p><b>Superficial Aquifer Designations</b></p> <p>Aquifer Designation: Secondary Aquifer - Undifferentiated</p>	B9SE (NE)	0	4	503031 240018
	<p><b>Extreme Flooding from Rivers or Sea without Defences</b></p> <p>None</p>				
	<p><b>Flooding from Rivers or Sea without Defences</b></p> <p>None</p>				
	<p><b>Areas Benefiting from Flood Defences</b></p> <p>None</p>				
	<p><b>Flood Water Storage Areas</b></p> <p>None</p>				
	<p><b>Flood Defences</b></p> <p>None</p>				
8	<p><b>Detailed River Network Lines</b></p> <p>River Type: Tertiary River            River Name: Not Supplied            Hydrographic Area: D005            River Flow Type: Primary Flow Path            River Surface Level: Surface            Drain Feature: Not a Drain            Flood Risk: Other Rivers            Management Status:            Water Course: Not Supplied            Name:            Water Course: Not Supplied            Reference:</p>	(W)	0	2	502464 239885

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B9SE (NE)	0	2	503022 240006
10	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B9SE (NE)	1	2	503040 240002
11	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B9NE (N)	3	2	503022 240230
12	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	(SW)	18	2	502522 239371
13	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B9NE (N)	38	2	503021 240295
14	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B9NE (E)	85	2	503192 240046

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B13SW (NW)	105	2	502719 240384
16	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B13SE (N)	141	2	503010 240398
17	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B13SW (NW)	254	2	502579 240645
18	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B13SE (N)	269	2	503014 240527
19	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B13SE (N)	290	2	503053 240545
20	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B13SE (N)	316	2	503043 240572



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	B14SW (NE)	425	2	503418 240398
	<b>Detailed River Network Offline Drainage</b> None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Local Authority Landfill Coverage</b> Name: Mid Bedfordshire District Council - Has supplied landfill data		0	11	502966 239968
	<b>Local Authority Landfill Coverage</b> Name: Bedfordshire County Council - Has no landfill data to supply		0	10	502966 239968
	<b>Local Authority Landfill Coverage</b> Name: Bedford Borough Council - Has supplied landfill data		11	12	502363 240620

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
22	<p><b>Explosive Sites</b></p> <p>Name: Ampthill/Insys Ltd            Location: Reddings Wood, AMPHILL, Bedfordshire, MK45 2HD  <b>Status: Active</b>            Positional Accuracy: Manually positioned within the geographical locality</p>	B6NW (SE)	406	5	503375 239647

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS 1:625,000 Solid Geology</b> Description: Oxford Clay and Kellaways Beds	B9SE (E)	0	4	502966 239968
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9SE (NE)	0	6	503000 240000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9SE (N)	0	6	502966 240000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9NE (N)	0	6	502907 240202
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9SE (NE)	0	6	503030 240017
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9SW (W)	0	6	502744 240000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	B9SW (W)	0	6	502754 239933

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	B9SE (E)	0	6	502966 239968
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	B9SE (E)	0	6	503000 239968
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	B9SE (E)	37	6	503070 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	B5SE (S)	63	6	502999 239301
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	B1NW (S)	260	6	502652 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 40 - 60 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 15 - 30 mg/kg</p> <p>Concentration:</p>	B5SW (S)	391	6	502720 239091

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 90 - 120 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 30 - 45 mg/kg Concentration:	B5SE (S)	416	6	503000 239301
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 40 - 60 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 15 - 30 mg/kg Concentration:	B1NW (S)	422	6	502741 239000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 90 - 120 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 30 - 45 mg/kg Concentration:	B13NW (N)	449	6	502755 241000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic 15 - 25 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 30 - 45 mg/kg Concentration:	B13NW (N)	470	6	502639 240857
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 30 - 45 mg/kg Concentration:	B1NW (S)	487	6	502755 239019
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic 25 - 35 mg/kg Concentration: Cadmium <1.8 mg/kg Concentration: Chromium 60 - 90 mg/kg Concentration: Lead Concentration: <150 mg/kg Nickel 30 - 45 mg/kg Concentration:	B1NW (S)	498	6	502787 239000
	<b>BGS Measured Urban Soil Chemistry</b> No data available				
	<b>BGS Urban Soil Chemistry Averages</b> No data available				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Coal Mining Affected Areas</b> In an area that might not be affected by coal mining				
	<b>Non Coal Mining Areas of Great Britain</b> No Hazard				
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240000
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240000
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240000
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240000
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SW (W)	0	4	502748 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SW (W)	0	4	502750 239956
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9SE (NE)	0	4	503028 240013
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240000
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Radon Potential - Radon Protection Measures</b> Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B9SE (E)	0	4	502966 239968
	<b>Radon Potential - Radon Protection Measures</b> Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	B9SE (N)	0	4	502966 240001
	<b>Radon Potential - Radon Affected Areas</b> 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	B9SE (E)	0	4	502966 239968

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>Radon Potential - Radon Affected Areas</b></p> <p>Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level</p> <p>Source: British Geological Survey, National Geoscience Information Service</p>	B9SE (N)	0	4	502966 240001



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	B9SE (E)	0	9	502966 239968
24	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	B9SE (E)	0	9	502966 239968
25	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	B6SW (SE)	375	9	503337 239085

Agency & Hydrological	Version	Update Cycle
<b>Contaminated Land Register Entries and Notices</b> Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	December 2013 February 2013 July 2008	Annually Annual Rolling Update Not Applicable
<b>Discharge Consents</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Enforcement and Prohibition Notices</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Integrated Pollution Controls</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Integrated Pollution Prevention And Control</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Local Authority Integrated Pollution Prevention And Control</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Controls</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Control Enforcements</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Nearest Surface Water Feature</b> Ordnance Survey	July 2012	Quarterly
<b>Pollution Incidents to Controlled Waters</b> Environment Agency - Anglian Region	September 1999	Not Applicable
<b>Prosecutions Relating to Authorised Processes</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Prosecutions Relating to Controlled Waters</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Registered Radioactive Substances</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>River Quality</b> Environment Agency - Head Office	November 2001	Not Applicable
<b>River Quality Biology Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>River Quality Chemistry Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>Substantiated Pollution Incident Register</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Water Abstractions</b> Environment Agency - Anglian Region	July 2014	Quarterly
<b>Water Industry Act Referrals</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Groundwater Vulnerability</b> Environment Agency - Head Office	January 2011	Not Applicable

Agency & Hydrological	Version	Update Cycle
<b>Drift Deposits</b> Environment Agency - Head Office	January 1999	Not Applicable
<b>Bedrock Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Superficial Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Source Protection Zones</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Extreme Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Areas Benefiting from Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Water Storage Areas</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Detailed River Network Lines</b> Environment Agency - Head Office	March 2012	Annually
<b>Detailed River Network Offline Drainage</b> Environment Agency - Head Office	March 2012	Annually
Waste	Version	Update Cycle
<b>BGS Recorded Landfill Sites</b> British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
<b>Historical Landfill Sites</b> Environment Agency - Anglian Region - Central Area	May 2014	Quarterly
<b>Integrated Pollution Control Registered Waste Sites</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Licensed Waste Management Facilities (Landfill Boundaries)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Licensed Waste Management Facilities (Locations)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Local Authority Landfill Coverage</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Local Authority Recorded Landfill Sites</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	April 2003 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Registered Landfill Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Transfer Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Treatment or Disposal Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
<b>Control of Major Accident Hazards Sites (COMAH)</b> Health and Safety Executive	August 2014	Bi-Annually
<b>Explosive Sites</b> Health and Safety Executive	November 2013	Bi-Annually
<b>Notification of Installations Handling Hazardous Substances (NIHHS)</b> Health and Safety Executive	November 2000	Not Applicable
<b>Planning Hazardous Substance Enforcements</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
<b>Planning Hazardous Substance Consents</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
Geological	Version	Update Cycle
<b>BGS 1:625,000 Solid Geology</b> British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
<b>BGS Estimated Soil Chemistry</b> British Geological Survey - National Geoscience Information Service	January 2010	Annually
<b>BGS Recorded Mineral Sites</b> British Geological Survey - National Geoscience Information Service	April 2014	Bi-Annually
<b>Brine Compensation Area</b> Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
<b>Coal Mining Affected Areas</b> The Coal Authority - Mining Report Service	December 2013	As notified
<b>Mining Instability</b> Ove Arup & Partners	October 2000	Not Applicable
<b>Non Coal Mining Areas of Great Britain</b> British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
<b>Potential for Collapsible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Compressible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Ground Dissolution Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Landslide Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Running Sand Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Radon Potential - Radon Affected Areas</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually
<b>Radon Potential - Radon Protection Measures</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
<b>Contemporary Trade Directory Entries</b> Thomson Directories	August 2014	Quarterly
<b>Fuel Station Entries</b> Catalist Ltd - Experian	August 2014	Quarterly
Sensitive Land Use	Version	Update Cycle
<b>Areas of Adopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Planning Department	August 2014  May 2011	As notified  As notified
<b>Areas of Unadopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	August 2014	As notified
<b>Areas of Outstanding Natural Beauty</b> Natural England	August 2014	Bi-Annually
<b>Environmentally Sensitive Areas</b> Natural England	August 2014	Annually
<b>Forest Parks</b> Forestry Commission	April 1997	Not Applicable
<b>Local Nature Reserves</b> Natural England	October 2014	Bi-Annually
<b>Marine Nature Reserves</b> Natural England	July 2013	Bi-Annually
<b>National Nature Reserves</b> Natural England	September 2014	Bi-Annually
<b>National Parks</b> Natural England	August 2014	Bi-Annually
<b>Nitrate Sensitive Areas</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
<b>Nitrate Vulnerable Zones</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	July 2014	Annually
<b>Ramsar Sites</b> Natural England	March 2014	Bi-Annually
<b>Sites of Special Scientific Interest</b> Natural England	September 2014	Bi-Annually
<b>Special Areas of Conservation</b> Natural England	March 2014	Bi-Annually
<b>Special Protection Areas</b> Natural England	September 2014	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Centre for Ecology and Hydrology	 <p><b>Centre for Ecology &amp; Hydrology</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
2	<b>Environment Agency - National Customer Contact Centre (NCCC)</b> PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
3	<b>Central Bedfordshire Council - Environmental Health Department</b> Priory House, Monks Walk, Chicksands, Shefford, Bedfordshire, SG17 5TQ	Telephone: 0300 300 8000 Email: info@centralbedfordshire.gov.uk Website: www.centralbedfordshire.gov.uk
4	<b>British Geological Survey - Enquiry Service</b> 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
5	<b>Health and Safety Executive</b> 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
6	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
7	<b>Central Bedfordshire Council - Planning Department</b> Priory House, Monks Walk, Chicksands, Shefford, Bedfordshire, SG17 5TQ	Telephone: 0300 300 8000 Email: info@centralbedfordshire.gov.uk Website: www.centralbedfordshire.gov.uk
8	<b>Natural England</b> Suite D, Unex House, Bourges Boulevard, Peterborough, Cambridgeshire, PE1 1NG	Telephone: 0845 600 3078 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	<b>Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)</b> Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
10	<b>Bedfordshire County Council (now part of Central Bedfordshire Council)</b> County Hall, Cauldwell Street, Bedford, Bedfordshire, MK42 9AP	Telephone: 01234 363222 Fax: 01234 228656 Website: www.bedfordshire.gov.uk
11	<b>Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department</b> 23 London Road, Biggleswade, Bedford, Bedfordshire, SG18 8ER	Telephone: 01767 313137 Fax: 01767 316717 Website: www.midbeds.gov.uk
12	<b>Bedford Borough Council - Environmental Health Department</b> Town Hall, St Pauls Street, Bedford, Bedfordshire, MK40 1SJ	Telephone: 01234 267422 Fax: 01234 325671 Email: enquiries@bedford.gov.uk Website: www.bedford.gov.uk
-	<b>Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards</b> Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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

# 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		
	<b>-285</b> Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

## Ordnance Survey Plan 1:10,000

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

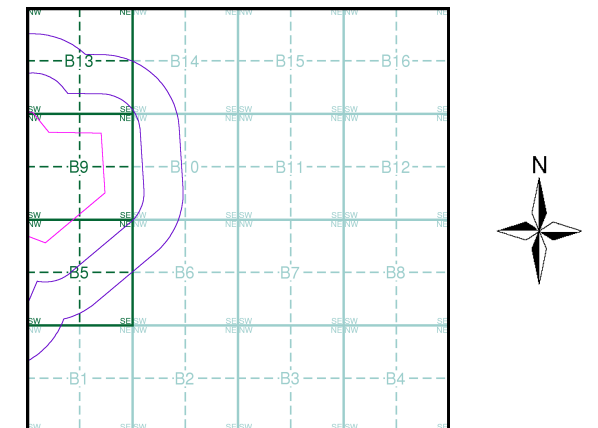
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, 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)
	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
Bedfordshire	1:10,560	1884	2
Buckinghamshire	1:10,560	1885	3
Bedfordshire	1:10,560	1901 - 1902	4
Bedfordshire	1:10,560	1927	5
Bedfordshire	1:10,560	1938	6
Bedfordshire	1:10,560	1947 - 1948	7
Ordnance Survey Plan	1:10,000	1960	8
Ordnance Survey Plan	1:10,000	1975 - 1978	9
Ordnance Survey Plan	1:10,000	1979	10
Ordnance Survey Plan	1:10,000	1982	11
Ordnance Survey Plan	1:10,000	1990 - 1991	12
10K Raster Mapping	1:10,000	2006	13
VectorMap Local	1:10,000	2014	14

## Historical Map - Slice B



## Order Details

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 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

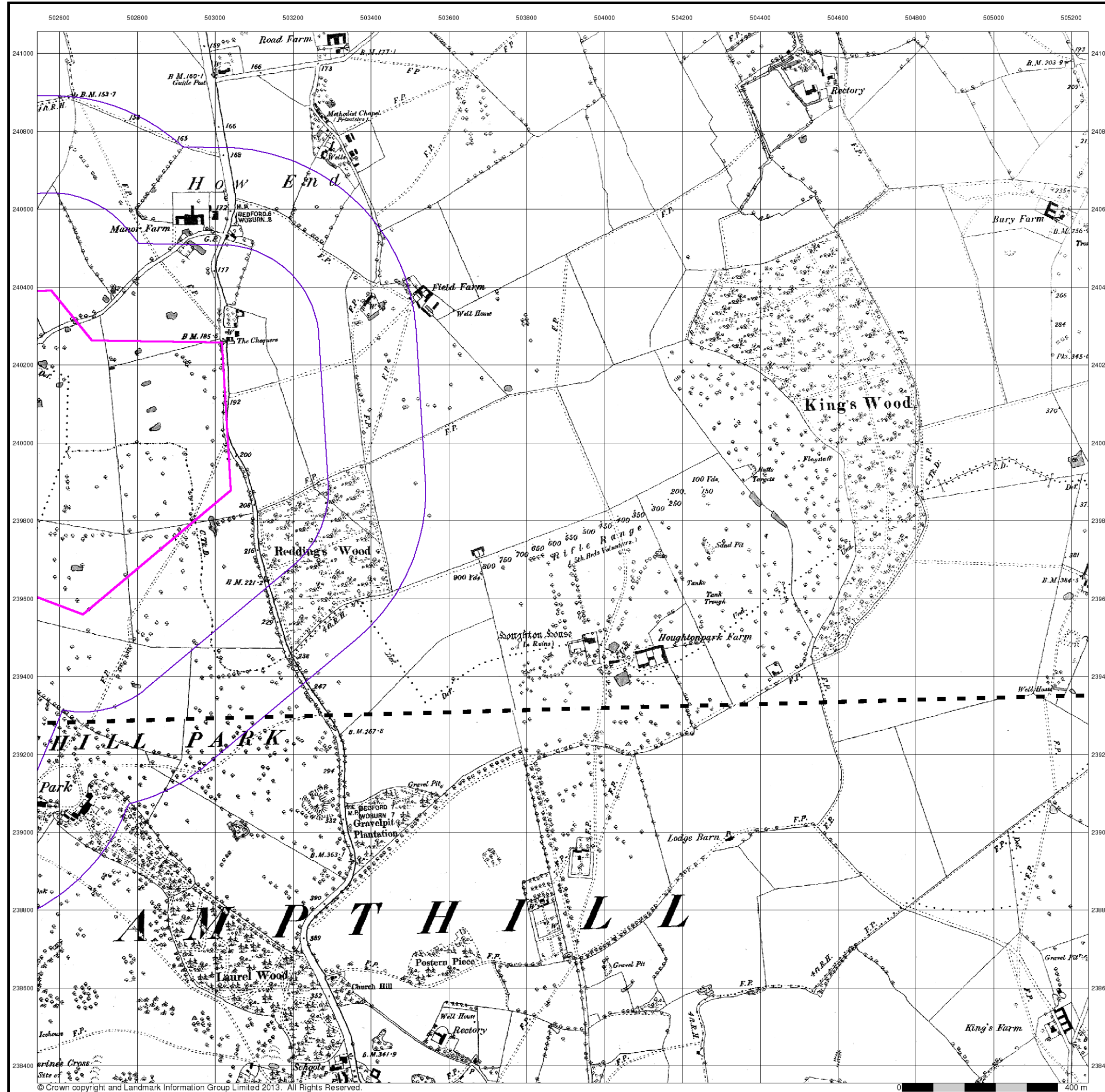
## Site Details

Millbrook Power Project, Green Lane, Stewartby



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



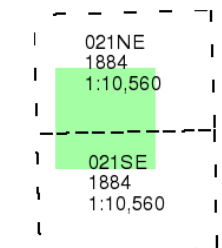


**Bedfordshire**  
**Published 1884**

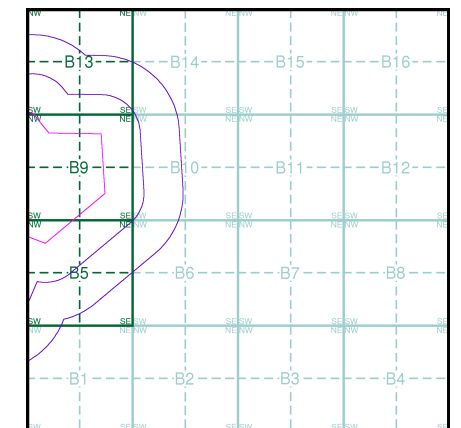
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**



**Historical Map - Slice B**



**Order Details**

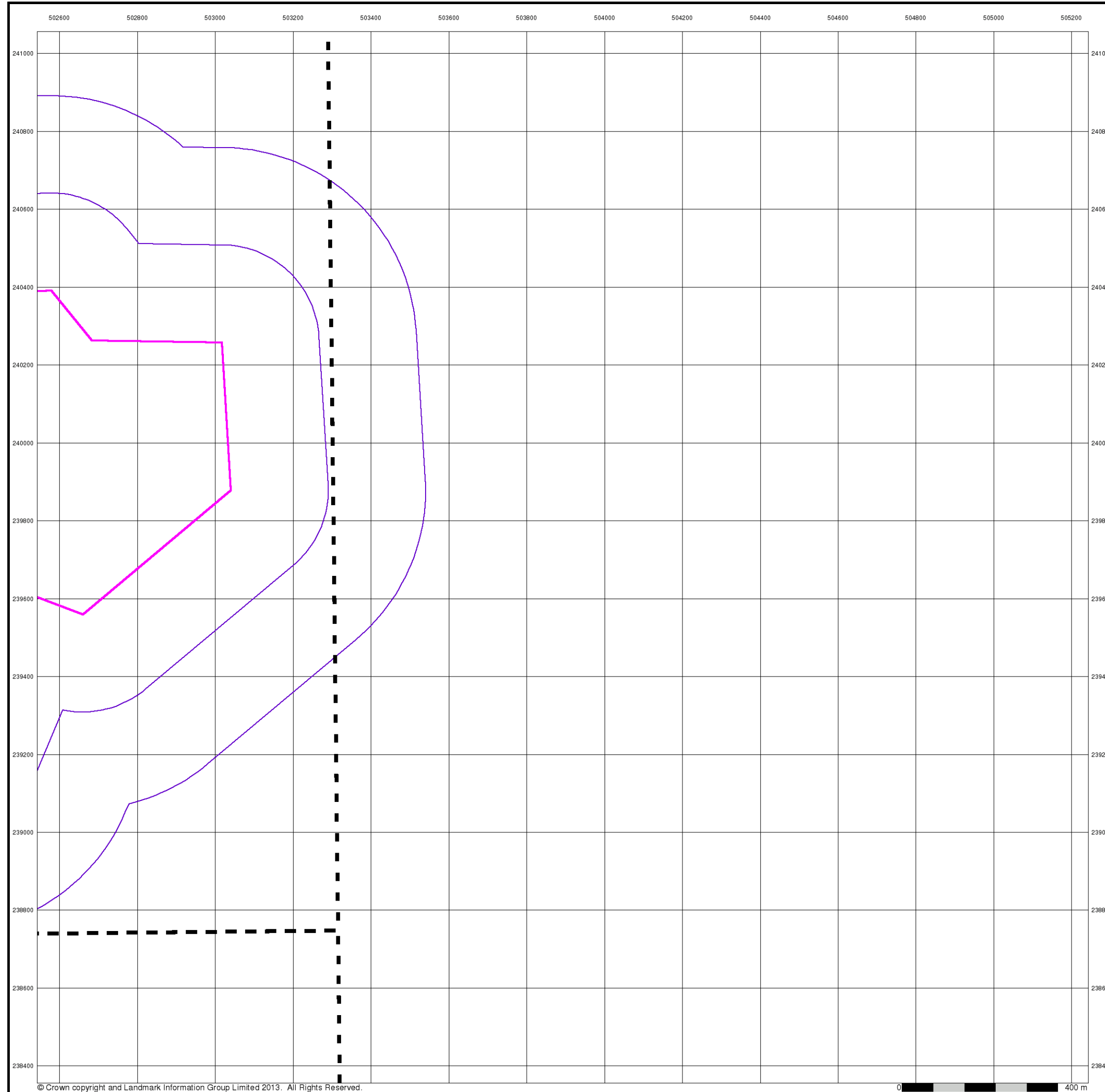
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 Customer Ref: 31116  
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 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

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## Buckinghamshire

Published 1885

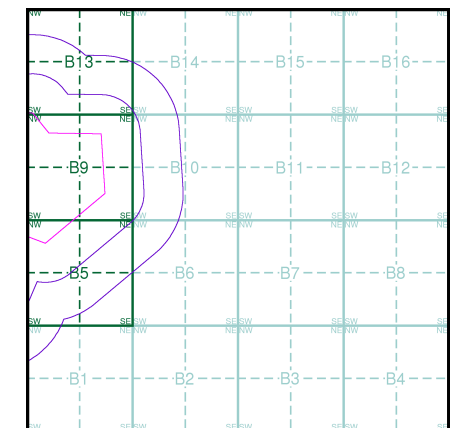
Source map scale - 1:10,560

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

### Map Name(s) and Date(s)

01100	1885	1:10,560
015A00	1885	1:10,560

### Historical Map - Slice B



### Order Details

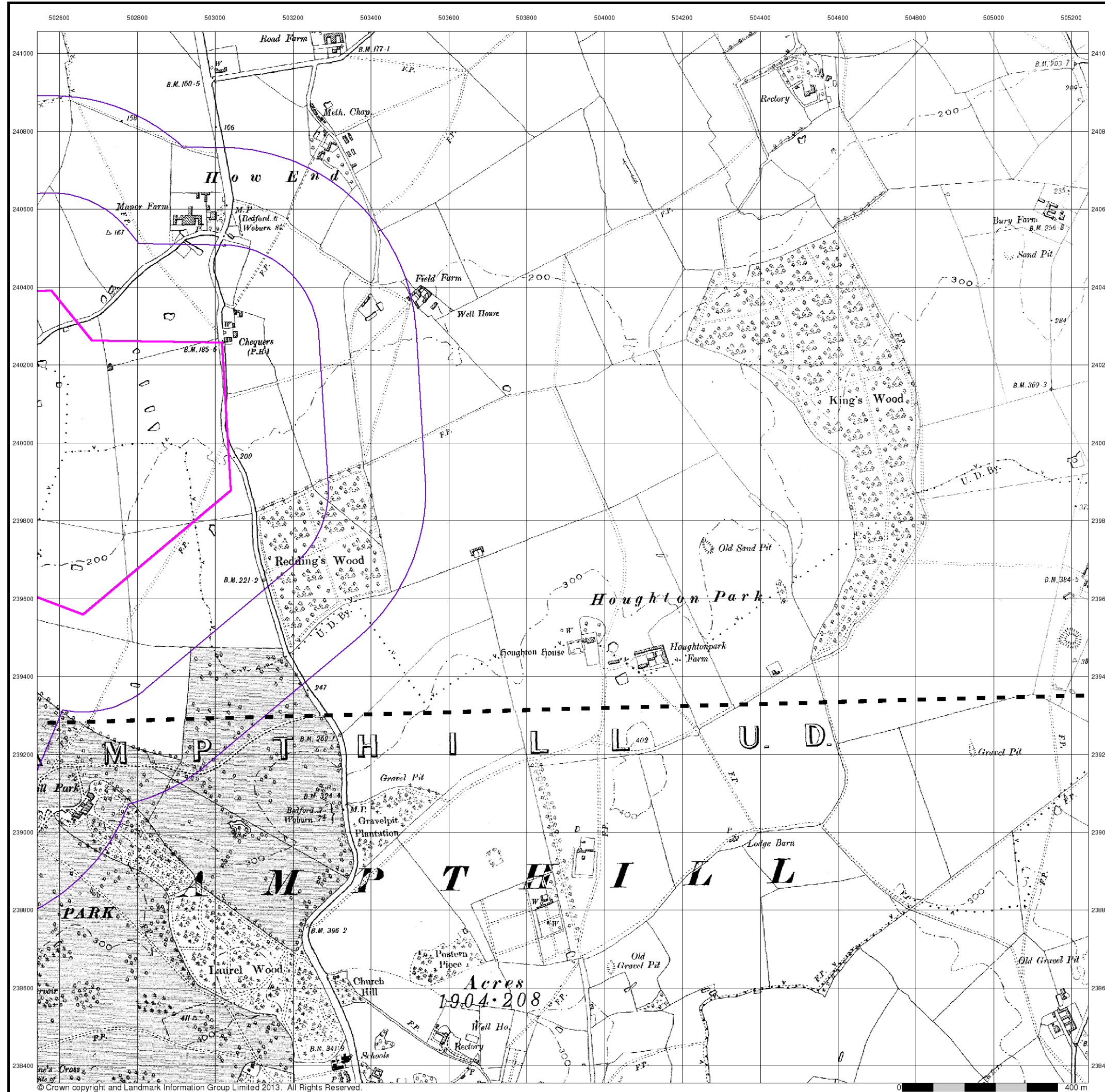
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 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
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### Site Details

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**Bedfordshire**

**Published 1901 - 1902**

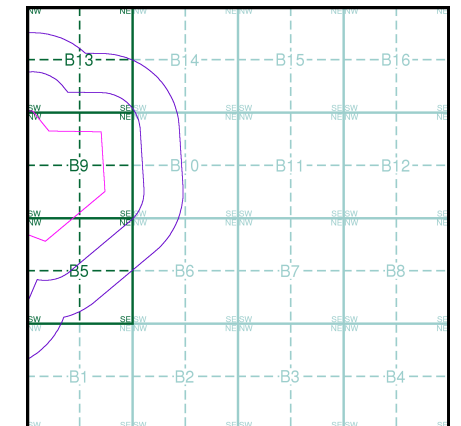
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

021NE	1901
1:10,560	
021SE	1902
1:10,560	

**Historical Map - Slice B**



**Order Details**

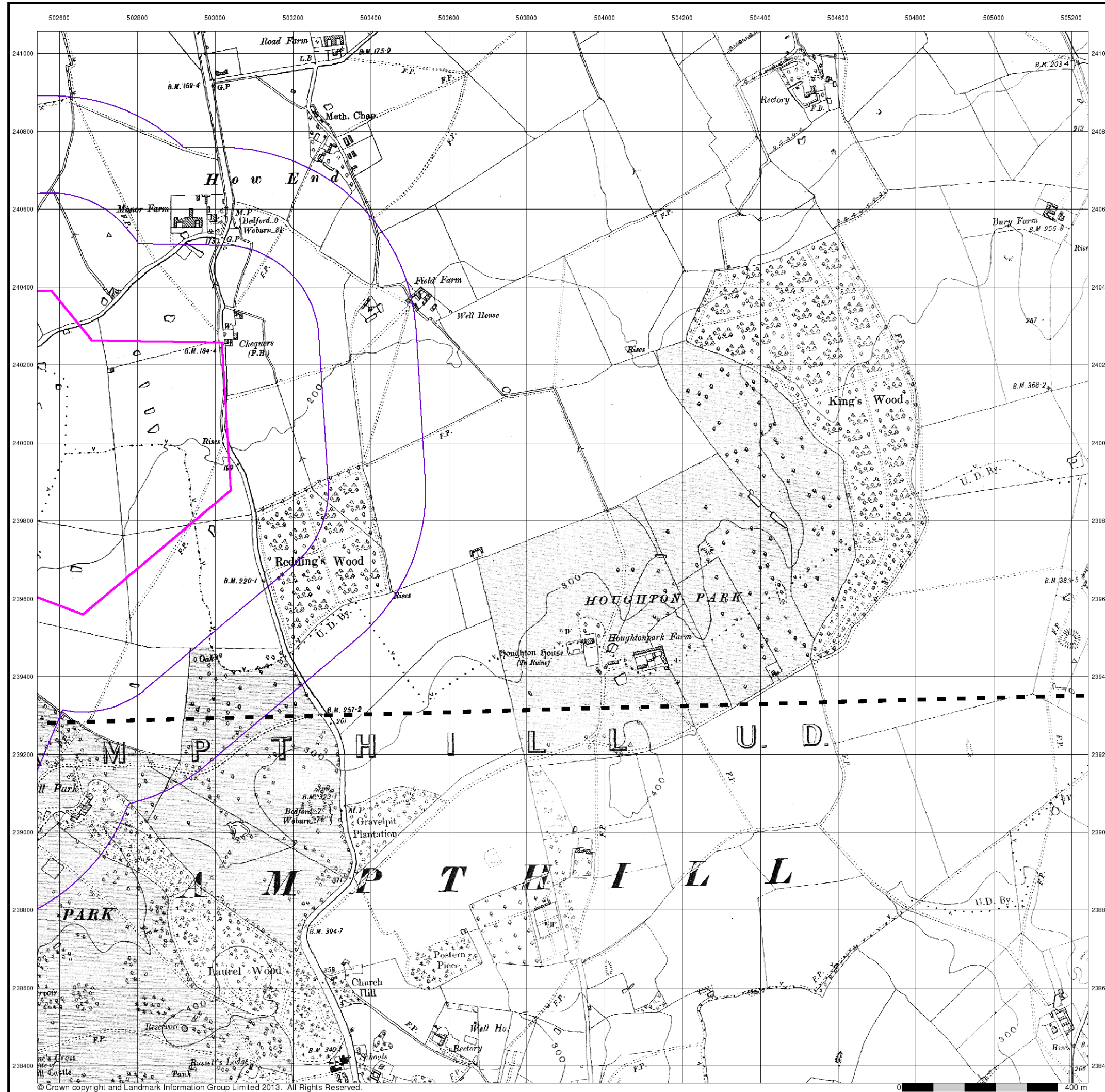
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 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



**Bedfordshire**  
**Published 1927**

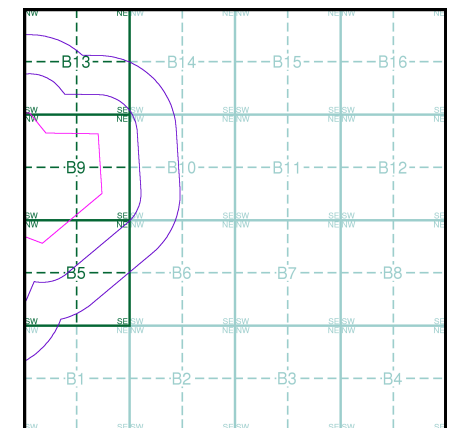
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps.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

**Map Name(s) and Date(s)**

021NE	1927
1:10,560	
021SE	1927
1:10,560	

**Historical Map - Slice B**



**Order Details**

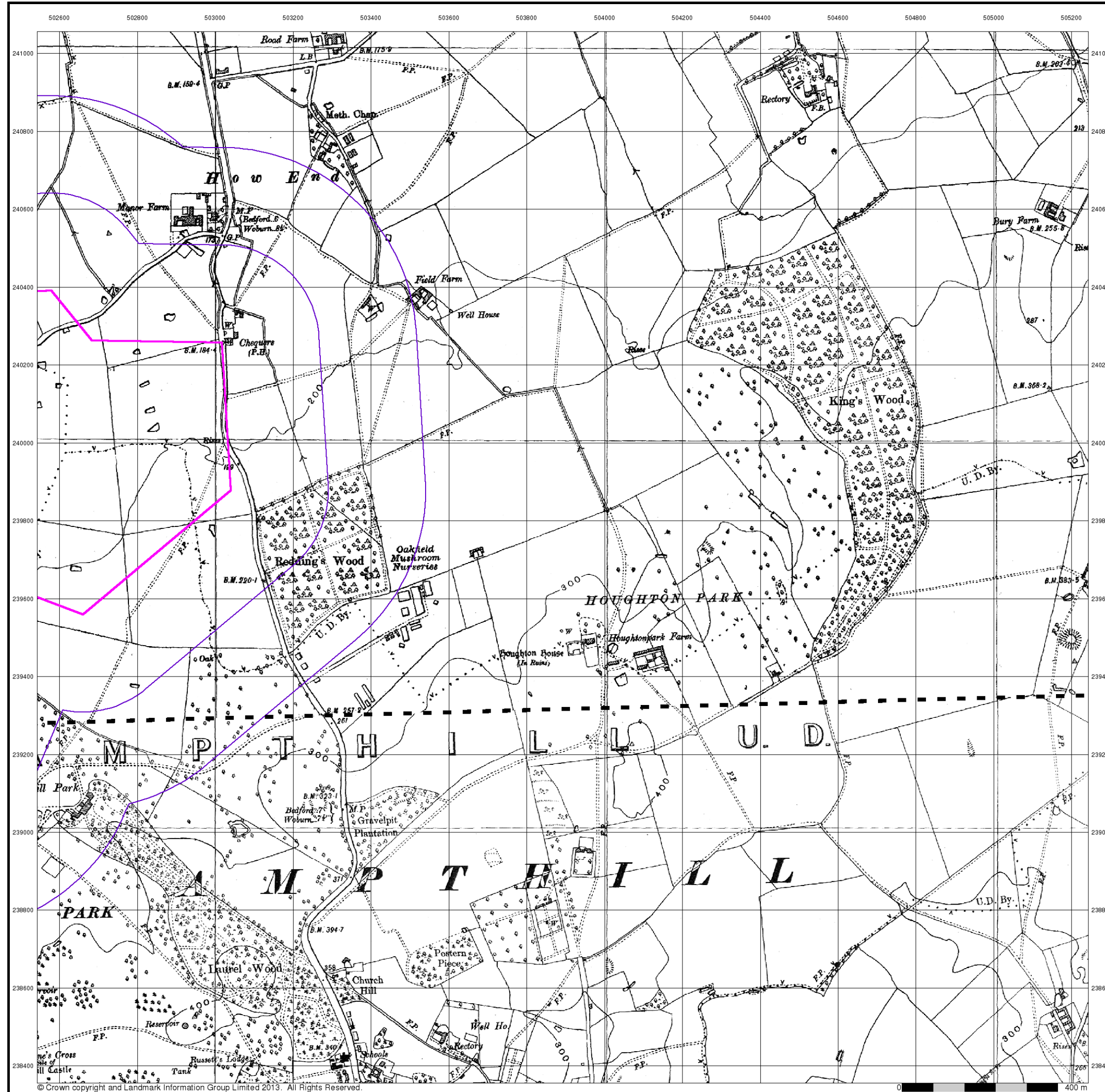
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



**Bedfordshire**  
**Published 1938**

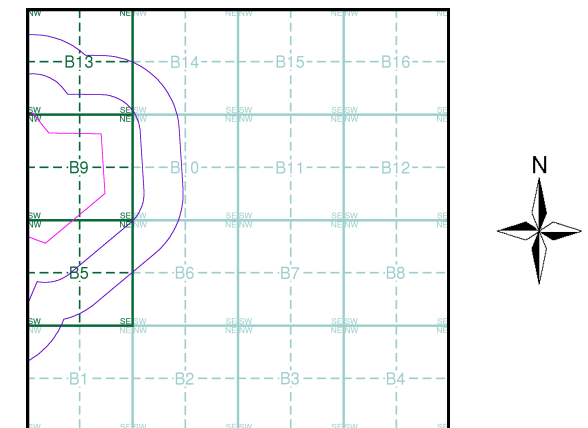
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

021NE	1938
1:10,560	
021SE	1938
1:10,560	

**Historical Map - Slice B**



**Order Details**

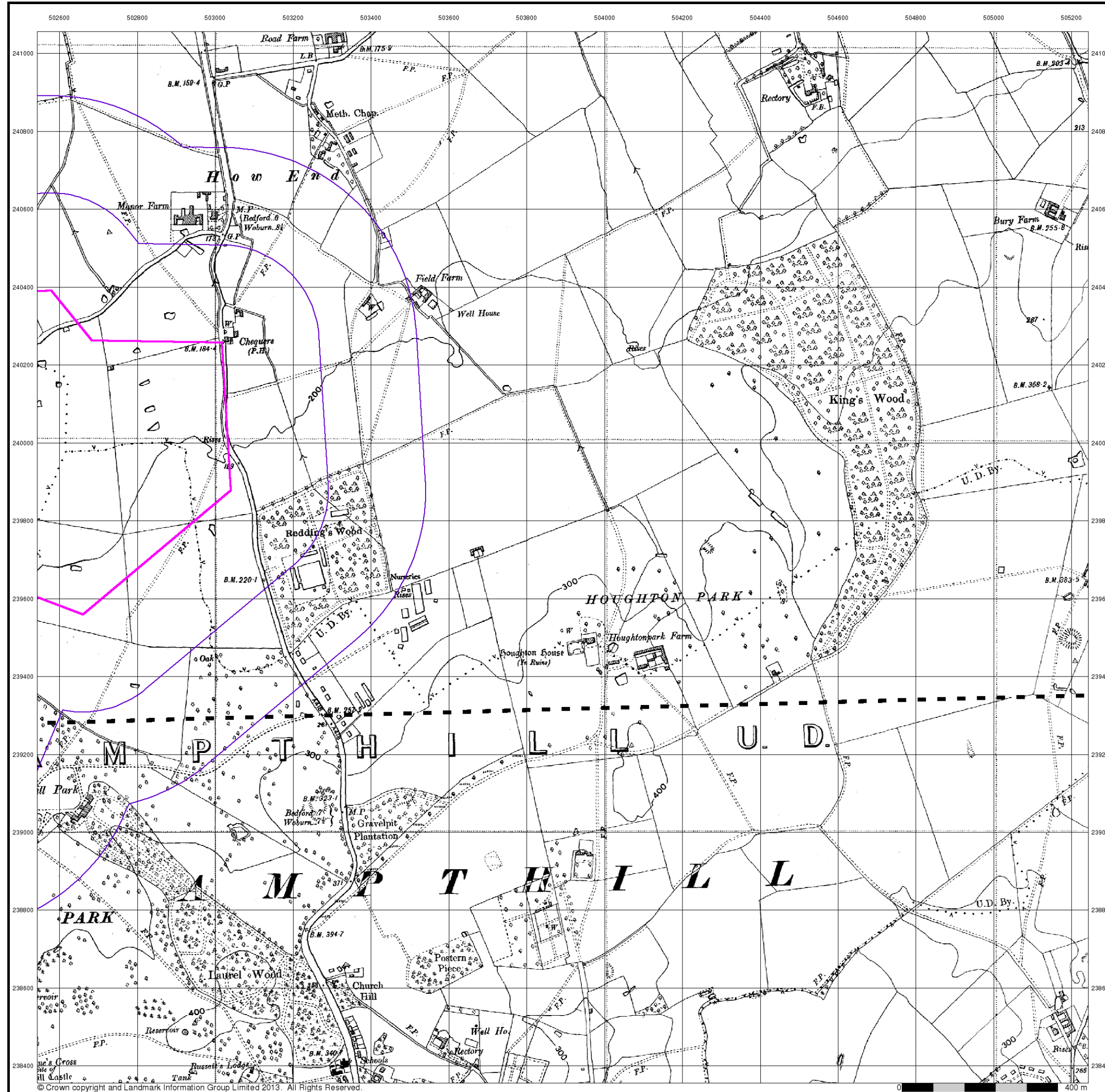
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**Bedfordshire**

**Published 1947 - 1948**

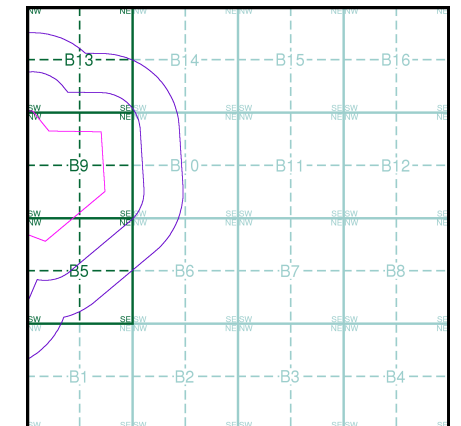
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

021NE	1948	1:10,560
021SE	1947	1:10,560

**Historical Map - Slice B**



**Order Details**

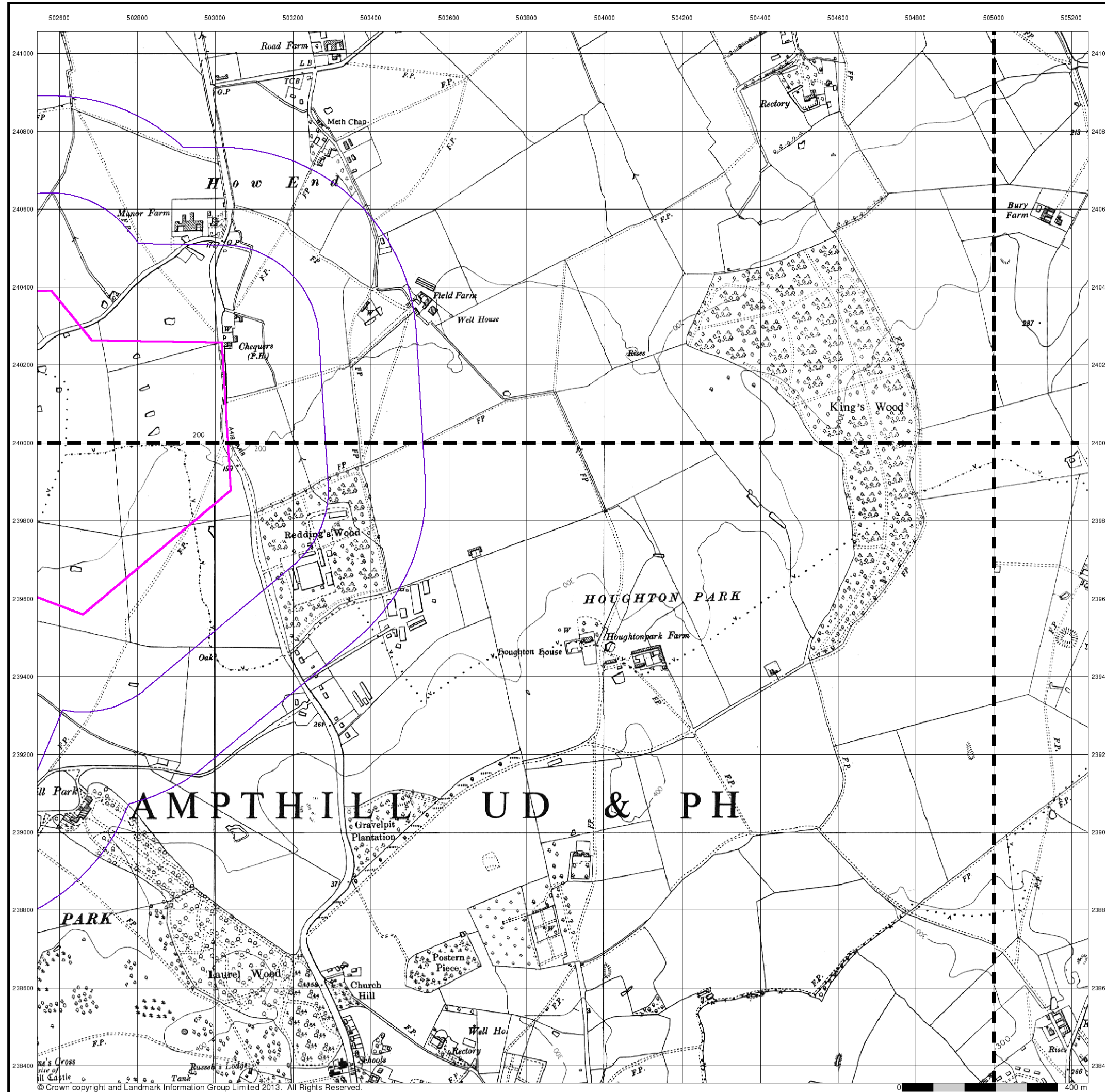
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

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### Ordnance Survey Plan

Published 1960

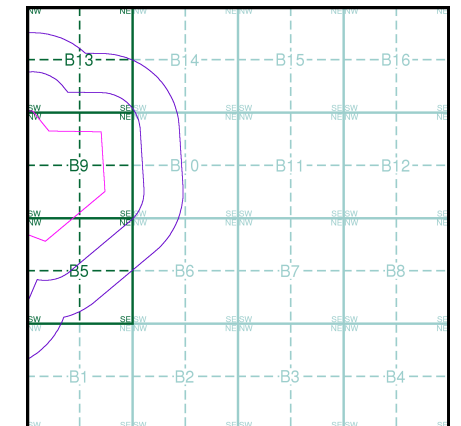
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

TL04SW	TL04SE
1960	1960
1:10,560	1:10,560
TL03NW	TL03NE
1960	1960
1:10,560	1:10,560

### Historical Map - Slice B



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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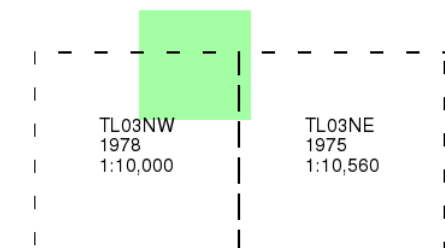
### Ordnance Survey Plan

Published 1975 - 1978

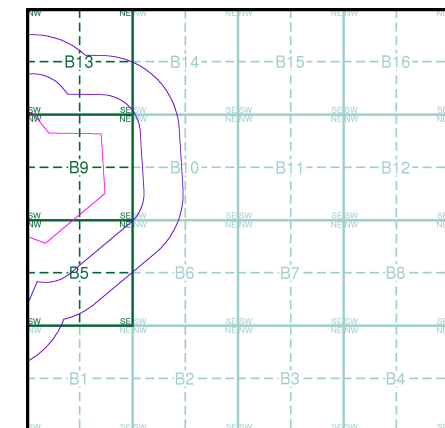
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)



### Historical Map - Slice B



### Order Details

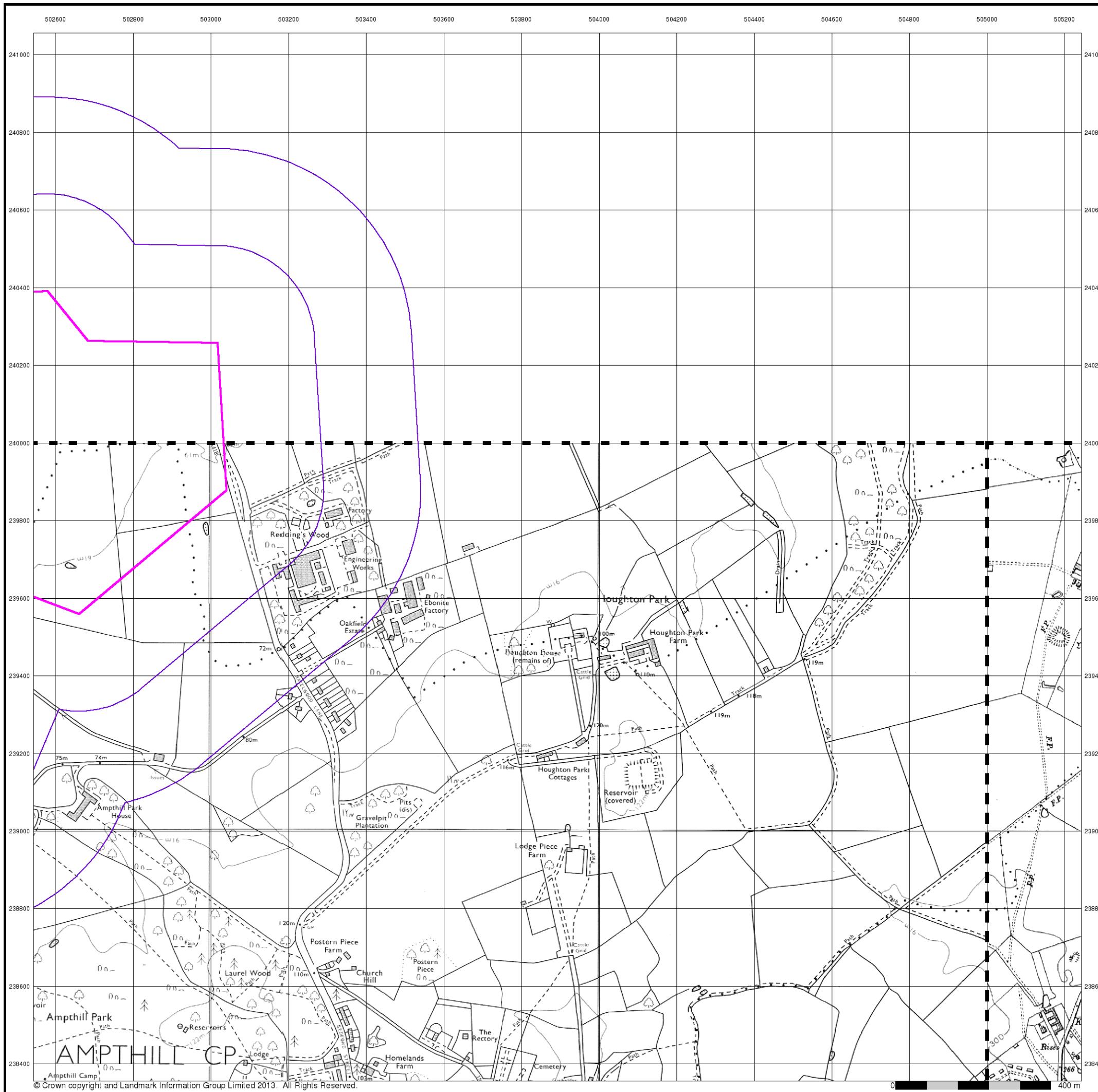
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 502970, 239970  
Slice: B  
Site Area (Ha): 240.61  
Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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Web: www.envirocheck.co.uk







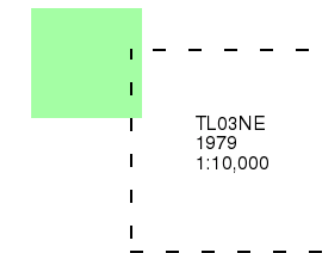
## Ordnance Survey Plan

Published 1979

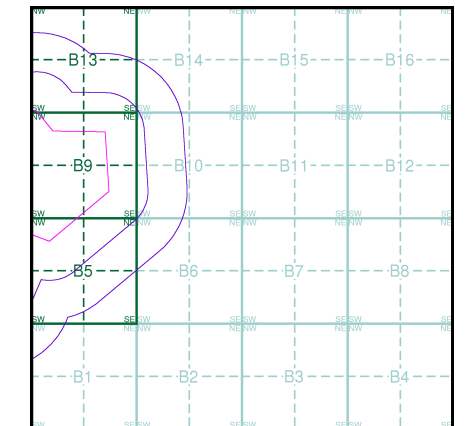
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)



### Historical Map - Slice B



### Order Details

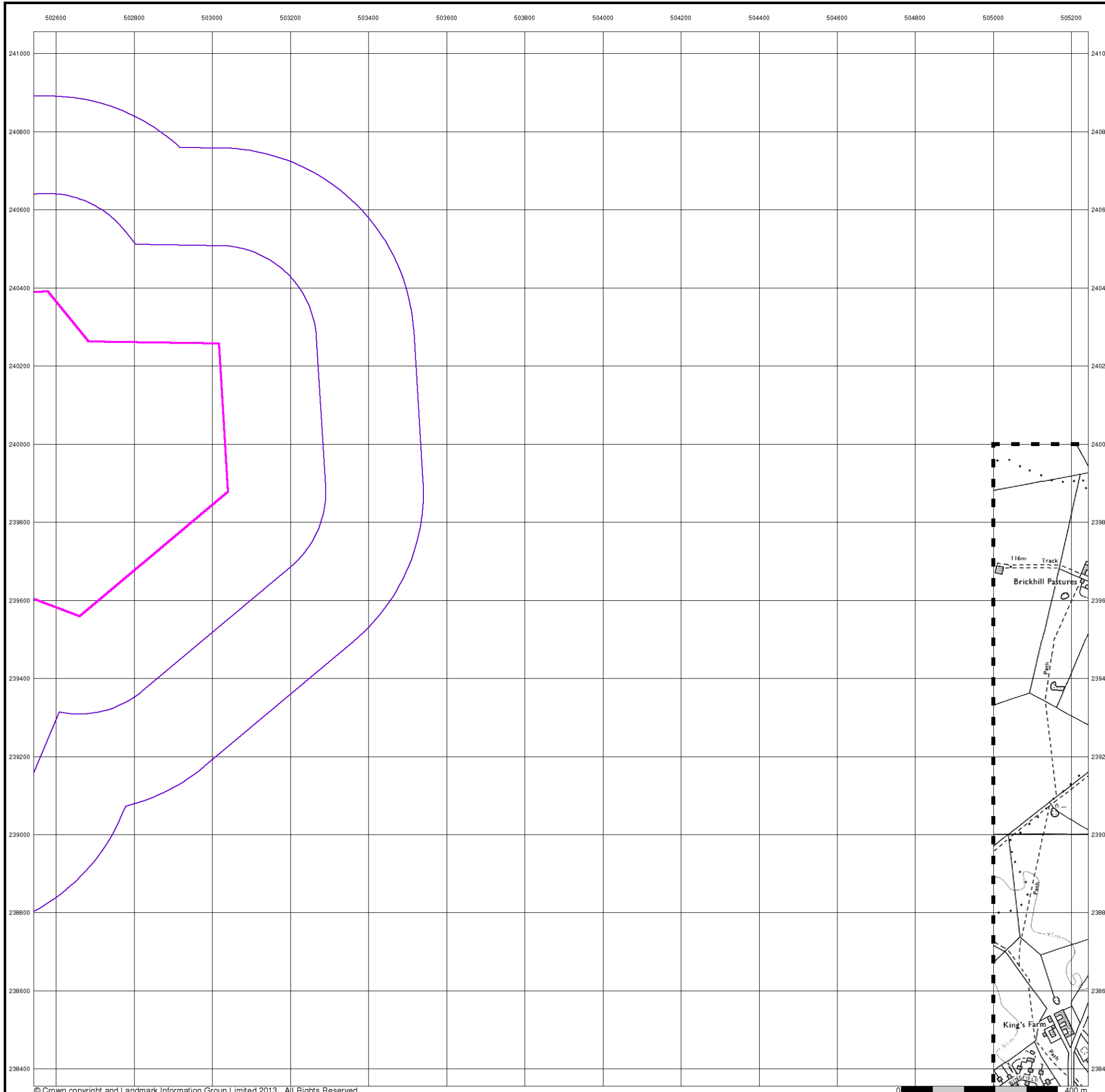
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 502970, 239970  
Slice: B  
Site Area (Ha): 240.61  
Search Buffer (m): 500

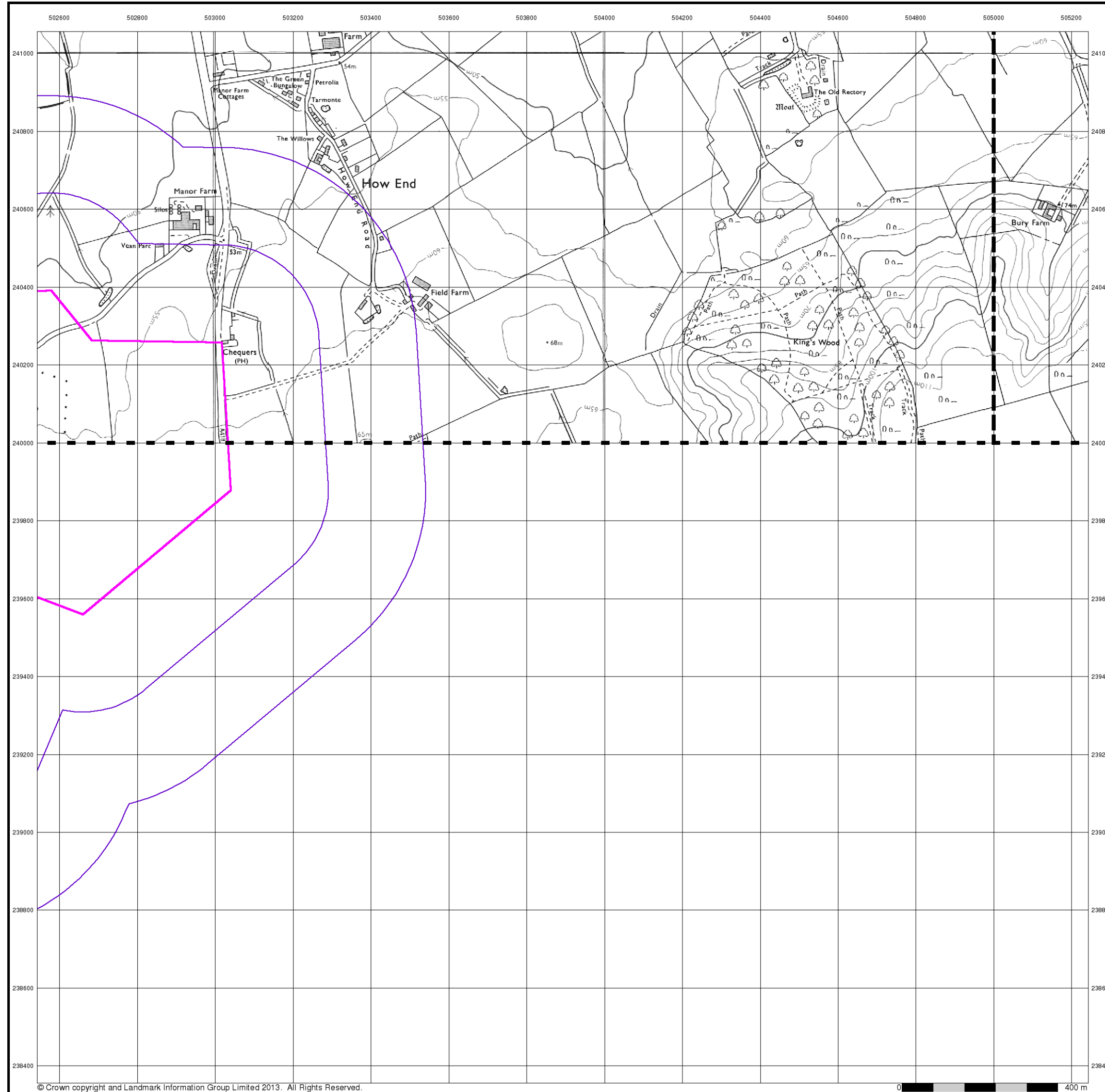
### Site Details

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## Ordnance Survey Plan

Published 1982

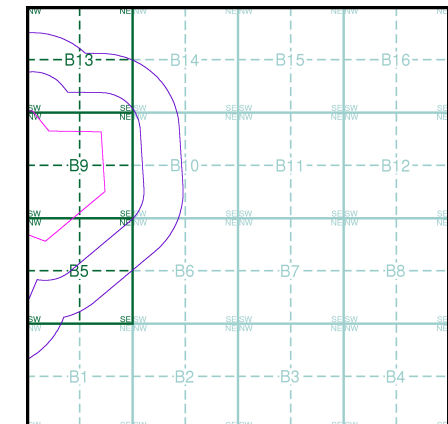
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

TL04SW 1982 1:10,000	TL04SE 1982 1:10,000
----------------------------	----------------------------

### Historical Map - Slice B



### Order Details

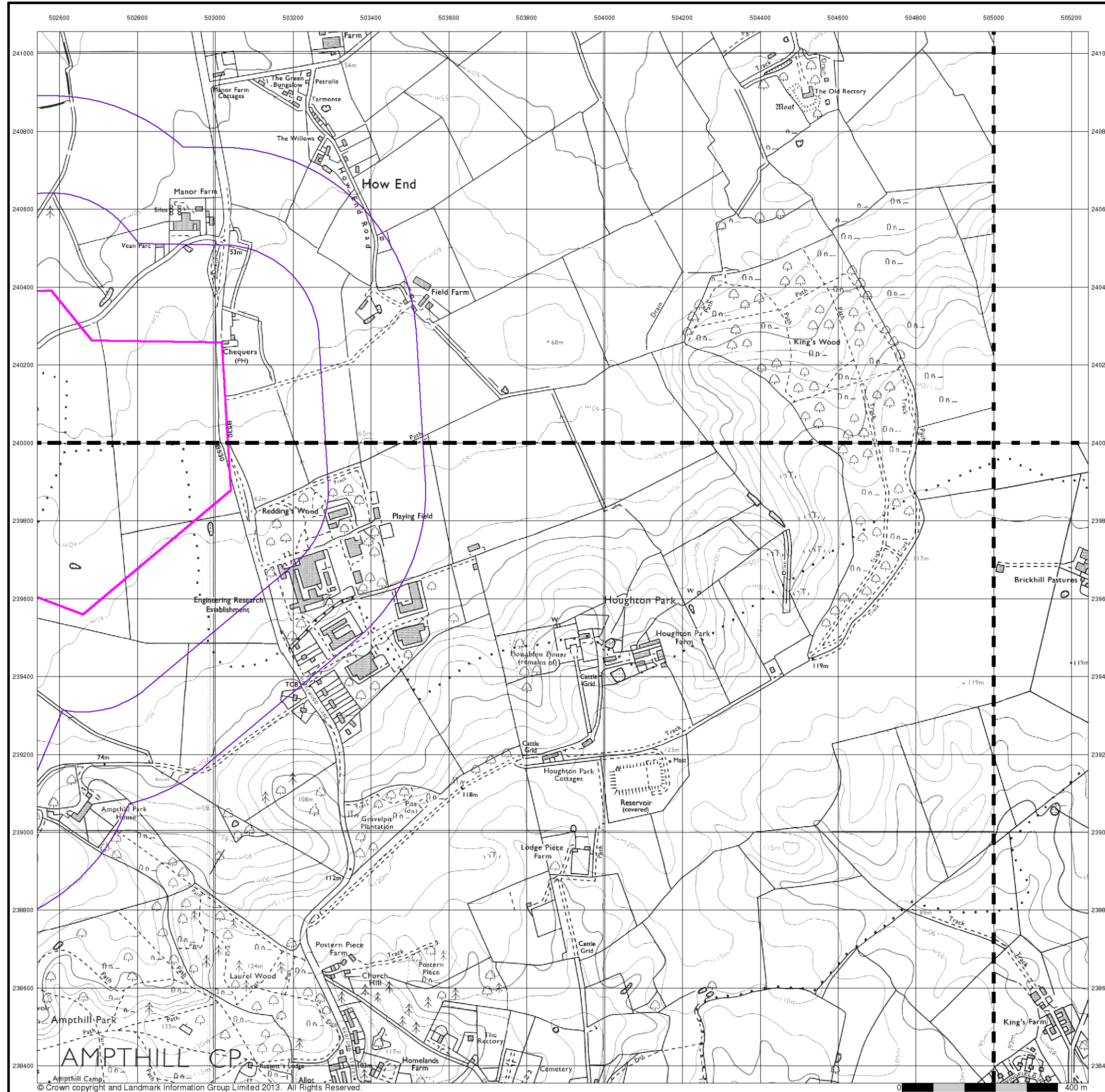
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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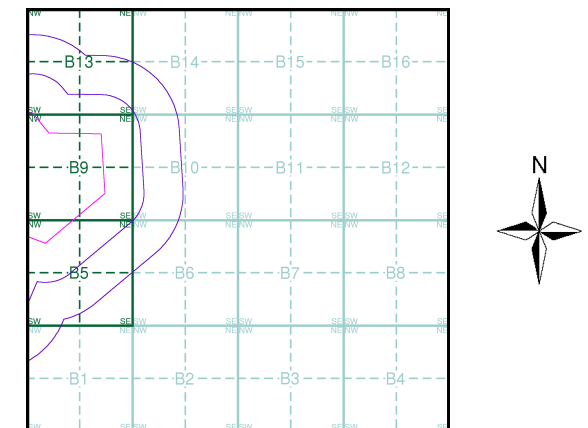
**Ordnance Survey Plan**  
**Published 1990 - 1991**  
**Source map scale - 1:10,000**

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

**Map Name(s) and Date(s)**

TL04SW	1990	1:10,000
TL03NW	1990	1:10,000
TL03NE	1991	1:10,000

**Historical Map - Slice B**



**Order Details**

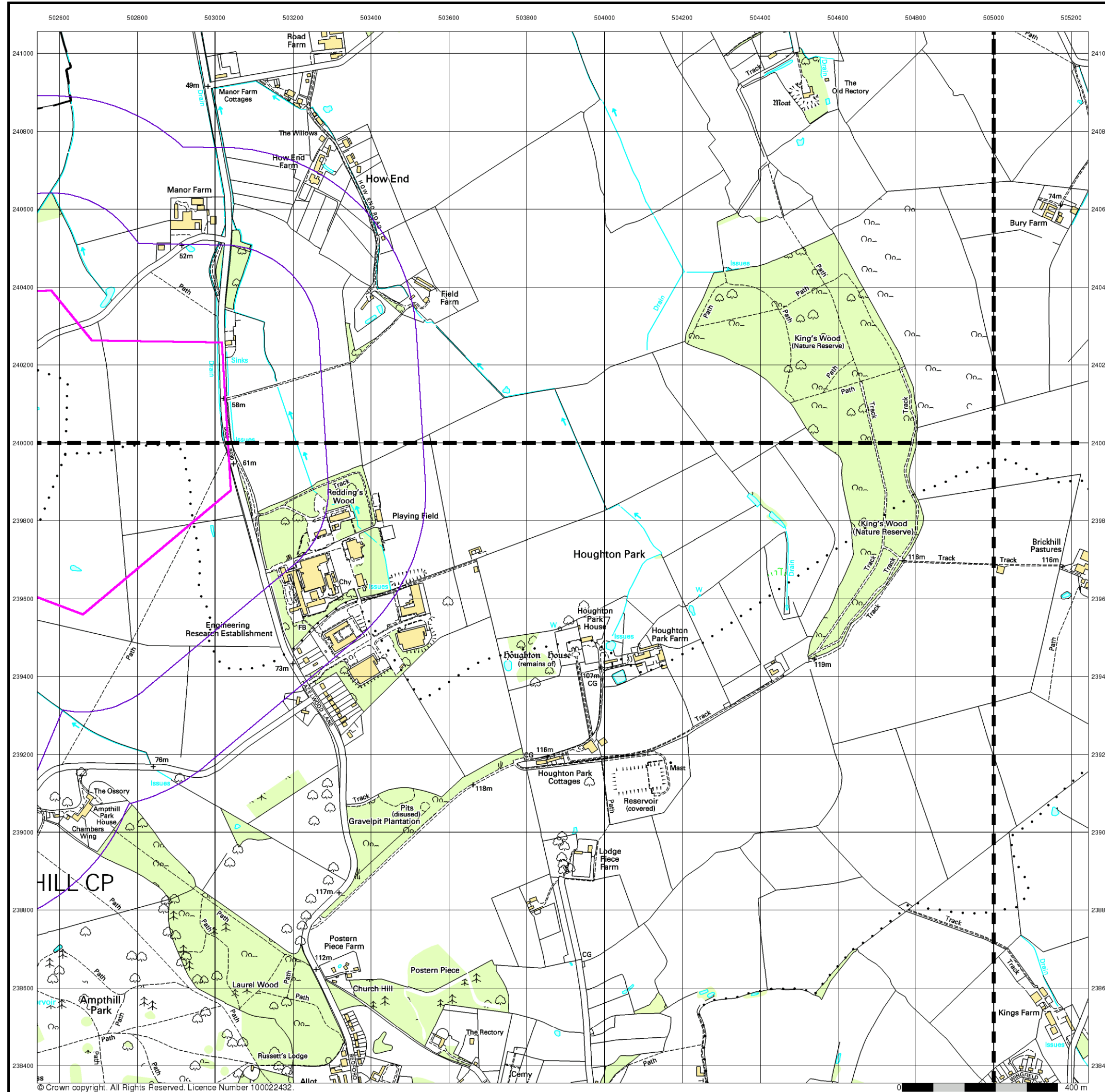
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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## 10k Raster Mapping

Published 2006

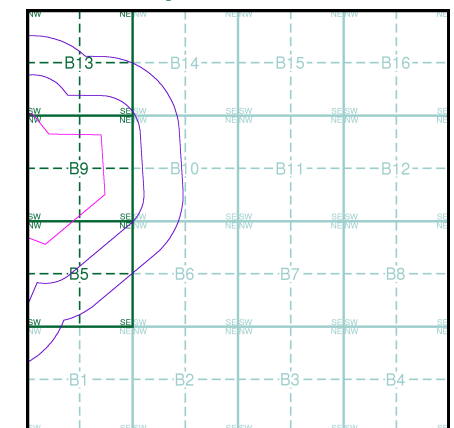
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

TL04SW 2006 1:10,000	TL04SE 2006 1:10,000
TL03NW 2006 1:10,000	TL03NE 2006 1:10,000

### Historical Map - Slice B



### Order Details

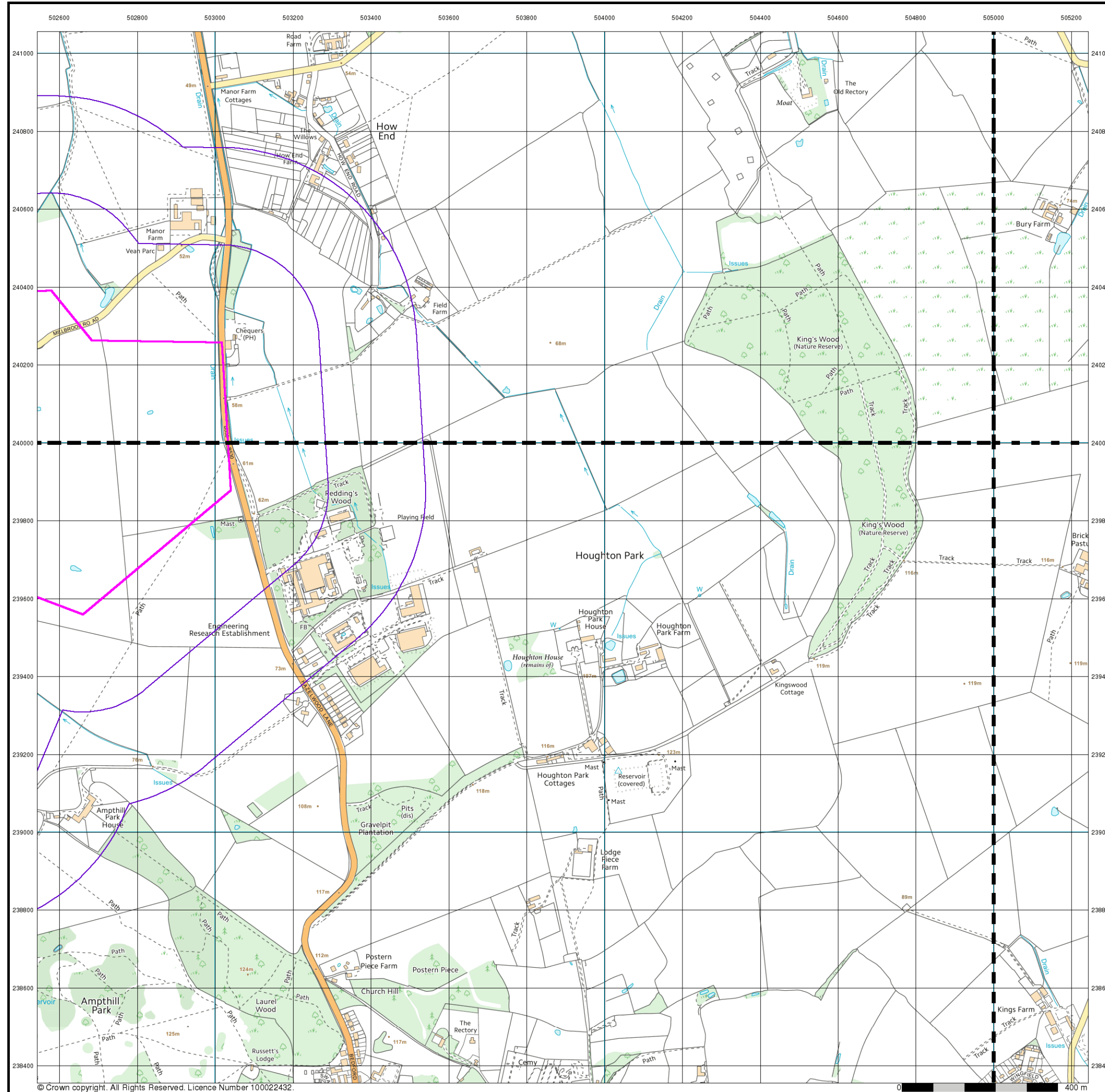
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

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## VectorMap Local

Published 2014

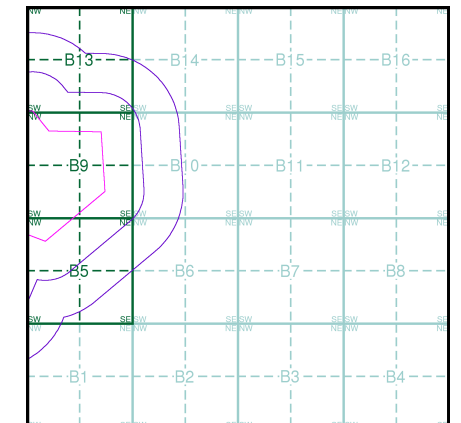
Source map scale - 1:10,000

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

### Map Name(s) and Date(s)

TL04SW 2014 Variable	TL04SE 2014 Variable
TL03NW 2014 Variable	TL03NE 2014 Variable

### Historical Map - Slice B



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Milbrook Power Project, Green Lane, Stewartby



Tel: 0844 844 9952  
 Fax: 0844 844 9951  
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**General**

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

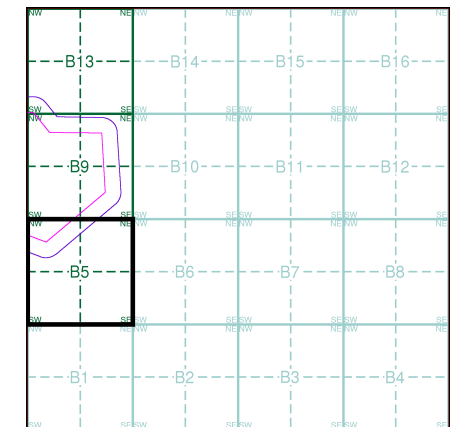
**Industrial Land Use**

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment B5**

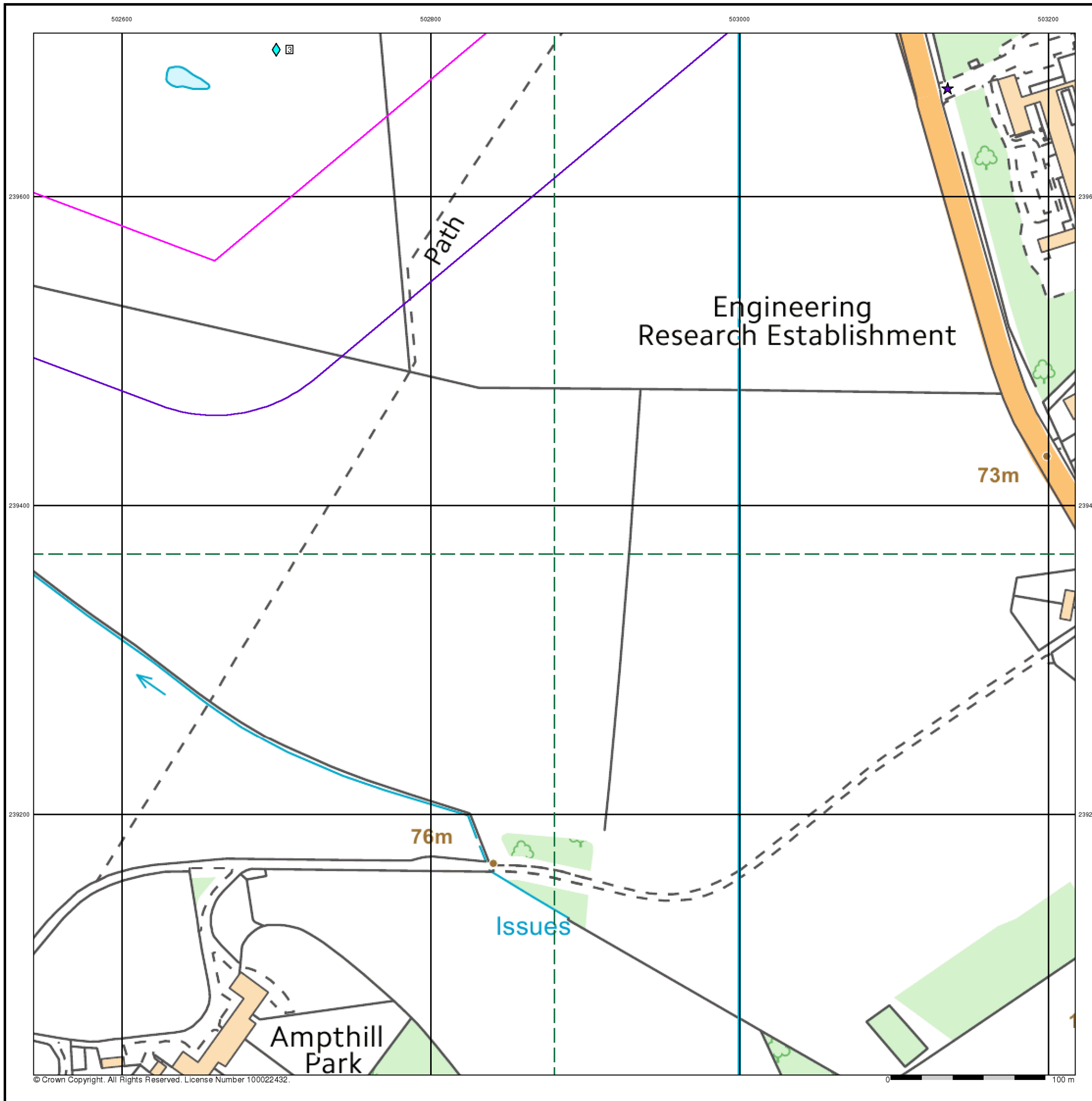


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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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 and Control
- Local Authority Integrated Pollution Prevention and Control
- Local Authority Pollution Prevention and Control Enforcement
- Pollution Incident to Controlled Waters
- Prosecution Relating to Authorised Processes
- Prosecution Relating to Controlled Waters
- Registered Radioactive Substance
- River Network or Water Feature
- River Quality Sampling Point
- Substantiated Pollution Incident Register
- Water Abstraction
- Water Industry Act Referral

**Waste**

- BGS Recorded Landfill Site (Location)
- BGS Recorded Landfill Site
- EA Historic Landfill (Buffered Point)
- EA Historic Landfill (Polygon)
- Integrated Pollution Control Registered Waste Site
- Licensed Waste Management Facility (Landfill Boundary)
- Licensed Waste Management Facility (Location)
- Local Authority Recorded Landfill Site (Location)
- Local Authority Recorded Landfill Site
- 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

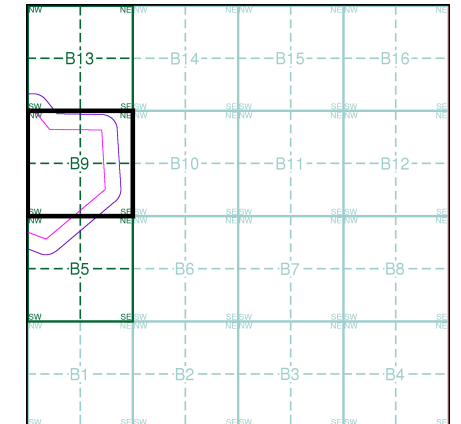
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment B9**

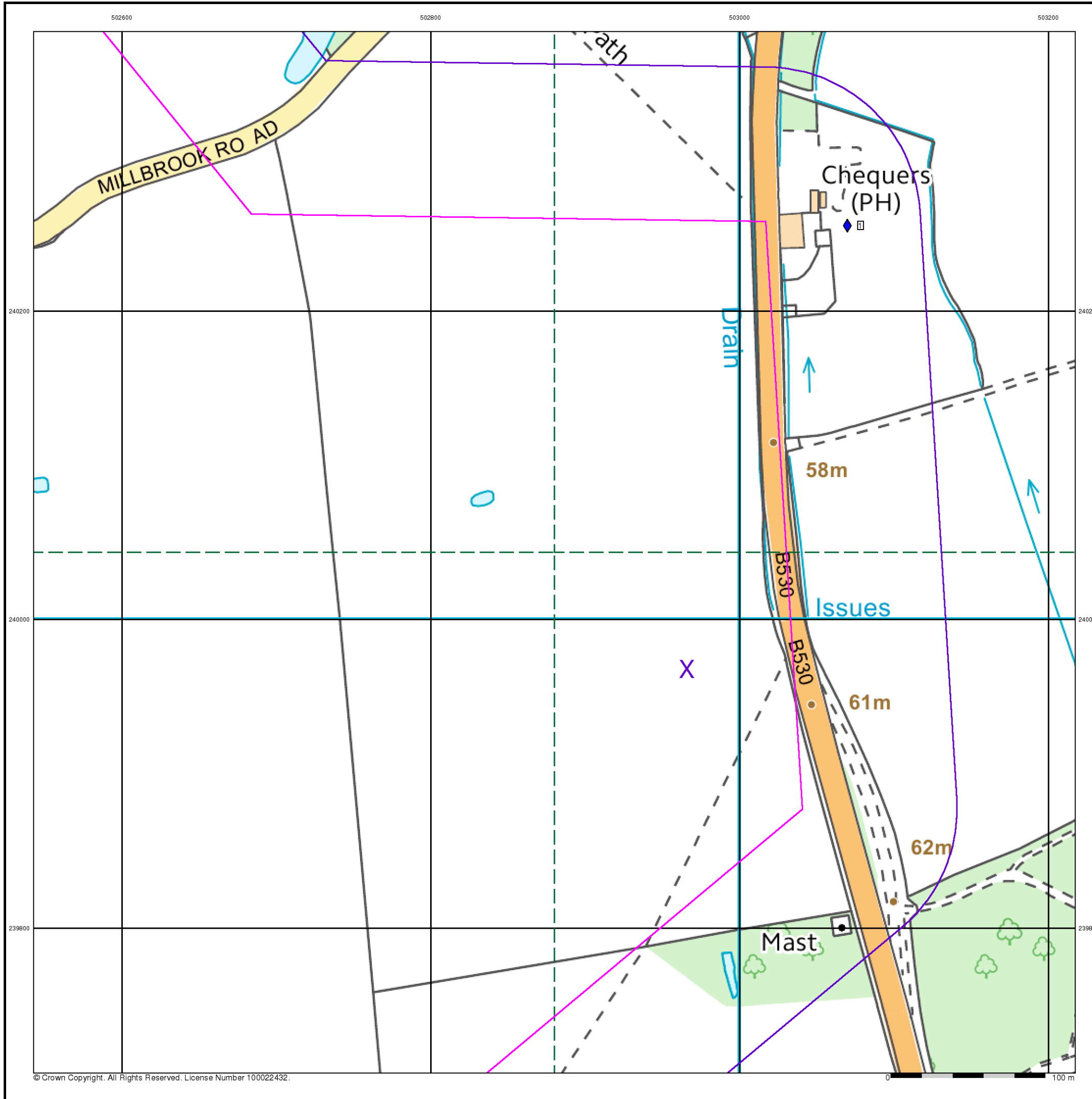


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**General**

- ◆ Specified Site
- Specified Buffer(s)
- X 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

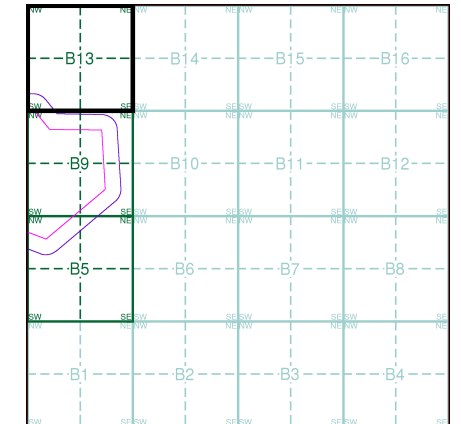
**Geological**

- ▼ BGS Recorded Mineral Site

**Industrial Land Use**

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry
- ✖ COMAH Site
- ✖ Explosive Site
- ✖ NIHHS Site
- ✖ Planning Hazardous Substance Consent
- ✖ Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment B13**

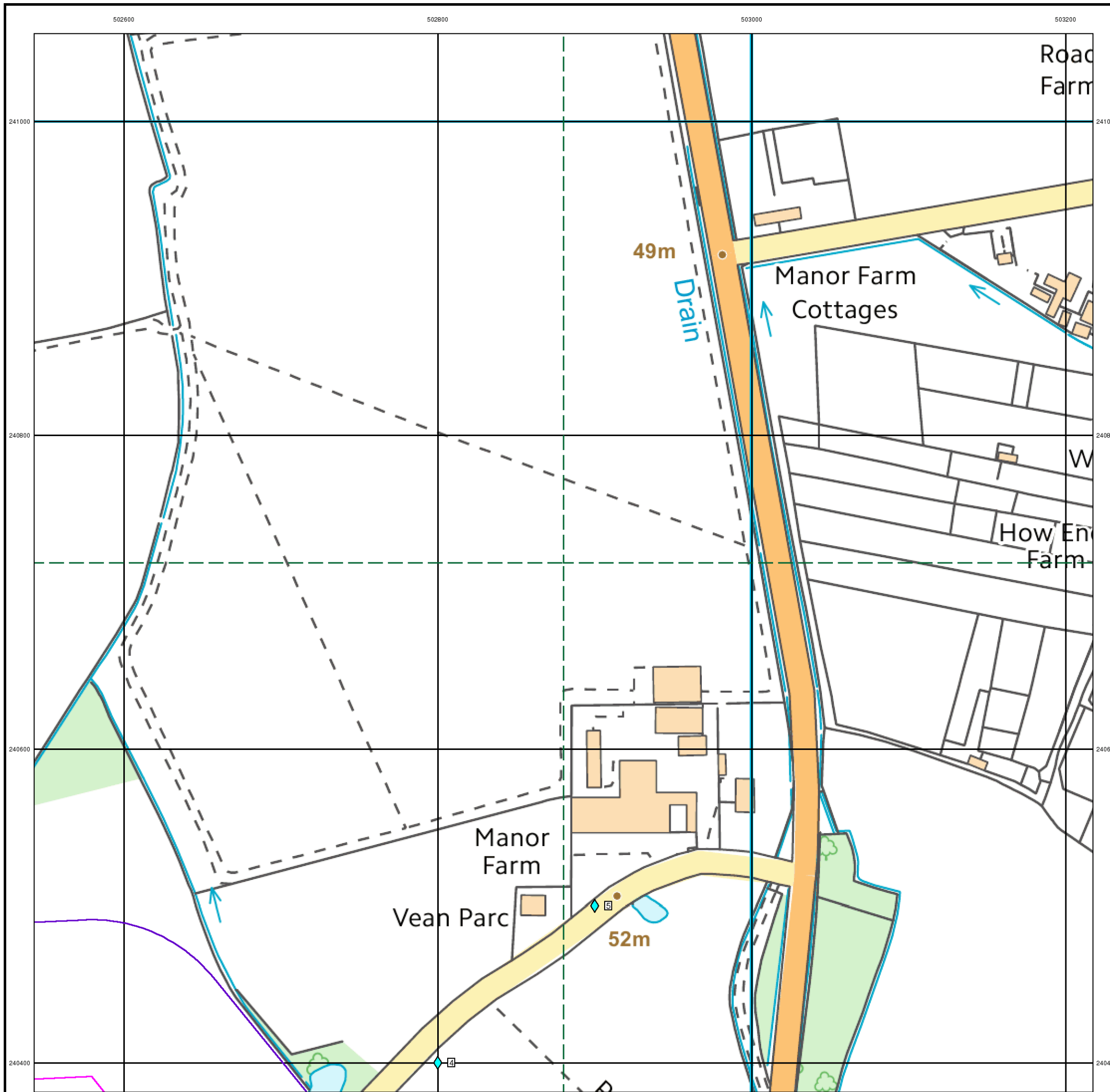


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





**General**

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

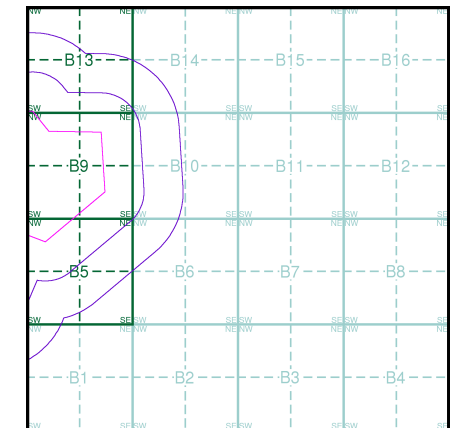
**Geological**

- ▼ BGS Recorded Mineral Site

**Industrial Land Use**

- ★ Contemporary Trade Directory Entry
- ★ Fuel Station Entry
- X COMAH Site
- X Explosive Site
- X NIHS Site
- X Planning Hazardous Substance Consent
- X Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Slice B**

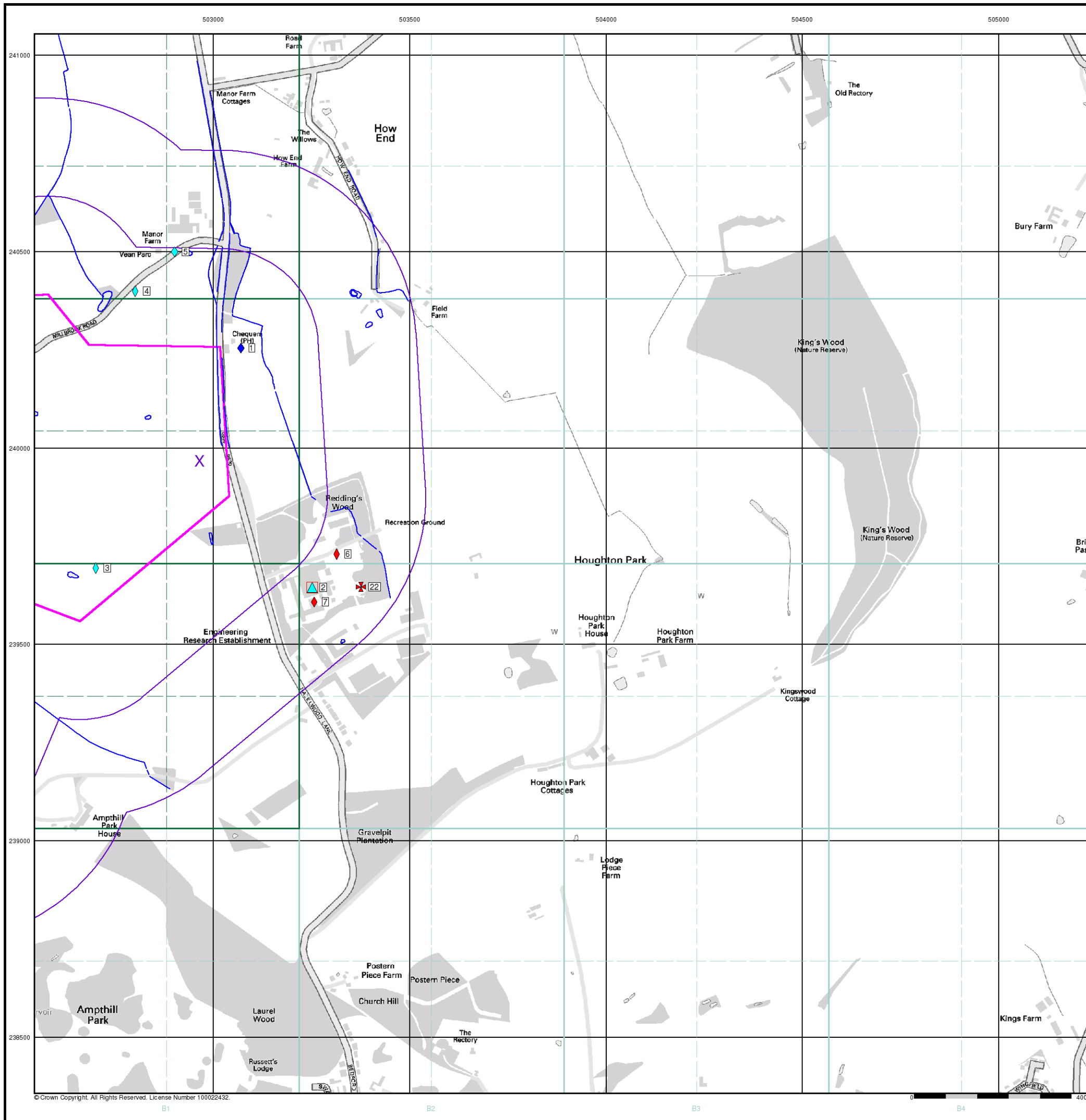


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



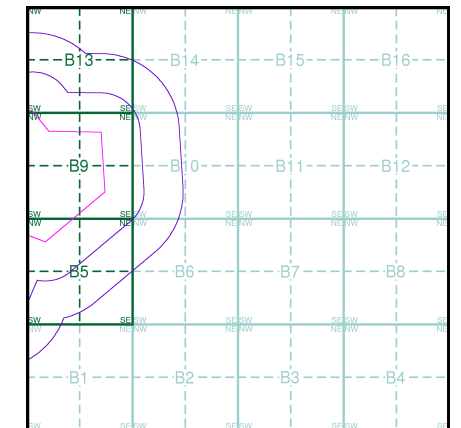
**General**

- 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 B**

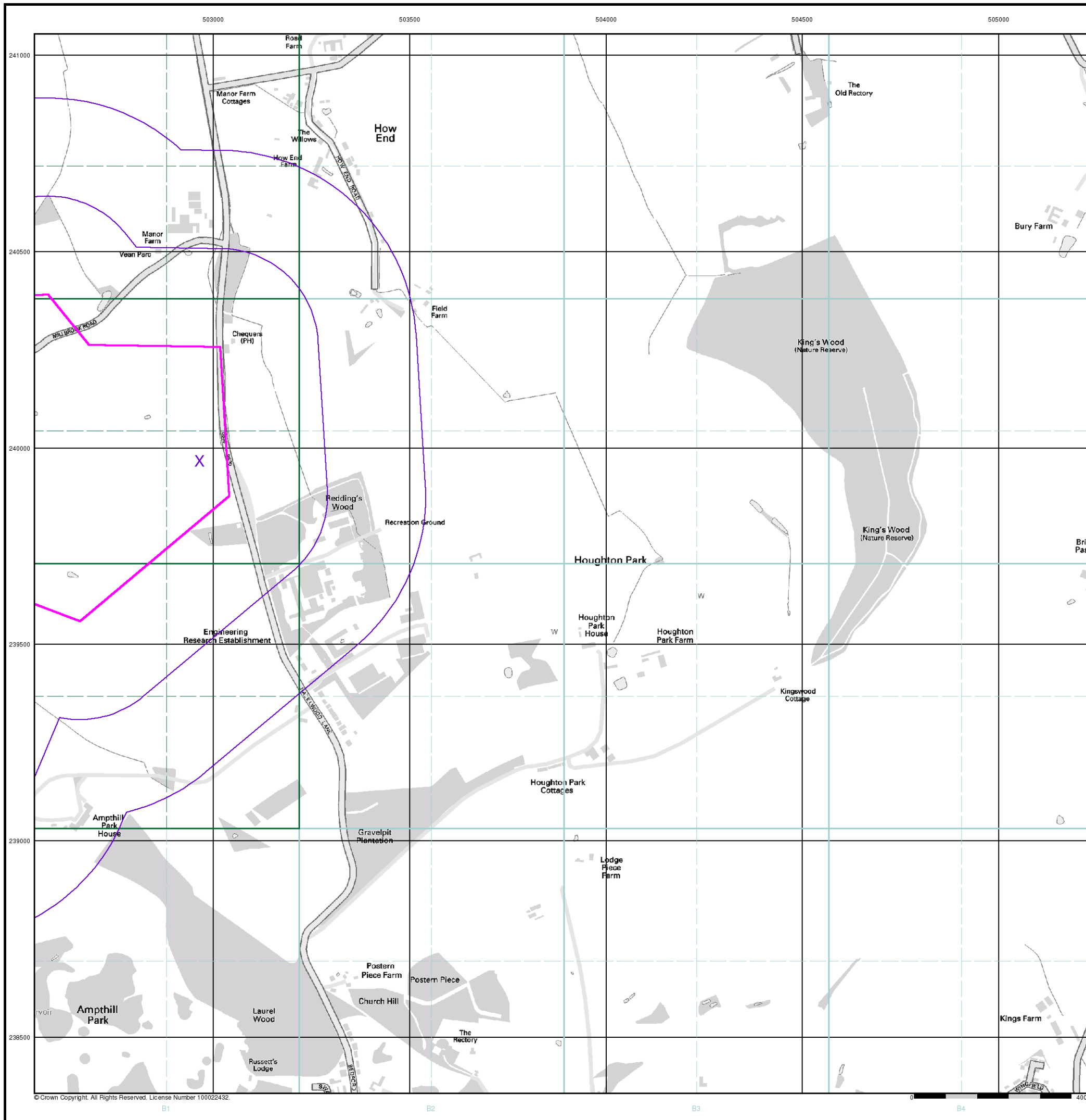


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**General**

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

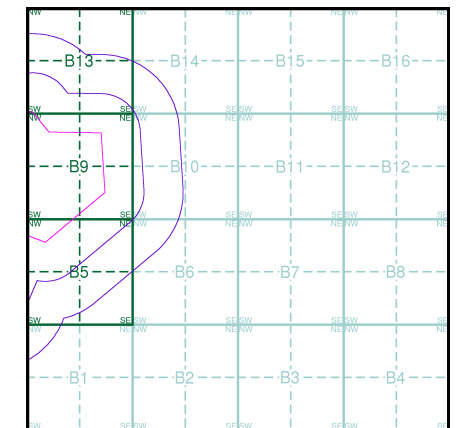
**Agency and Hydrological (Boreholes)**

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

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

A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

**Borehole Map - Slice B**

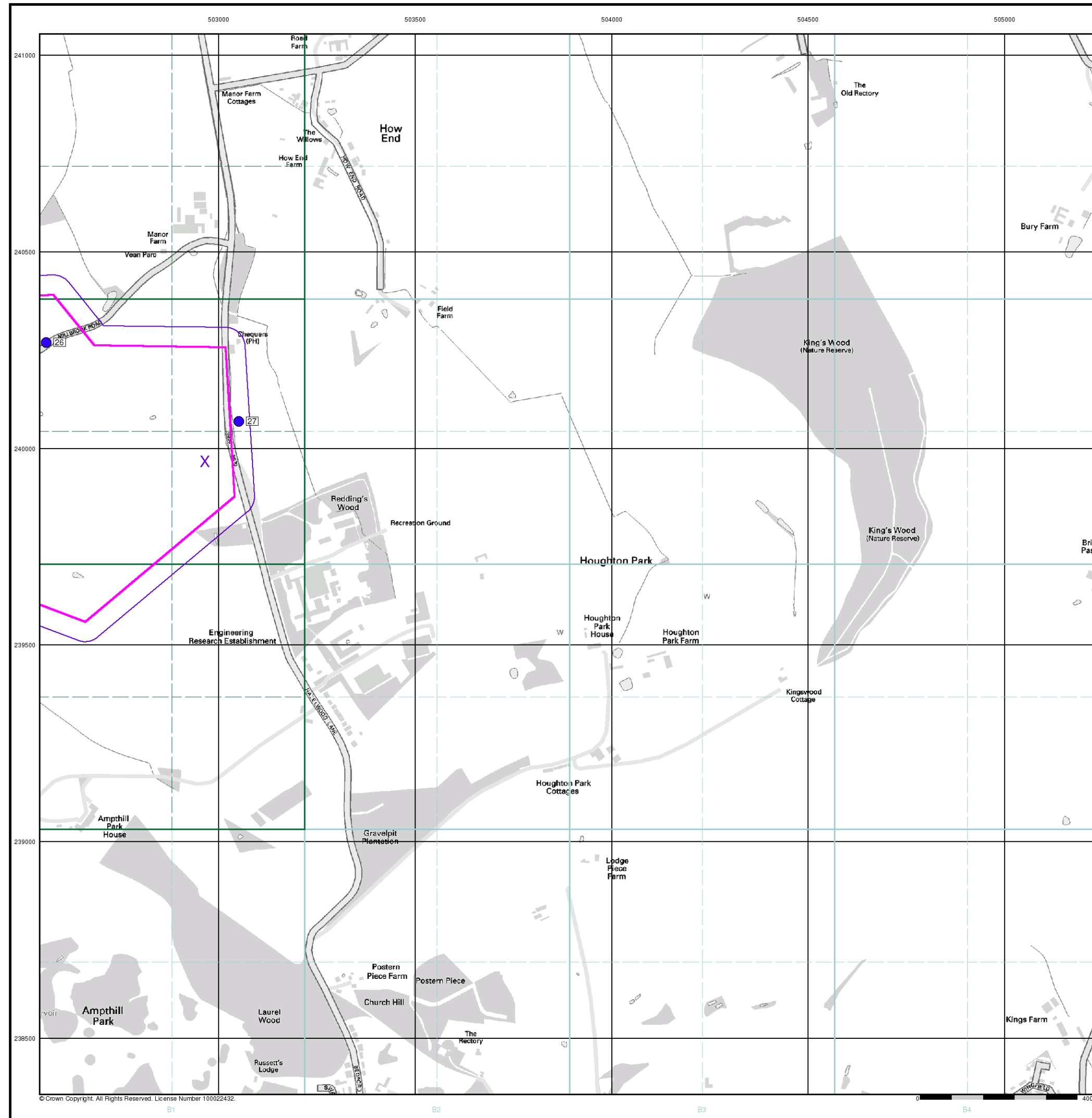


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**General**

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

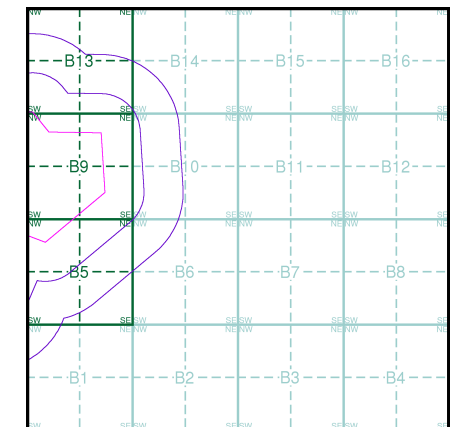
**Detailed River Network Data**

- |                          |                                     |
|--------------------------|-------------------------------------|
| Primary River            | Extended Culvert (greater than 50m) |
| Secondary River          | Underground River (inferred)        |
| Tertiary River           | Underground River (local knowledge) |
| Canal                    | Downstream of High Water Mark       |
| Canal Tunnel             | Downstream of Seaward Extension     |
| Undefined River          | Not assigned River feature          |
| Lake/Reservoir           |                                     |
| Offline Drainage Feature |                                     |

**Contours (height in metres)**

- Standard Contour 105
- Master Contour 100
- Spot Height \*167.3
- MLW Mean Low Water
- MHW Mean High Water

**EANRW Detailed River Network Map - Slice B**

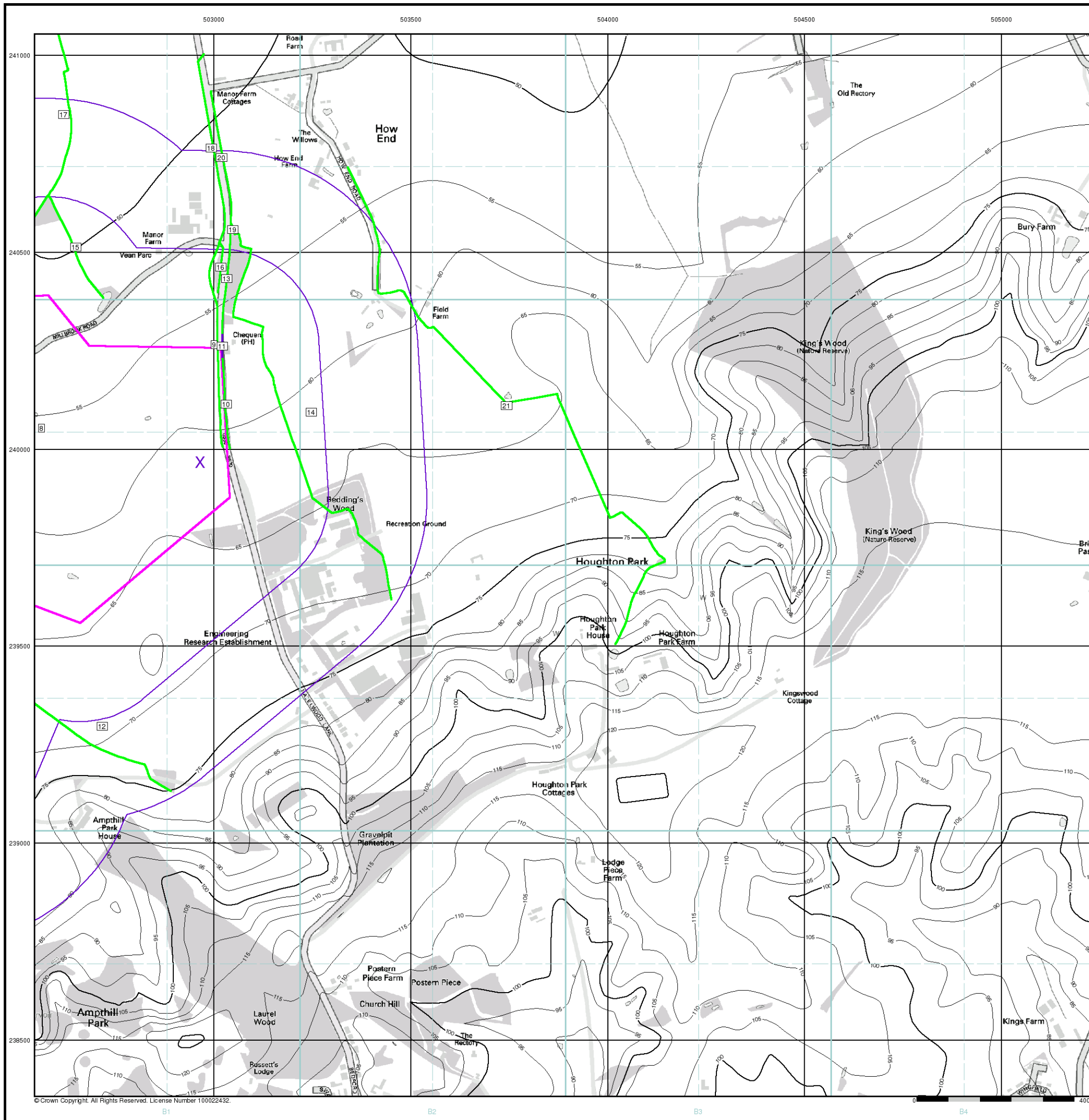


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Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



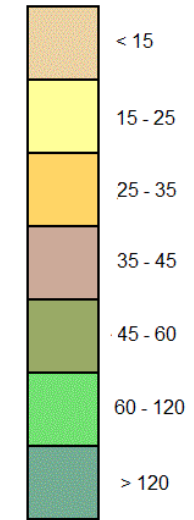
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**General**

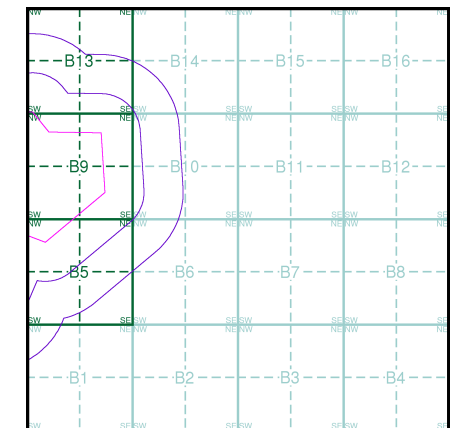
- ⬮ Specified Site
- ⬮ Specified Buffer(s)
- X Bearing Reference Point

**Estimated Soil Chemistry Arsenic**

Arsenic Concentrations mg/kg



**Estimated Soil Chemistry Arsenic - Slice B**

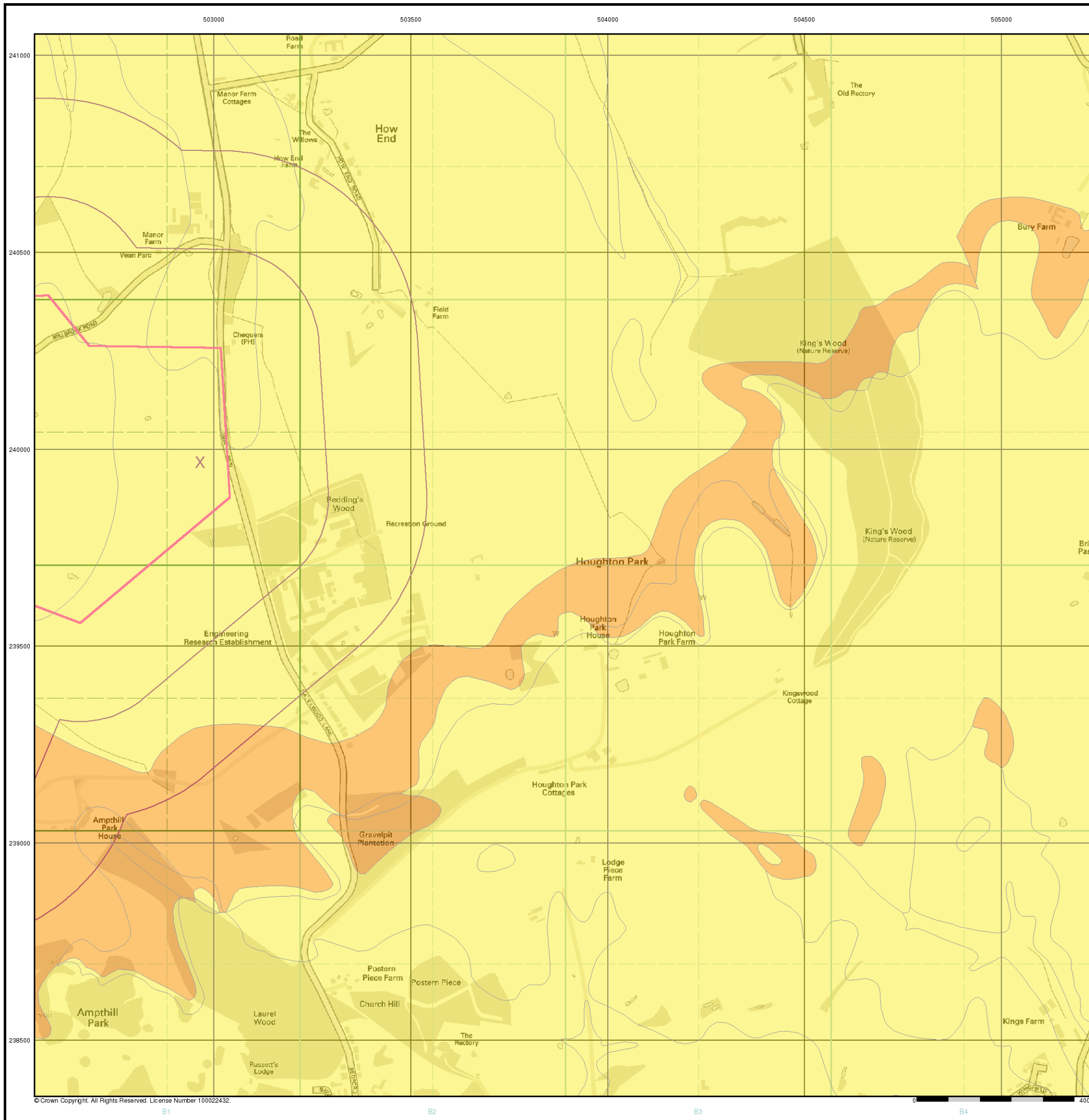


**Order Details**

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 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



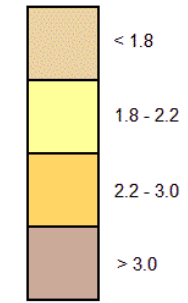
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**General**

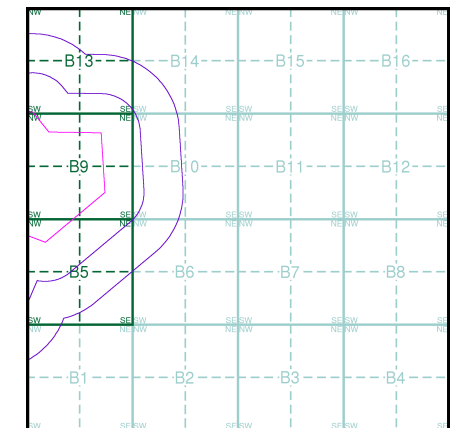
- ⬡ Specified Site
- ⬡ Specified Buffer(s)
- X Bearing Reference Point

**Estimated Soil Chemistry Cadmium**

Cadmium Concentrations mg/kg



**Estimated Soil Chemistry Cadmium - Slice B**

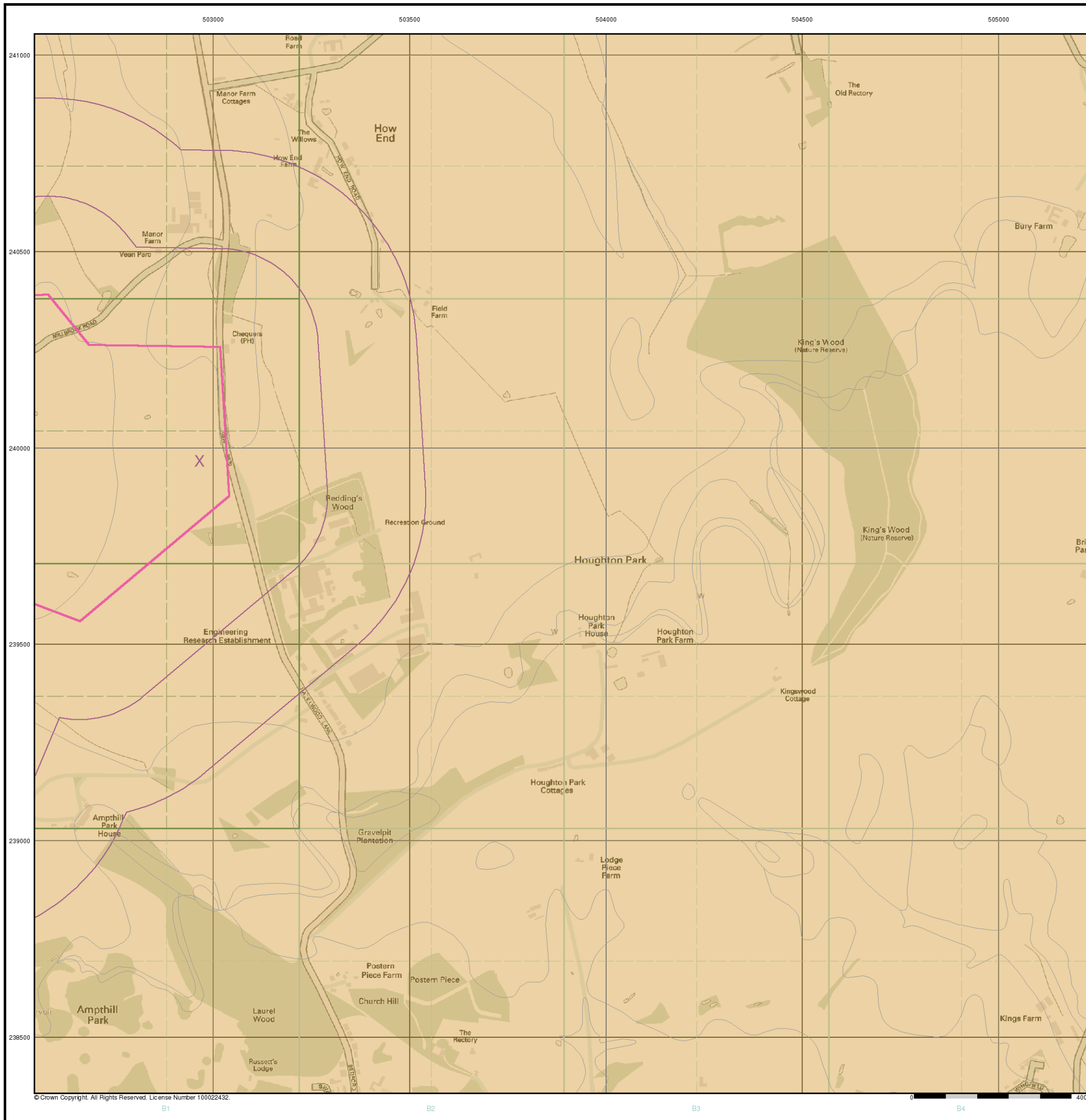


**Order Details**

Order Details: 60770728\_1\_1  
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 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



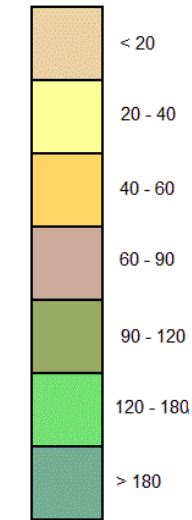
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**General**

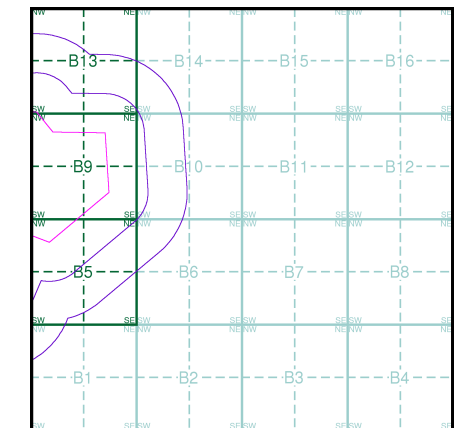
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

**Estimated Soil Chemistry Chromium**

Chromium Concentrations mg/kg



**Estimated Soil Chemistry Chromium - Slice B**

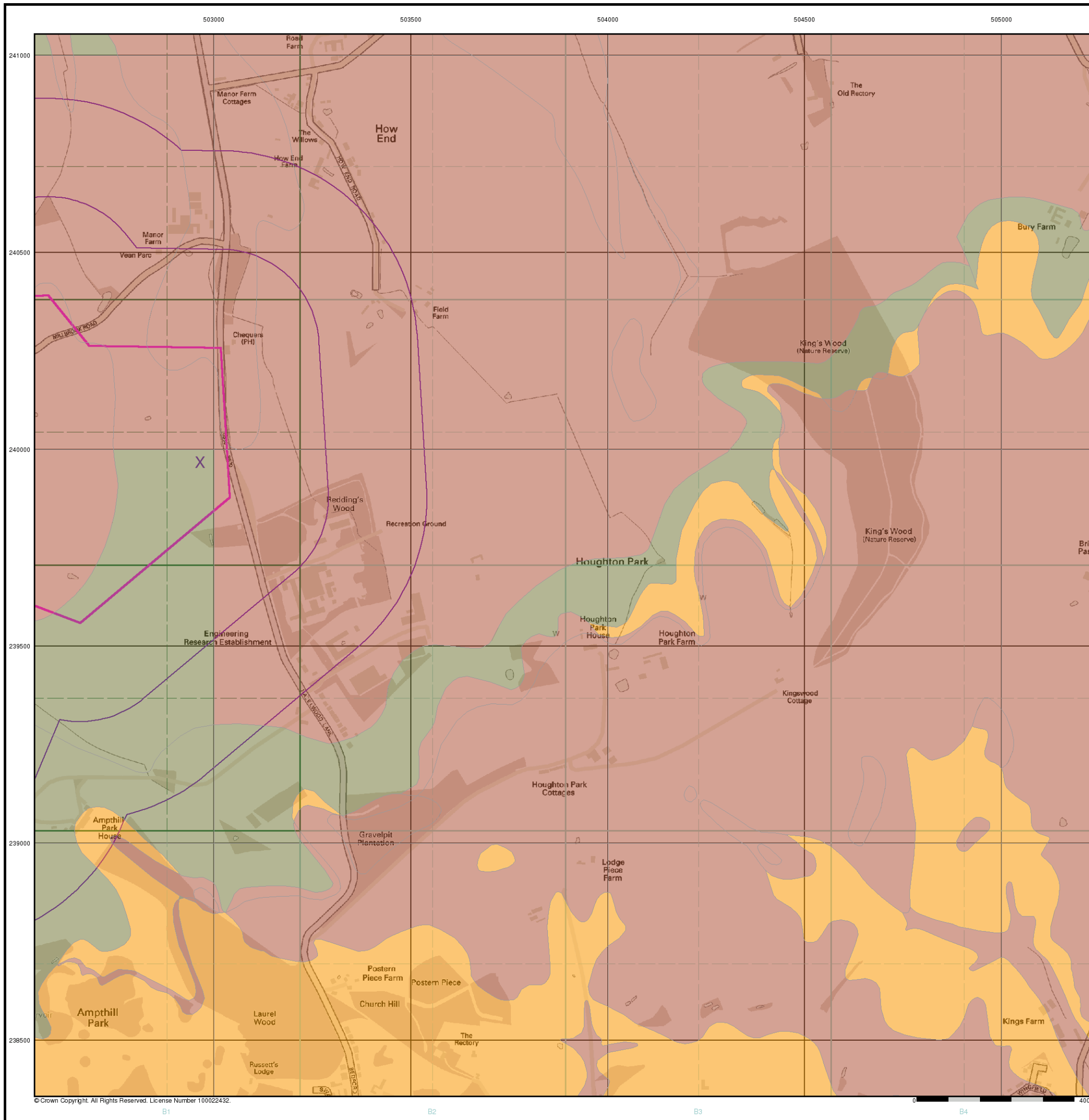


**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



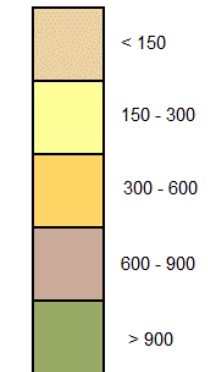
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**General**

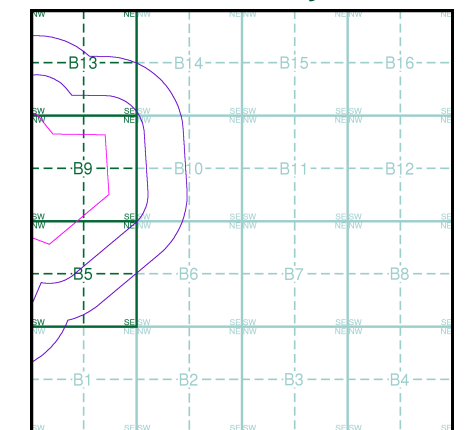
- ⬮ Specified Site
- ⬮ Specified Buffer(s)
- X Bearing Reference Point

**Estimated Soil Chemistry Lead**

Lead Concentrations mg/kg



**Estimated Soil Chemistry Lead - Slice B**

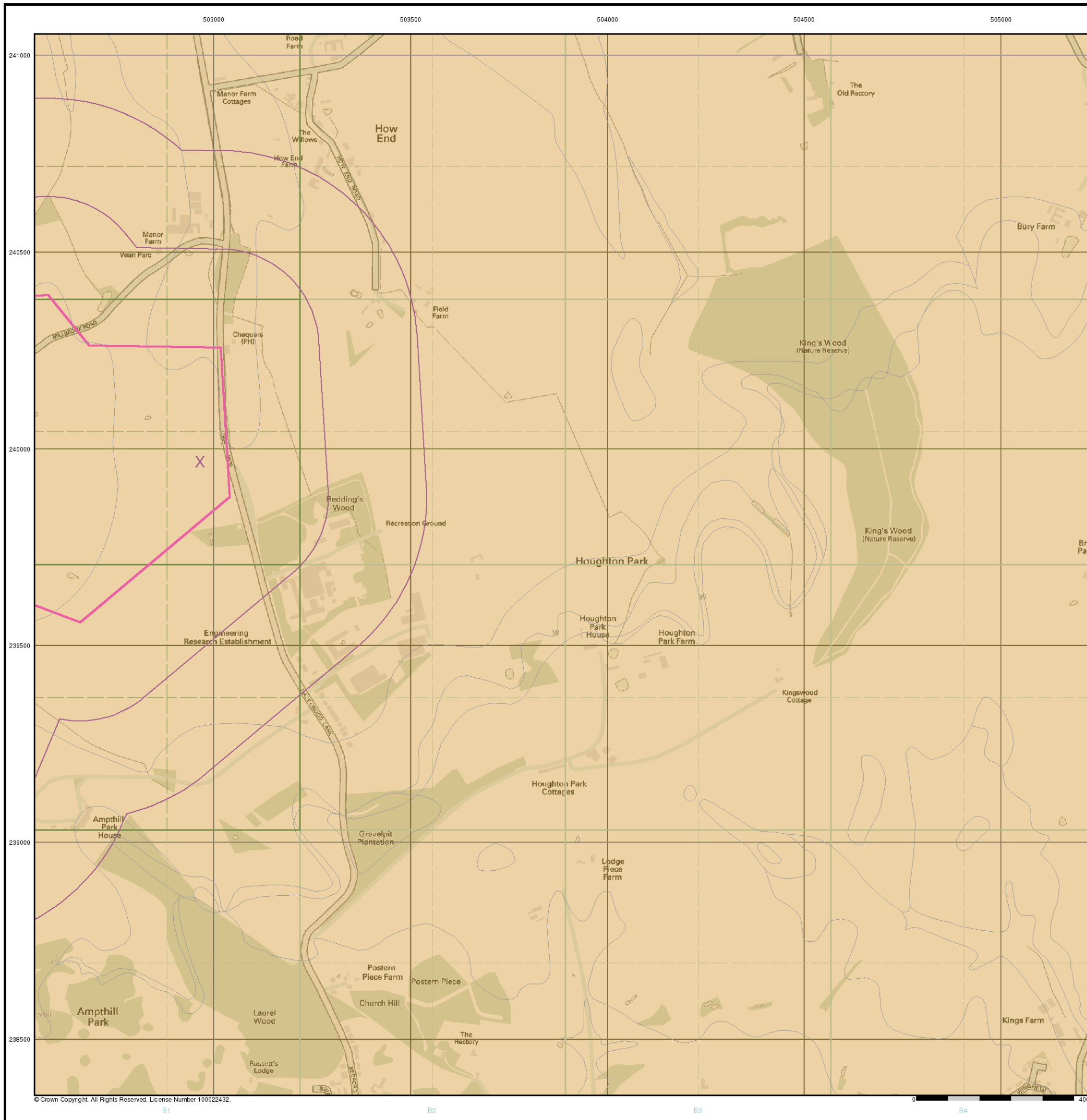


**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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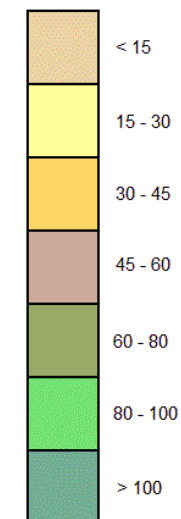


**General**

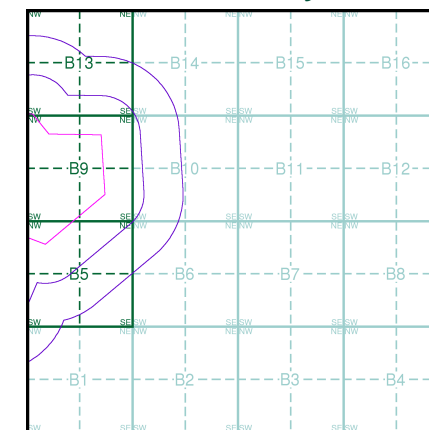
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

**Estimated Soil Chemistry Nickel**

Nickel Concentrations mg/kg



**Estimated Soil Chemistry Nickel - Slice B**

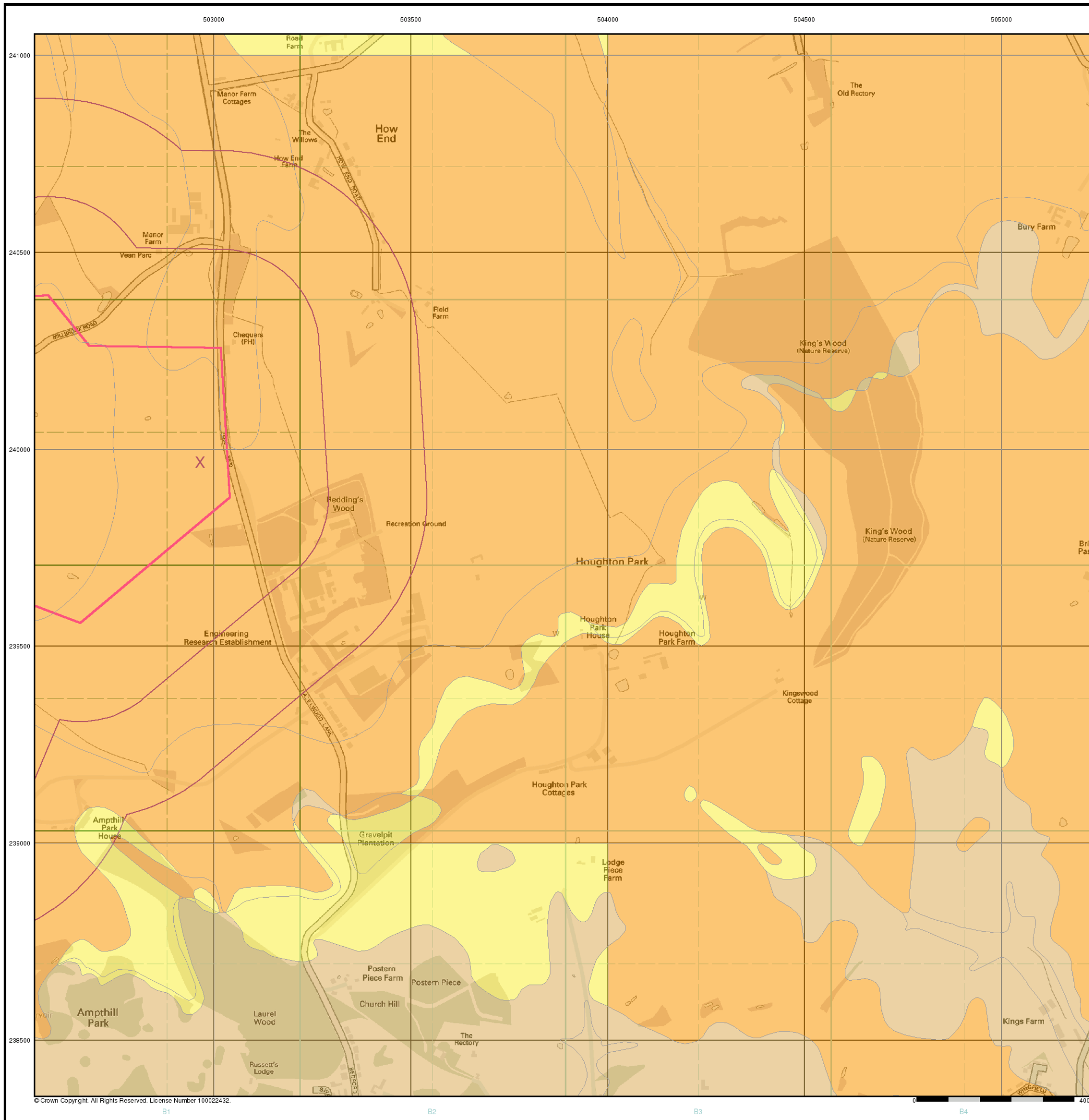


**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**Co. Boro. Bdy.**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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**  
**EI 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

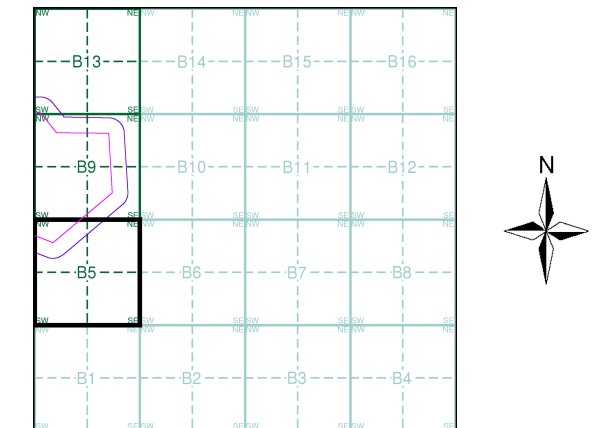
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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**  
**EI Gen Sta**   **Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**EI P**   **Electricity Pole, Pillar**   **SB, S Br**   **Signal Box or Bridge**  
**EI 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 Governor**   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Additional SIMs	1:2,500	1984	7
Large-Scale National Grid Data	1:2,500	1993	8

## Historical Map - Segment B5



## Order Details

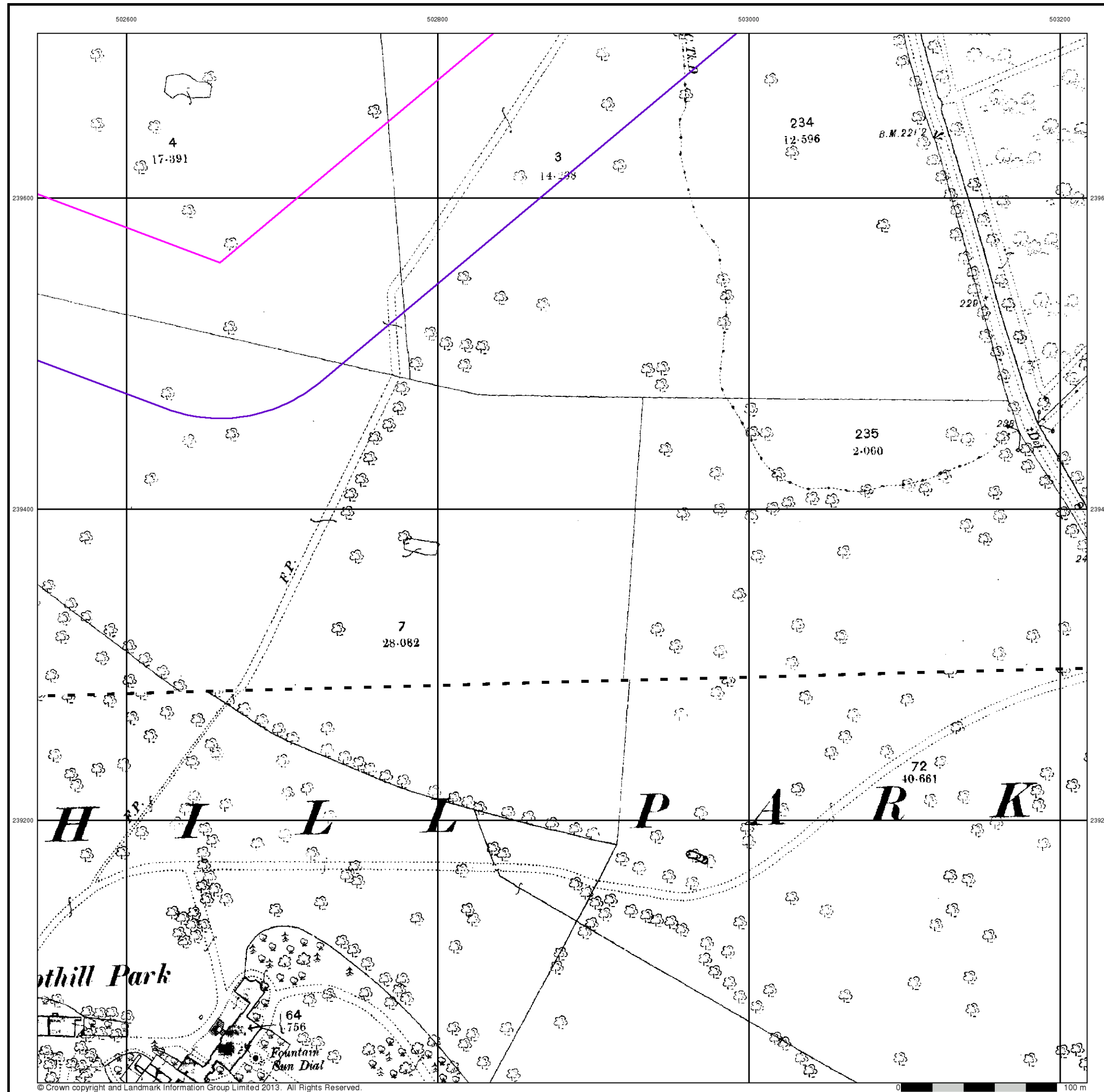
**Order Number:** 60770728\_1\_1  
**Customer Ref:** 31116  
**National Grid Reference:** 502970, 239970  
**Slice:** B  
**Site Area (Ha):** 240.61  
**Search Buffer (m):** 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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



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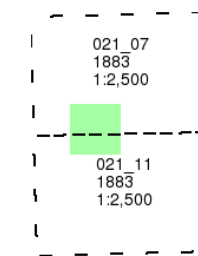


**Bedfordshire**  
**Published 1883**

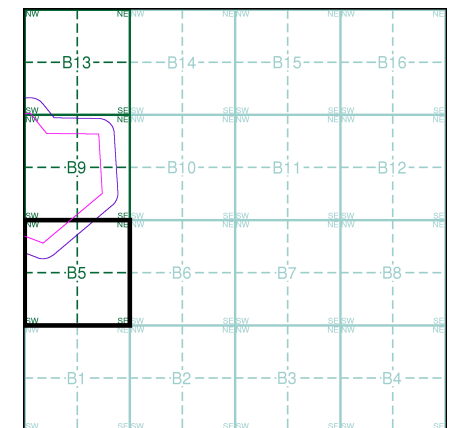
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B5**



**Order Details**

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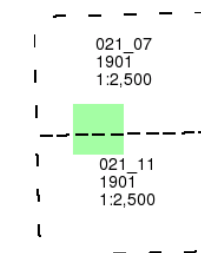


**Bedfordshire**  
**Published 1901**

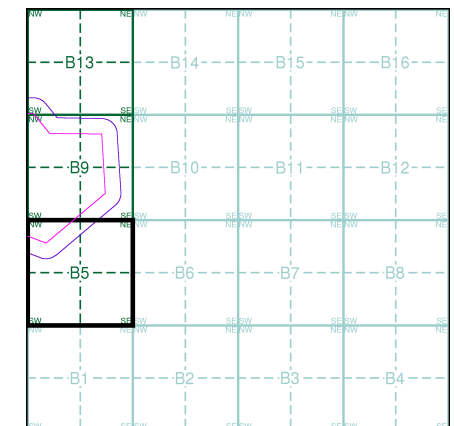
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B5**



**Order Details**

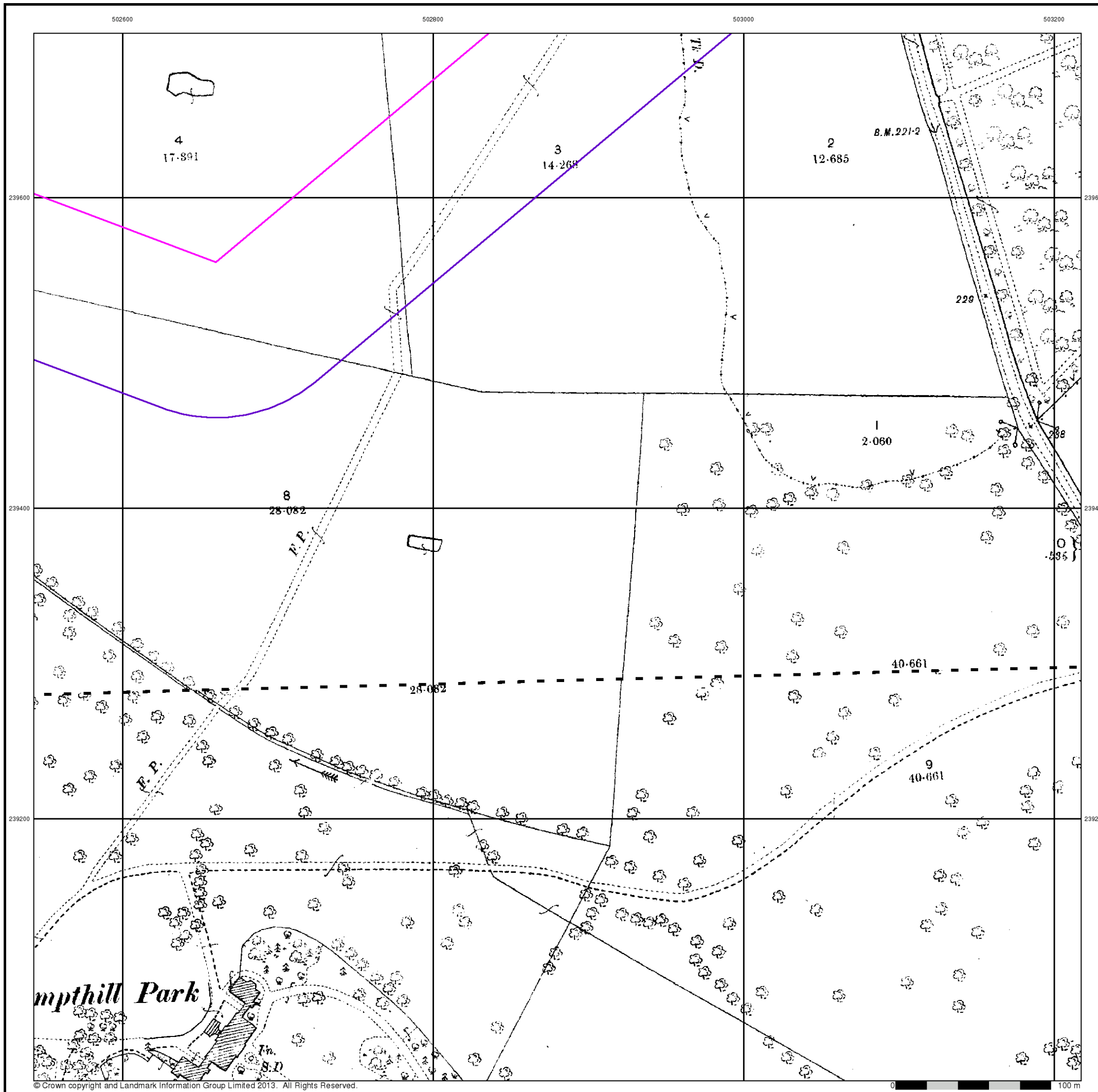
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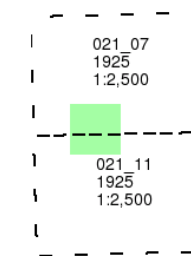


**Bedfordshire**  
**Published 1925**

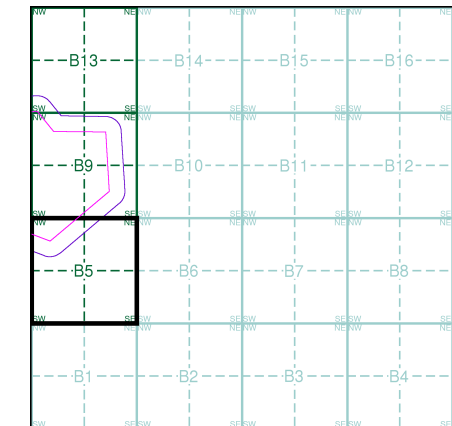
**Source map scale - 1:2,500**

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**Map Name(s) and Date(s)**



**Historical Map - Segment B5**



**Order Details**

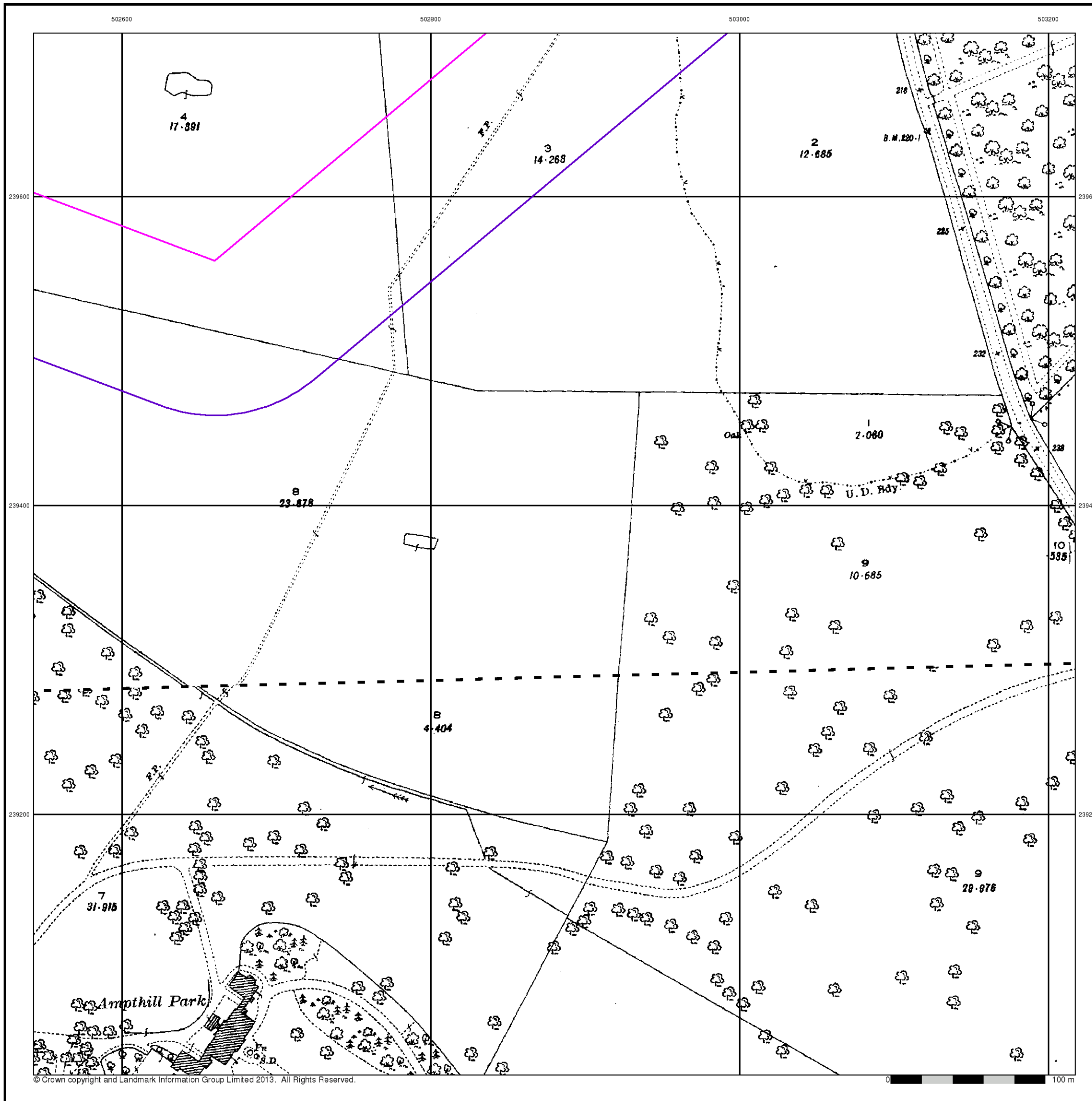
Order Number: 60770728\_1\_1  
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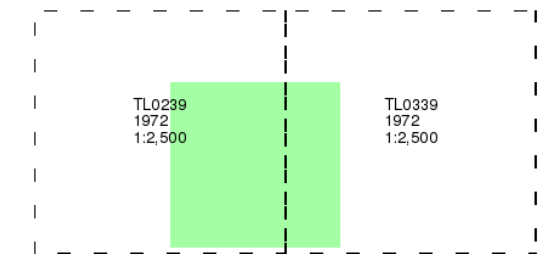
### Ordnance Survey Plan

Published 1972

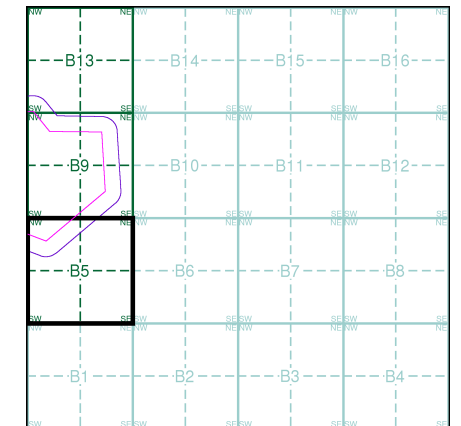
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment B5



### Order Details

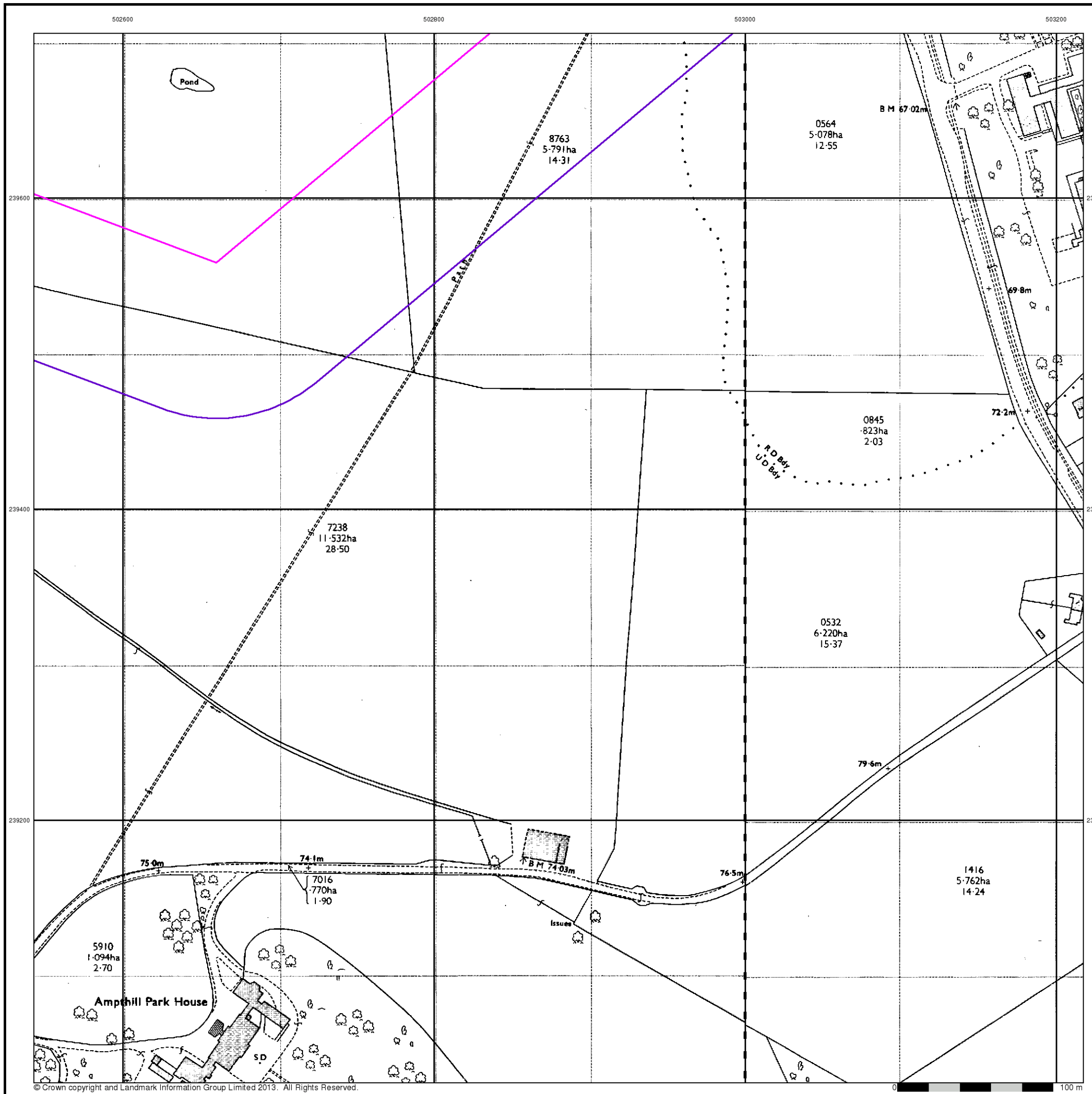
Order Number: 60770728\_1\_1  
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National Grid Reference: 502970, 239970  
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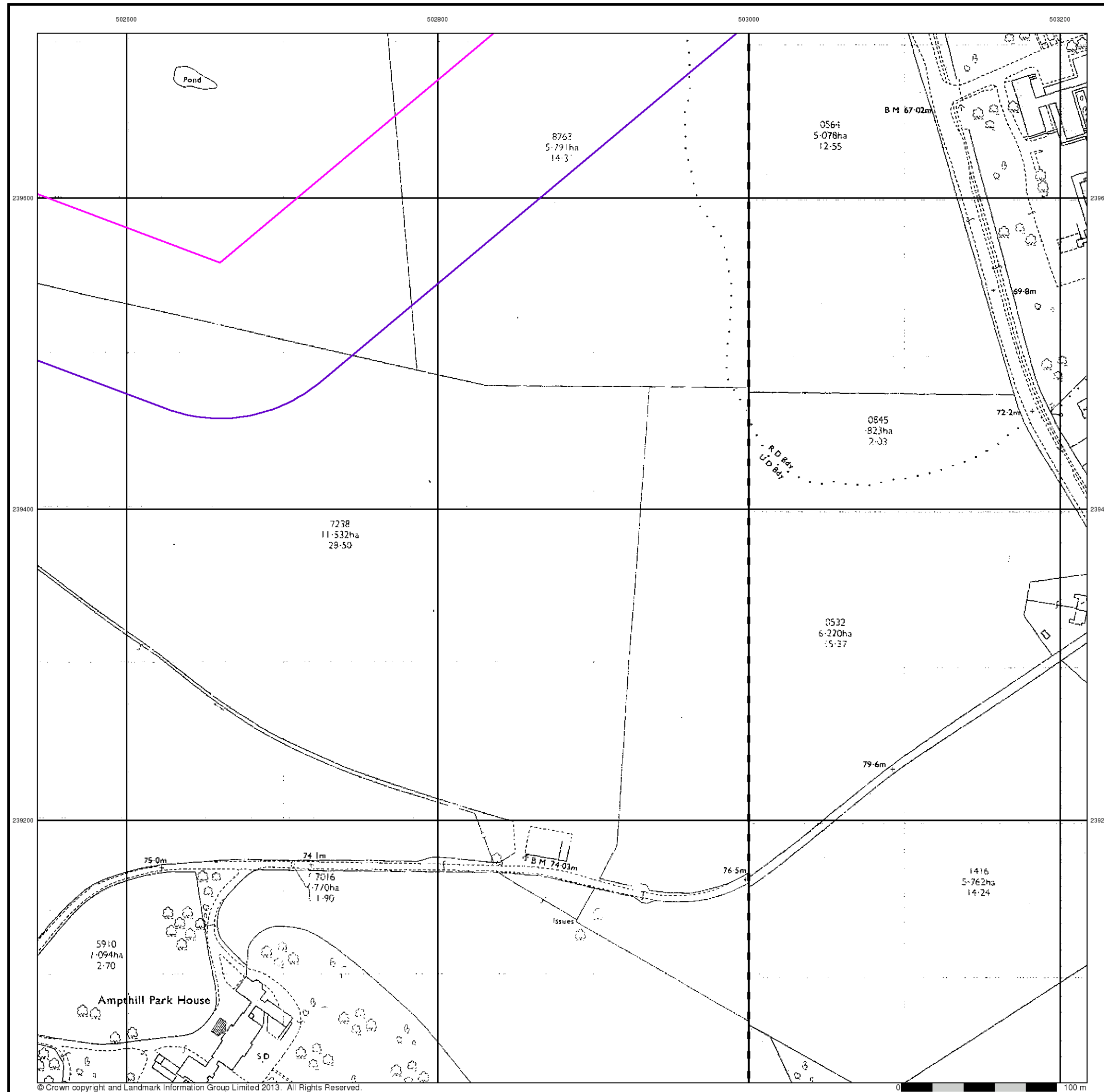
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Millbrook Power Project, Green Lane, Stewartby



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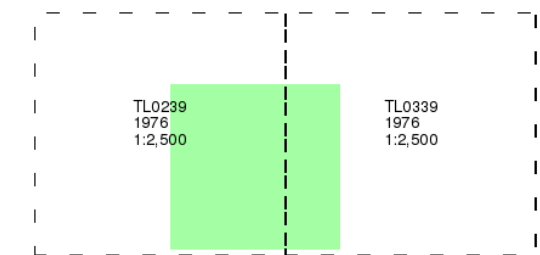
## Supply of Unpublished Survey Information

Published 1976

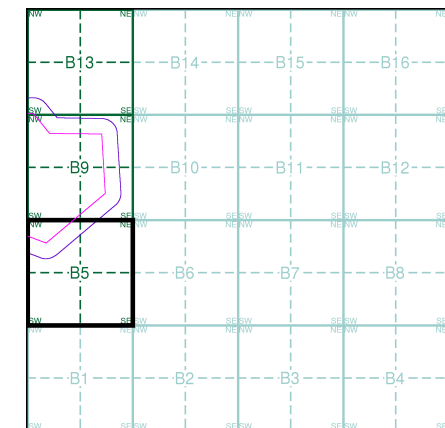
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment B5



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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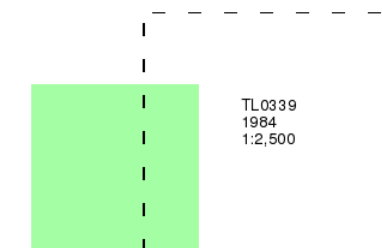
**Additional SIMs**

**Published 1984**

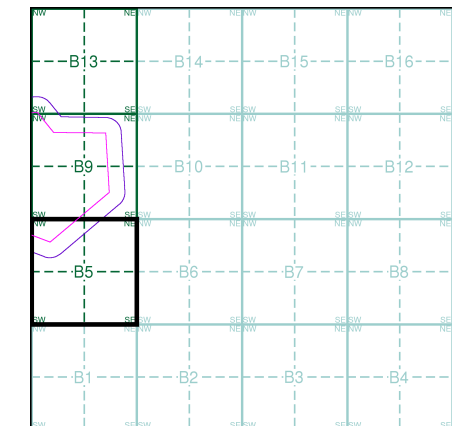
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B5**



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 National Grid Reference: 502970, 239970  
 Slice: B  
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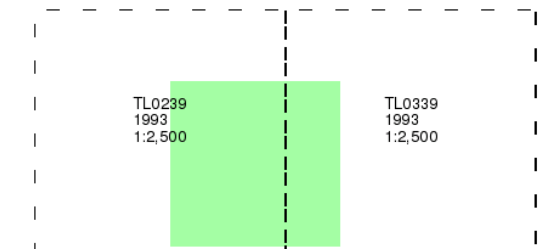
### Large-Scale National Grid Data

Published 1993

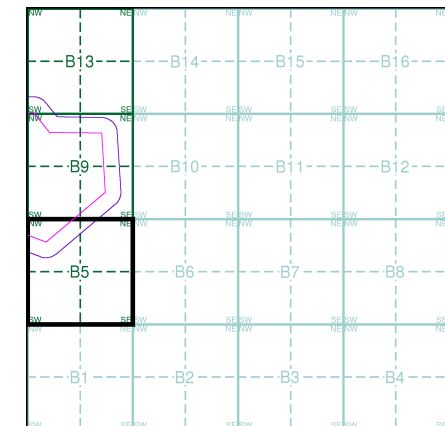
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment B5



### Order Details

Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 502970, 239970  
Slice: B  
Site Area (Ha): 240.61  
Search Buffer (m): 100

### Site Details

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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**Co. Boro. Bdy.**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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**  
**EI 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

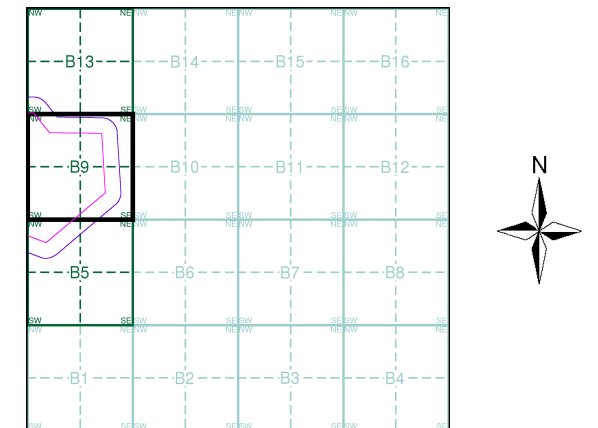
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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**  
**EI Gen Sta**   **Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**EI P**   **Electricity Pole, Pillar**   **SB, S Br**   **Signal Box or Bridge**  
**EI 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 Governor**   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1972 - 1975	5
Supply of Unpublished Survey Information	1:2,500	1976	6
Additional SIMs	1:2,500	1984	7
Large-Scale National Grid Data	1:2,500	1993	8

## Historical Map - Segment B9



## Order Details

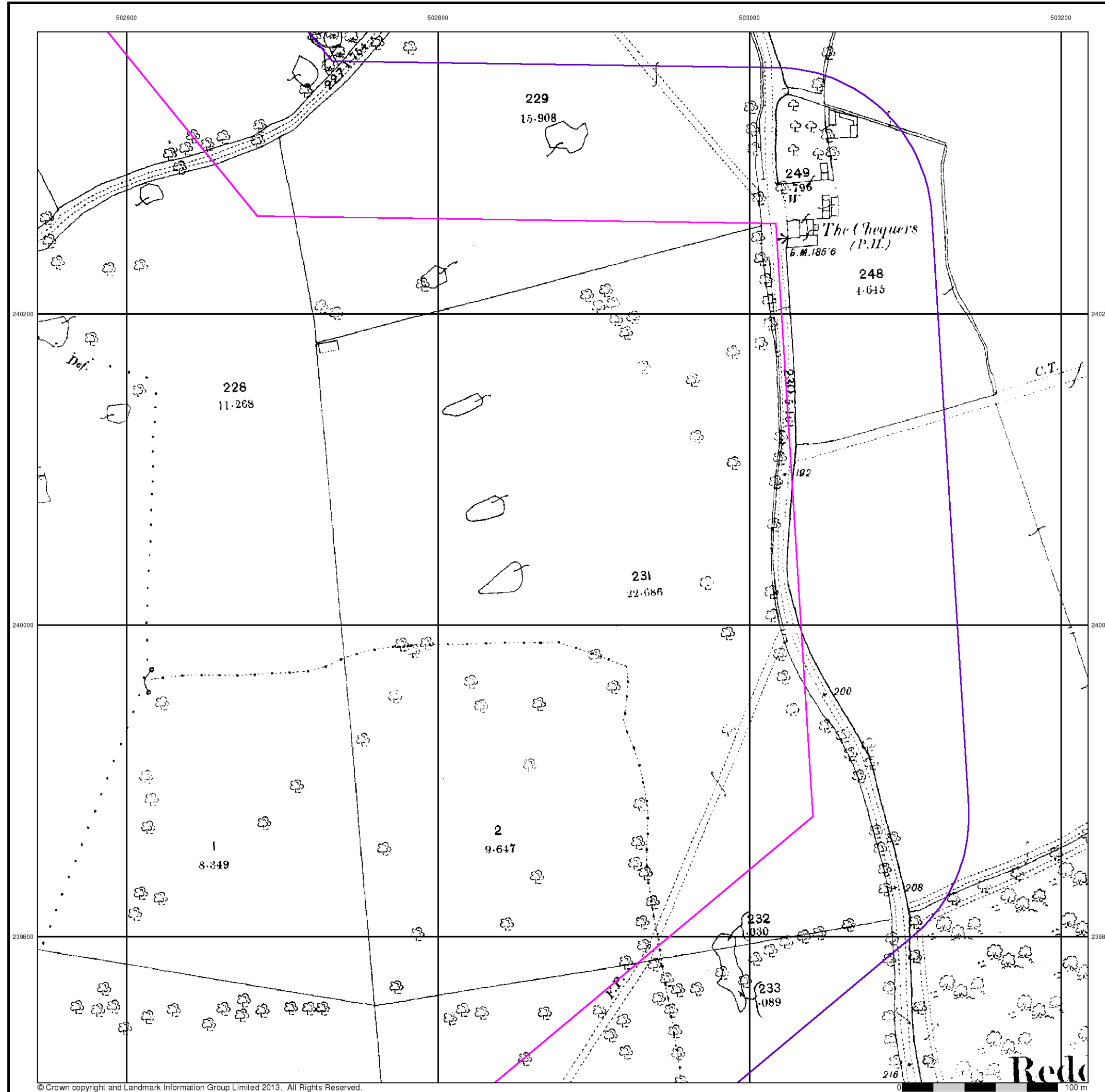
**Order Number:** 60770728\_1\_1  
**Customer Ref:** 31116  
**National Grid Reference:** 502970, 239970  
**Slice:** B  
**Site Area (Ha):** 240.61  
**Search Buffer (m):** 100

## Site Details

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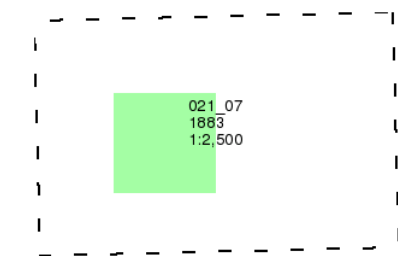


**Bedfordshire**  
**Published 1883**

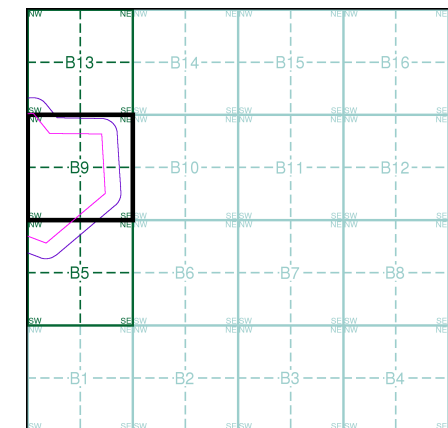
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B9**



**Order Details**

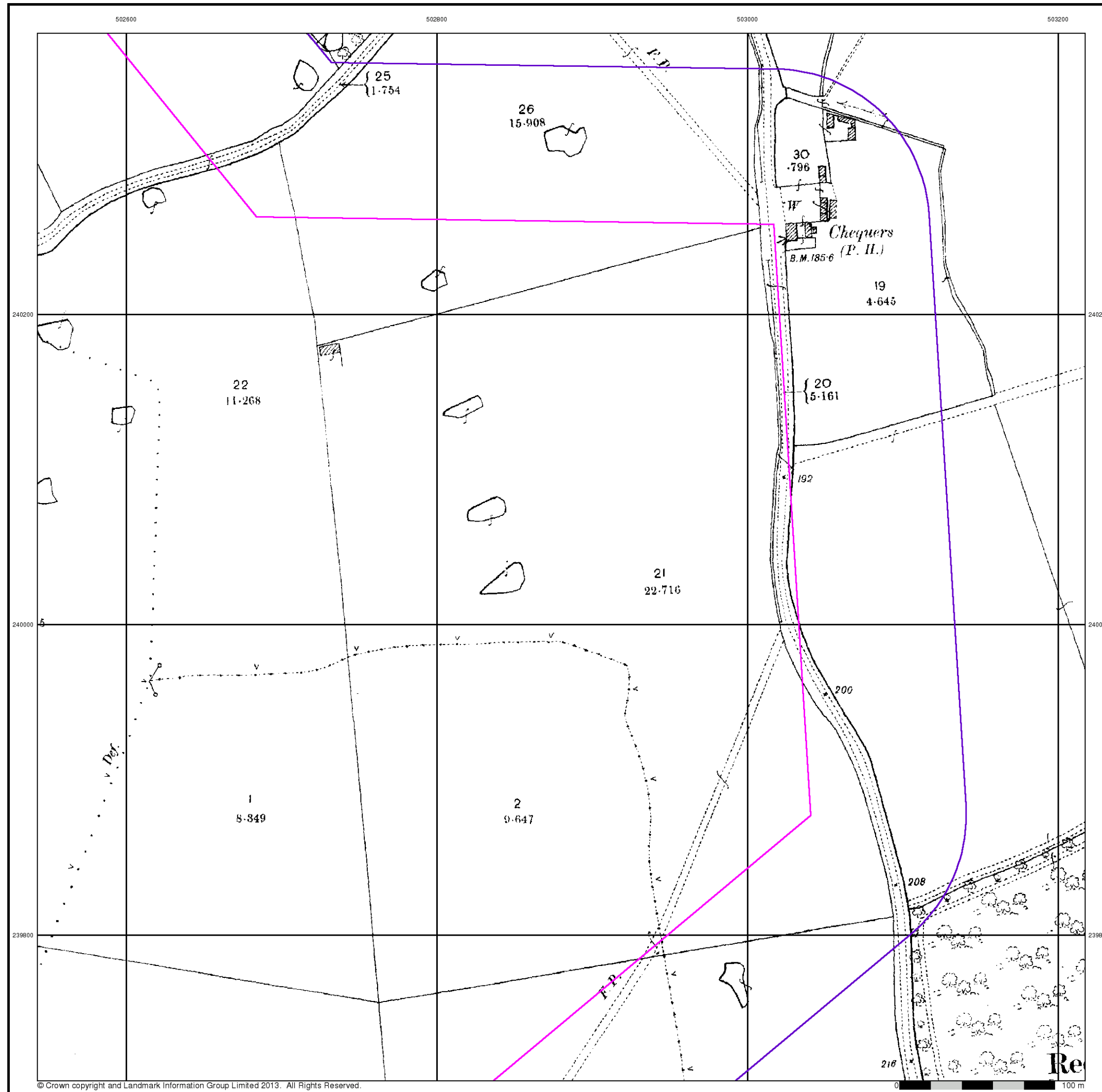
Order Number: 60770728\_1\_1  
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 National Grid Reference: 502970, 239970  
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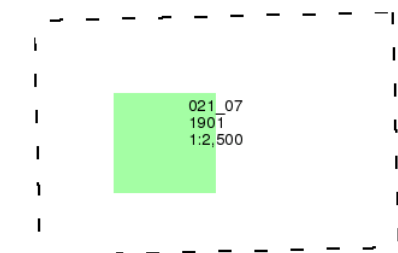
**Bedfordshire**

**Published 1901**

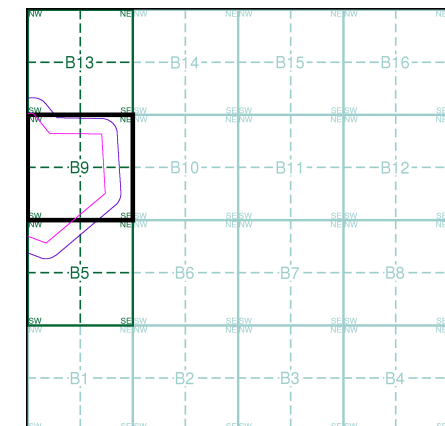
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B9**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
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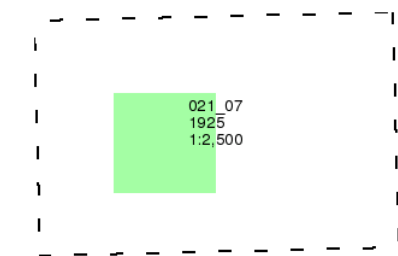


**Bedfordshire**  
**Published 1925**

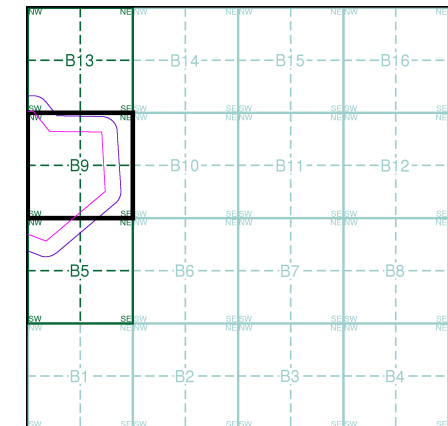
**Source map scale - 1:2,500**

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**Map Name(s) and Date(s)**



**Historical Map - Segment B9**



**Order Details**

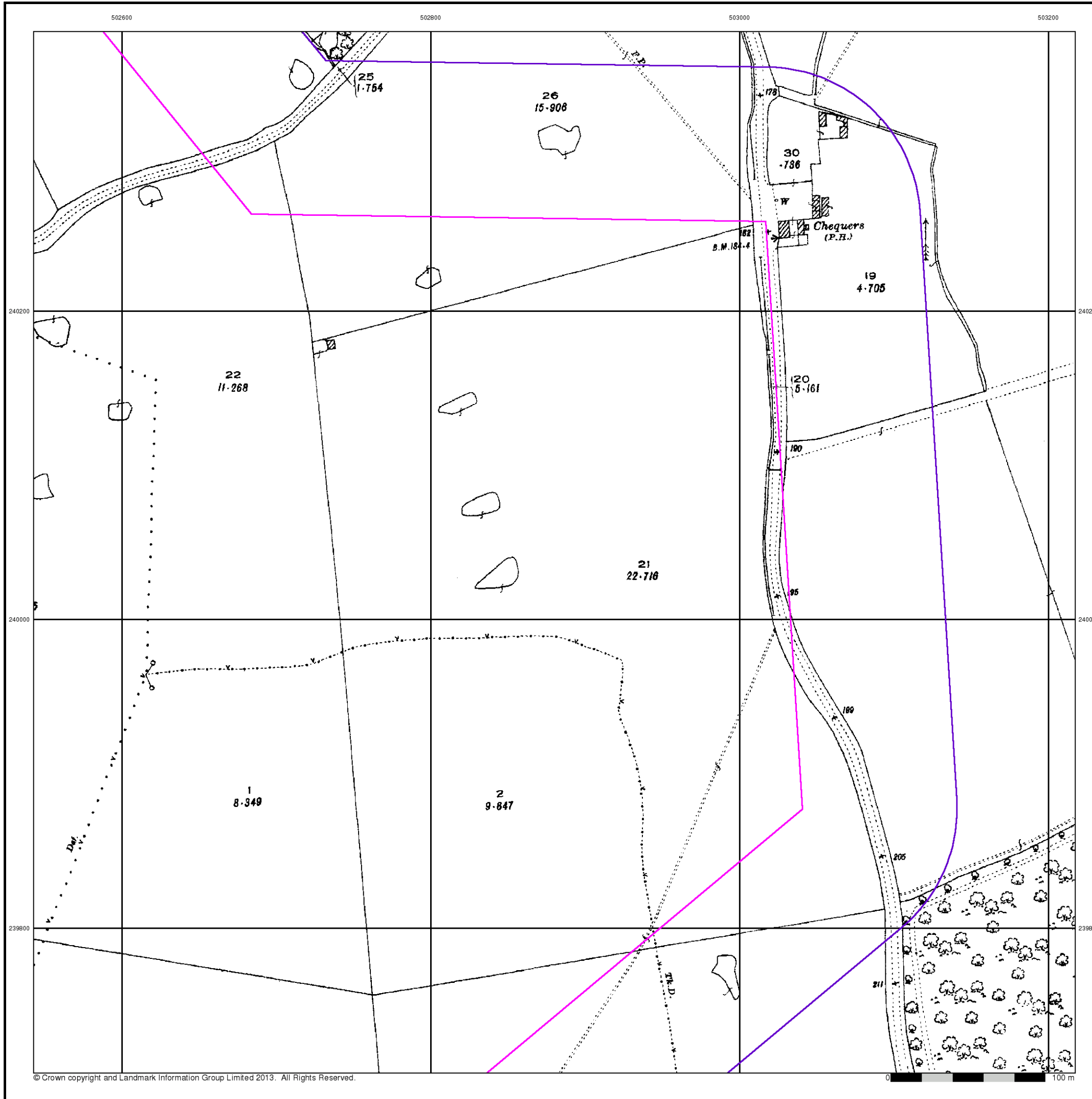
Order Number: 60770728\_1\_1  
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Slice: B  
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### Ordnance Survey Plan

Published 1972 - 1975

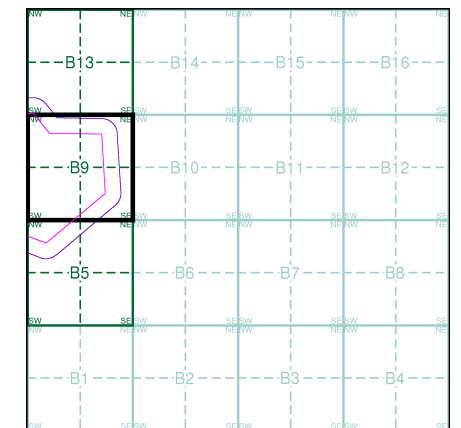
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0240 1975 12,500	TL0340 1975 12,500
TL0239 1972 12,500	TL0339 1972 12,500

### Historical Map - Segment B9



### Order Details

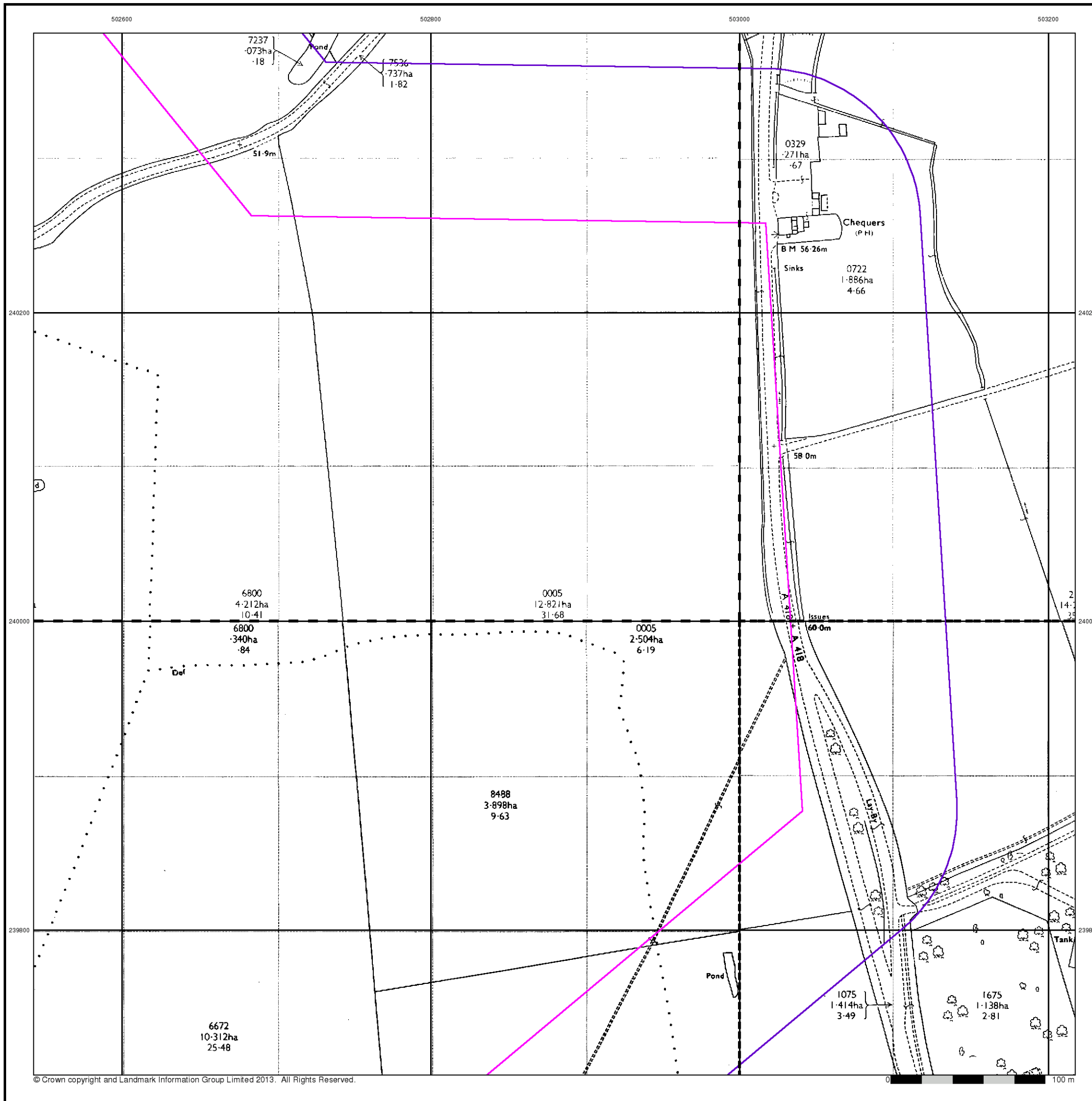
Order Number: 60770728\_1\_1  
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 National Grid Reference: 502970, 239970  
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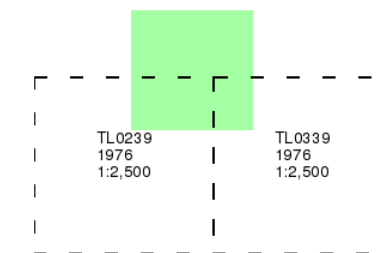
## Supply of Unpublished Survey Information

Published 1976

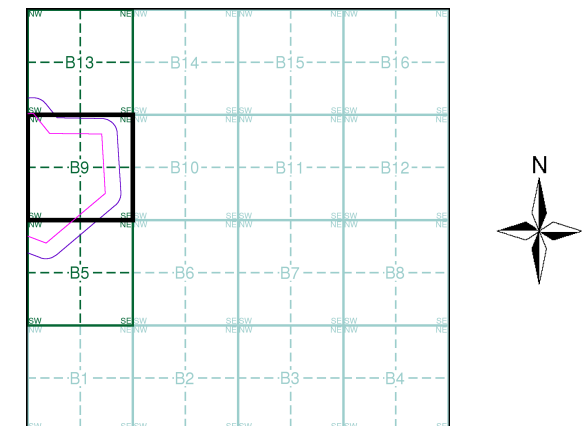
Source map scale - 1:2,500

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### Map Name(s) and Date(s)



### Historical Map - Segment B9



### Order Details

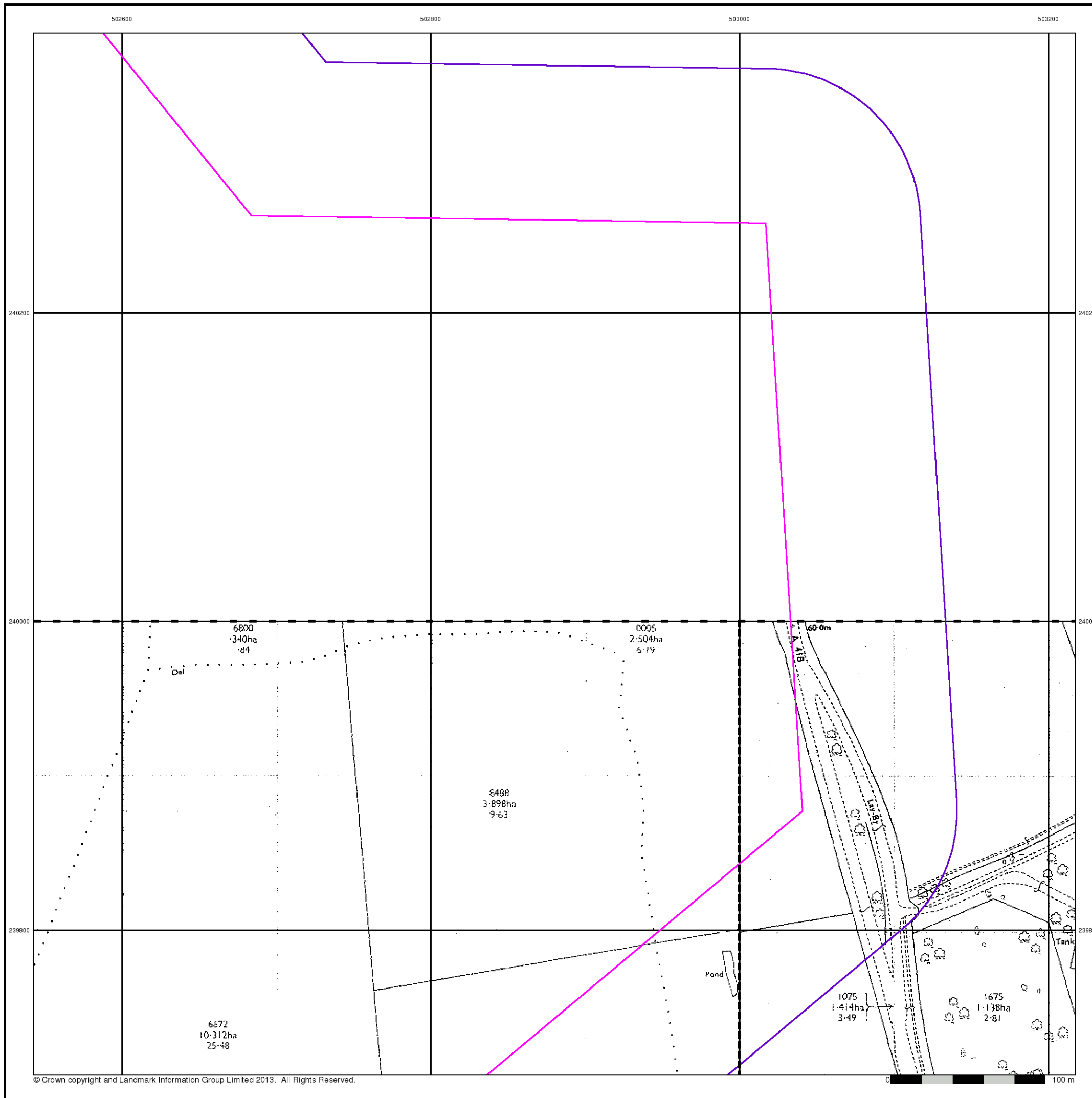
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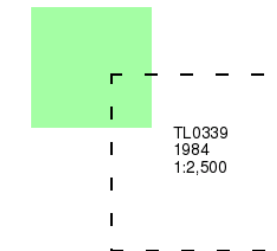
### Additional SIMs

Published 1984

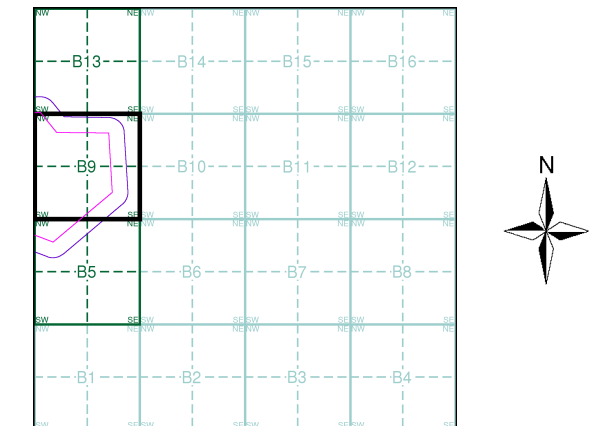
Source map scale - 1:2,500

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### Map Name(s) and Date(s)



### Historical Map - Segment B9



### Order Details

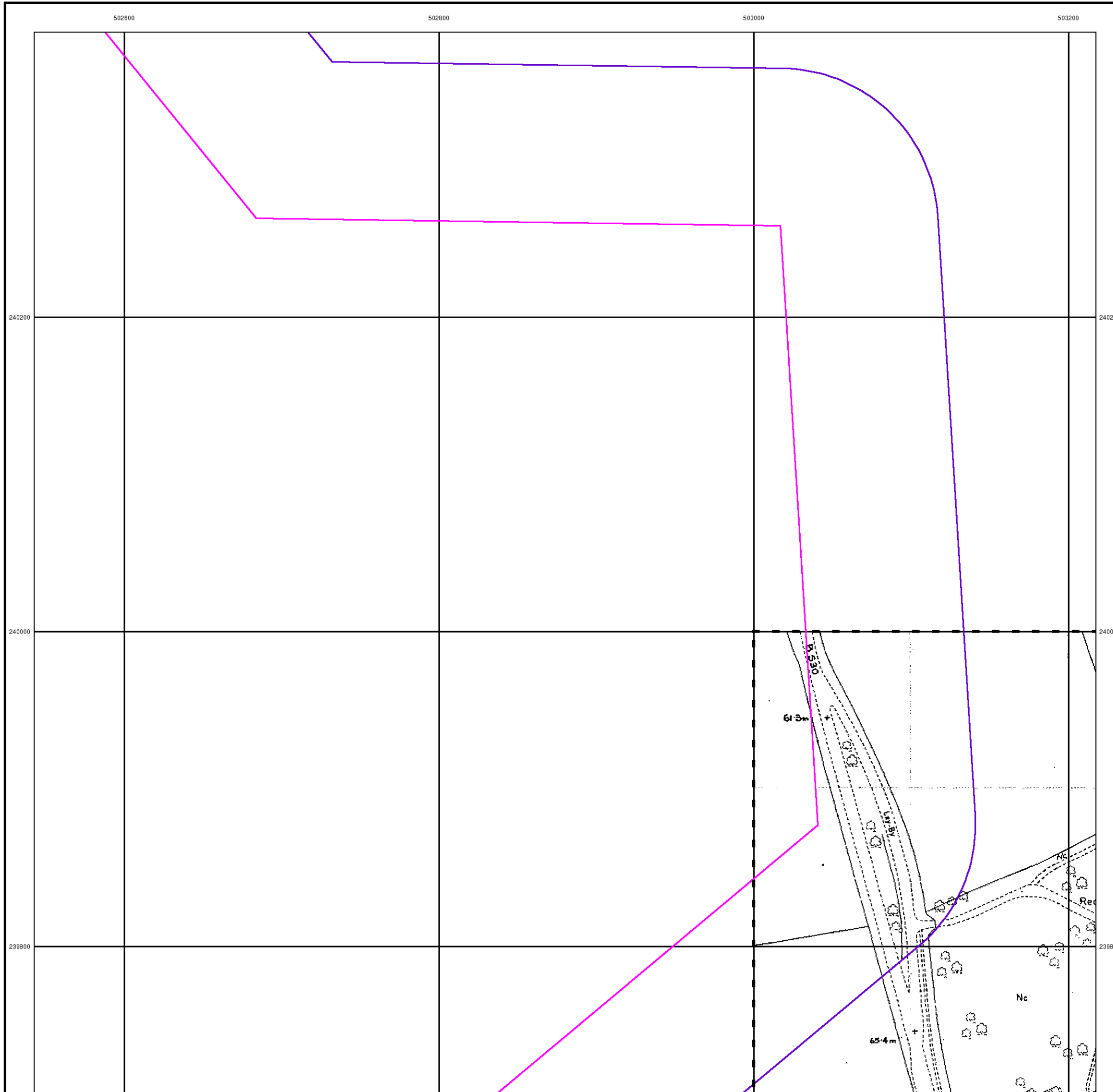
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
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Site Area (Ha): 240.61  
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## Large-Scale National Grid Data

Published 1993

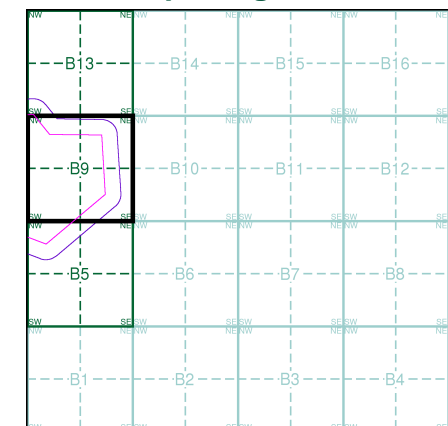
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0240 1993 1:2,500	TL0340 1993 1:2,500
TL0239 1993 1:2,500	TL0339 1993 1:2,500

### Historical Map - Segment B9



### Order Details

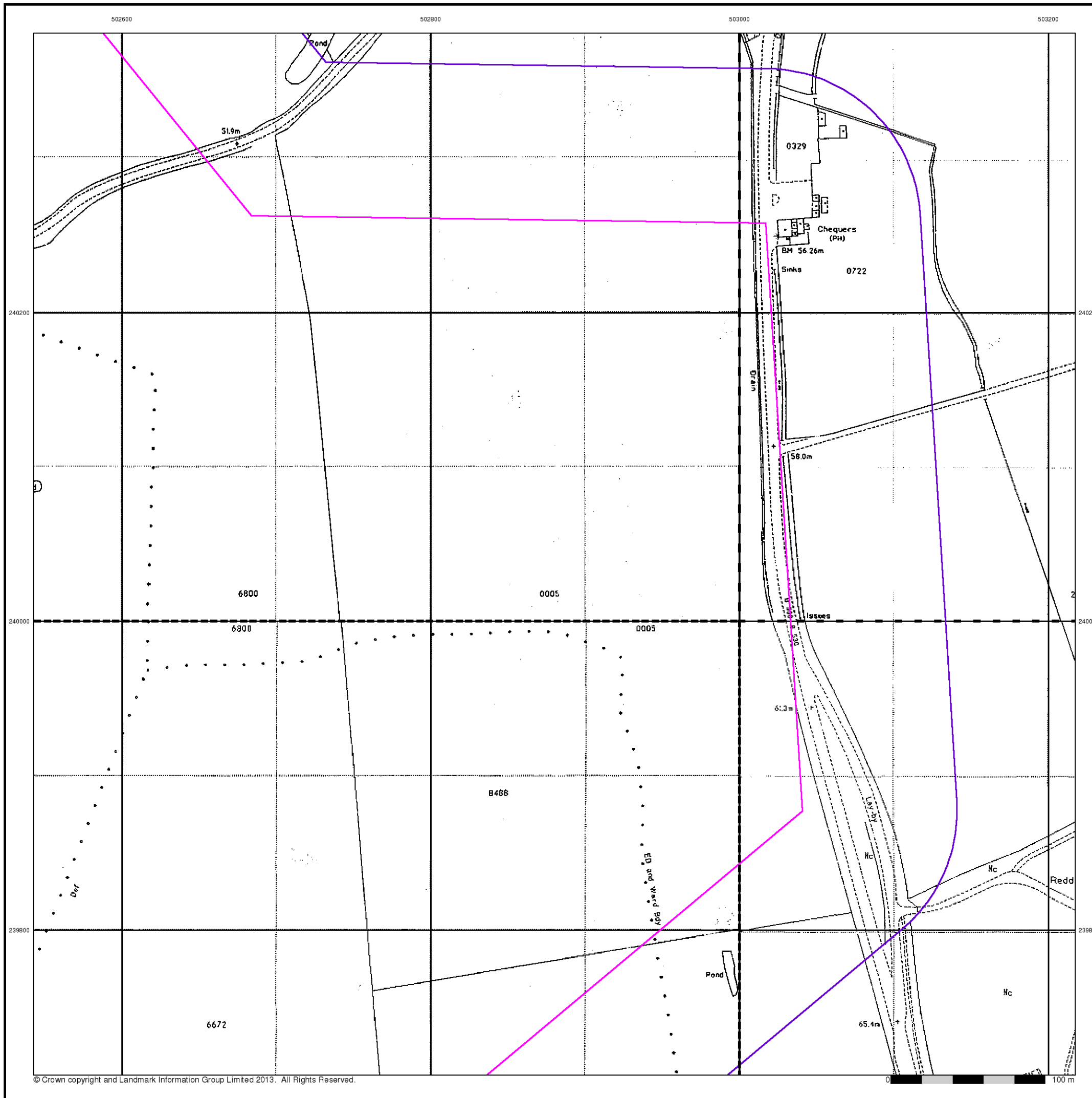
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 502970, 239970  
Slice: B  
Site Area (Ha): 240.61  
Search Buffer (m): 100

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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**Co. Boro. Bdy.**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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**  
**EI 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

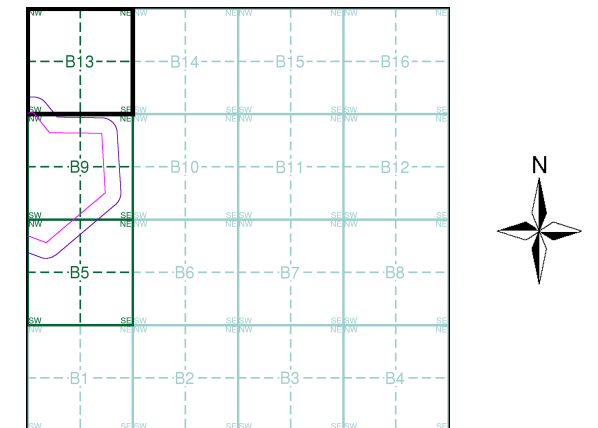
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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**  
**EI Gen Sta**   **Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**EI P**   **Electricity Pole, Pillar**   **SB, S Br**   **Signal Box or Bridge**  
**EI 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 Governor**   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1975	5
Large-Scale National Grid Data	1:2,500	1993	6

## Historical Map - Segment B13



## Order Details

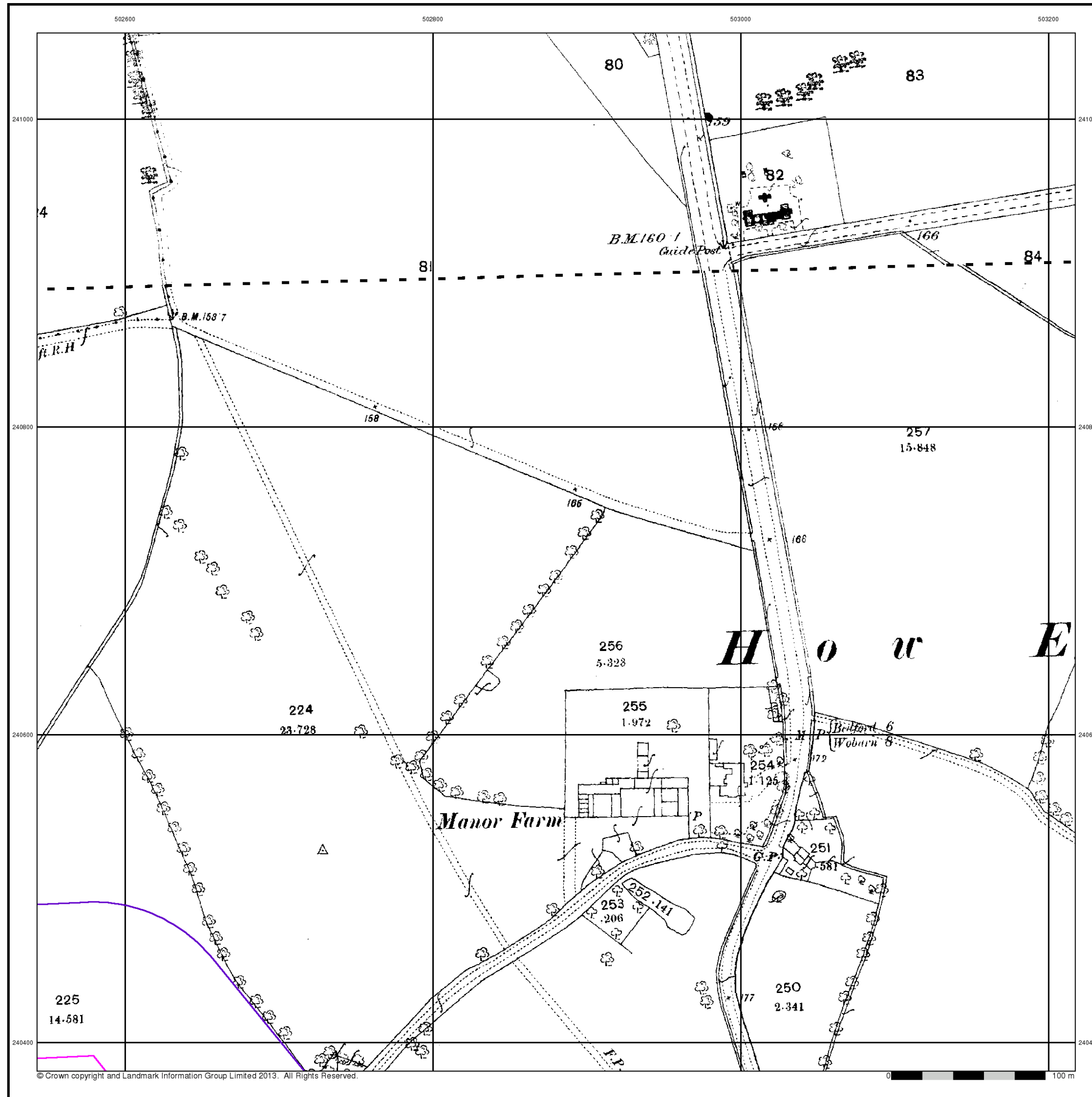
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**Customer Ref:** 31116  
**National Grid Reference:** 502970, 239970  
**Slice:** B  
**Site Area (Ha):** 240.61  
**Search Buffer (m):** 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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

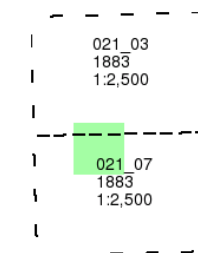


**Bedfordshire**  
**Published 1883**

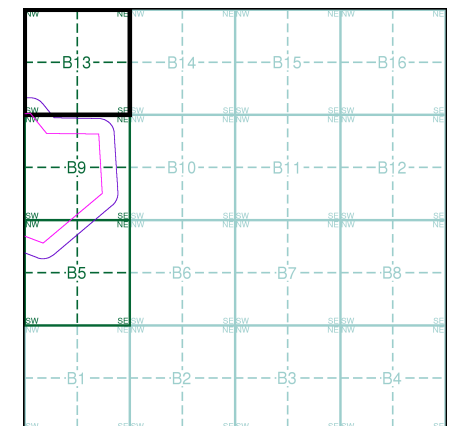
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B13**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



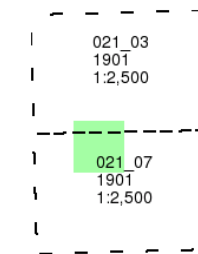
Bedfordshire

Published 1901

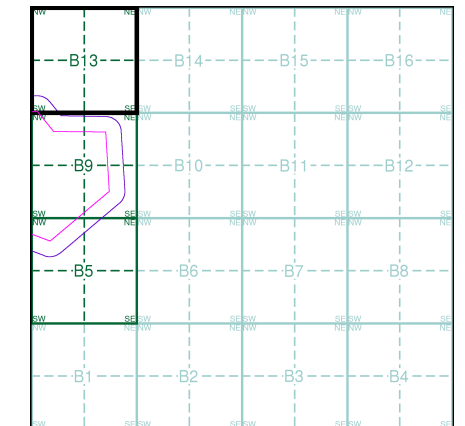
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment B13



Order Details

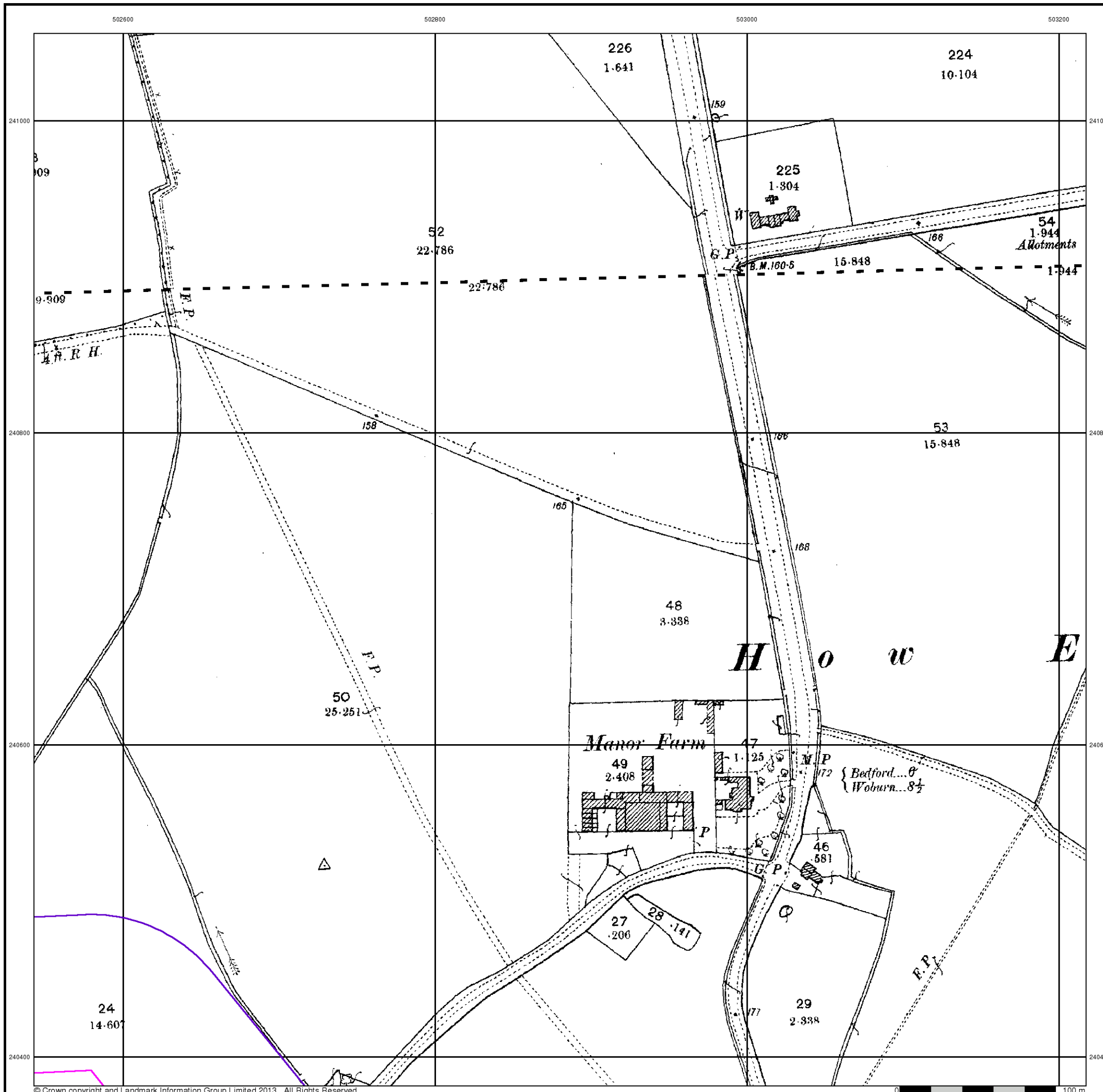
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Customer Ref: 31116  
National Grid Reference: 502970, 239970  
Slice: B  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

Millbrook Power Project, Green Lane, Stewartby



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



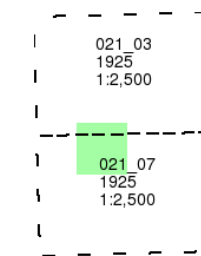


**Bedfordshire**  
**Published 1925**

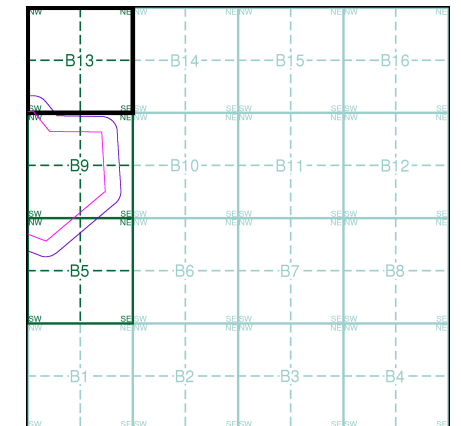
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment B13**



**Order Details**

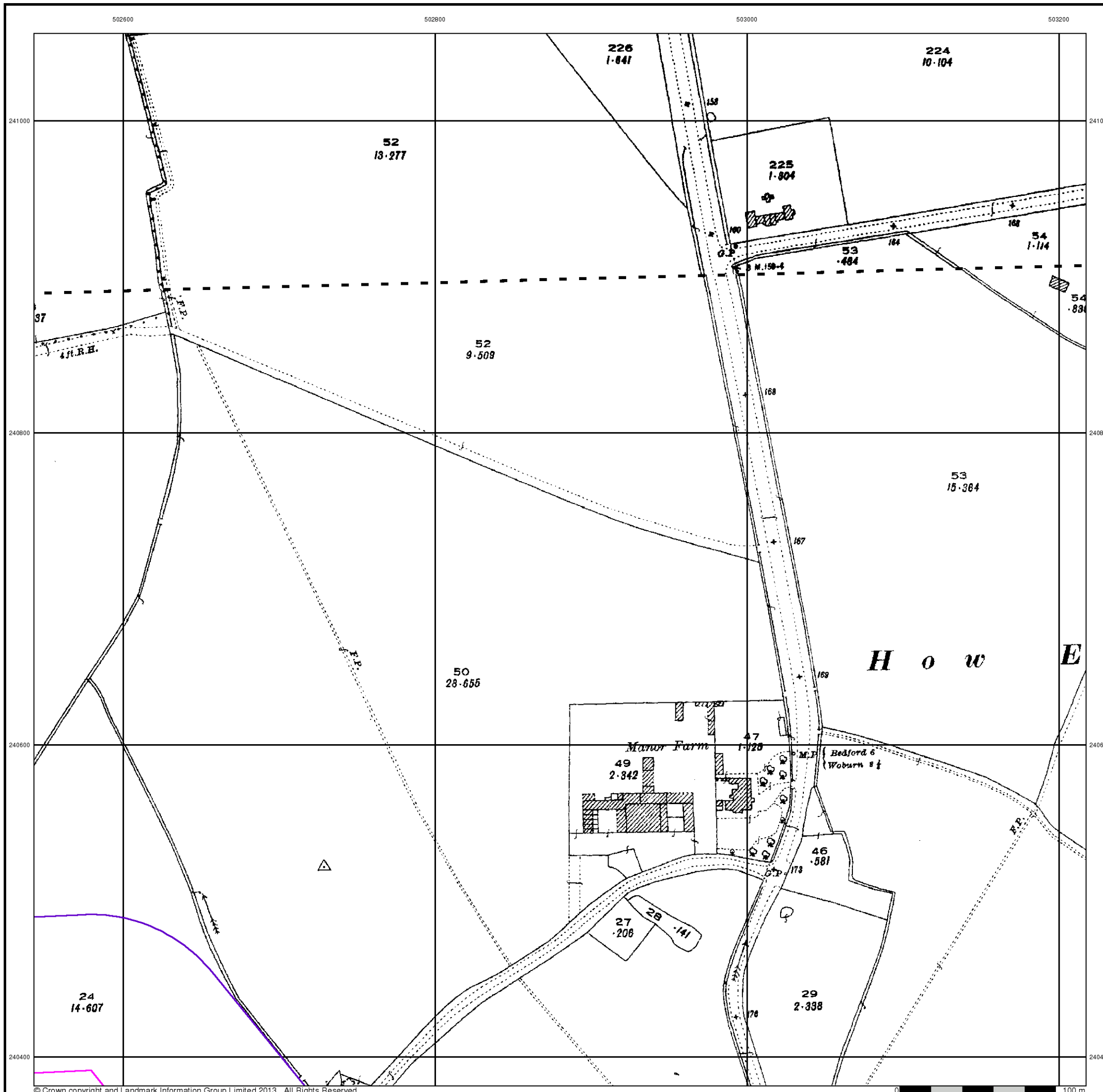
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 502970, 239970  
Slice: B  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



## Ordnance Survey Plan

Published 1975

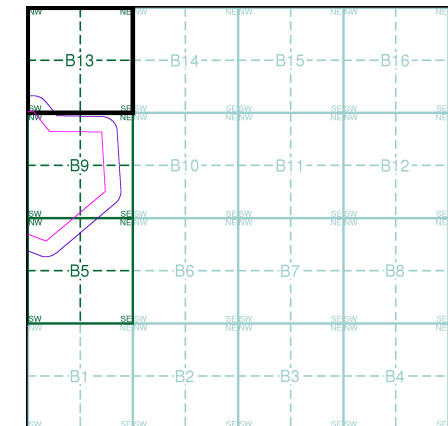
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0241 1975 12,500	TL0341 1975 12,500
TL0240 1975 12,500	TL0340 1975 12,500

### Historical Map - Segment B13

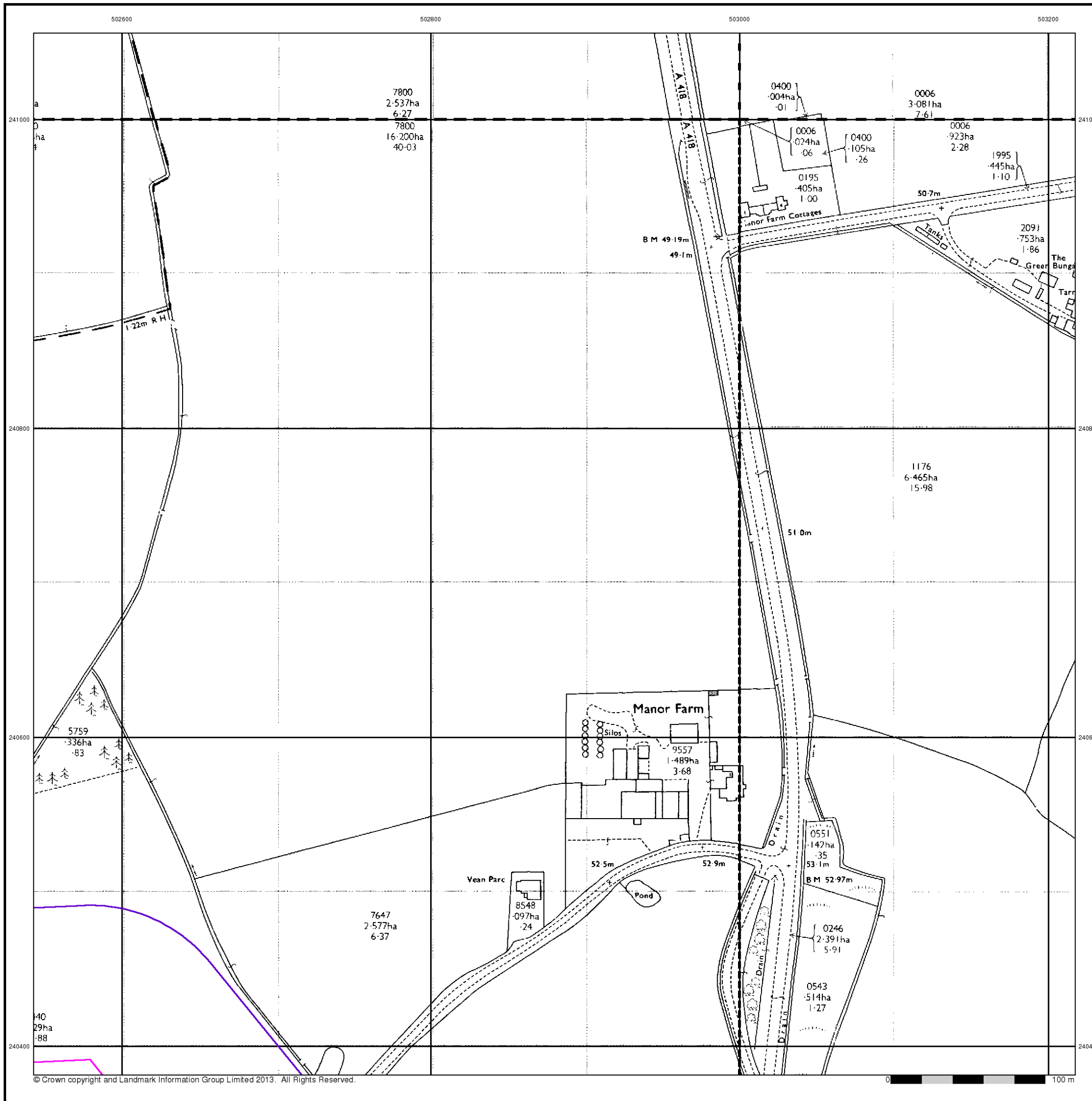


### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby





### Large-Scale National Grid Data

Published 1993

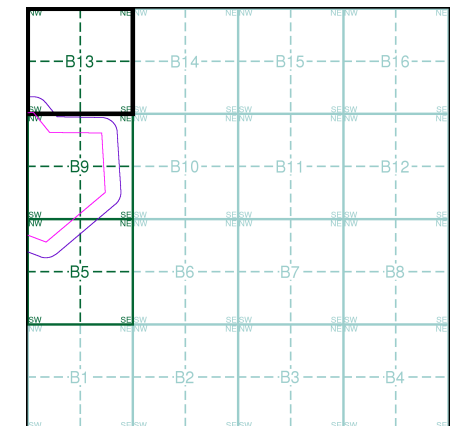
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0241 1993 12,500	TL0341 1993 12,500
TL0240 1993 12,500	TL0340 1993 12,500

### Historical Map - Segment B13



### Order Details

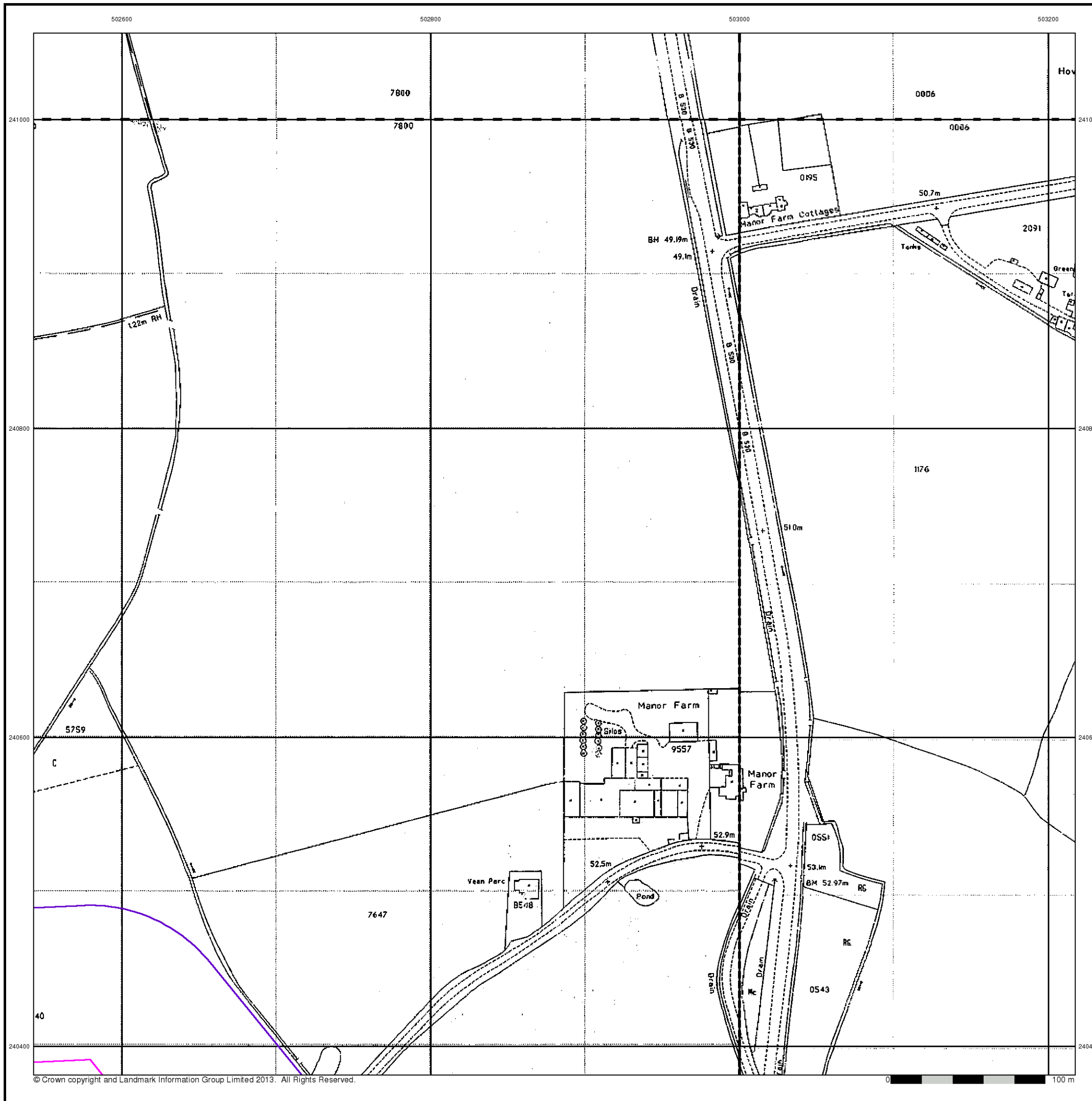
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 502970, 239970  
 Slice: B  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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



## Envirocheck<sup>®</sup> Report:

### BGS Boreholes Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

501420, 241770

**Slice:**

C

**Site Area (Ha):**

240.61

**Borehole Search Buffer (m):**

50

#### Site Details:

Millbrook Power Project

Green Lane

Stewartby

#### Client Details:

Ms K Riley

Brett Consulting Ltd

Caversham Bridge House

Waterman Place

Reading

Berkshire

RG1 8DN



Data Type	Page Number	On Site	0 to 50m
BGS Boreholes (50m)	pg 1	9	5

## Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.

For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

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

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A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

## Report Version v49.0

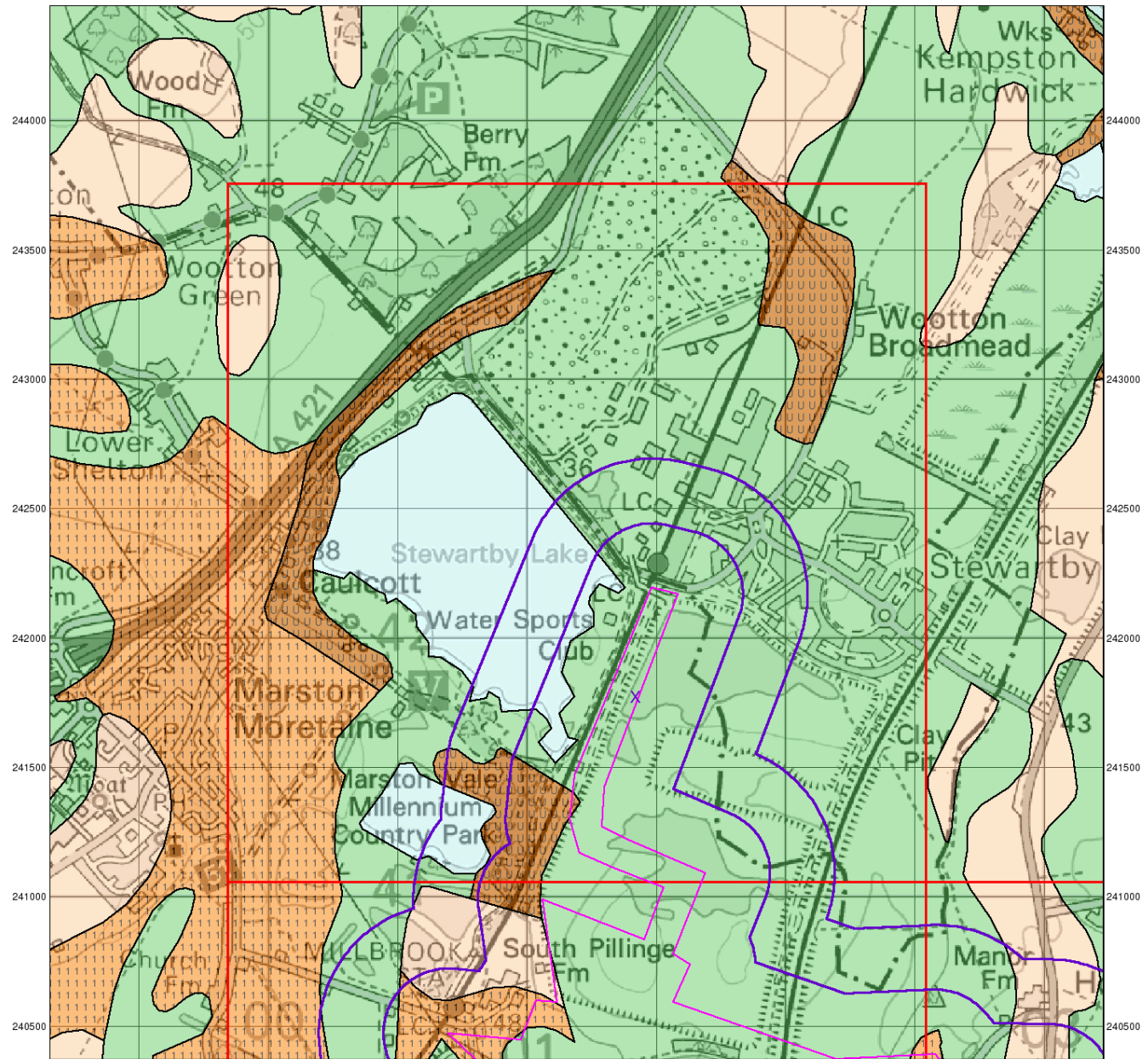
Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	<b>BGS Boreholes</b> BGS Reference: Tl04sw29 Drilled Length (m): 13.86 Borehole Name: Lbc Vicarage Farm & L Field 28 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524383/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524383/</a>	C7NW (N)	0	4	501500 242110
44	<b>BGS Boreholes</b> BGS Reference: Tl04sw78 Drilled Length (m): 16 Borehole Name: Lbc Rookery Field 1/51 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524432/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524432/</a>	C3SW (S)	0	4	501250 241190
44	<b>BGS Boreholes</b> BGS Reference: Tl04sw162 Drilled Length (m): 15.54 Borehole Name: Lbc Wheeler Mill 9/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524516/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524516/</a>	C3SW (S)	0	4	501230 241220
45	<b>BGS Boreholes</b> BGS Reference: Tl04sw113 Drilled Length (m): 32.77 Borehole Name: Lbc Rookery Field 11/61 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524467/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524467/</a>	C7SW (N)	0	4	501500 242010
46	<b>BGS Boreholes</b> BGS Reference: Tl04sw116 Drilled Length (m): 31.19 Borehole Name: Lbc Rookery Field 14/61 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524470/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524470/</a>	C7SW (N)	0	4	501430 241860
47	<b>BGS Boreholes</b> BGS Reference: Tl04sw161 Drilled Length (m): 15.54 Borehole Name: Lbc Wheeler Mill 8/67 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524515/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524515/</a>	C3SW (S)	0	4	501250 241350
48	<b>BGS Boreholes</b> BGS Reference: Tl04sw482 Drilled Length (m): 27 Borehole Name: Wheelers Hill Area 17/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524836/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524836/</a>	C3SE (S)	0	4	501630 241090
49	<b>BGS Boreholes</b> BGS Reference: Tl04sw91 Drilled Length (m): 25.09 Borehole Name: Lbc Rookery Field 1/56 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524445/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524445/</a>	C3NW (S)	0	4	501300 241430
50	<b>BGS Boreholes</b> BGS Reference: Tl04sw481 Drilled Length (m): 30 Borehole Name: Wheelers Hill Area 16/66 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524835/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524835/</a>	C3SW (S)	0	4	501440 241110
51	<b>BGS Boreholes</b> BGS Reference: Tl04sw92 Drilled Length (m): 32.46 Borehole Name: Lbc Rookery Field 2/56 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524446/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524446/</a>	C3NW (S)	3	4	501320 241470
52	<b>BGS Boreholes</b> BGS Reference: Tl04sw604 Drilled Length (m): 27.81 Borehole Name: Stewartby Brickworks Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524958/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524958/</a>	C3SE (S)	18	4	501550 241170
53	<b>BGS Boreholes</b> BGS Reference: Tl04sw49 Drilled Length (m): 28.57 Borehole Name: Lbc Vicarage Farm & L Field 4/51 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524403/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524403/</a>	C7NW (N)	36	4	501430 242160

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
54	<b>BGS Boreholes</b> BGS Reference: TI04sw107 Drilled Length (m): 34.31 Borehole Name: Lbc Rookery Field 4/57 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524461/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524461/</a>	C2NE (SW)	47	4	501160 241530
55	<b>BGS Boreholes</b> BGS Reference: TI04sw106 Drilled Length (m): 14.48 Borehole Name: Lbc Rookery Field 3/57 Link to Borehole Scan: <a href="http://scans.bgs.ac.uk/sobi_scans/boreholes/524460/">http://scans.bgs.ac.uk/sobi_scans/boreholes/524460/</a>	C2NE (SW)	49	4	501150 241510

BGS Boreholes	Version	Update Cycle
<b>BGS Boreholes</b> British Geological Survey - National Geoscience Information Service	August 2014	Quarterly

Contact Details	Contact Logo
<p><b>4 British Geological Survey - Enquiry Service</b></p> <p>British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG</p> <p>Telephone: 0115 936 3143            Fax: 0115 936 3276            Email: enquiries@bgs.ac.uk            Website: www.bgs.ac.uk</p>	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
<p><b>- Landmark Information Group Limited</b></p> <p>Imperium, Imperial Way, Reading, Berkshire, RG2 0TD</p> <p>Telephone: 0844 844 9952            Fax: 0844 844 9951            Email: customerservices@landmarkinfo.co.uk            Website: www.landmarkinfo.co.uk</p>	 <p><b>LANDMARK</b><sup>®</sup> Information Group</p>

499500 500000 500500 501000 501500 502000 502500 503000



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## Groundwater Vulnerability

### General

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

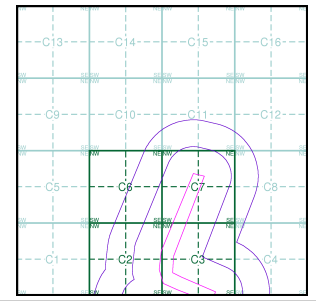
### Agency and Hydrological

#### Geological Classes

- |   |  |
|---|--|
| <b>Major Aquifer (Highly Permeable)</b>   | <ul style="list-style-type: none"> <li> High (H) 1, 2, 3, U</li> <li> Intermediate (I) 1, 2</li> <li> Low</li> </ul> |
| <b>Minor Aquifer (Variably Permeable)</b> | <ul style="list-style-type: none"> <li> High (H) 1, 2, 3, U</li> <li> Intermediate (I) 1, 2</li> <li> Low</li> </ul> |
| <b>Non Aquifer (Negligibly Permeable)</b> |  |
| <b>Water or Sea</b>                       |  |
| <b>Drift Deposit</b>                      |  |

#### Soil Classes

### Site Sensitivity Context Map - Slice C



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

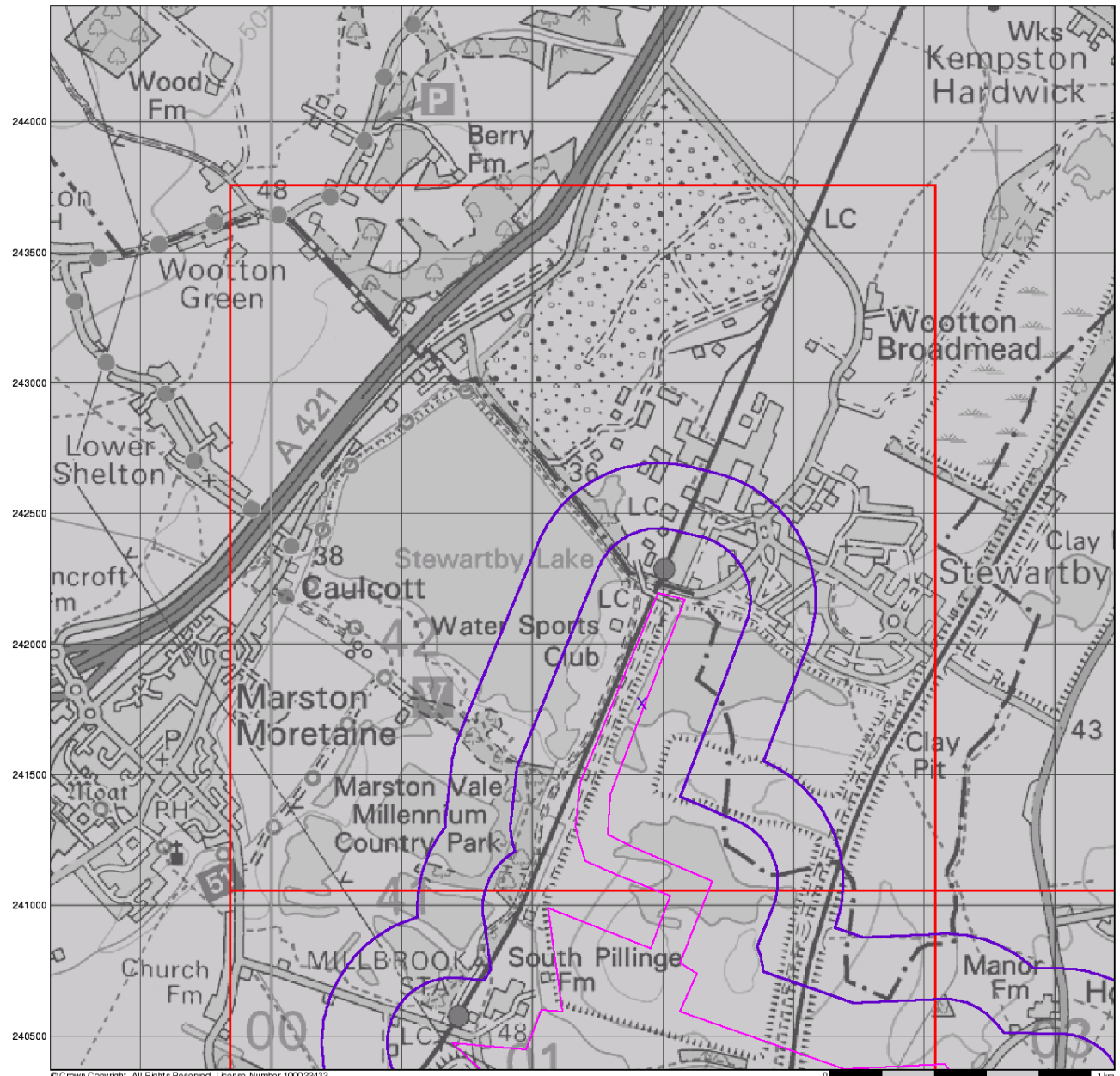
### Site Details

Millbrook Power Project, Green Lane, Stewartby



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

499500 500000 500500 501000 501500 502000 502500 503000



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## Bedrock Aquifer Designation

### General

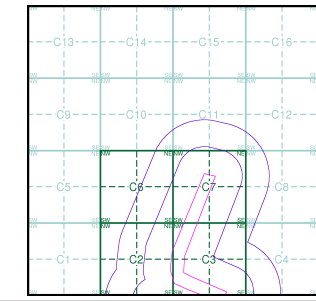
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

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

### Site Sensitivity Context Map - Slice C



### Order Details

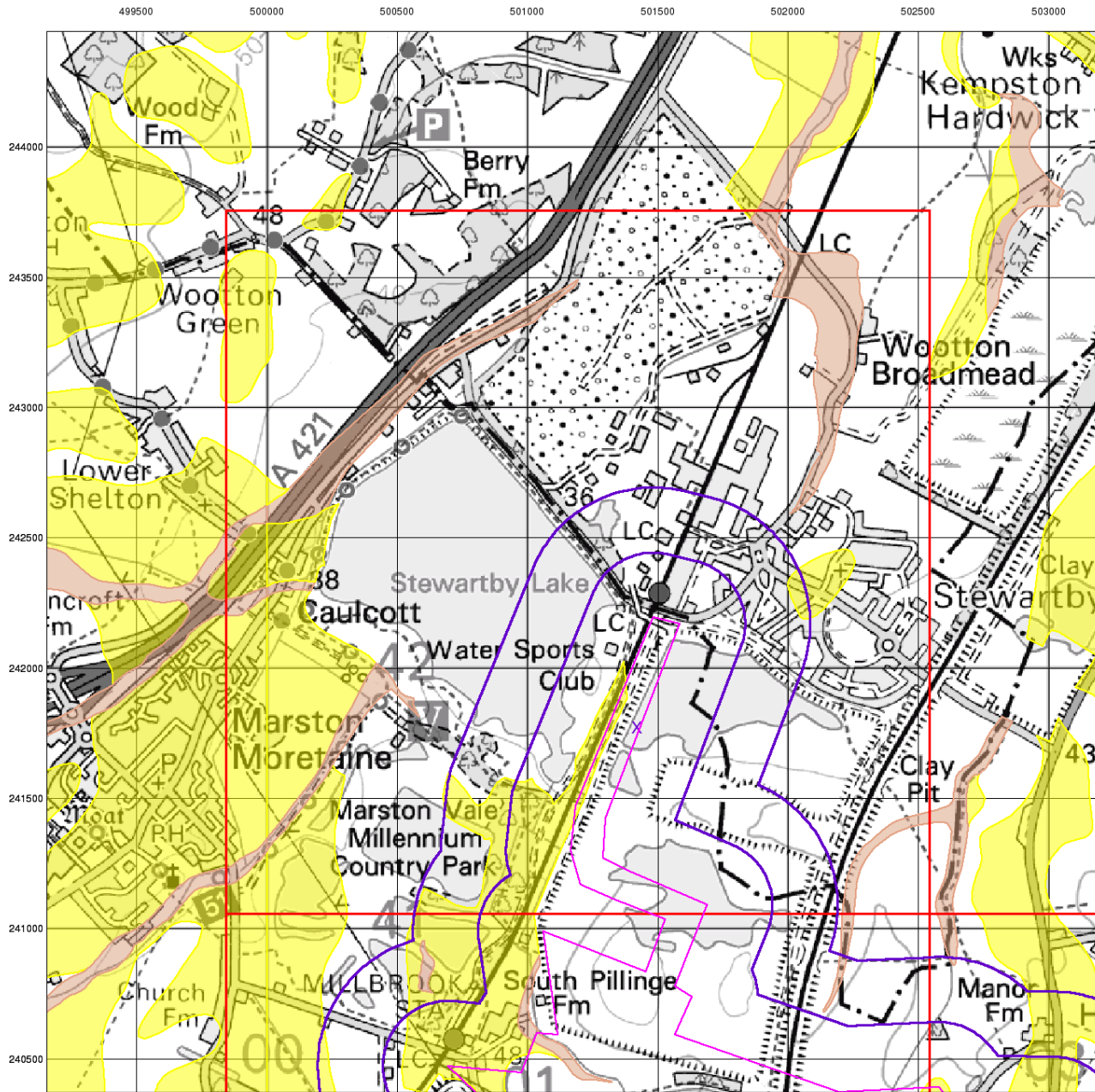
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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## Superficial Aquifer Designation

### General

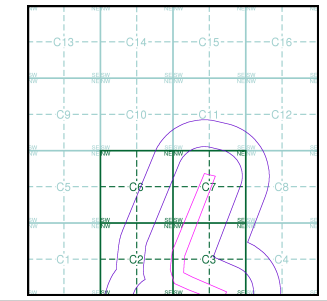
- Specified Site
- Specified Buffer(s)
- Bearing Reference Point
- Slice
- Map ID

### Agency and Hydrological

#### Geological Classes

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

### Site Sensitivity Context Map - Slice C



### Order Details

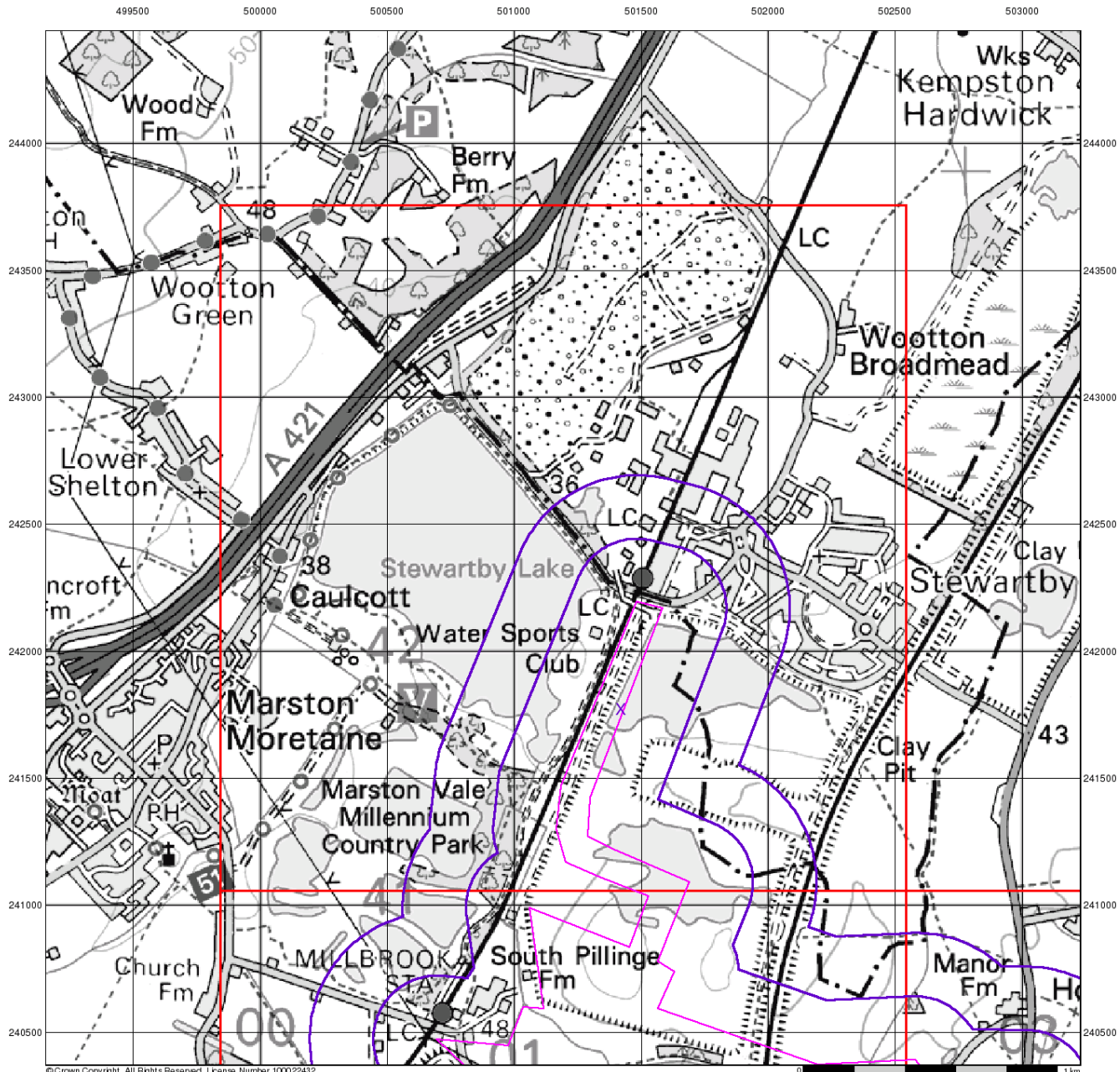
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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



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## Source Protection Zones

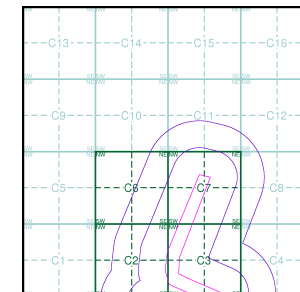
### General

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

### Agency and Hydrological

- 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 C



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

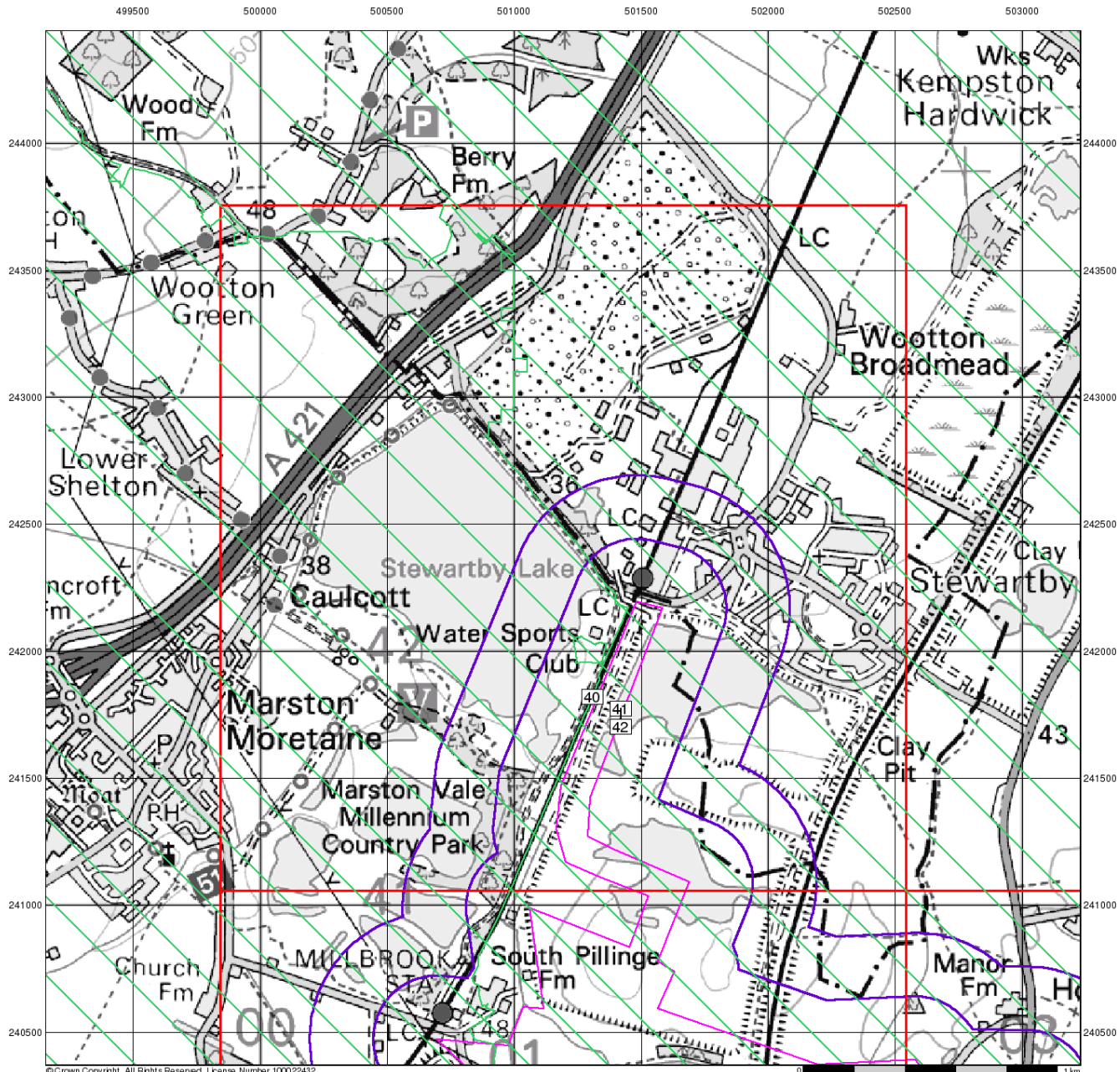
### Site Details

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





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## Sensitive Land Uses

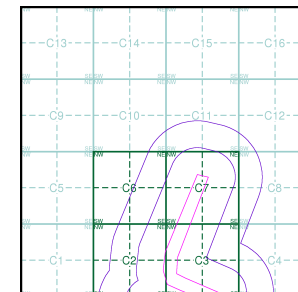
### General

- 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 C



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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

## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

501420, 241770

**Slice:**

C

**Site Area (Ha):**

240.61

**Search Buffer (m):**

500

#### Site Details:

Millbrook Power Project  
Green Lane  
Stewartby

#### Client Details:

Ms K Riley  
Brett Consulting Ltd  
Caversham Bridge House  
Waterman Place  
Reading  
Berkshire  
RG1 8DN

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	11
Hazardous Substances	12
Geological	13
Industrial Land Use	-
Sensitive Land Use	20
Data Currency	21
Data Suppliers	25
Useful Contacts	26

## Introduction

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

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

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## Report Version v49.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Agency &amp; Hydrological</b>				
Contaminated Land Register Entries and Notices				
Discharge Consents	pg 1		3	
Enforcement and Prohibition Notices	pg 1			1
Integrated Pollution Controls	pg 1			14
Integrated Pollution Prevention And Control	pg 4		1	3
Local Authority Integrated Pollution Prevention And Control				
Local Authority Pollution Prevention and Controls	pg 4			1
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 5	Yes		
Pollution Incidents to Controlled Waters				
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality				
River Quality Biology Sampling Points				
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions	pg 5			(*3)
Water Industry Act Referrals	pg 5		4	1
Groundwater Vulnerability	pg 6	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 7	Yes	n/a	n/a
Superficial Aquifer Designations	pg 7	Yes	n/a	n/a
Source Protection Zones				
Extreme Flooding from Rivers or Sea without Defences	pg 7		Yes	n/a
Flooding from Rivers or Sea without Defences	pg 7		Yes	n/a
Areas Benefiting from Flood Defences				n/a
Flood Water Storage Areas				n/a
Flood Defences				n/a
Detailed River Network Lines	pg 7		Yes	Yes
Detailed River Network Offline Drainage	pg 10			Yes

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Waste</b>				
BGS Recorded Landfill Sites				
Historical Landfill Sites	pg 11	1	1	
Integrated Pollution Control Registered Waste Sites				
Licensed Waste Management Facilities (Landfill Boundaries)				
Licensed Waste Management Facilities (Locations)	pg 11		1	
Local Authority Recorded Landfill Sites				
Registered Landfill Sites	pg 11		1	
Registered Waste Transfer Sites				
Registered Waste Treatment or Disposal Sites				
<b>Hazardous Substances</b>				
Control of Major Accident Hazards Sites (COMAH)				
Explosive Sites				
Notification of Installations Handling Hazardous Substances (NIHHS)	pg 12			1
Planning Hazardous Substance Consents	pg 12		1	1
Planning Hazardous Substance Enforcements				
<b>Geological</b>				
BGS 1:625,000 Solid Geology	pg 13	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 13	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 17			2
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 18	Yes		n/a
Potential for Compressible Ground Stability Hazards	pg 18	Yes	Yes	n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 18	Yes	Yes	n/a
Potential for Running Sand Ground Stability Hazards	pg 19	Yes		n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 19	Yes		n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Industrial Land Use</b>				
Contemporary Trade Directory Entries (50m)				n/a
Fuel Station Entries				
<b>Sensitive Land Use</b>				
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 20	3		
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	<p><b>Discharge Consents</b></p> <p>Operator: Shanks &amp; Mcewan (Southern) Ltd  Property Type: Undefined Or Other  Location: Rookery North Claypit, Stewartby, Bedford  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Pr1nf1802  Permit Version: 1  Effective Date: 30th January 1985  Issued Date: 30th January 1985  Revocation Date: 19th February 1992  Discharge Type: Trade Discharge - Process Water  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	C7NE (NE)	35	2	501600 242200
2	<p><b>Discharge Consents</b></p> <p>Operator: A &amp; J Bull (Southern) Ltd  Property Type: Not Supplied  Location: Rookery N&amp;S Brick Pits Green Lane, Stewartby, Mk43 9lz  Authority: Environment Agency, Anglian Region  Catchment Area: Not Supplied  Reference: Prcnf14024  Permit Version: 1  Effective Date: 22nd May 1998  Issued Date: 22nd May 1998  Revocation Date: Not Supplied  Discharge Type: Trade Effluent  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Partly Culverted Ditch Stewart  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	C2SE (SW)	48	2	501120 241310
2	<p><b>Discharge Consents</b></p> <p>Operator: Sita Uk  Property Type: Unspecified Tip  Location: Rookery N&amp;S Brick Pits Green Lane, Stewartby, Mk43 9lz, Mk43 9lz  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Prcnf14024  Permit Version: 1  Effective Date: 22nd May 1998  Issued Date: 22nd May 1998  Revocation Date: Not Supplied  Discharge Type: Trade Discharge - Process Water  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Partly Culverted Ditch Stewart  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	C2SE (SW)	48	2	501120 241310
3	<p><b>Enforcement and Prohibition Notices</b></p> <p>Location: Stewartby Works, Stewartby, BEDFORD, Bedfordshire, MK43 9LE  Permit Reference: AL9467  Enforcement Date: Not Supplied  Details: Not submitting details of releases in accordance with conditions in authorisation; not submitting information on improvement programme; under EPA90, served 1993/94  Positional Accuracy: Unknown</p>	C11SE (NE)	384	2	501850 242446
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Building Products Ltd  Location: Stewartby Works, Stewartby, BEDFORD, Bedfordshire, MK43 9LZ  Authority: Environment Agency, Anglian Region  Permit Reference: AH9464  Dated: 30th June 1993  Process Type: IPC application for process that was regulated by HMIP for air releases under previous legislation  Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b>  Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	426	2	501874 242481

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby, Bedford, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bx8378 Dated: 28th April 2004 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Revoked - Now IPPC</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bt3722 Dated: 30th September 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bt1452 Dated: 22nd August 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bs8834 Dated: 25th July 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Br9545 Dated: 13th April 2002 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bm1954 Dated: 25th September 2001 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486
4	<b>Integrated Pollution Controls</b> Name: Hanson Building Products Ltd Location: Stewartby Works, Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bi5841 Dated: 31st May 2000 Process Type: IPC minor (non-substantial) variation to previous variation Description: 3.6 A (A) Ceramic production within the Mineral Industry <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b> Positional Accuracy: Automatically positioned to the address	C12SW (NE)	430	2	501874 242486



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Building Products Ltd            Location: Stewartby Works, Stewartby, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: BH8403            Dated: 15th February 2000            Process Type: IPC minor (non-substantial) variation to previous variation            Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b></p> <p>Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	430	2	501874 242486
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Building Products Ltd            Location: Stewartby Works, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: BC8015            Dated: 24th November 1998            Process Type: IPC minor (non-substantial) variation to previous variation            Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b></p> <p>Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	430	2	501879 242481
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Building Products Ltd            Location: Stewartby Works, Stewartby, BEDFORD, MK43 9LE            Authority: Environment Agency, Anglian Region            Permit Reference: AL9467            Dated: 1st February 1994            Process Type: IPC minor (non-substantial) variation to previous variation            Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b></p> <p>Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	430	2	501874 242486
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Brick Ltd            Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: Bu8444            Dated: Not Supplied            Process Type: IPC minor (non-substantial) variation to previous variation            Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Application has met the requirements for authorisation (but not yet authorised)Not Yet Authorised</b></p> <p>Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	430	2	501874 242486
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Building Products Ltd            Location: Stewartby Works, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: BC4834            Dated: 26th March 1999            Process Type: IPC major (substantial) variation            Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b></p> <p>Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	433	2	501879 242486
4	<p><b>Integrated Pollution Controls</b></p> <p>Name: Hanson Building Products Ltd            Location: Stewartby Works, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: BF9379            Dated: 21st April 1999            Process Type: IPC minor (non-substantial) variation to previous variation            Description: 3.6 A (A) Ceramic production within the Mineral Industry  <b>Status: Authorisation superseded by a substantial or non substantial variationSuperseded</b></p> <p>Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	437	2	501879 242491

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	<p><b>Integrated Pollution Prevention And Control</b></p> <p>Name: Ballast Phoenix            Location: Rookery Pit South, Rookery Pit, Rookery South, Stewartby, Bedfordshire            Authority: Environment Agency, Anglian Region            Permit Reference: LP3236CZ            Original Permit Ref: Lp3236cz            Effective Date: Not Supplied  <b>Status: Valid</b>            Application Type: Application            App. Sub Type: New            Positional Accuracy: Located by supplier to within 10m            Activity Code: 1.1 A(1) (A)            Activity Description: Combustion; Any Fuel Greater Or Equal To 50Mw            Primary Activity: Y</p>	C3SW (S)	15	2	501310 241370
6	<p><b>Integrated Pollution Prevention And Control</b></p> <p>Name: Hanson Building Products Limited            Location: Stewartby, Bedford, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: SP3534LG            Original Permit Ref: Bx1616iu            Effective Date: 1st November 2006  <b>Status: Superseded By Variation</b>            Application Type: Variation            App. Sub Type: Standard            Positional Accuracy: Automatically positioned to the address            Activity Code: 3.6 A(1) (A) (I)            Activity Description: Manufacturing Ceramic Products: Kiln Production Capacity Greater Than 75 Tonnes Per Day            Primary Activity: Y            Activity Code: 0.0 Associated Process            Activity Description: Associated Process            Primary Activity: N</p>	C12SW (NE)	430	2	501874 242486
6	<p><b>Integrated Pollution Prevention And Control</b></p> <p>Name: Hanson Building Products Limited            Location: Stewartby, Bedford, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: Bx1616iu            Original Permit Ref: Bx1616iu            Effective Date: 24th November 2004  <b>Status: Superseded By Variation</b>            Application Type: Application            App. Sub Type: New            Positional Accuracy: Automatically positioned to the address            Activity Code: 0.0 Associated Process            Activity Description: Associated Process            Primary Activity: N            Activity Code: 3.6 A(1) (A) (I)            Activity Description: Manufacturing Ceramic Products: Kiln Production Capacity Greater Than 75 Tonnes Per Day            Primary Activity: Y</p>	C12SW (NE)	430	2	501874 242486
7	<p><b>Integrated Pollution Prevention And Control</b></p> <p>Name: Hanson Building Products Limited            Location: Stewartby Brickworks, Stewartby Brickworks, Stewartby, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: RP3134GW            Original Permit Ref: Bx1616iu            Effective Date: 9th June 2009  <b>Status: Surrender Effective</b>            Application Type: Surrender            App. Sub Type: Whole            Positional Accuracy: Manually positioned to the address or location            Activity Code: 3.6 A(1) (A) (I)            Activity Description: Manufacturing Ceramic Products: Kiln Production Capacity Greater Than 75 Tonnes Per Day            Primary Activity: Y            Activity Code: 0.0 Associated Process            Activity Description: Associated Process            Primary Activity: N</p>	C11SE (N)	482	2	501718 242631
8	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Hanson Brick            Location: Broadmead Road, Stewartby, BEDFORD, Bedfordshire, MK43 9LZ            Authority: Bedford Borough Council, Environmental Health Department            Permit Reference: Epa30            Dated: 6th January 1994            Process Type: Local Authority Air Pollution Control            Description: PG3/8 Quarry processes including roadstone plants and the size reduction of bricks, tiles and concrete  <b>Status: Authorisation revokedRevoked</b>            Positional Accuracy: Manually positioned to the address or location</p>	C12SW (NE)	430	3	501875 242485

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Nearest Surface Water Feature</b>	C7SW (E)	0	-	501474 241752
	<b>Water Abstractions</b> Operator: Hanson Brick Ltd Licence Number: 6/33/12/*S/0080 Permit Version: 100 Location: Stream At Stewartby Authority: Environment Agency, Anglian Region Abstraction: Other Industrial/Commercial/Public Services: General Use (Medium Loss) 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 January Authorised End: 31 December Permit Start Date: 1st October 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C11SE (N)	544	2	501700 242700
	<b>Water Abstractions</b> Operator: Hanson Brick Ltd Licence Number: 6/33/12/*S/0080 Permit Version: 100 Location: Stream At Stewartby Authority: Environment Agency, Anglian Region Abstraction: Other Industrial/Commercial/Public Services: General Use (Medium Loss) 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 January Authorised End: 31 December Permit Start Date: 1st October 1995 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C11NW (N)	670	2	501200 242800
	<b>Water Abstractions</b> Operator: Marston Vale Services Licence Number: 6/33/12/*S/0142 Permit Version: 1 Location: Stewartby Pit Authority: Environment Agency, Anglian Region Abstraction: Environmental: Non-remedial River/Wetland Support: Make-Up or Top Up Water Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 November Authorised End: 31 March Permit Start Date: 19th November 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C5NE (W)	966	2	500400 242100
9	<b>Water Industry Act Referrals</b> Name: Shanks Waste Services Ltd Location: STEWARTBY, GREEN LANE, BEDFORD, BEDFORDSHIRE, MK43 9LZ Authority: Environment Agency, Anglian Region Permit Reference: Bv6021 Dated: 18th August 2003 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations <b>Status: Authorisation either revoked or cancelledCancelled</b> Positional Accuracy: Manually positioned within the geographical locality	C7NW (N)	14	2	501502 242202
9	<b>Water Industry Act Referrals</b> Name: Shanks And Mcewan Ltd Location: SHANKS AND MCEWAN LTD, MARSTON VALE LEACHATE TREATMENT WORKS, ""L"" FIELD LANDFILL SITE, GREEN LANE, STEWARTBY, BEDFORDSHIRE, MK43 9LY Authority: Environment Agency, Anglian Region Permit Reference: AU2018 Dated: 27th November 1995 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations <b>Status: Authorisation either revoked or cancelledCancelled</b> Positional Accuracy: Manually positioned to the road within the address or location	C7NE (N)	15	2	501543 242193

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	<p><b>Water Industry Act Referrals</b></p> <p>Name: Shanks And Mcewan Ltd            Location: TECHNICAL SERVICES, GREEN LANE, STEWARTBY, BEDFORD, BEDFORDSHIRE, MK43 9LY            Authority: Environment Agency, Anglian Region            Permit Reference: AE8801            Dated: 24th March 1992            Process Type: Permissions or amendments to discharge under the Water Industry Act 1991            Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations  <b>Status: Application cancelled</b>            Positional Accuracy: Manually positioned to the road within the address or location</p>	C7NE (NE)	125	2	501707 242191
11	<p><b>Water Industry Act Referrals</b></p> <p>Name: Shanks And Mcewan Ltd            Location: SHANKS AND MCEWAN LTD, GREEN LANE, STEWARTBY, BEDFORD, BEDFORDSHIRE, MK43 9LY            Authority: Environment Agency, Anglian Region            Permit Reference: AB3331            Dated: 8th October 1991            Process Type: Permissions or amendments to discharge under the Water Industry Act 1991            Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations  <b>Status: Application cancelled</b>            Positional Accuracy: Manually positioned to the address or location</p>	C11SW (N)	245	2	501529 242433
12	<p><b>Water Industry Act Referrals</b></p> <p>Name: Shanks Waste Services Ltd            Location: STEWARTBY, GREEN LANE, BEDFORD, BEDFORDSHIRE, MK43 9LZ            Authority: Environment Agency, Anglian Region            Permit Reference: Bj4841            Dated: 18th September 2000            Process Type: Permissions or amendments to discharge under the Water Industry Act 1991            Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations  <b>Status: Authorisation either revoked or cancelledCancelled</b>            Positional Accuracy: Manually positioned to the address or location</p>	C11SE (NE)	334	2	501772 242444
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants            Map Sheet: Sheet 31 Bedfordshire            Scale: 1:100,000</p>	(SE)	0	2	502524 240452
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Not classified            Map Sheet: Sheet 31 Bedfordshire            Scale: 1:100,000</p>	C7SW (NW)	0	2	501421 241772
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants            Map Sheet: Sheet 31 Bedfordshire            Scale: 1:100,000</p>	C5SE (W)	0	2	500431 241795
	<p><b>Groundwater Vulnerability</b></p> <p>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 31 Bedfordshire            Scale: 1:100,000</p>	(E)	0	2	502715 241306
	<p><b>Groundwater Vulnerability</b></p> <p>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 31 Bedfordshire            Scale: 1:100,000</p>	(SW)	0	2	501058 240915
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise            Map Sheet: Sheet 31 Bedfordshire            Scale: 1:100,000</p>	C2NE (SW)	0	2	501183 241400
	<p><b>Drift Deposits</b></p> <p>None</p>				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Bedrock Aquifer Designations</b> Aquifer Designation: Unproductive Strata	C7SW (NW)	0	4	501421 241772
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - A	(SW)	0	4	501045 240895
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	(SE)	0	4	502550 240416
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	(E)	0	4	502738 241349
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	C7SW (NW)	0	4	501347 241808
	<b>Extreme Flooding from Rivers or Sea without Defences</b> Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	C7SW (W)	47	2	501236 241786
	<b>Extreme Flooding from Rivers or Sea without Defences</b> Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	C7SW (W)	73	2	501234 241781
	<b>Flooding from Rivers or Sea without Defences</b> Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	C7SW (W)	49	2	501234 241781
	<b>Areas Benefiting from Flood Defences</b> None				
	<b>Flood Water Storage Areas</b> None				
	<b>Flood Defences</b> None				
13	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2SE (SW)	8	2	501103 241292
14	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7NE (NE)	13	2	501611 242161

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
15	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Secondary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7SW (NW)	14	2	501302 241823
16	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7NW (N)	18	2	501467 242209
17	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7NW (N)	18	2	501475 242209
18	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7NE (NE)	28	2	501611 242161
19	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7NW (N)	66	2	501518 242252
20	<b>Detailed River Network Lines</b> River Type: Lake/Reservoir River Name: Stewartby Lake Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2NE (W)	83	2	501096 241697

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2SE (SW)	86	2	501081 241305
22	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2NE (SW)	86	2	501119 241534
23	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C7NE (N)	131	2	501541 242313
24	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Secondary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2SE (SW)	132	2	501035 241337
25	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2SE (SW)	199	2	500974 241366
26	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	C2SE (SW)	199	2	500974 241366

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	<p><b>Detailed River Network Lines</b></p> <p>River Type: Tertiary River  River Name: Drain  Hydrographic Area: D005  River Flow Type: Primary Flow Path  River Surface Level: Surface  Drain Feature: Drain (ditch, Reen, Rhyne, Drain)  Flood Risk: Other Rivers  Management Status:  Water Course: Not Supplied  Name:  Water Course: Not Supplied  Reference:</p>	C11SE (N)	278	2	501600 242451
28	<p><b>Detailed River Network Lines</b></p> <p>River Type: Tertiary River  River Name: Drain  Hydrographic Area: D005  River Flow Type: Primary Flow Path  River Surface Level: Surface  Drain Feature: Drain (ditch, Reen, Rhyne, Drain)  Flood Risk: Other Rivers  Management Status:  Water Course: Not Supplied  Name:  Water Course: Not Supplied  Reference:</p>	C2NE (SW)	299	2	500879 241461
29	<p><b>Detailed River Network Lines</b></p> <p>River Type: Tertiary River  River Name: Not Supplied  Hydrographic Area: D005  River Flow Type: Primary Flow Path  River Surface Level: Surface  Drain Feature: Not a Drain  Flood Risk: Other Rivers  Management Status:  Water Course: Not Supplied  Name:  Water Course: Not Supplied  Reference:</p>	C2NE (SW)	301	2	500876 241406
30	<p><b>Detailed River Network Offline Drainage</b></p> <p>River Type: Tertiary River  Hydrographic Area: D005</p>	C3NE (SE)	296	2	501737 241500



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	<b>Historical Landfill Sites</b> Licence Holder: London Brick Landfill Limited Location: Stewartby, Bedford, Bedfordshire Name: Rookery Clay Pit Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD01024 First Input Date: 1st January 1971 Last Input Date: 1st April 1987 Specified Waste: Deposited Waste included Industrial and Household Waste, and Liquid Sludge Type: EA Waste Ref: 75174 Regis Ref: AX1/L/LON010 WRC Ref: 0200/0045 BGS Ref: Not Supplied Other Ref: 8/1977, PIT 80	C7SW (NW)	0	2	501421 241772
32	<b>Historical Landfill Sites</b> Licence Holder: Not Supplied Location: Bedfordshire Name: Stewarby Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD34280 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste: Not Supplied Type: EA Waste Ref: 0 Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: PIT 62	C7NW (N)	21	2	501487 242213
33	<b>Licensed Waste Management Facilities (Locations)</b> Licence Number: 75174 Location: Property Department, Stewartby, Bedford, Bedfordshire, MK43 9LZ Operator Name: London Brick Land Development Ltd Operator Location: Not Supplied Authority: Environment Agency - Anglian Region, Central Area Site Category: Co-disposal Landfill Sites <b>Licence Status: Surrendered</b> Issued: 5th December 1977 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: 28th April 1987 IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 100m	C3NW (S)	160	2	501500 241500
	<b>Local Authority Landfill Coverage</b> Name: Mid Bedfordshire District Council - Has supplied landfill data		0	10	501421 241772
	<b>Local Authority Landfill Coverage</b> Name: Bedfordshire County Council - Has no landfill data to supply		0	9	501421 241772
	<b>Local Authority Landfill Coverage</b> Name: Bedford Borough Council - Has supplied landfill data		11	3	501623 241848
34	<b>Registered Landfill Sites</b> Licence Holder: London Brick Co Licence Reference: 8/1977 Site Location: Rookery Clay Pit (North), Stewartby, Bedford, Bedfordshire Licence Easting: 501500 Licence Northing: 241500 Operator Location: Stewartby House, Stewartby, BEDFORD, Bedfordshire, MK43 9LZ Authority: Environment Agency - Anglian Region, Central Area Site Category: Landfill Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source: Waste produced/controlled by licence holder Restrictions: Status: Licence known to be surrenderedSurrendered Dated: 5th December 1977 Preceded By: Not Given Licence: Superseded By: Not Given Licence: Positional Accuracy: Approximate location provided by supplier Boundary Accuracy: Not Applicable Authorised Waste: Non-Hazardous Waste	C3NW (S)	160	2	501500 241500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	<p><b>Notification of Installations Handling Hazardous Substances (NIHHS)</b></p> <p>Name: London Brick Products Limited            Location: Stewartby, BEDFORD, Bedfordshire, MK43 9LZ  <b>Status: Record Ceased To Be Supplied Under NIHHS Regulations (1982)</b>            Positional Accuracy: Automatically positioned to the address</p>	C12SW (NE)	434	5	501874 242491
36	<p><b>Planning Hazardous Substance Consents</b></p> <p>Name: London Brick Company            Location: Stewartby Works, STEWARTBY, Bedfordshire, MK43            Authority: Bedford Borough Council            Application Ref: TP/92/1165/HS            Hazardous Substance: Extremely flammable (extremely flammable gases and liquids with a flash point &lt;21C and boiling point at normal pressure &lt;=35C, and gaseous substances flammable in contact with air at ambient temperature and pressure excluding extremely flammable gases and natural gas, and flammable liquid substances maintained at a temperature above their boiling point)            Maximum Quantity: 26            Application date: 25th September 1992  <b>Decision: Deemed Consent Granted</b>            Positional Accuracy: Located by supplier to within 10m</p>	C7NW (N)	16	6	501500 242205
37	<p><b>Planning Hazardous Substance Consents</b></p> <p>Name: London Brick            Location: Stewartby Works, Broadmead Road, STEWARTBY, Bedfordshire, MK43            Authority: Bedford Borough Council            Application Ref: 92/01165/Haz            Hazardous Substance: Extremely flammable (extremely flammable gases and liquids with a flash point &lt;21C and boiling point at normal pressure &lt;=35C, and gaseous substances flammable in contact with air at ambient temperature and pressure excluding extremely flammable gases and natural gas, and flammable liquid substances maintained at a temperature above their boiling point)            Maximum Quantity: 52            Application date: Not Supplied  <b>Decision: New application granted conditionally</b>            Positional Accuracy: Manually positioned to the address or location</p>	C11SE (NE)	373	6	501783 242484

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS 1:625,000 Solid Geology</b> Description: Oxford Clay and Kellaways Beds	C7SW (NW)	0	4	501421 241772
	<b>BGS Estimated Soil Chemistry</b> 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: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	C7SW (N)	0	7	501421 242000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	C3NW (SW)	0	7	501218 241498
	<b>BGS Estimated Soil Chemistry</b> 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: 30 - 45 mg/kg	C7SW (NW)	0	7	501351 241807
	<b>BGS Estimated Soil Chemistry</b> 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: 30 - 45 mg/kg	C7SW (NW)	0	7	501421 241772
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	C7SW (NW)	0	7	501347 241808
	<b>BGS Estimated Soil Chemistry</b> 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: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	C7SW (N)	0	7	501440 242000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C7SW (N)	29	7	501372 242000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C7SW (NW)	40	7	501284 241853
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C7SW (N)	43	7	501354 242000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C7SW (NW)	45	7	501278 241854
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C2NE (SW)	50	7	501185 241612
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C2NE (SW)	59	7	501145 241525

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C2NE (SW)	61	7	501000 241566
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C3NE (SE)	151	7	501544 241630
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C7NW (N)	153	7	501386 242320
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C2NE (SW)	196	7	501017 241573
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C2NE (SW)	209	7	501000 241579
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C6SE (W)	213	7	501000 241772

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C4SW (SE)	311	7	502000 241271
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8NW (NE)	337	7	501945 242232
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C4NW (SE)	360	7	502000 241462
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C6SE (NW)	373	7	501000 242000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8SW (NE)	377	7	501923 242000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C4SW (SE)	408	7	502127 241233

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8NW (NE)	416	7	502000 242175
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8SW (E)	416	7	502000 242000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8NW (NE)	438	7	502042 242202
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8SW (E)	449	7	502000 241938
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	C8SW (E)	471	7	502000 241772
38	<p><b>BGS Recorded Mineral Sites</b></p> <p>Site Name: Rookery</p> <p>Location: , Stewartby, Bedford</p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Reference: 233</p> <p>Type: Opencast</p> <p><b>Status: Ceased</b></p> <p>Operator: London Brick Co Ltd</p> <p>Operator Location: London Brick Co Ltd, Arden House, West Street, Leighton Buzzard, Bedfordshire, Lu7 7dd</p> <p>Periodic Type: Jurassic</p> <p>Geology: Peterborough Member (Lower Oxford Clay)</p> <p>Commodity: Common Clay and Shale</p> <p>Positional Accuracy: Located by supplier to within 10m</p>	C7SE (E)	345	4	501795 241755

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
39	<b>BGS Recorded Mineral Sites</b> Site Name: Stewartby Brick Works Location: , Stewartby, Kempston, Bedfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 35259 Type: Opencast <b>Status: Ceased</b> Operator: London Brick Co Ltd Operator Location: London Brick Co Ltd, Arden House, West Street, Leighton Buzzard, Bedfordshire, Lu7 7dd Periodic Type: Jurassic Geology: Oxford Clay Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	C11SW (N)	423	4	501500 242615
	<b>BGS Measured Urban Soil Chemistry</b> No data available				
	<b>BGS Urban Soil Chemistry Averages</b> No data available				
	<b>Coal Mining Affected Areas</b> In an area that might not be affected by coal mining				
	<b>Non Coal Mining Areas of Great Britain</b> No Hazard				
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501347 241806
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C7NE (N)	13	4	501588 242181
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	36	4	501282 241846
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C7NW (N)	144	4	501389 242314
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	162	4	501551 241622
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C4SW (SE)	0	4	502117 241072
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	0	4	501534 241580
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C3NW (SW)	0	4	501243 241585
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C7SW (W)	0	4	501322 241750
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	173	4	501561 241622



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C3NE (S)	232	4	501544 241415
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C3SE (SE)	250	4	501652 241378
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C7SW (N)	0	4	501380 241880
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C2NE (SW)	70	4	501108 241452
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C6SE (W)	74	4	501184 241793
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3NE (SE)	162	4	501551 241622
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C3SW (S)	0	4	501499 241187
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Radon Potential - Radon Protection Measures</b> Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	C7SW (NW)	0	4	501421 241772
	<b>Radon Potential - Radon Affected Areas</b> 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	C7SW (NW)	0	4	501421 241772

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Eutrophic Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	C7SW (NW)	0	8	501308 241820
41	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	C7SW (NW)	0	8	501421 241772
42	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	C7SW (NW)	0	8	501421 241772

Agency & Hydrological	Version	Update Cycle
<b>Contaminated Land Register Entries and Notices</b> Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	December 2013 February 2013 July 2008	Annually Annual Rolling Update Not Applicable
<b>Discharge Consents</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Enforcement and Prohibition Notices</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Integrated Pollution Controls</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Integrated Pollution Prevention And Control</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Local Authority Integrated Pollution Prevention And Control</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Controls</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Control Enforcements</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Nearest Surface Water Feature</b> Ordnance Survey	July 2012	Quarterly
<b>Pollution Incidents to Controlled Waters</b> Environment Agency - Anglian Region	September 1999	Not Applicable
<b>Prosecutions Relating to Authorised Processes</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Prosecutions Relating to Controlled Waters</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Registered Radioactive Substances</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>River Quality</b> Environment Agency - Head Office	November 2001	Not Applicable
<b>River Quality Biology Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>River Quality Chemistry Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>Substantiated Pollution Incident Register</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Water Abstractions</b> Environment Agency - Anglian Region	July 2014	Quarterly
<b>Water Industry Act Referrals</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Groundwater Vulnerability</b> Environment Agency - Head Office	January 2011	Not Applicable

Agency & Hydrological	Version	Update Cycle
<b>Drift Deposits</b> Environment Agency - Head Office	January 1999	Not Applicable
<b>Bedrock Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Superficial Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Source Protection Zones</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Extreme Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Areas Benefiting from Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Water Storage Areas</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Detailed River Network Lines</b> Environment Agency - Head Office	March 2012	Annually
<b>Detailed River Network Offline Drainage</b> Environment Agency - Head Office	March 2012	Annually
Waste	Version	Update Cycle
<b>BGS Recorded Landfill Sites</b> British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
<b>Historical Landfill Sites</b> Environment Agency - Anglian Region - Central Area	May 2014	Quarterly
<b>Integrated Pollution Control Registered Waste Sites</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Licensed Waste Management Facilities (Landfill Boundaries)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Licensed Waste Management Facilities (Locations)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Local Authority Landfill Coverage</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Local Authority Recorded Landfill Sites</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	April 2003 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Registered Landfill Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Transfer Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Treatment or Disposal Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
<b>Control of Major Accident Hazards Sites (COMAH)</b> Health and Safety Executive	August 2014	Bi-Annually
<b>Explosive Sites</b> Health and Safety Executive	November 2013	Bi-Annually
<b>Notification of Installations Handling Hazardous Substances (NIHHS)</b> Health and Safety Executive	November 2000	Not Applicable
<b>Planning Hazardous Substance Enforcements</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
<b>Planning Hazardous Substance Consents</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
Geological	Version	Update Cycle
<b>BGS 1:625,000 Solid Geology</b> British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
<b>BGS Estimated Soil Chemistry</b> British Geological Survey - National Geoscience Information Service	January 2010	Annually
<b>BGS Recorded Mineral Sites</b> British Geological Survey - National Geoscience Information Service	April 2014	Bi-Annually
<b>Brine Compensation Area</b> Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
<b>Coal Mining Affected Areas</b> The Coal Authority - Mining Report Service	December 2013	As notified
<b>Mining Instability</b> Ove Arup & Partners	October 2000	Not Applicable
<b>Non Coal Mining Areas of Great Britain</b> British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
<b>Potential for Collapsible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Compressible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Ground Dissolution Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Landslide Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Running Sand Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Radon Potential - Radon Affected Areas</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually
<b>Radon Potential - Radon Protection Measures</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
<b>Contemporary Trade Directory Entries</b> Thomson Directories	August 2014	Quarterly
<b>Fuel Station Entries</b> Catalist Ltd - Experian	August 2014	Quarterly
Sensitive Land Use	Version	Update Cycle
<b>Areas of Adopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	August 2014	As notified
<b>Areas of Unadopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	August 2014	As notified
<b>Areas of Outstanding Natural Beauty</b> Natural England	August 2014	Bi-Annually
<b>Environmentally Sensitive Areas</b> Natural England	August 2014	Annually
<b>Forest Parks</b> Forestry Commission	April 1997	Not Applicable
<b>Local Nature Reserves</b> Natural England	October 2014	Bi-Annually
<b>Marine Nature Reserves</b> Natural England	July 2013	Bi-Annually
<b>National Nature Reserves</b> Natural England	September 2014	Bi-Annually
<b>National Parks</b> Natural England	August 2014	Bi-Annually
<b>Nitrate Sensitive Areas</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
<b>Nitrate Vulnerable Zones</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	July 2014	Annually
<b>Ramsar Sites</b> Natural England	March 2014	Bi-Annually
<b>Sites of Special Scientific Interest</b> Natural England	September 2014	Bi-Annually
<b>Special Areas of Conservation</b> Natural England	March 2014	Bi-Annually
<b>Special Protection Areas</b> Natural England	September 2014	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Centre for Ecology and Hydrology	 <p><b>Centre for Ecology &amp; Hydrology</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
2	<b>Environment Agency - National Customer Contact Centre (NCCC)</b> PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
3	<b>Bedford Borough Council - Environmental Health Department</b> Town Hall, St Pauls Street, Bedford, Bedfordshire, MK40 1SJ	Telephone: 01234 267422 Fax: 01234 325671 Email: enquiries@bedford.gov.uk Website: www.bedford.gov.uk
4	<b>British Geological Survey - Enquiry Service</b> 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
5	<b>Health and Safety Executive</b> 5S.2 Redgrave Court, Merton Road, Bootle, L20 7HS	Website: www.hse.gov.uk
6	<b>Bedford Borough Council</b> Town Hall, St Pauls Square, Bedford, Bedfordshire, MK40 1SJ	Telephone: 01234 267422 Fax: 01234 221606 Website: www.bedford.gov.uk
7	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
8	<b>Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)</b> Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
9	<b>Bedfordshire County Council (now part of Central Bedfordshire Council)</b> County Hall, Cauldwell Street, Bedford, Bedfordshire, MK42 9AP	Telephone: 01234 363222 Fax: 01234 228656 Website: www.bedfordshire.gov.uk
10	<b>Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department</b> 23 London Road, Biggleswade, Bedford, Bedfordshire, SG18 8ER	Telephone: 01767 313137 Fax: 01767 316717 Website: www.midbeds.gov.uk
-	<b>Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards</b> Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



# 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		
	<b>-285</b> Surface Level				
	Sketched Contour		Instrumental Contour		
	Main Roads		Minor Roads		
	Sunken Road		Raised Road		
	Road over Railway		Railway over River		
	Railway over Road		Level Crossing		
	Road over River or Canal		Road over Stream		
	Road over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Burgh Boundary (Scotland)				
	Rural District Boundary				
	Civil Parish Boundary				

## Ordnance Survey Plan 1:10,000

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

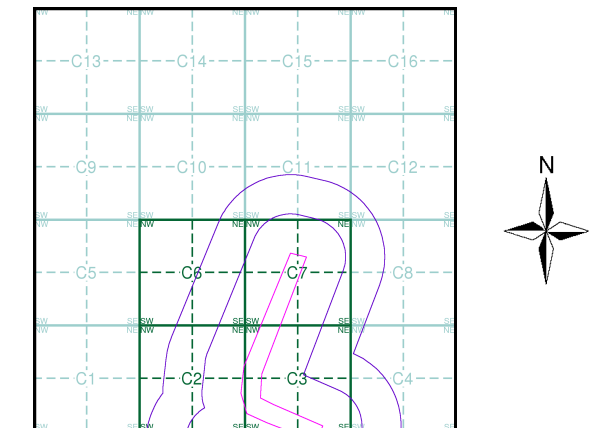
	Gravel Pit		Refuse tip or slag heap
	Rock		Rock (scattered)
	Boulders		Boulders (scattered)
	Shingle		Mud
	Sand		Sand Pit
	Slopes		Top of cliff
	General detail		Underground detail
	Overhead detail		Narrow gauge railway
	Multi-track railway		Single track railway
	County boundary (England only)		Civil, 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)
	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
Bedfordshire	1:10,560	1883 - 1884	2
Buckinghamshire	1:10,560	1885	3
Bedfordshire	1:10,560	1901 - 1902	4
Bedfordshire	1:10,560	1927	5
Bedfordshire	1:10,560	1938	6
Bedfordshire	1:10,560	1946 - 1948	7
Ordnance Survey Plan	1:10,000	1960	8
Ordnance Survey Plan	1:10,000	1982 - 1983	9
Ordnance Survey Plan	1:10,000	1990	10
10K Raster Mapping	1:10,000	2006	11
VectorMap Local	1:10,000	2014	12

## Historical Map - Slice C



## Order Details

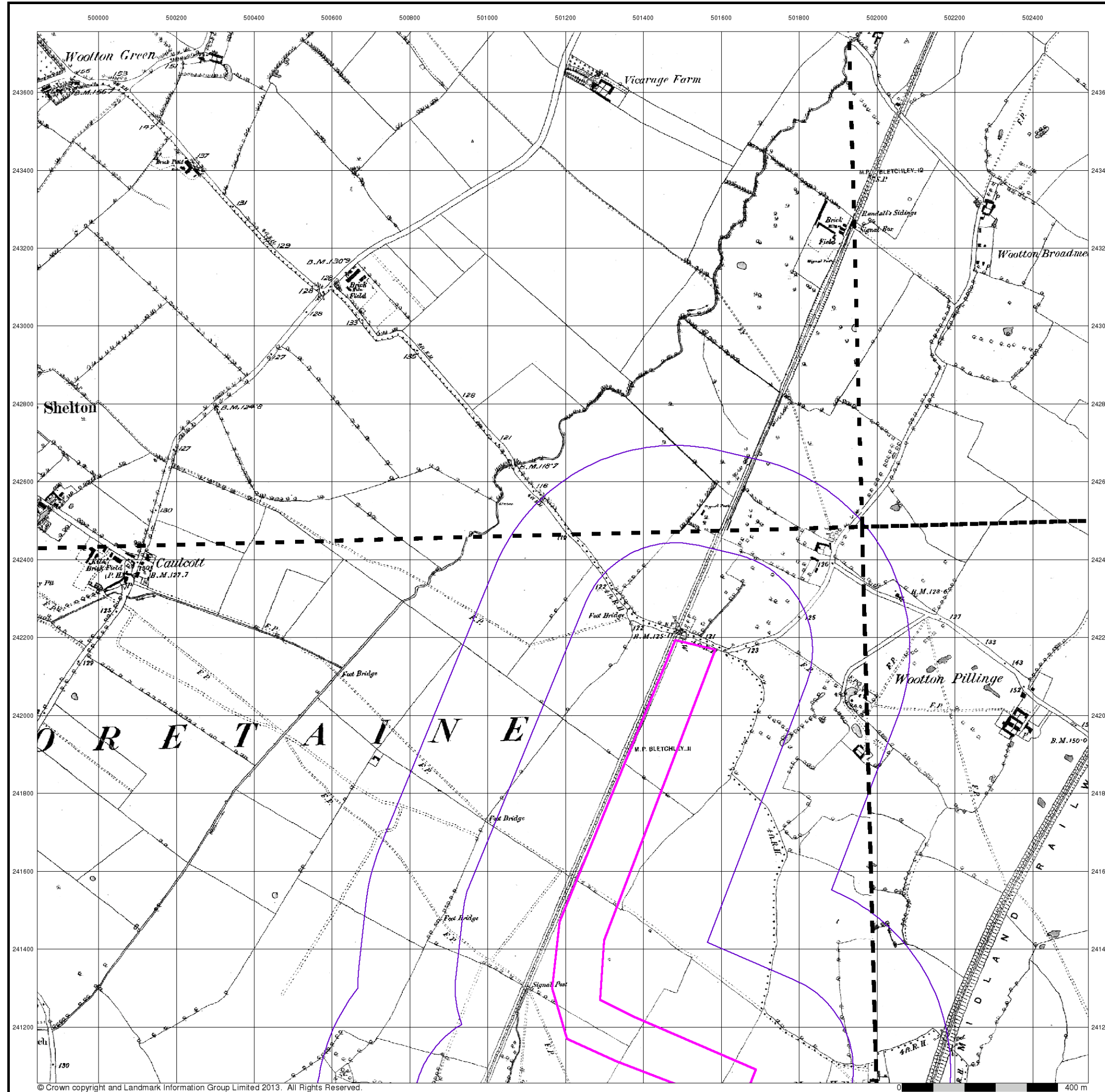
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

## Site Details

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**Bedfordshire**

**Published 1883 - 1884**

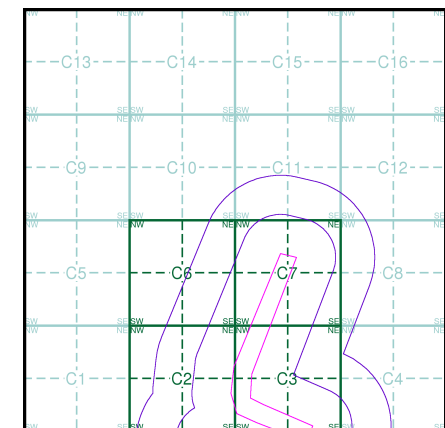
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

016SW 1884 1:10,560	016SE 1883 1:10,560
021NW 1883 1:10,560	021NE 1884 1:10,560

**Historical Map - Slice C**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
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500000 500200 500400 500600 500800 501000 501200 501400 501600 501800 502000 502200 502400



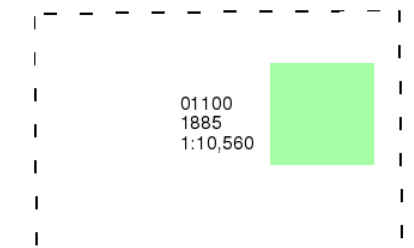
### Buckinghamshire

Published 1885

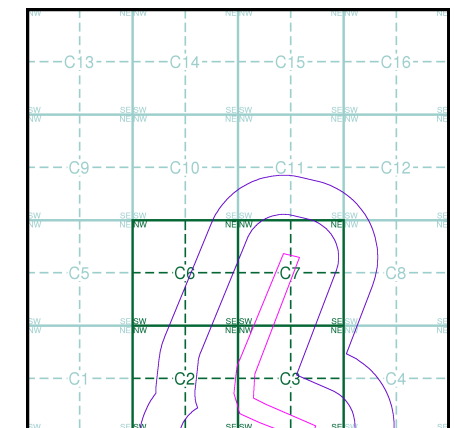
Source map scale - 1:10,560

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

### Map Name(s) and Date(s)



### Historical Map - Slice C



### Order Details

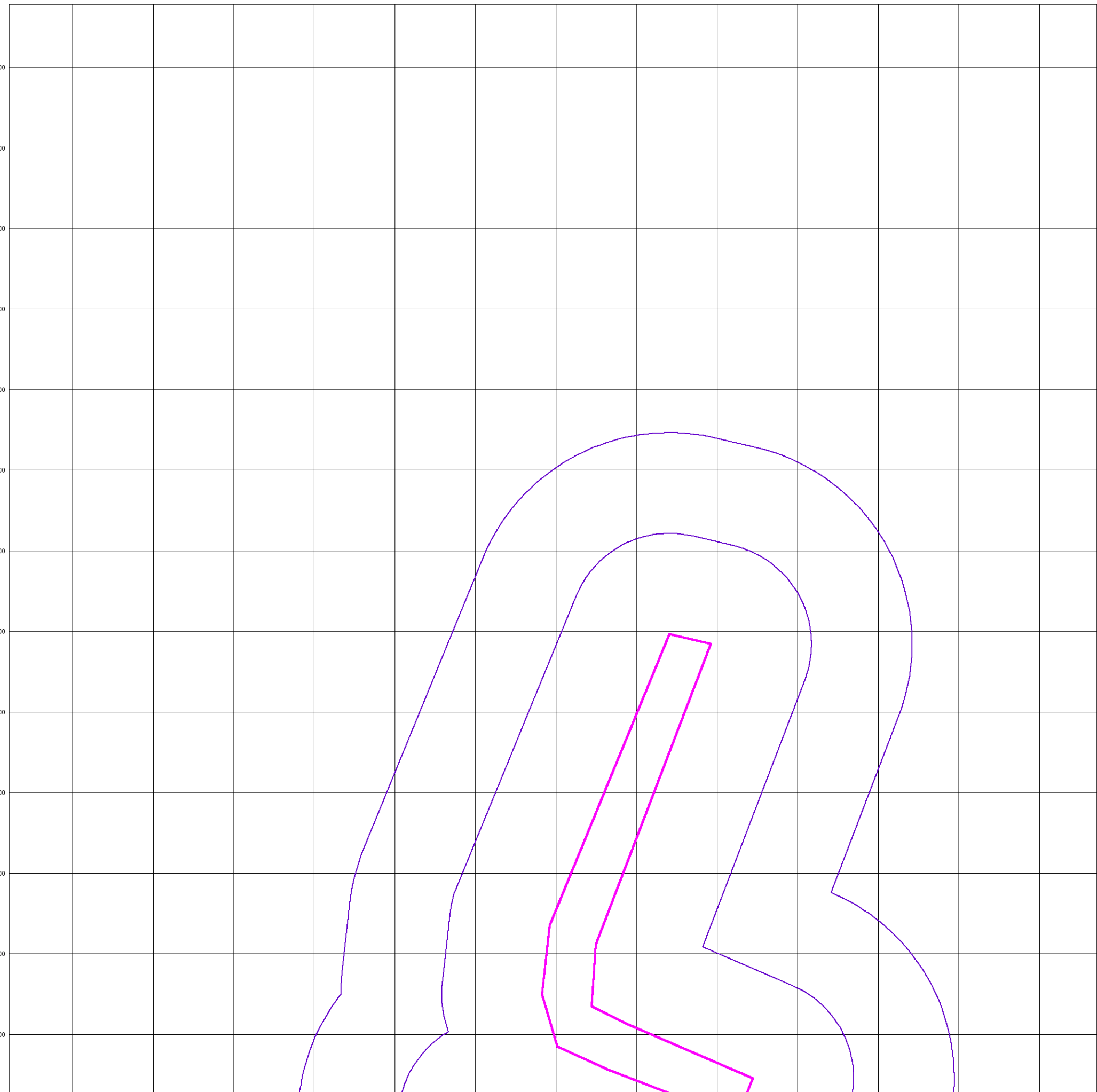
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Site Area (Ha): 240.61  
Search Buffer (m): 500

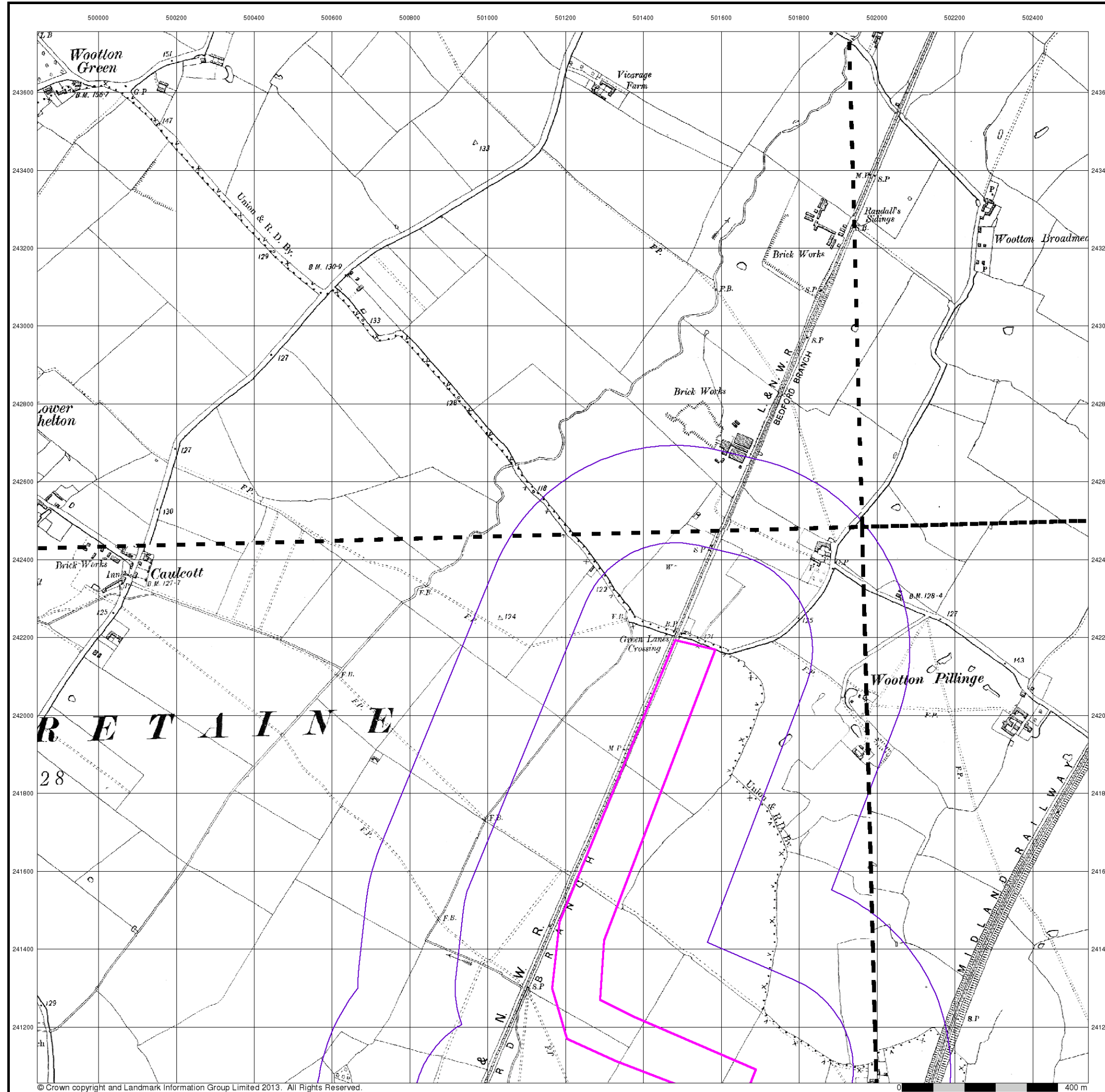
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**Bedfordshire**

**Published 1901 - 1902**

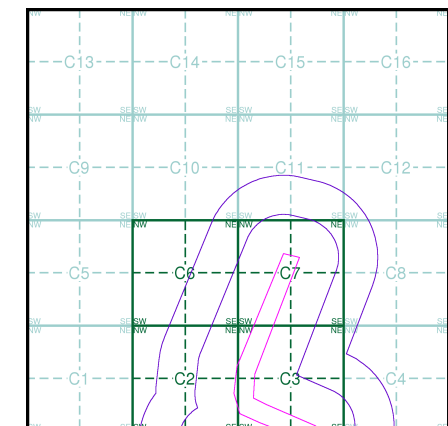
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

016SW 1902 1:10,560	016SE 1902 1:10,560
021NW 1901 1:10,560	021NE 1901 1:10,560

**Historical Map - Slice C**



**Order Details**

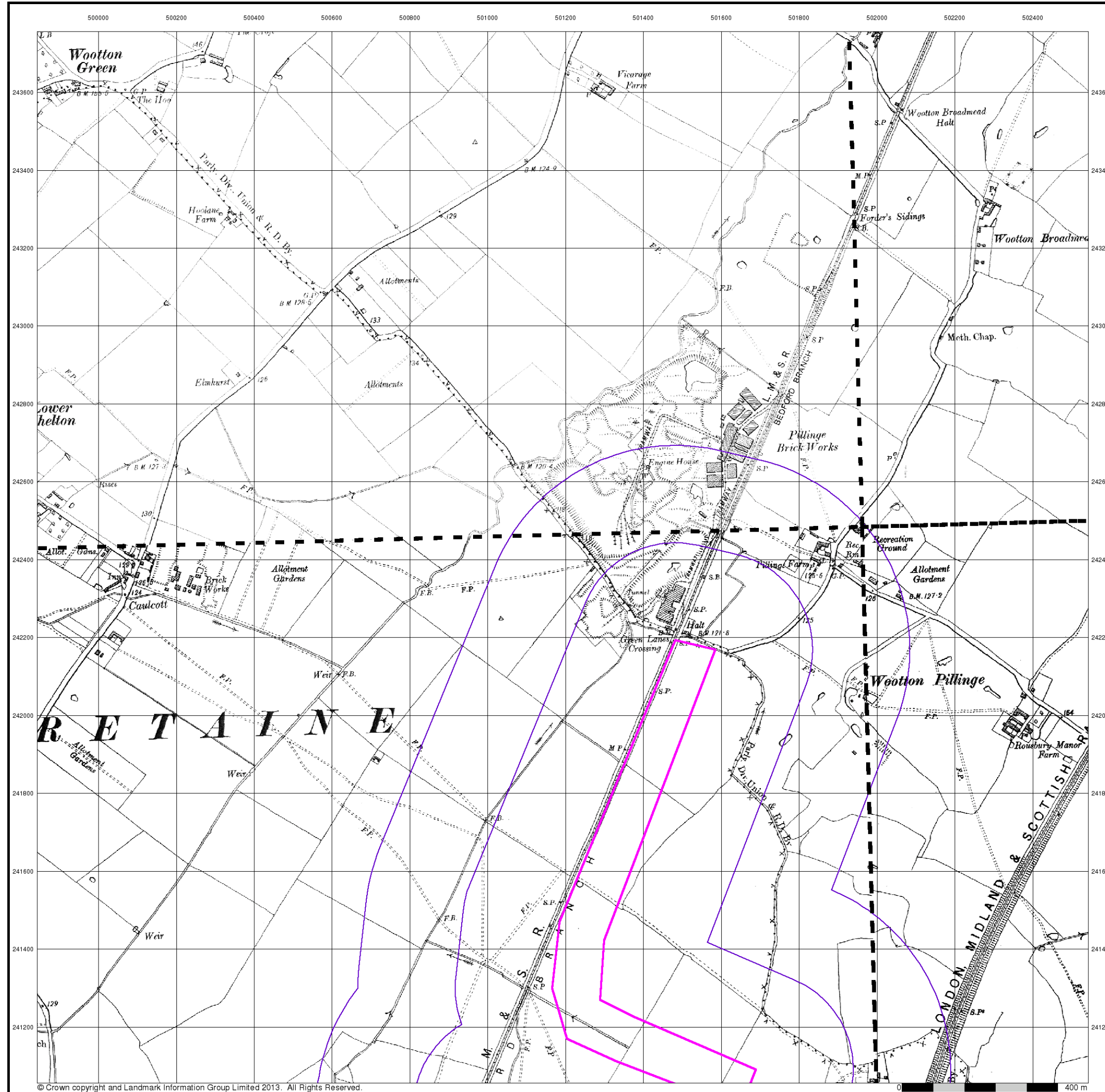
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

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**Bedfordshire**  
**Published 1927**

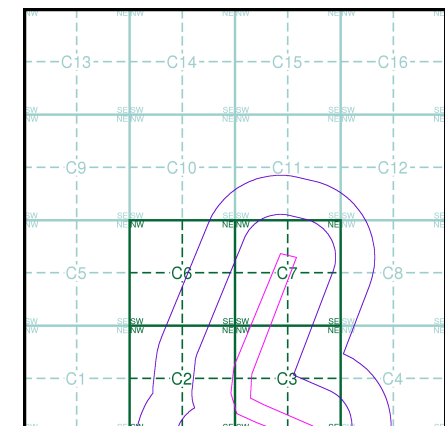
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

016SW 1927 1:10,560	016SE 1927 1:10,560
021NW 1927 1:10,560	021NE 1927 1:10,560

**Historical Map - Slice C**



**Order Details**

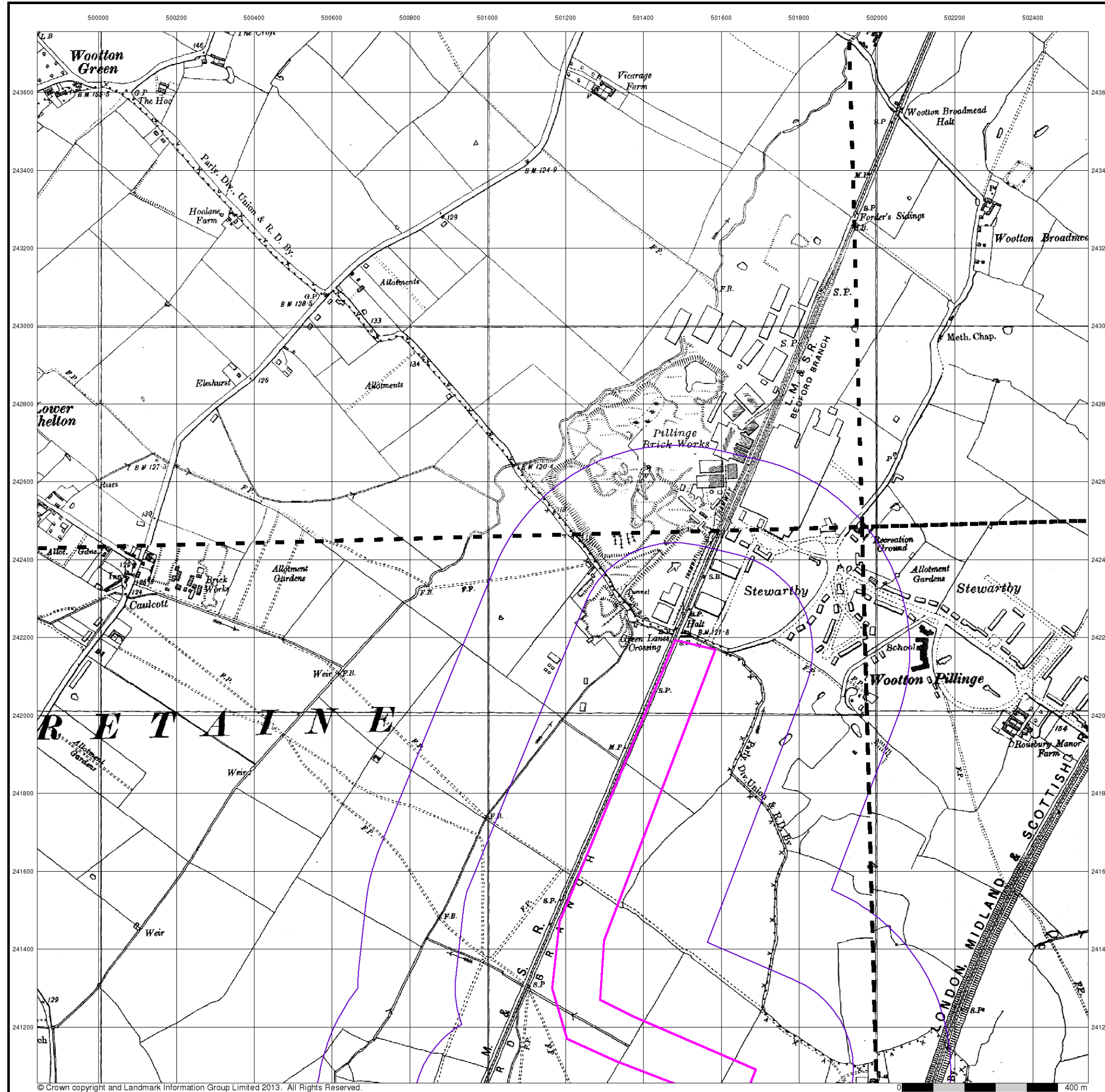
Order Number: 60770728\_1\_1  
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 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

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**Bedfordshire**  
**Published 1938**

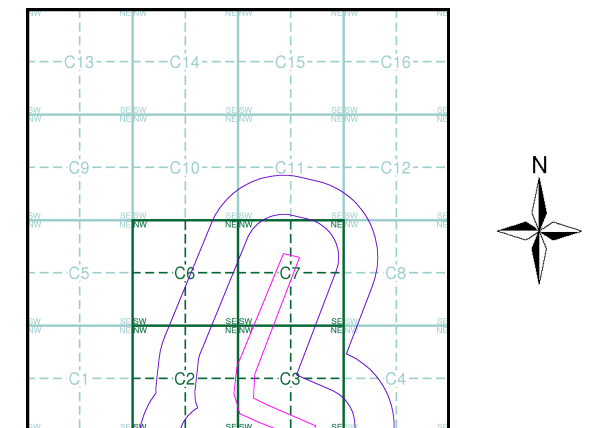
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

016SW 1938 1:10,560	016SE 1938 1:10,560
021NW 1938 1:10,560	021NE 1938 1:10,560

**Historical Map - Slice C**



**Order Details**

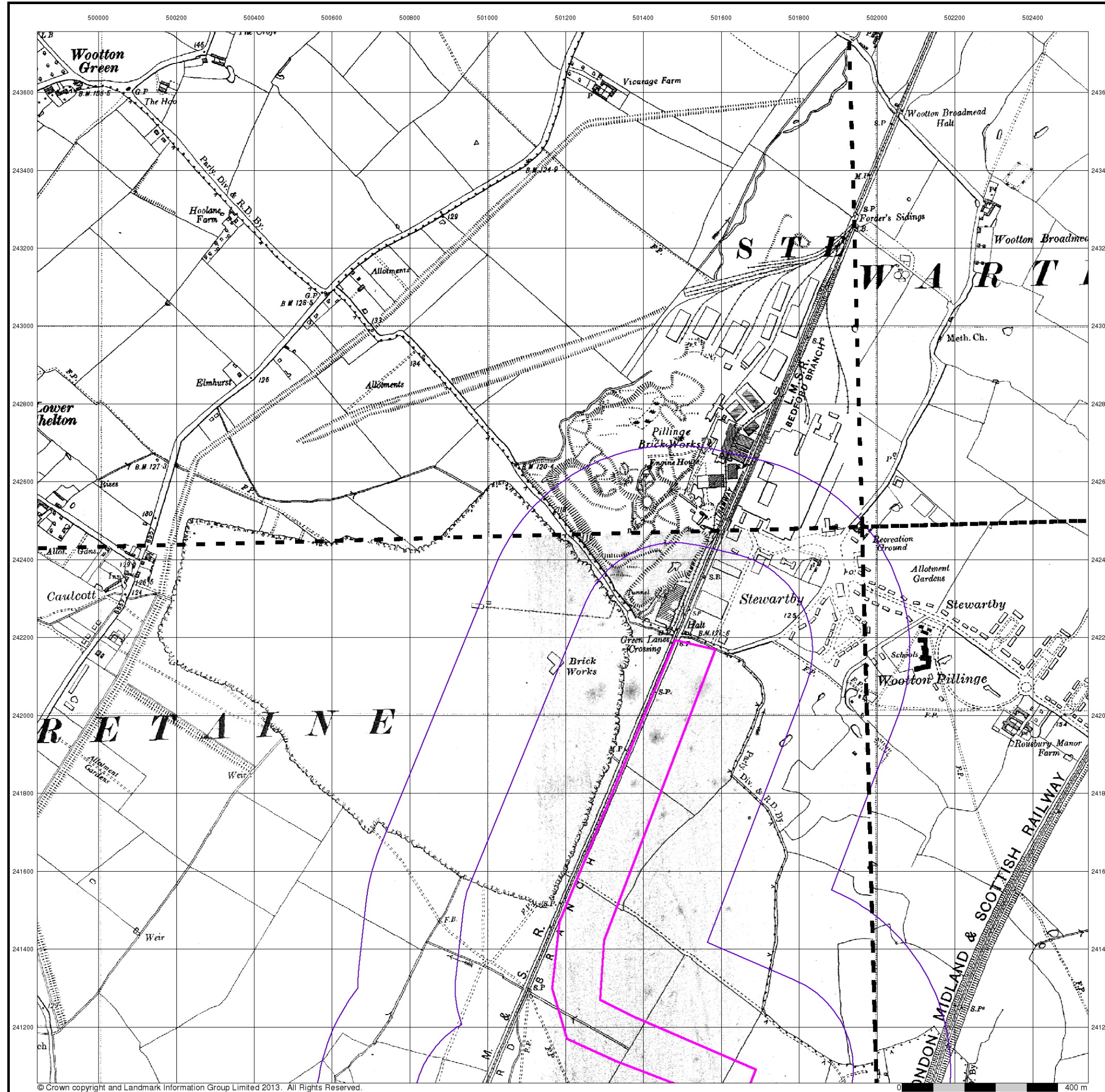
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 Site Area (Ha): 240.61  
 Search Buffer (m): 500

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**Bedfordshire**

**Published 1946 - 1948**

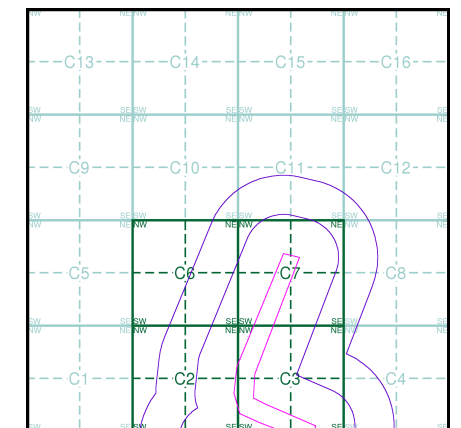
**Source map scale - 1:10,560**

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

**Map Name(s) and Date(s)**

016SW 1946 1:10,560	016SE 1948 1:10,560
021NW 1947 1:10,560	021NE 1948 1:10,560

**Historical Map - Slice C**



**Order Details**

Order Number: 60770728\_1\_1  
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**Site Details**

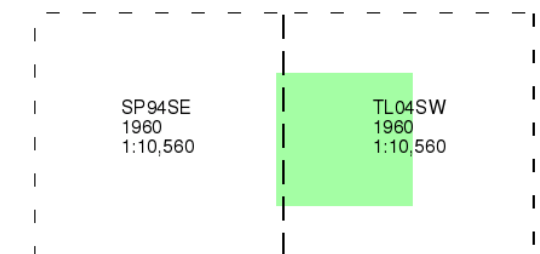
Millbrook Power Project, Green Lane, Stewartby



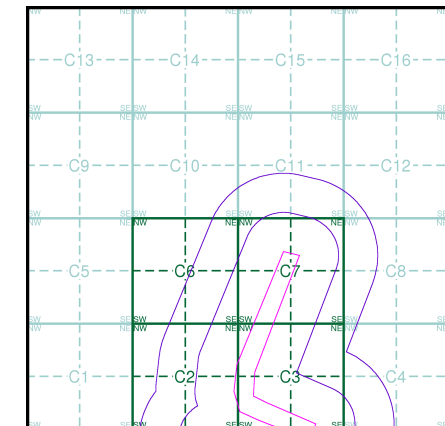
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**Map Name(s) and Date(s)**



**Historical Map - Slice C**

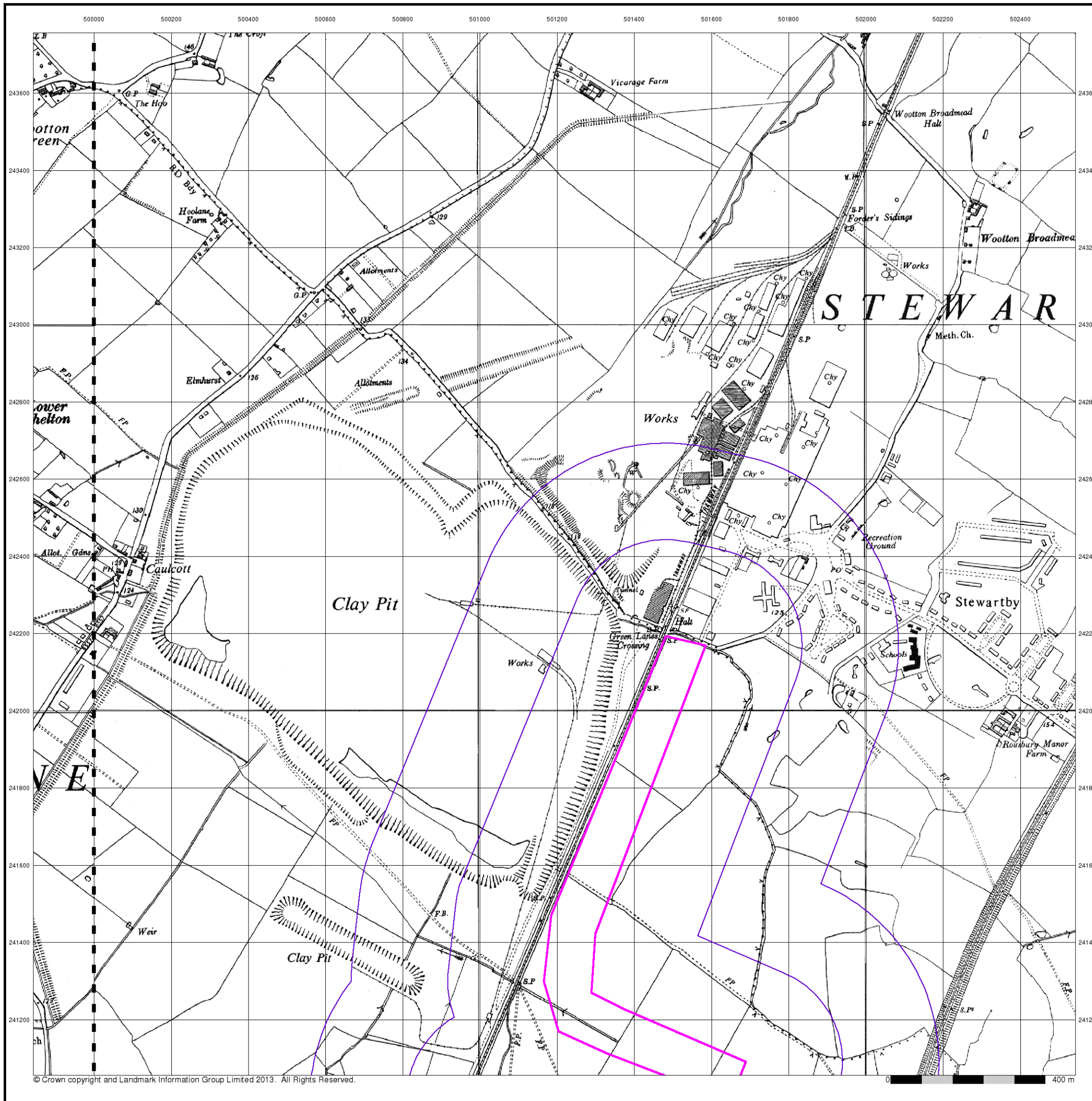


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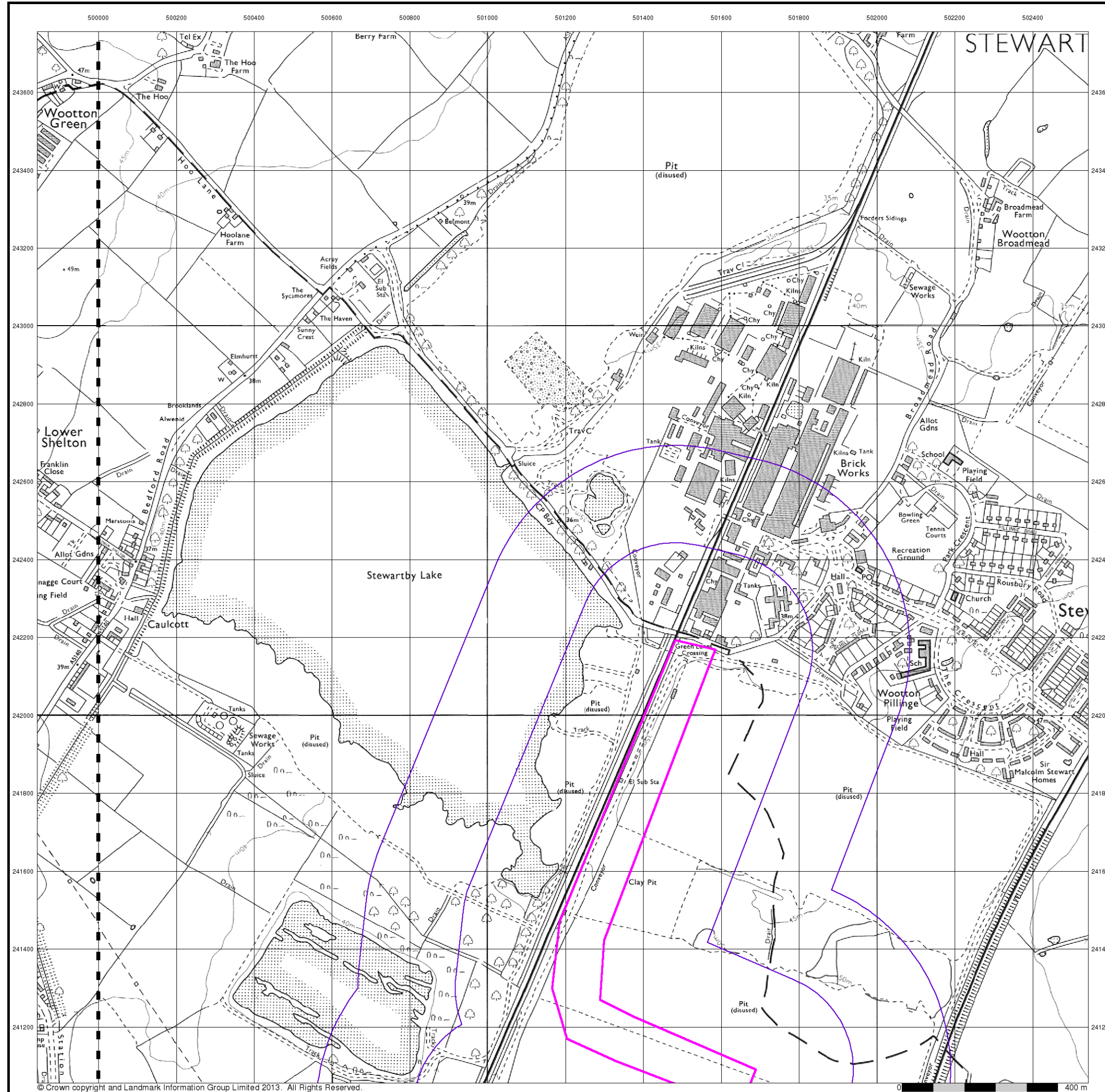
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**Site Details**

Millbrook Power Project, Green Lane, Stewartby



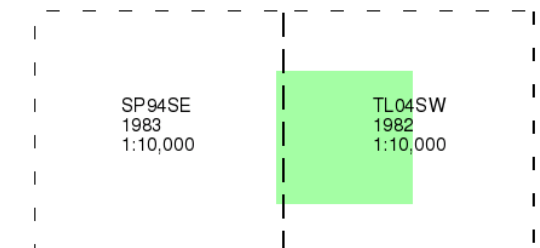




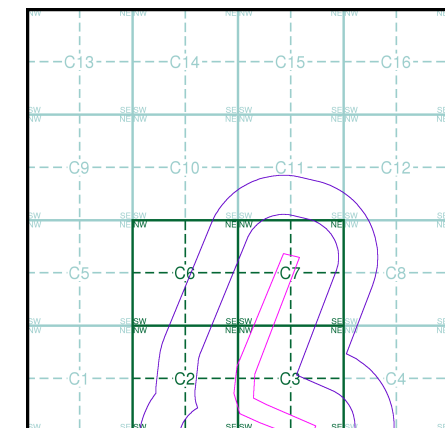
**Ordnance Survey Plan**  
**Published 1982 - 1983**  
**Source map scale - 1:10,000**

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

**Map Name(s) and Date(s)**



**Historical Map - Slice C**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

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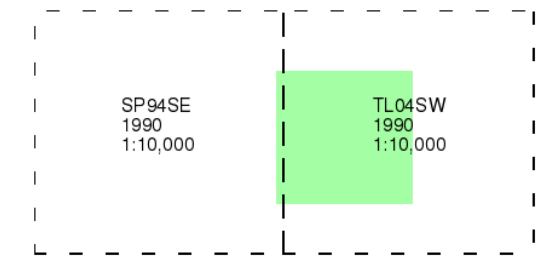
### Ordnance Survey Plan

Published 1990

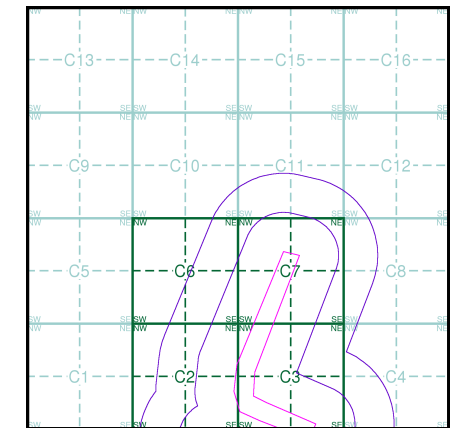
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### Map Name(s) and Date(s)



### Historical Map - Slice C



### Order Details

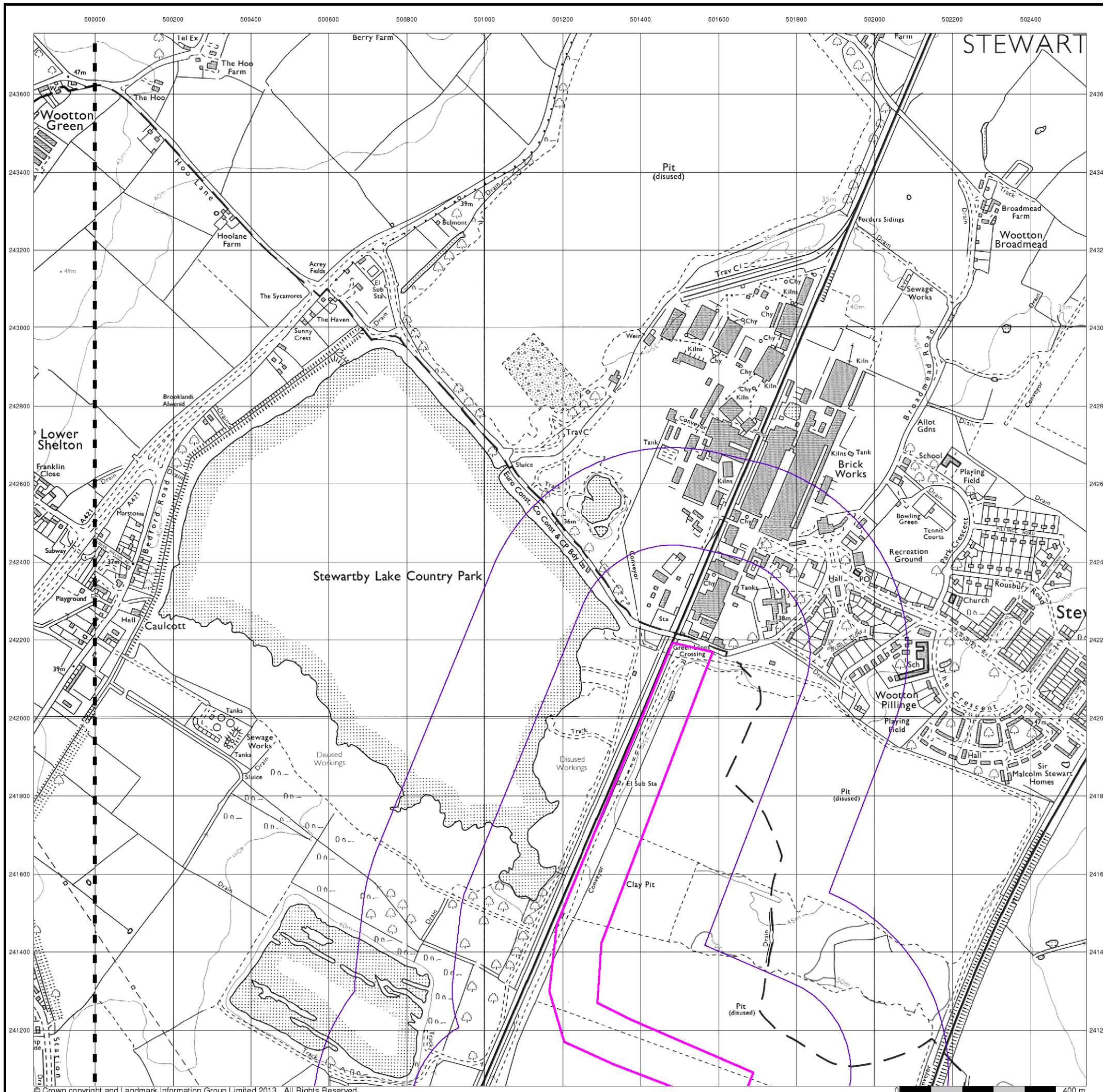
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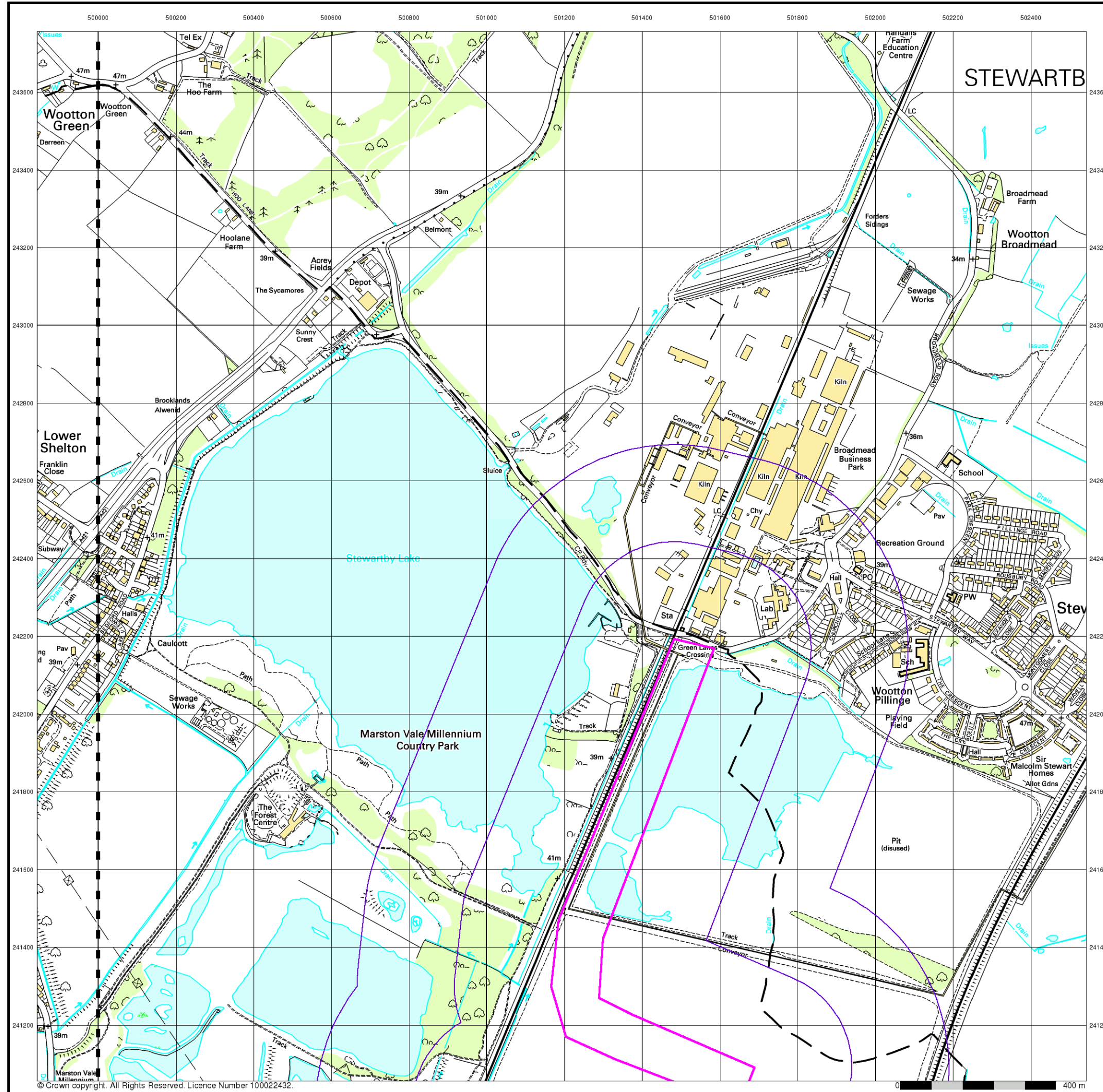
### Site Details

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Fax: 0844 844 9951  
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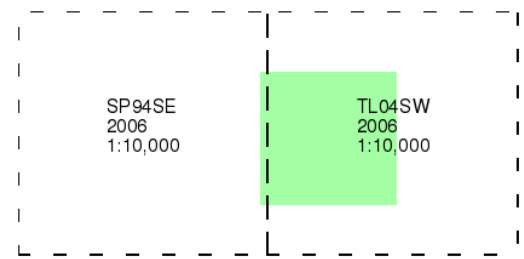




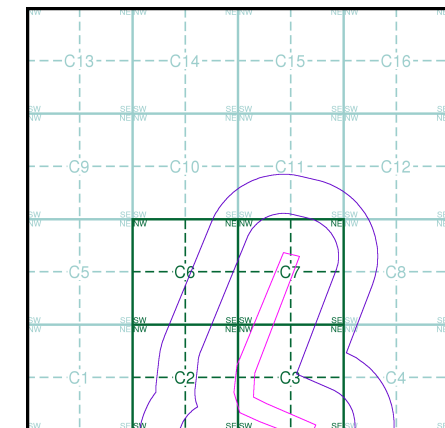
**10k Raster Mapping**  
**Published 2006**  
**Source map scale - 1:10,000**

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

**Map Name(s) and Date(s)**



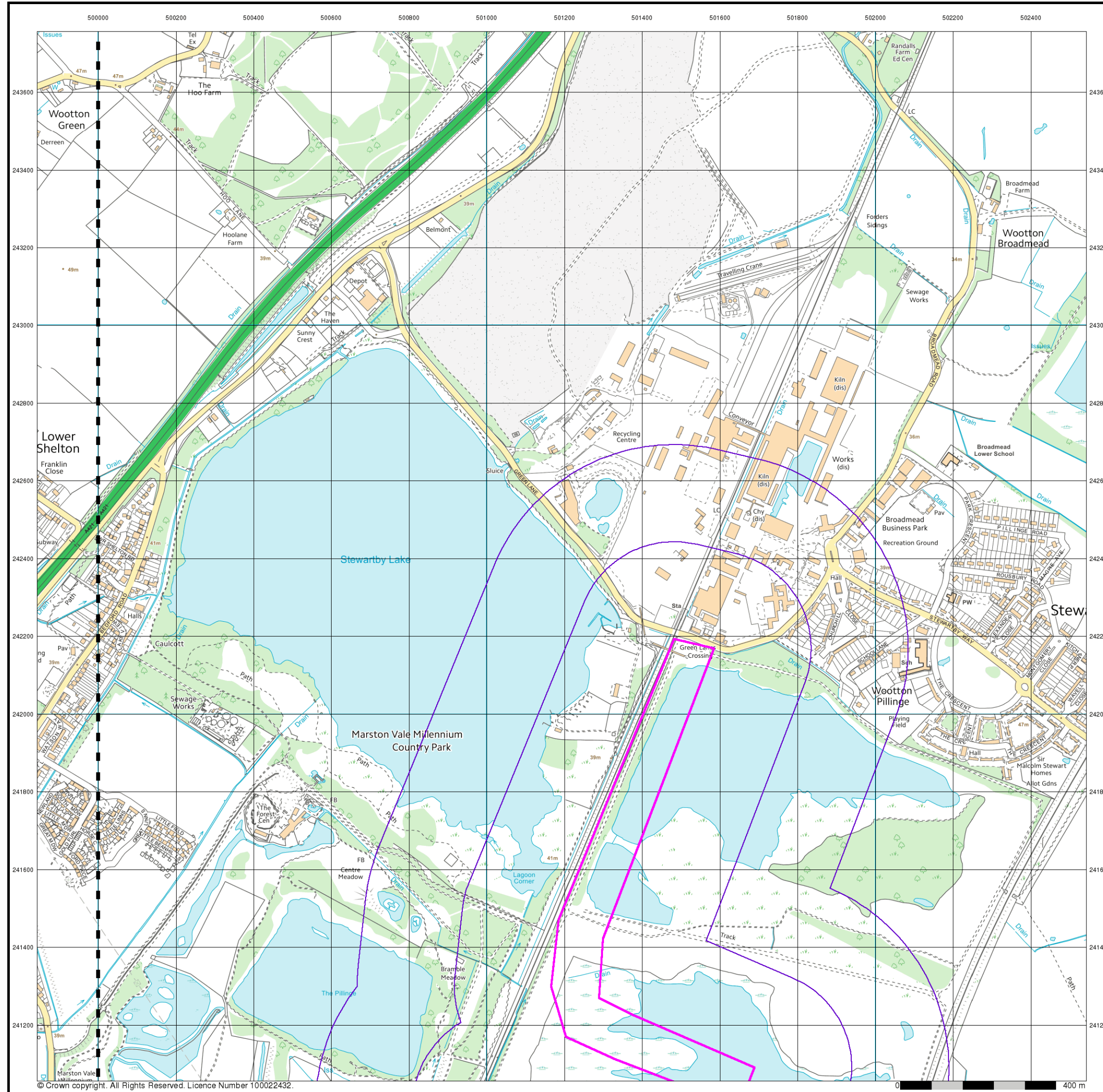
**Historical Map - Slice C**



**Order Details**  
 Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**  
 Millbrook Power Project, Green Lane, Stewartby

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



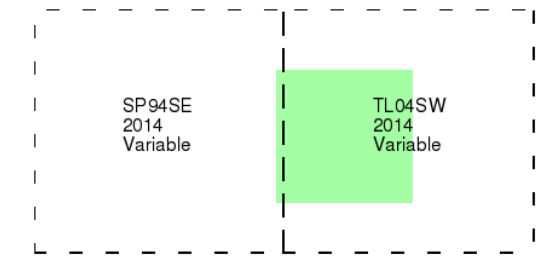
**VectorMap Local**

**Published 2014**

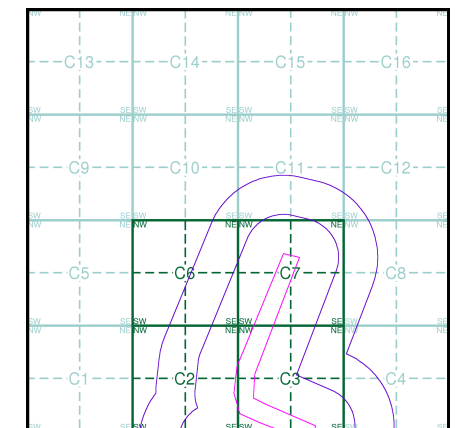
**Source map scale - 1:10,000**

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

**Map Name(s) and Date(s)**



**Historical Map - Slice C**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**

- 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

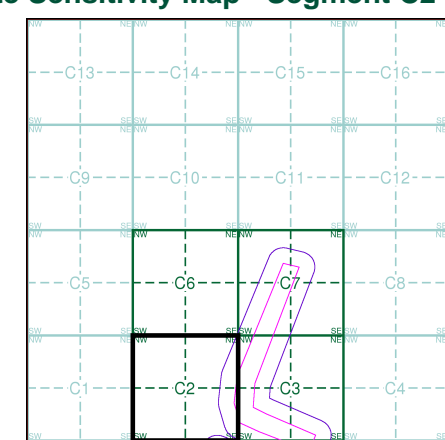
**Geological**

- BGS Recorded Mineral Site

**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment C2**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

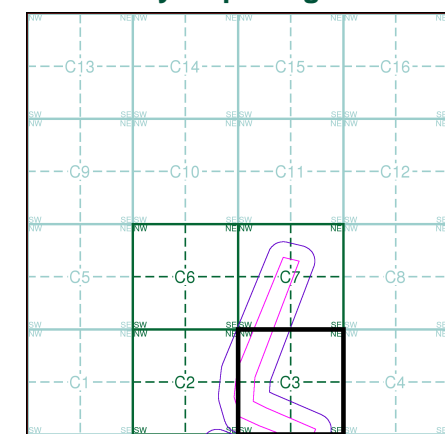
**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry

**Hazardous Substances**

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

**Site Sensitivity Map - Segment C3**

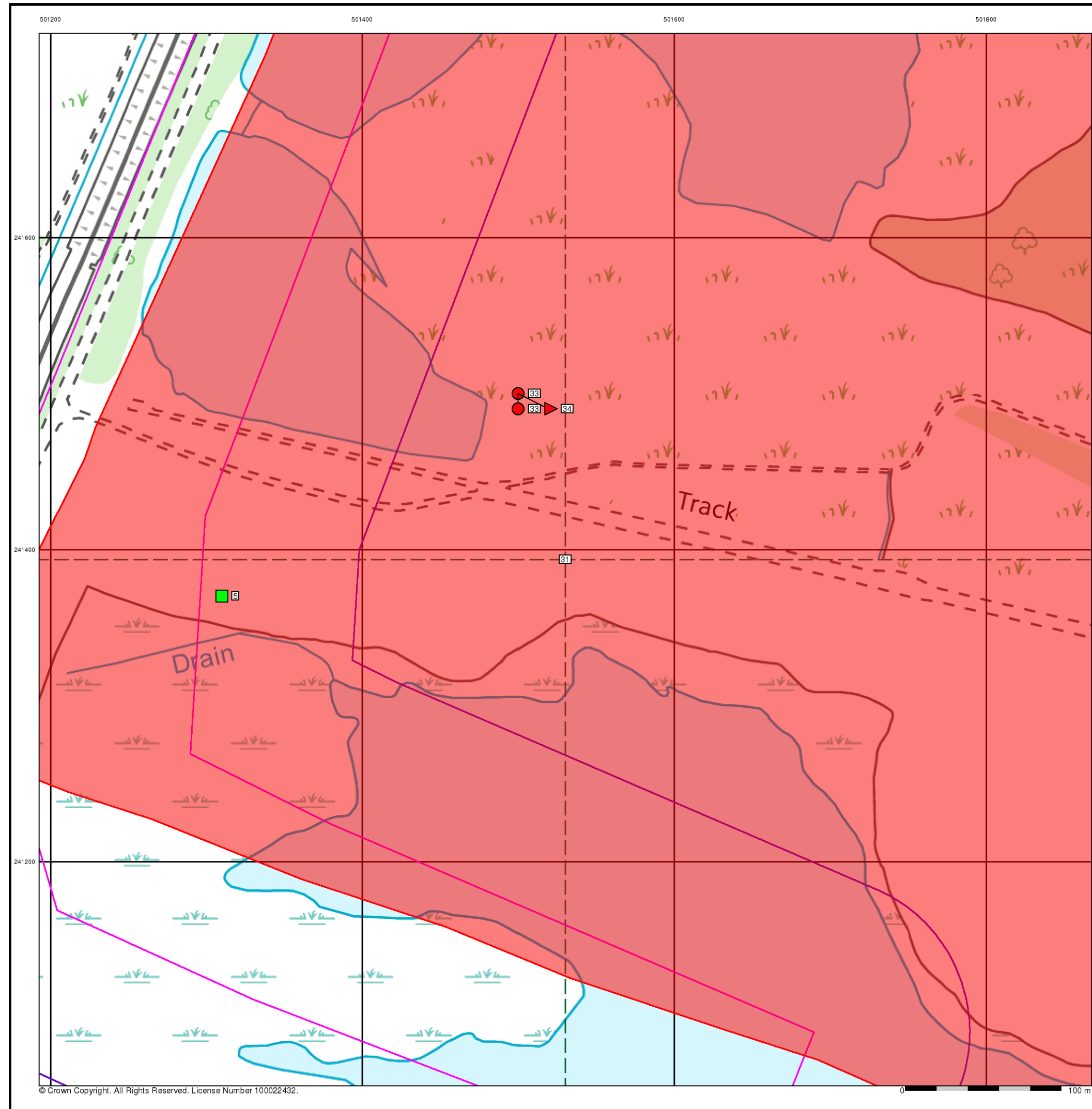


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



**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

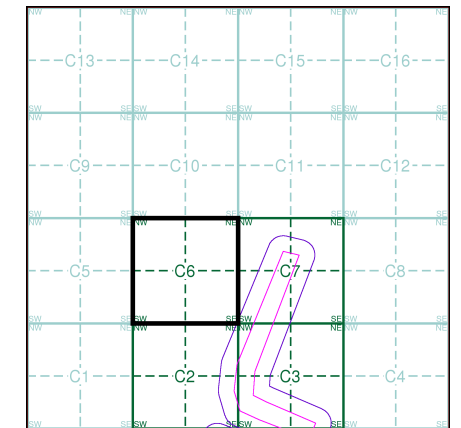
**Geological**

- BGS Recorded Mineral Site

**Industrial Land Use**

- Contemporary Trade Directory Entry
- Fuel Station Entry
- COMAH Site
- Explosive Site
- NIHHS Site
- Planning Hazardous Substance Consent
- Planning Hazardous Substance Enforcement

**Site Sensitivity Map - Segment C6**

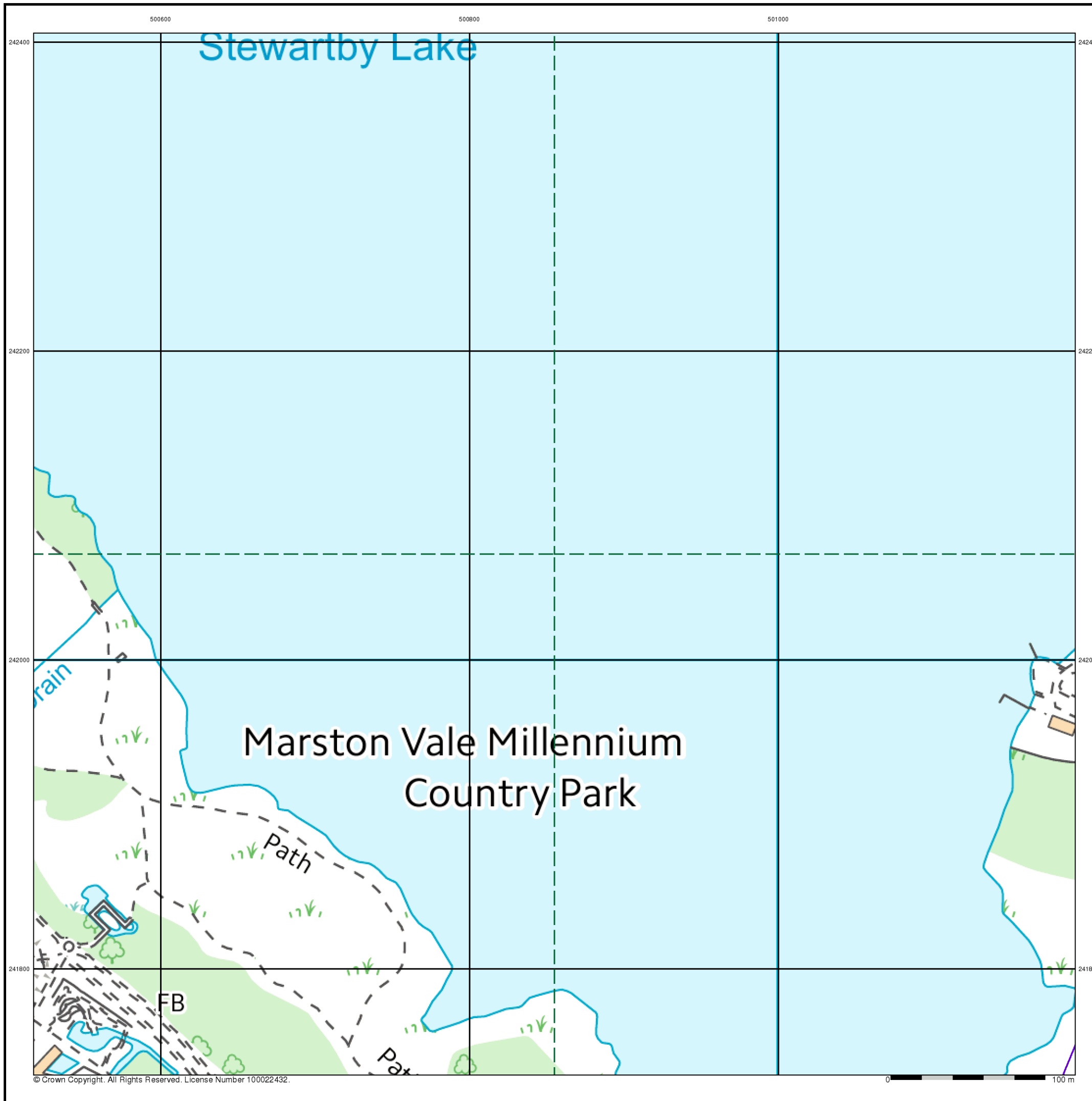


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61

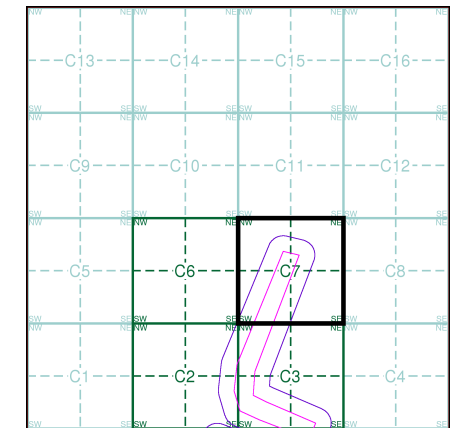
**Site Details**

Millbrook Power Project, Green Lane, Stewartby



- 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 Enforcement
  - 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
- Hazardous Substances**
- COMAH Site
  - Explosive Site
  - NIHHS Site
  - Planning Hazardous Substance Consent
  - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
  - Fuel Station Entry

### Site Sensitivity Map - Segment C7

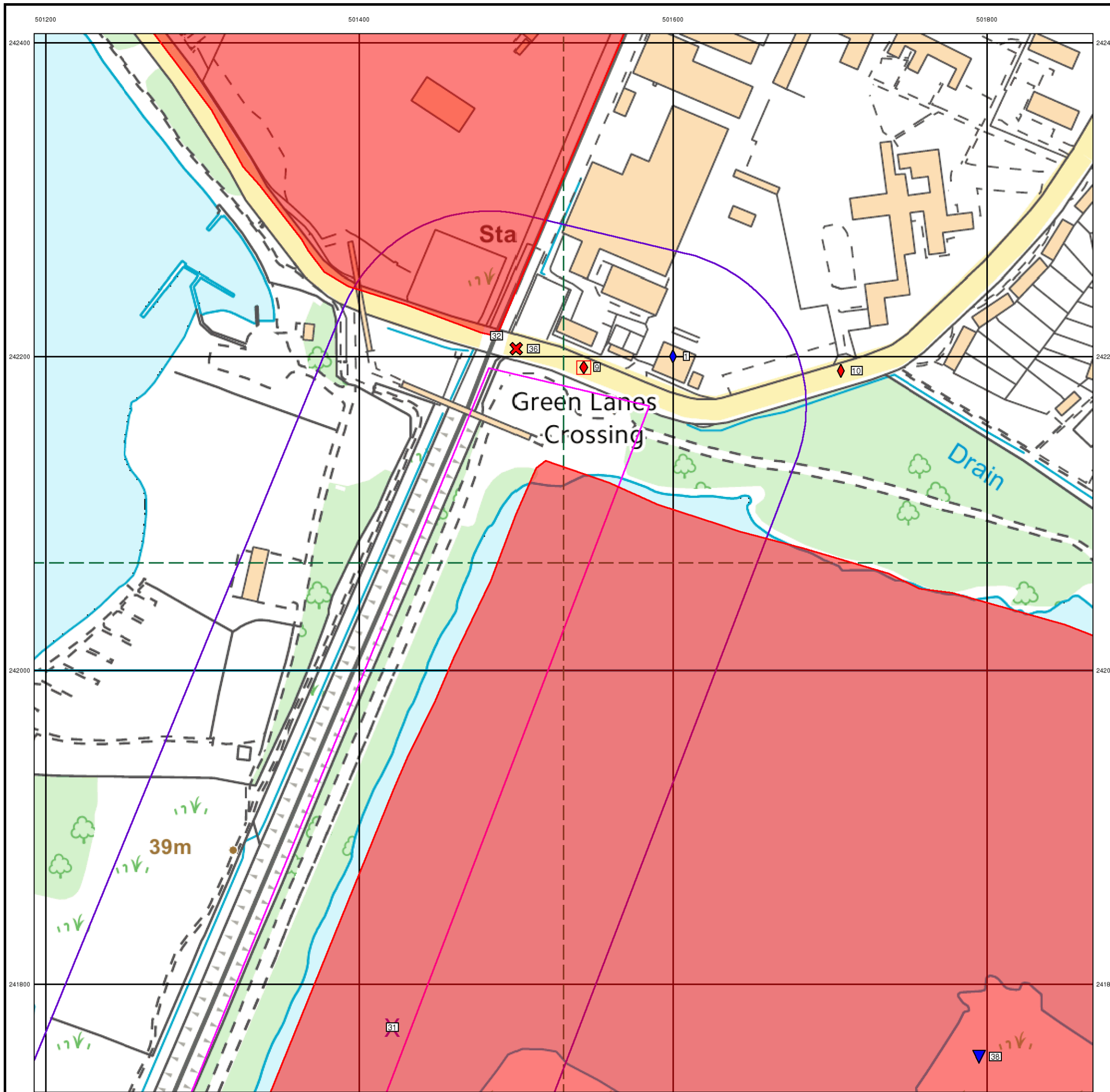


### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61

### Site Details

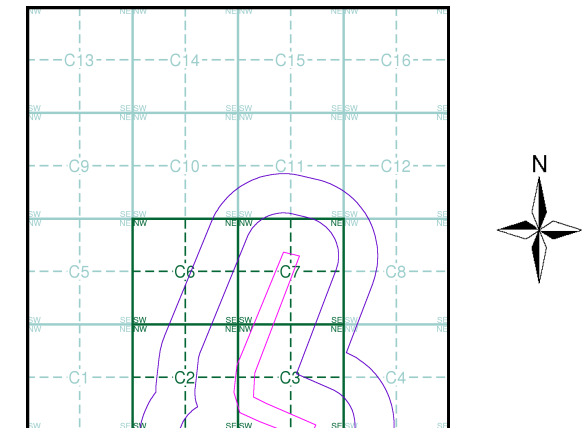
Millbrook Power Project, Green Lane, Stewartby





- 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
- Hazardous Substances**
- COMAH Site
  - Explosive Site
  - NIHHS Site
  - Planning Hazardous Substance Consent
  - Planning Hazardous Substance Enforcement
- Geological**
- BGS Recorded Mineral Site
- Industrial Land Use**
- Contemporary Trade Directory Entry
  - Fuel Station Entry

### Site Sensitivity Map - Slice C

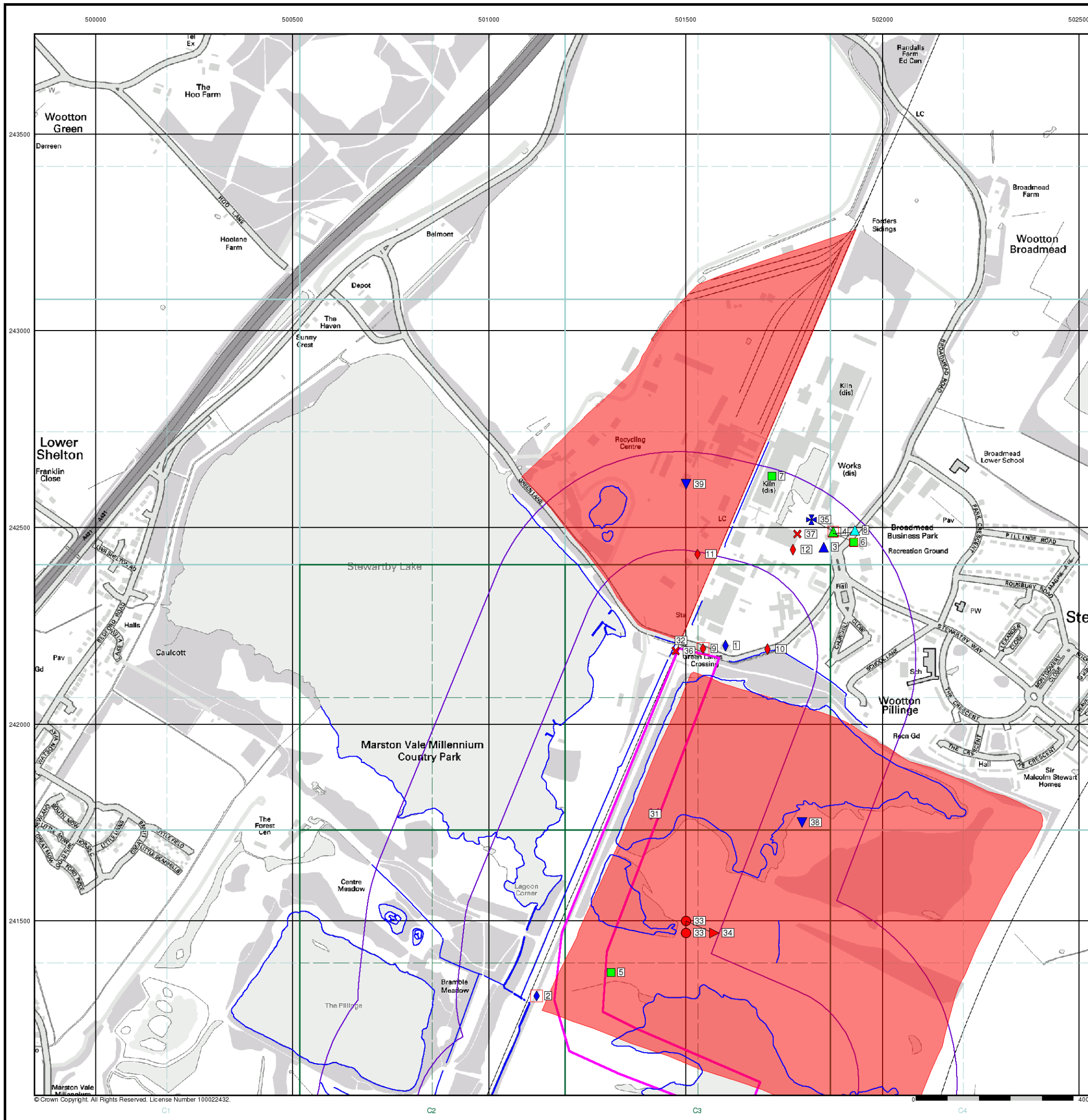


### Order Details

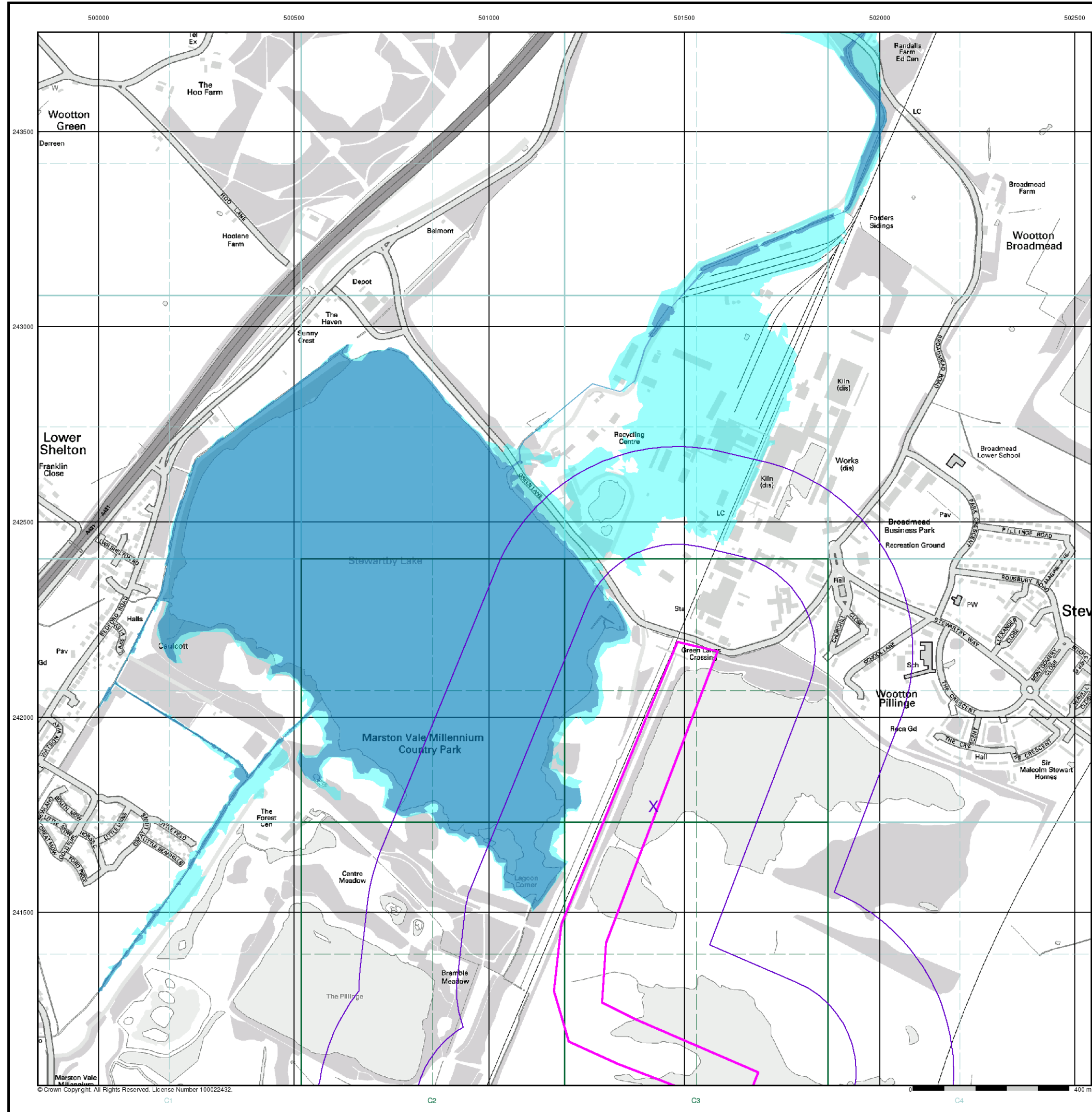
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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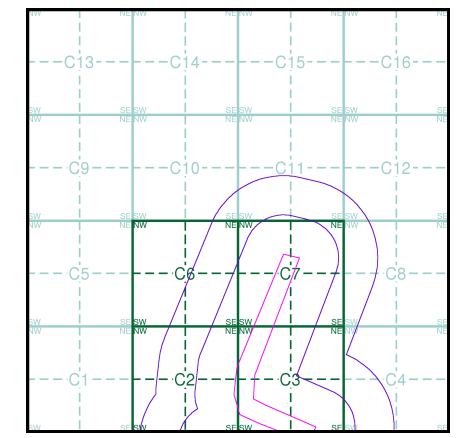
**General**

- 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 C**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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

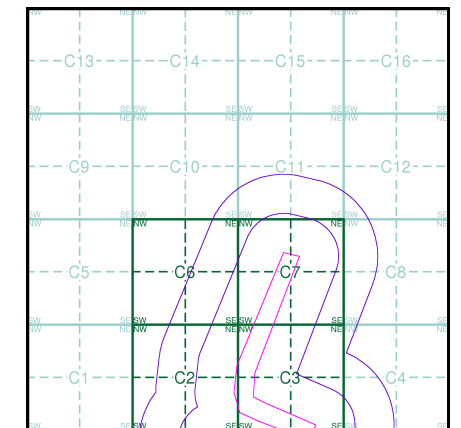
**Agency and Hydrological (Boreholes)**

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

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

A copy of the BGS Borehole Ordering Form is available to download from the Support section of [www.envirocheck.co.uk](http://www.envirocheck.co.uk).

**Borehole Map - Slice C**

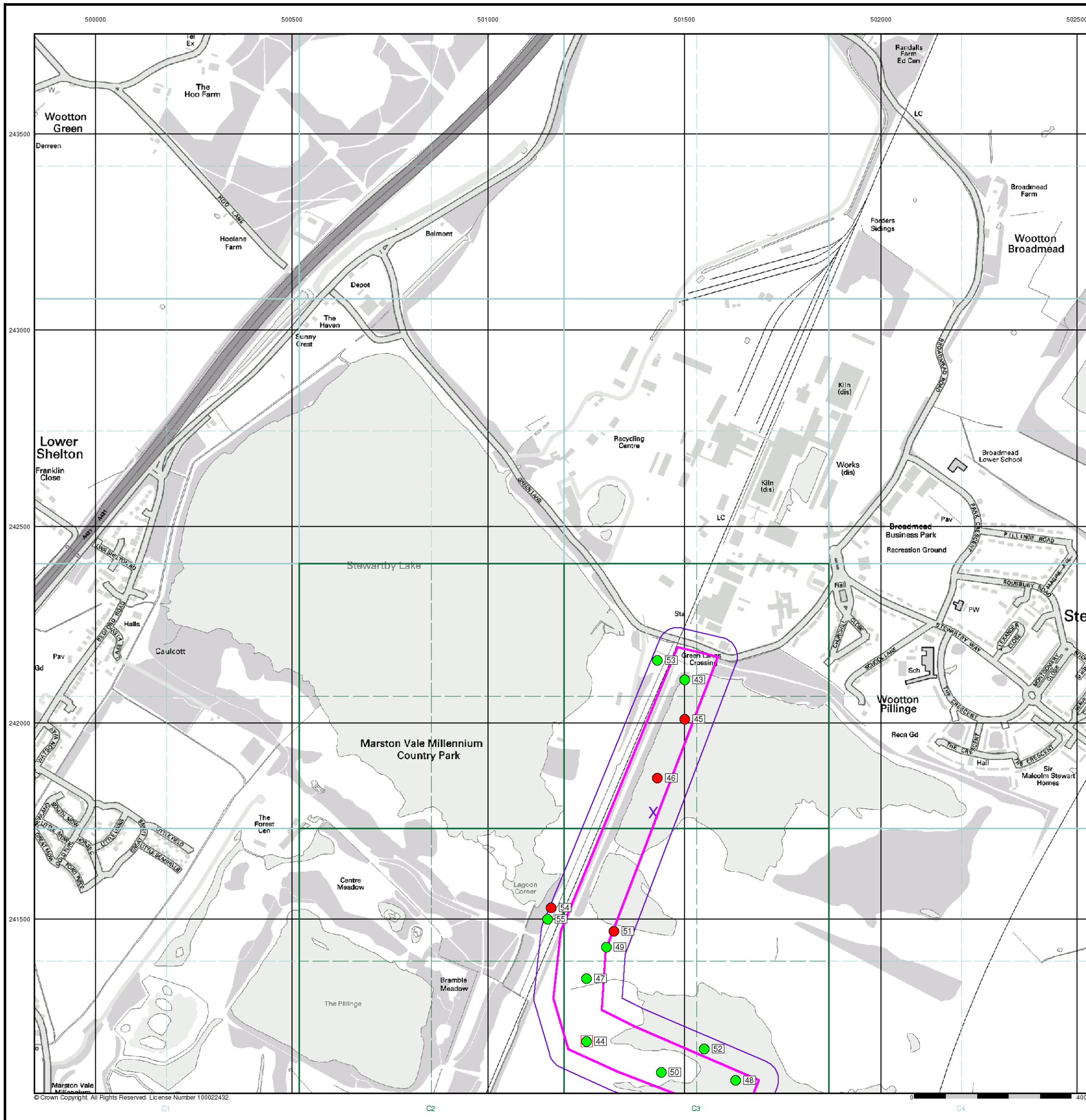


**Order Details**

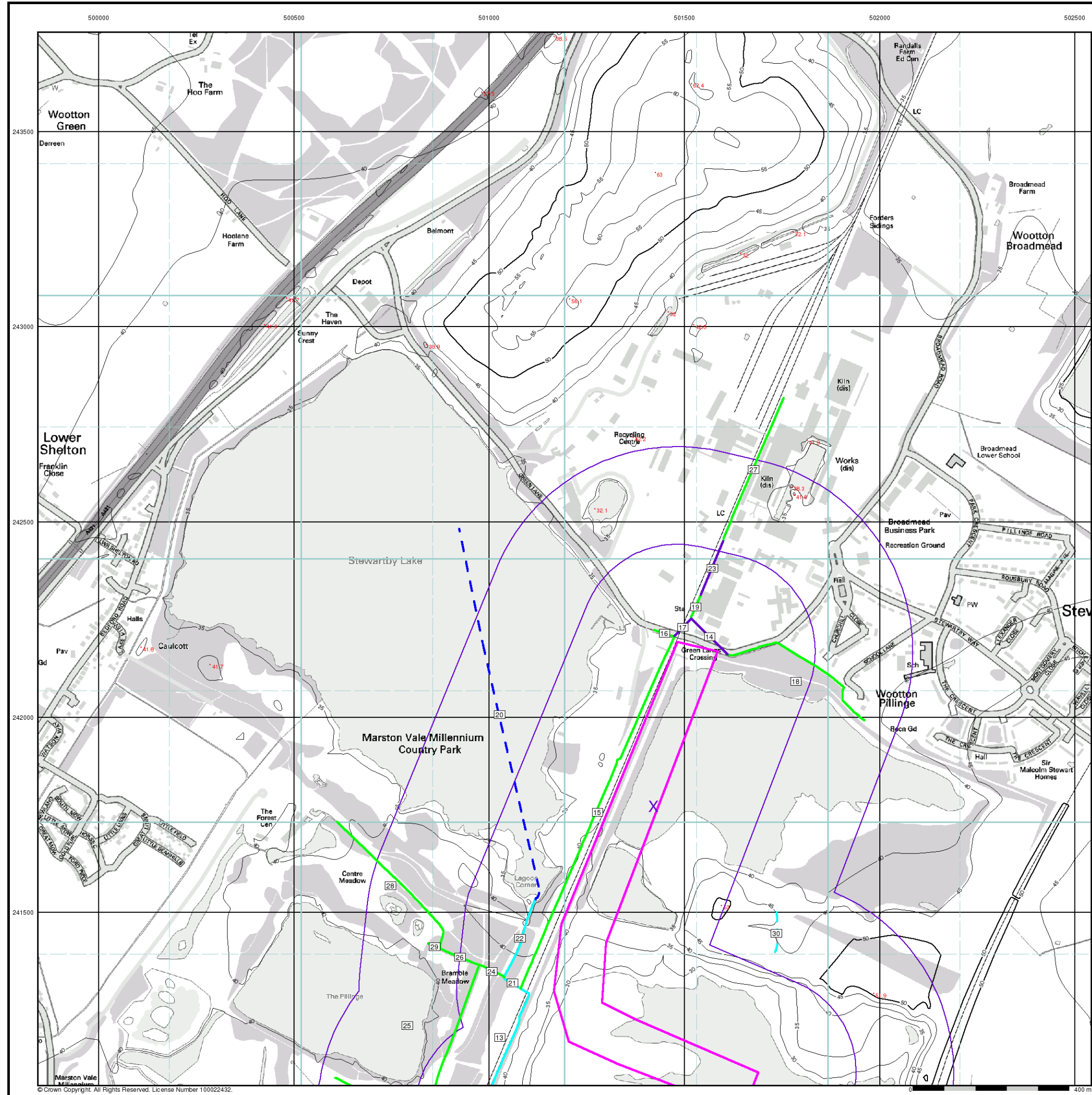
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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**General**

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

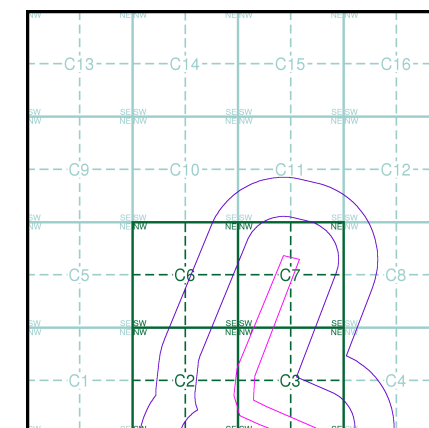
**Detailed River Network Data**

- Primary River
- Secondary River
- Tertiary River
- Canal
- Canal Tunnel
- Undefined River
- Lake/Reservoir
- Offline Drainage Feature
- Extended Culvert (greater than 50m)
- Underground River (inferred)
- Underground River (local knowledge)
- Downstream of High Water Mark
- Downstream of Seaward Extension
- Not assigned River feature

**Contours (height in metres)**

- Standard Contour 105
- Master Contour 100
- Spot Height \*167.3
- MLW - Mean Low Water
- MHW - Mean High Water

**EANRW Detailed River Network Map - Slice C**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



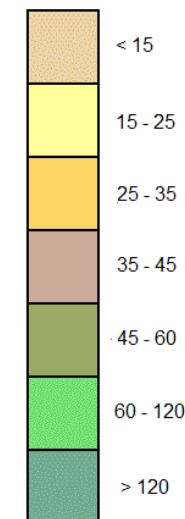
Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

**General**

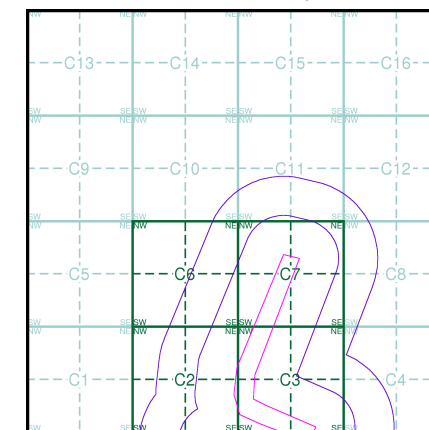
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

**Estimated Soil Chemistry Arsenic**

Arsenic Concentrations mg/kg



**Estimated Soil Chemistry Arsenic - Slice C**

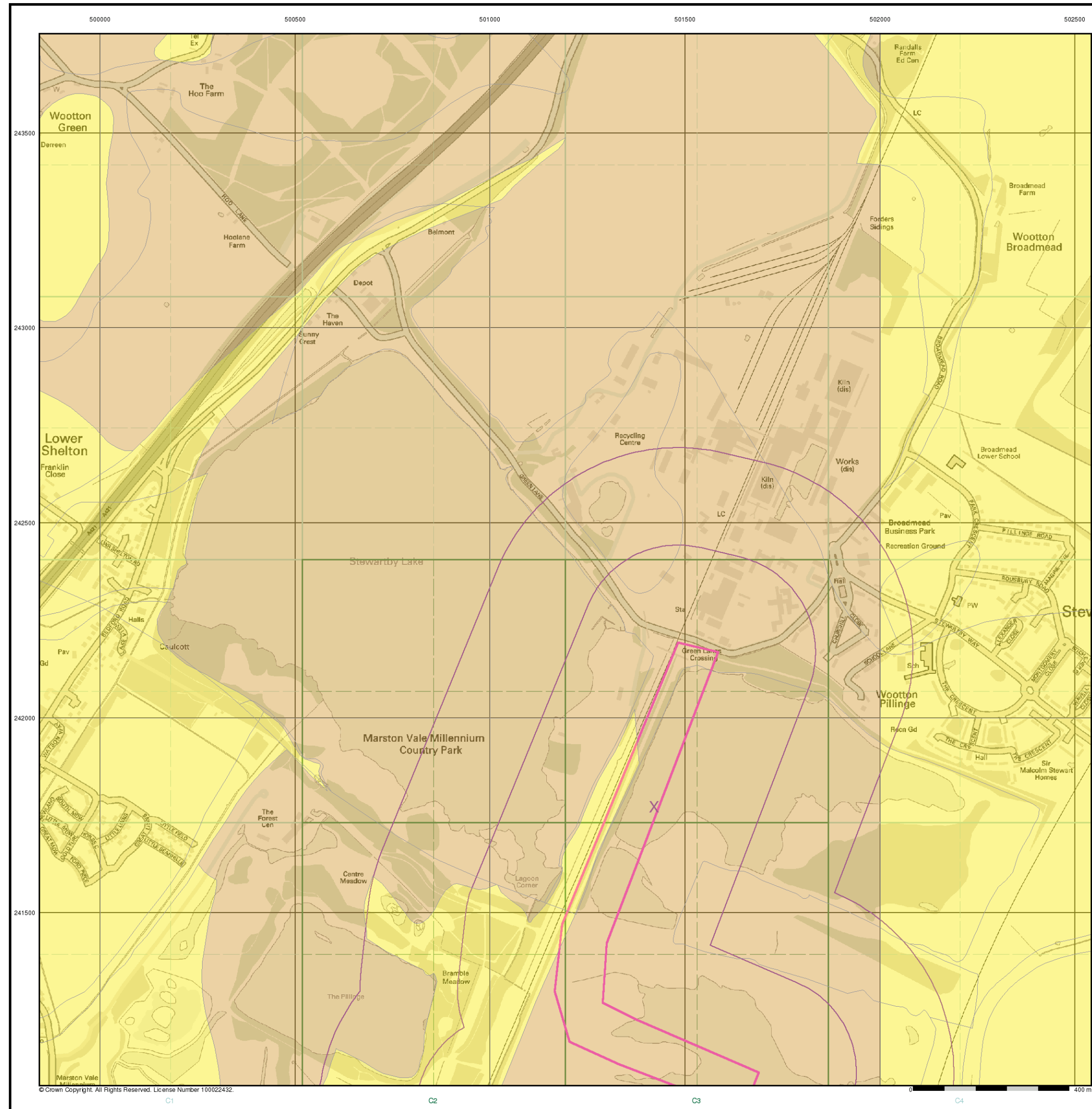


**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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500000 500500 501000 501500 502000 502500

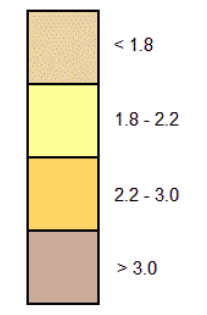


**General**

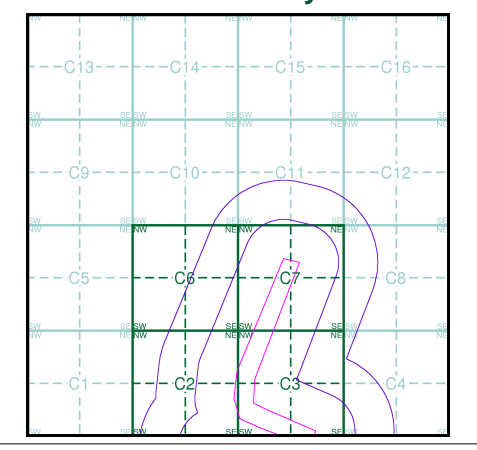
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

**Estimated Soil Chemistry Cadmium**

Cadmium Concentrations mg/kg



**Estimated Soil Chemistry Cadmium - Slice C**



**Order Details**

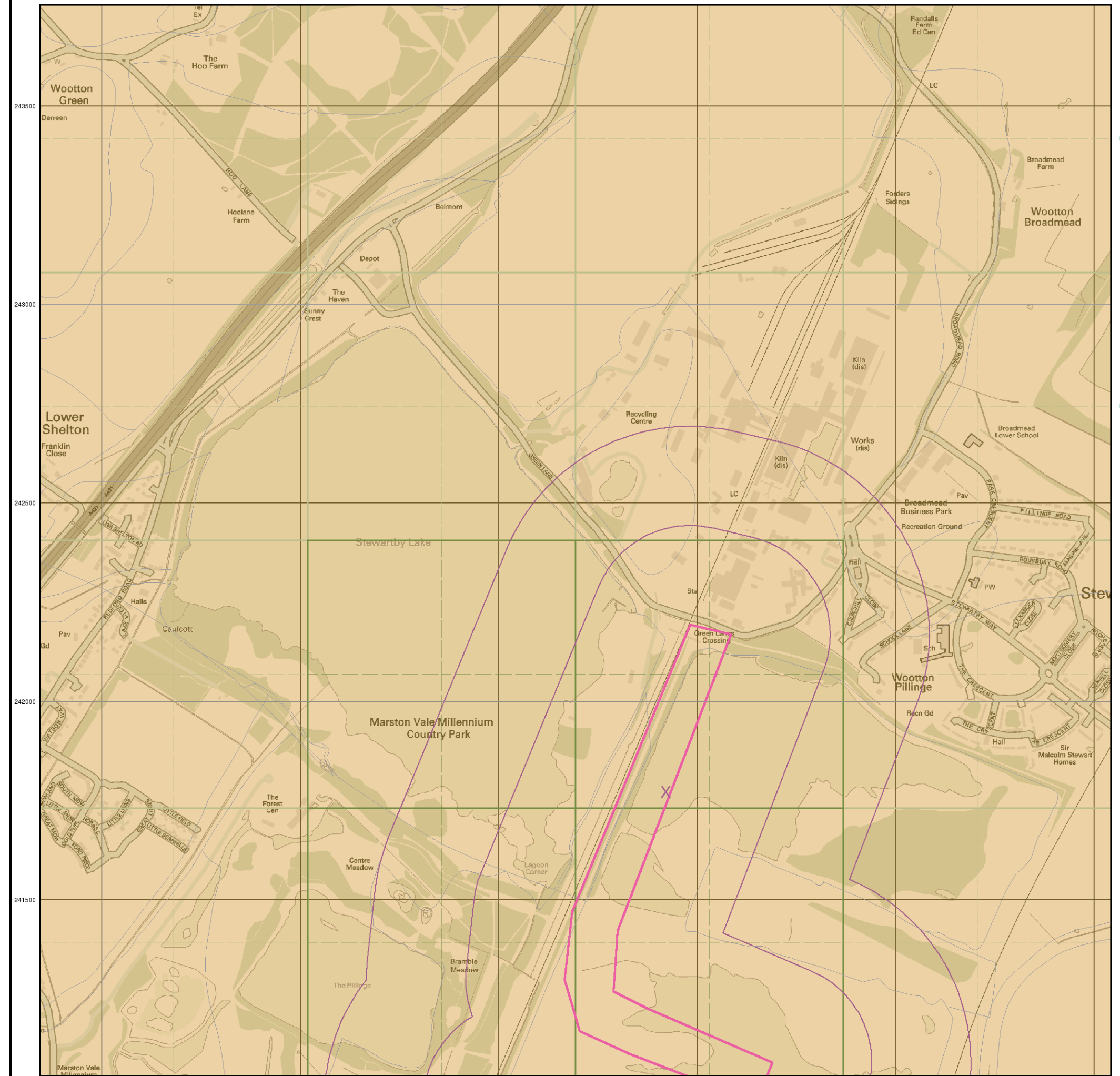
Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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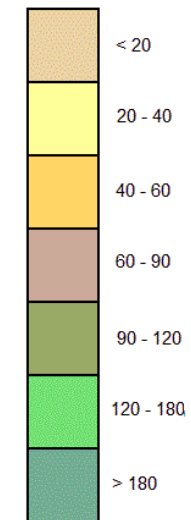


**General**

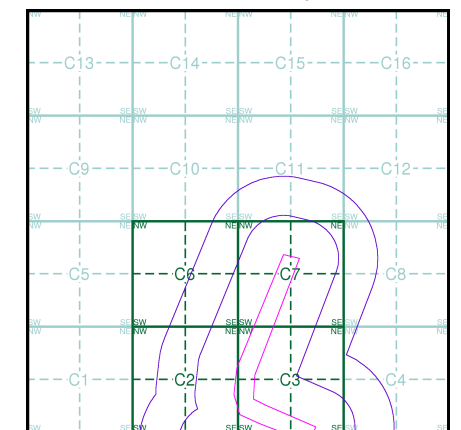
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

**Estimated Soil Chemistry Chromium**

Chromium Concentrations mg/kg



**Estimated Soil Chemistry Chromium - Slice C**



**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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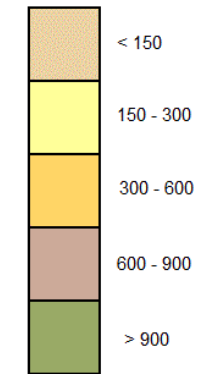


**General**

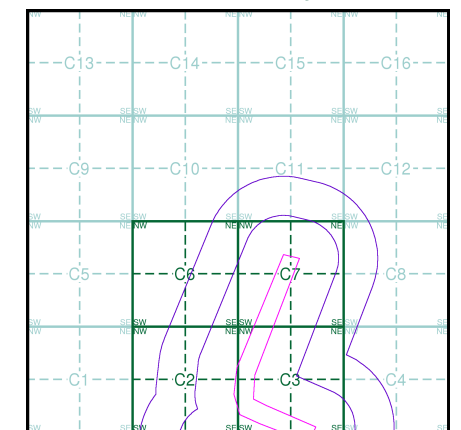
- ✱ Specified Site
- Specified Buffer(s)
- ✕ Bearing Reference Point

**Estimated Soil Chemistry Lead**

Lead Concentrations mg/kg



**Estimated Soil Chemistry Lead - Slice C**



**Order Details**

Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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500000 500500 501000 501500 502000 502500

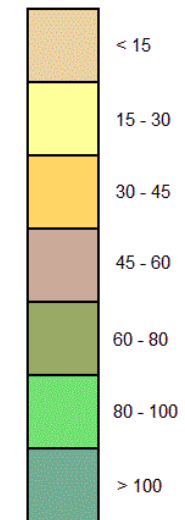


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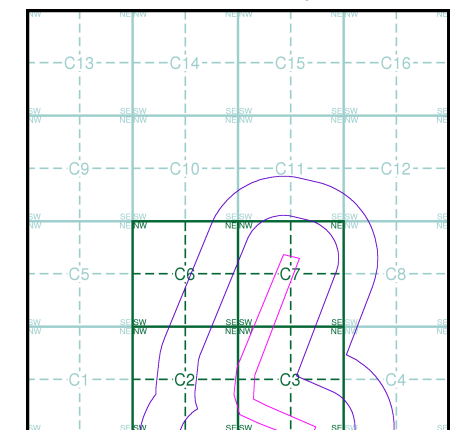
- ⬢ Specified Site
- ⬢ Specified Buffer(s)
- X Bearing Reference Point

**Estimated Soil Chemistry Nickel**

Nickel Concentrations mg/kg



**Estimated Soil Chemistry Nickel - Slice C**



**Order Details**

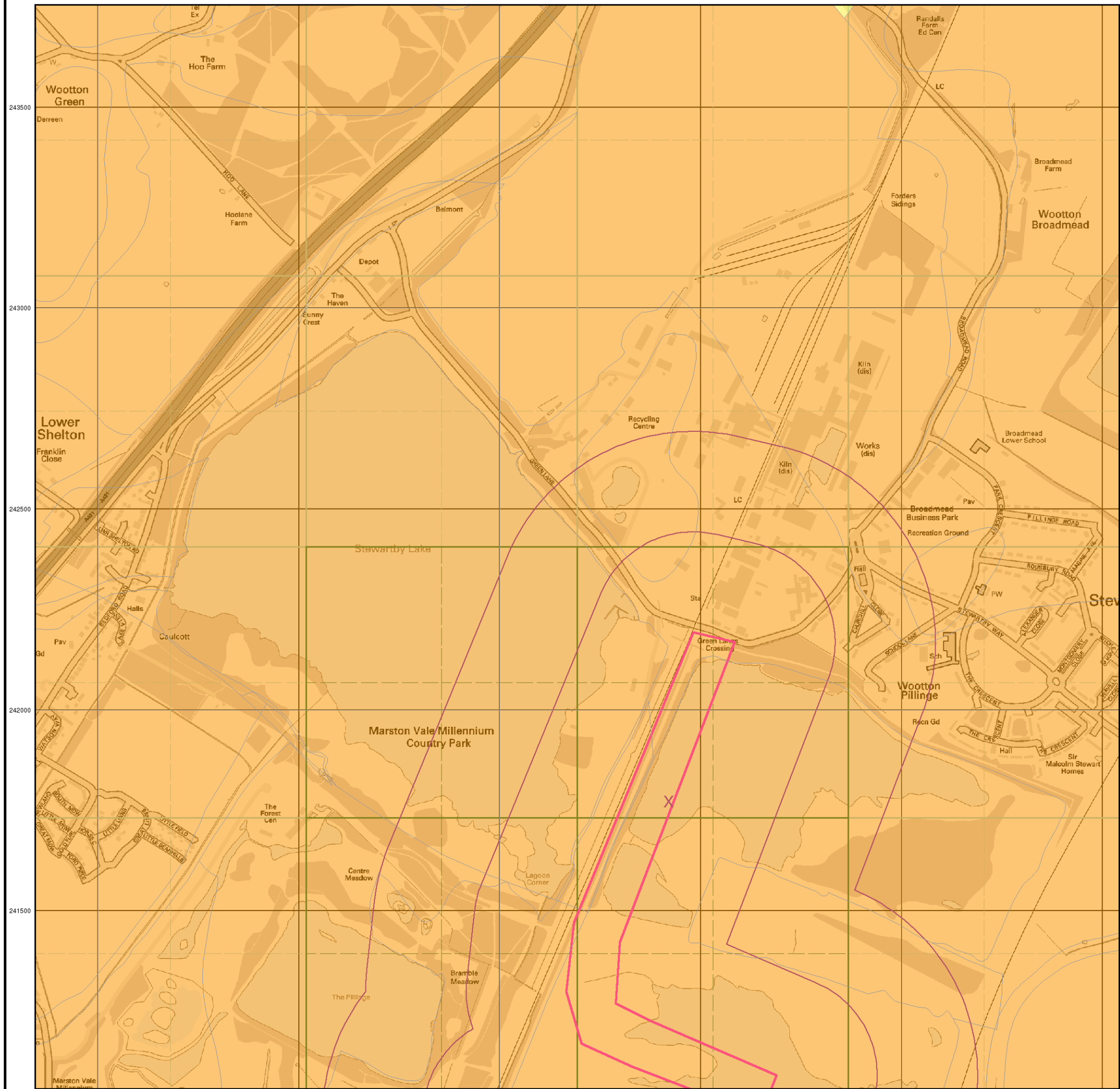
Order Details: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

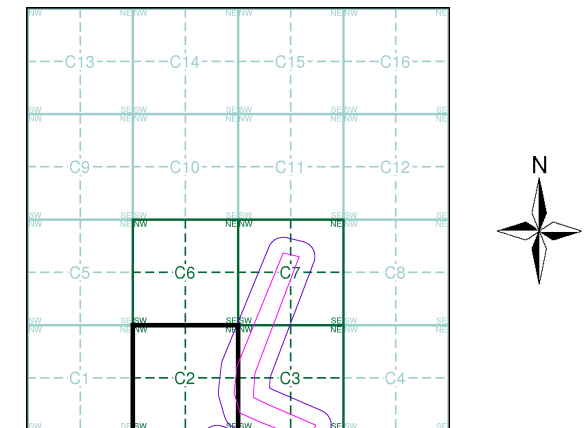
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1976	5
Large-Scale National Grid Data	1:2,500	1993	6

## Historical Map - Segment C2



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

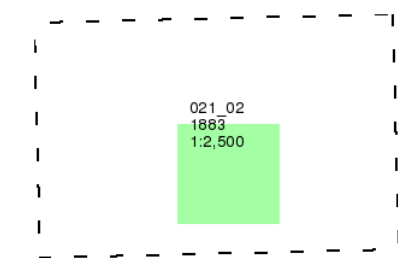
Millbrook Power Project, Green Lane, Stewartby



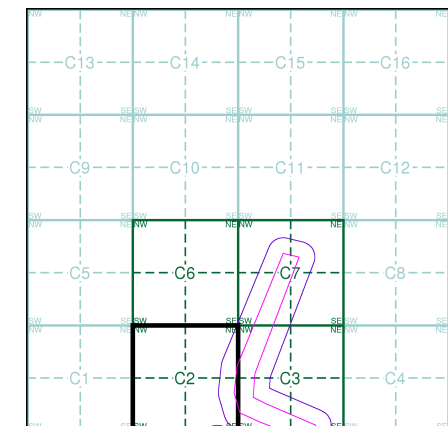
Tel: 0844 844 9952  
 Fax: 0844 844 9951  
 Web: www.envirocheck.co.uk

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C2**

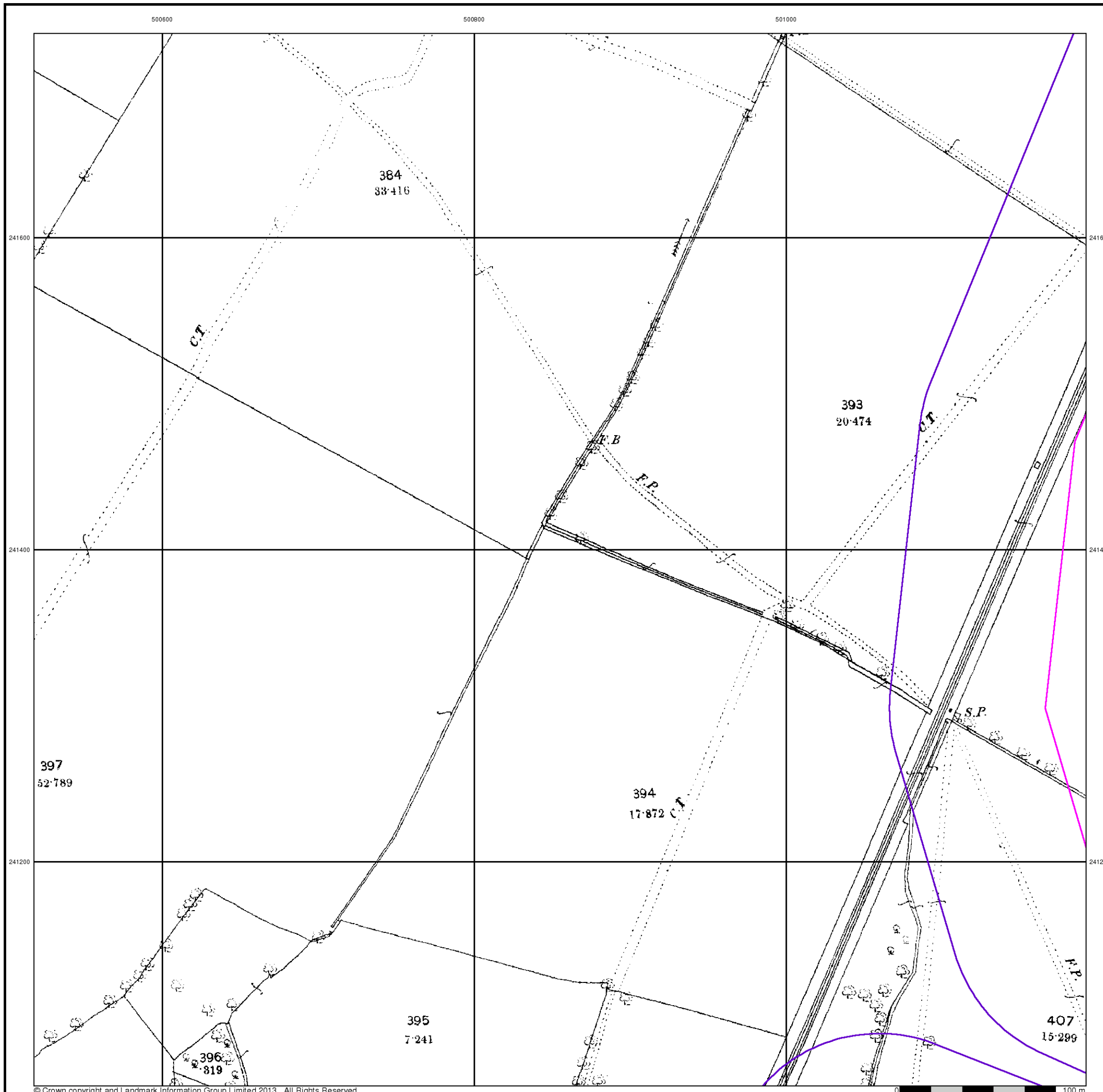


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby





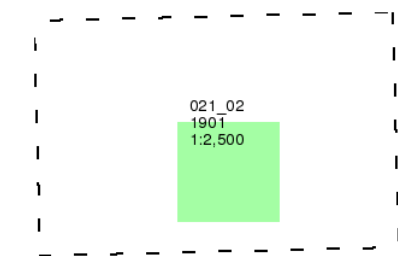
Bedfordshire

Published 1901

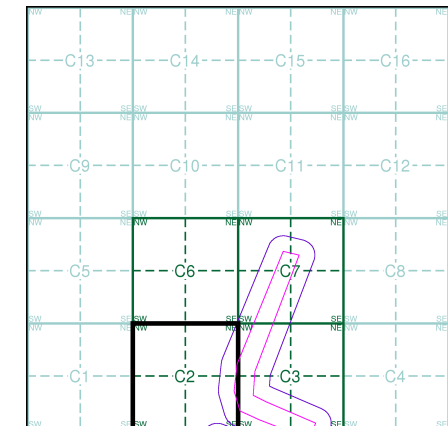
Source map scale - 1:2,500

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Map Name(s) and Date(s)



Historical Map - Segment C2



Order Details

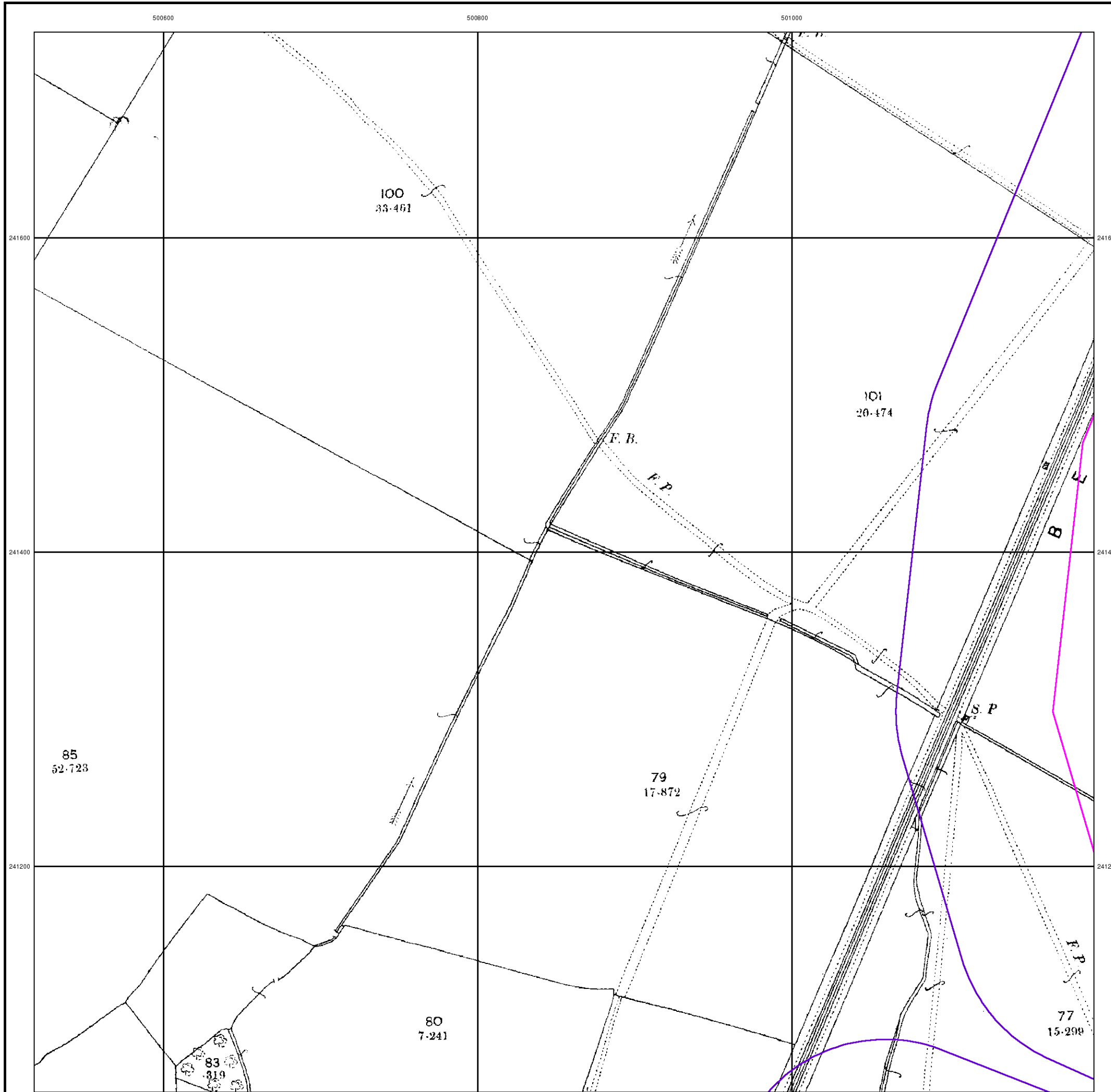
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

Millbrook Power Project, Green Lane, Stewartby



Tel: 0844 844 9952  
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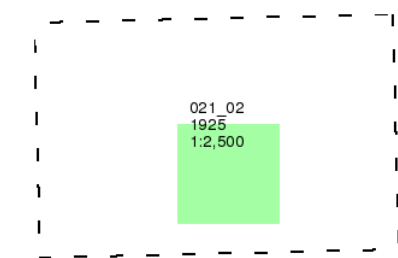


**Bedfordshire**  
**Published 1925**

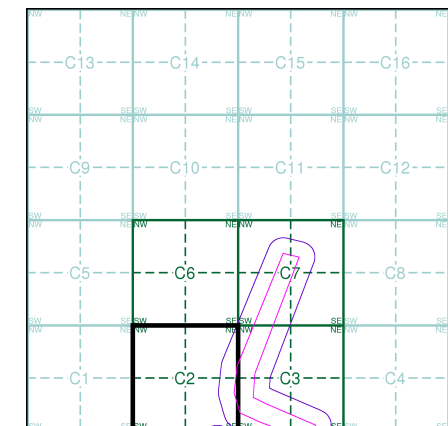
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C2**



**Order Details**

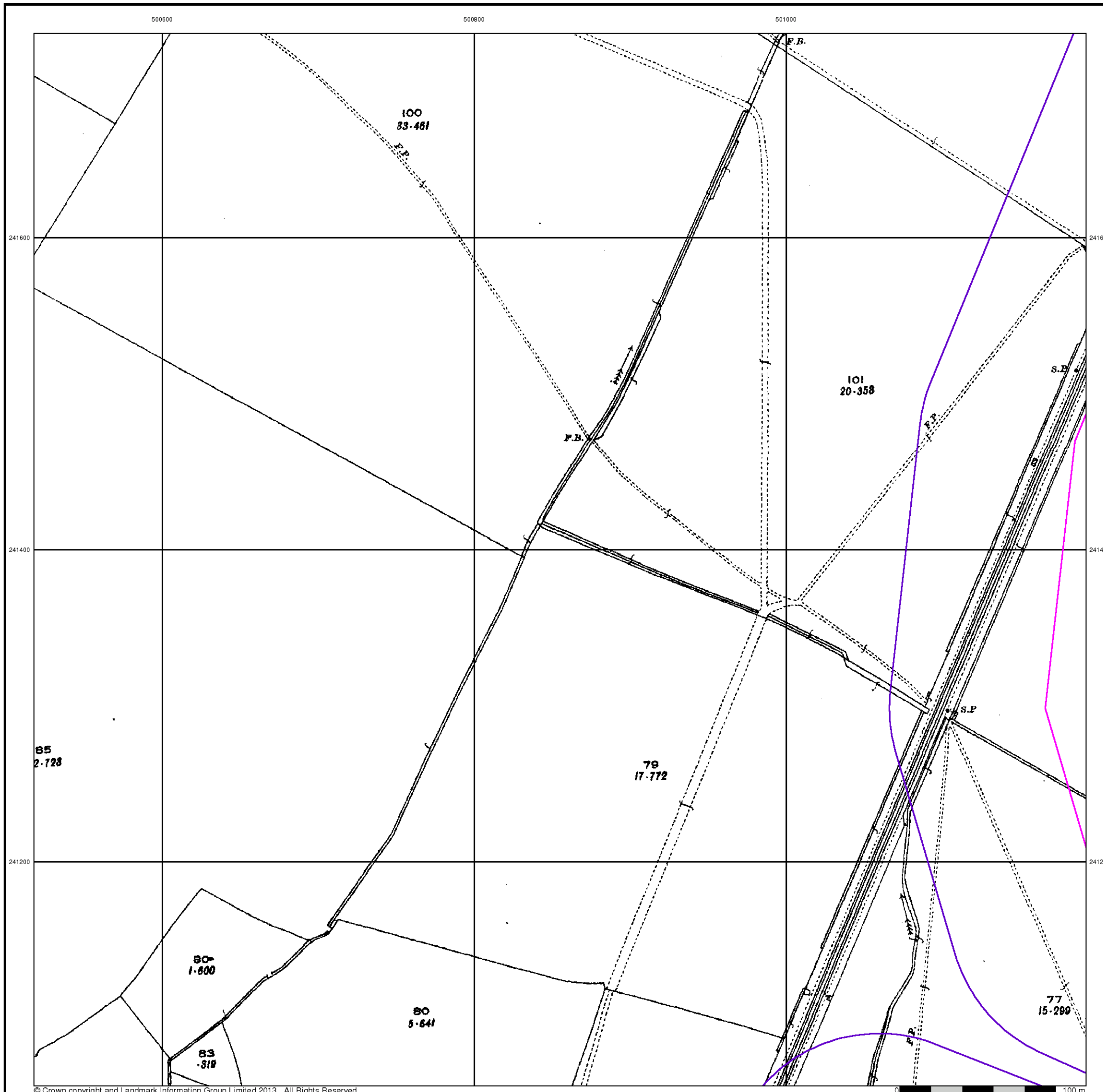
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National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



Tel: 0844 844 9952  
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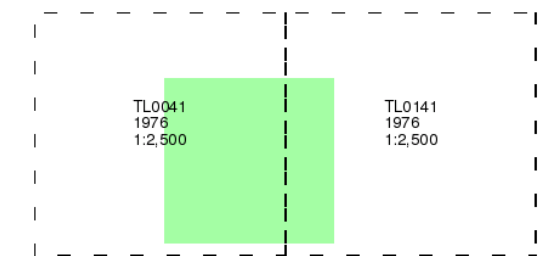
### Ordnance Survey Plan

Published 1976

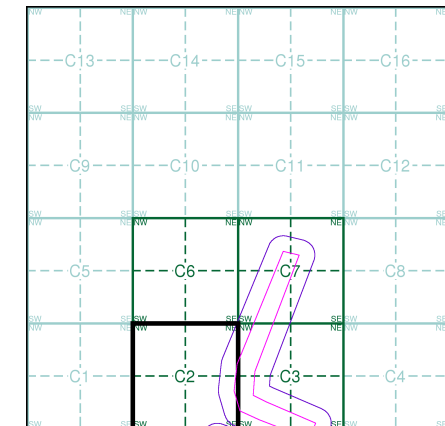
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment C2



### Order Details

Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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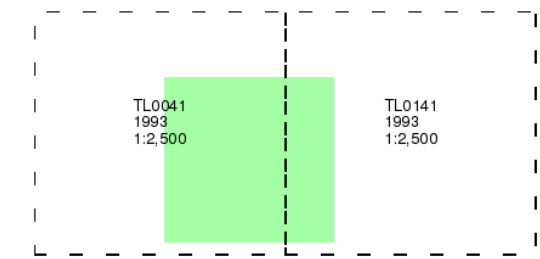
### Large-Scale National Grid Data

Published 1993

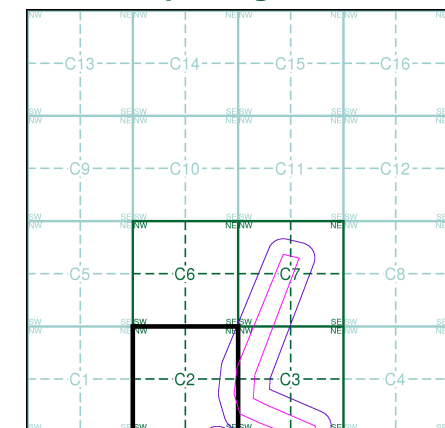
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment C2



### Order Details

Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**Co. Boro. Bdy.**  
**County Burgh Boundary (Scotland)**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

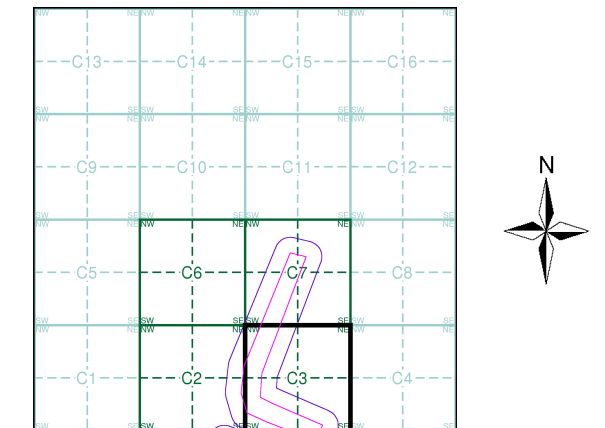
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1976	5
Large-Scale National Grid Data	1:2,500	1993	6

## Historical Map - Segment C3



## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

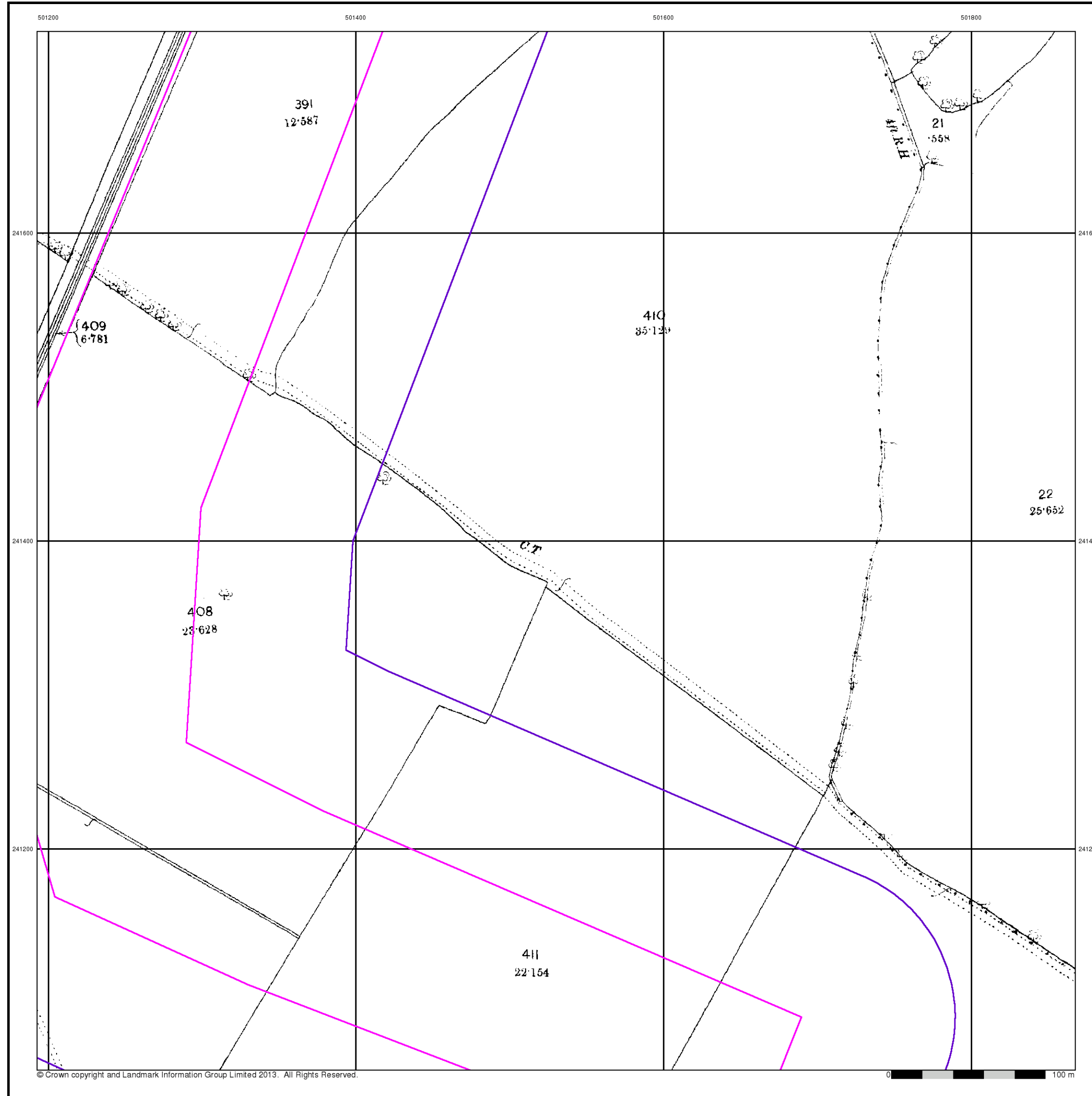
## Site Details

Millbrook Power Project, Green Lane, Stewartby



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



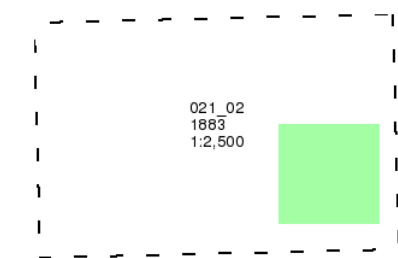


**Bedfordshire**  
**Published 1883**

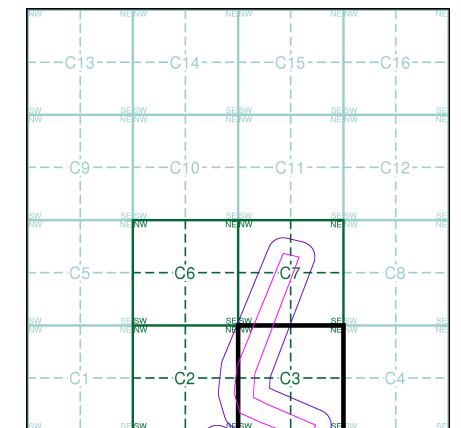
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C3**



**Order Details**

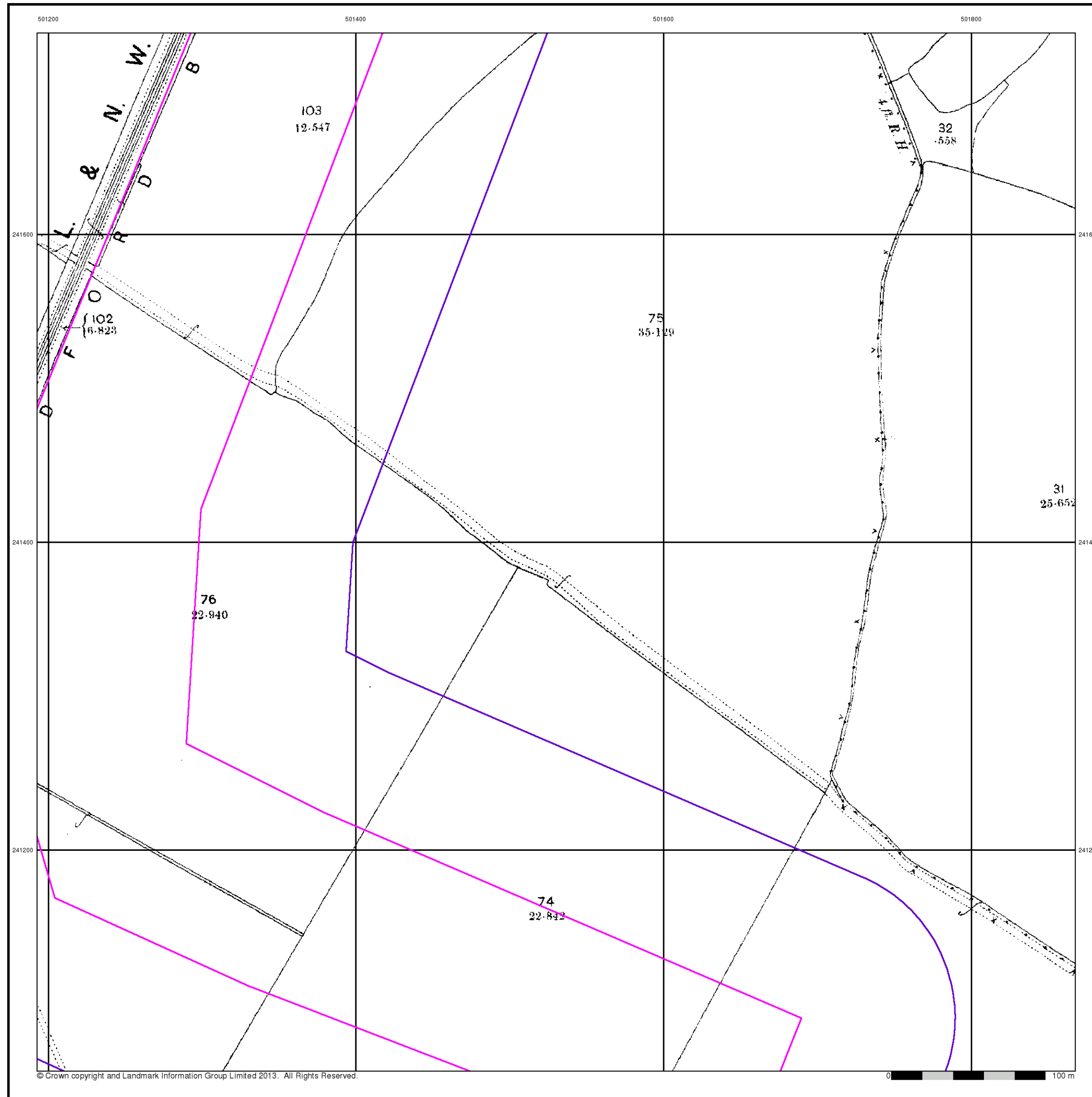
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 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

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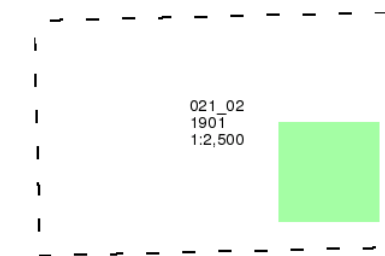
**Bedfordshire**

**Published 1901**

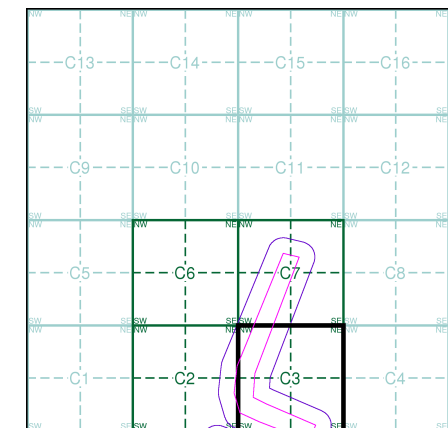
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C3**



**Order Details**

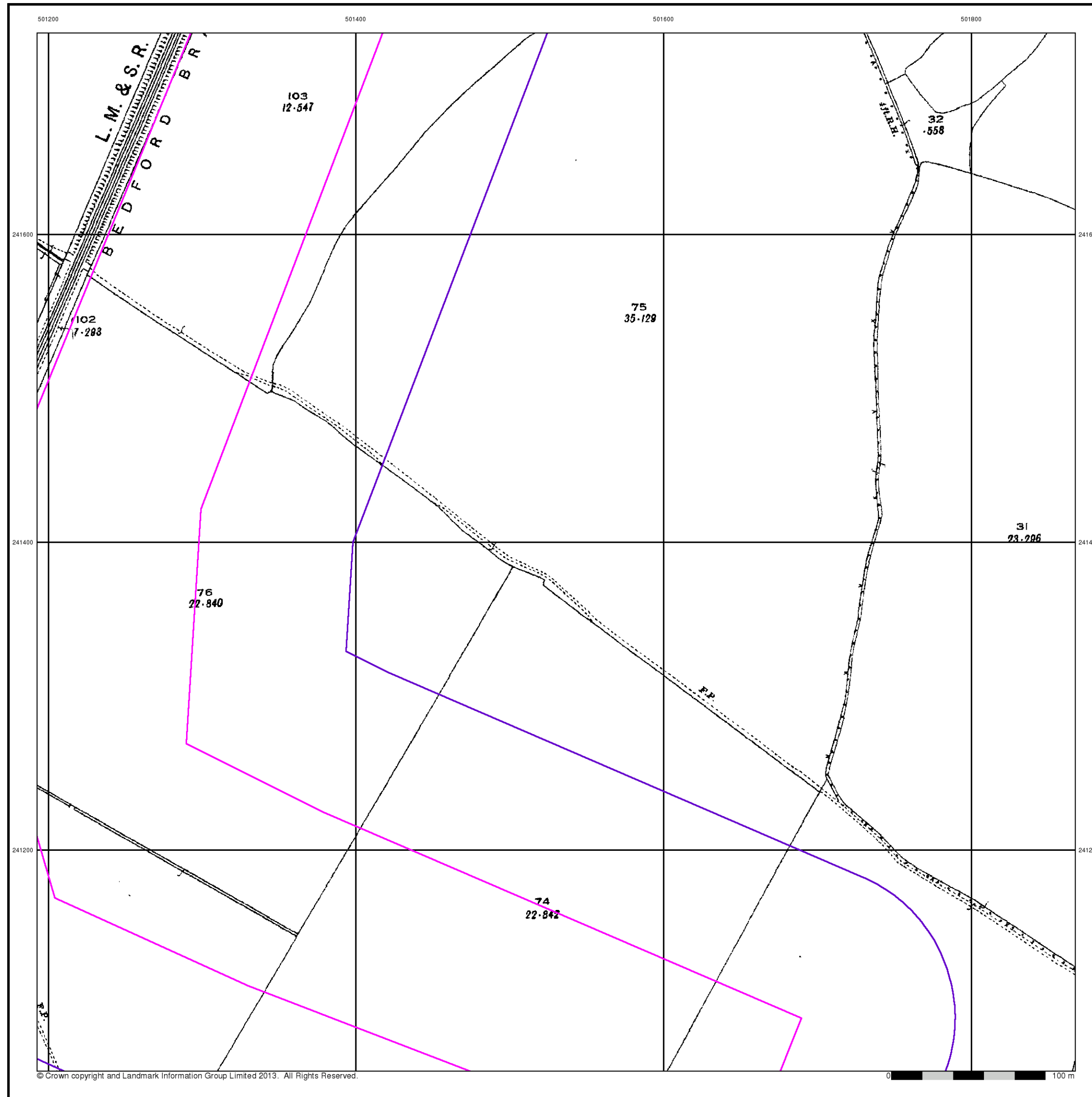
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 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



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



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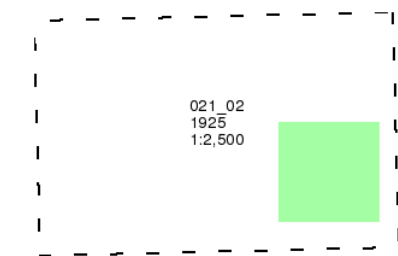


**Bedfordshire**  
**Published 1925**

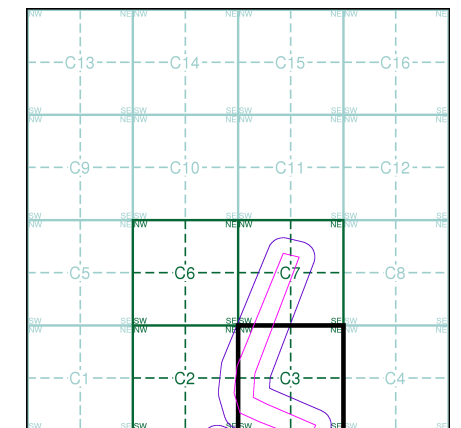
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C3**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

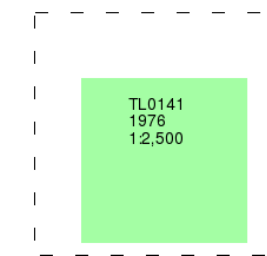
Millbrook Power Project, Green Lane, Stewartby



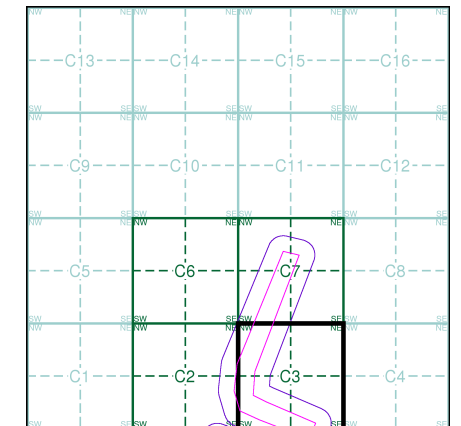
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 Fax: 0844 844 9951  
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The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

**Map Name(s) and Date(s)**



**Historical Map - Segment C3**

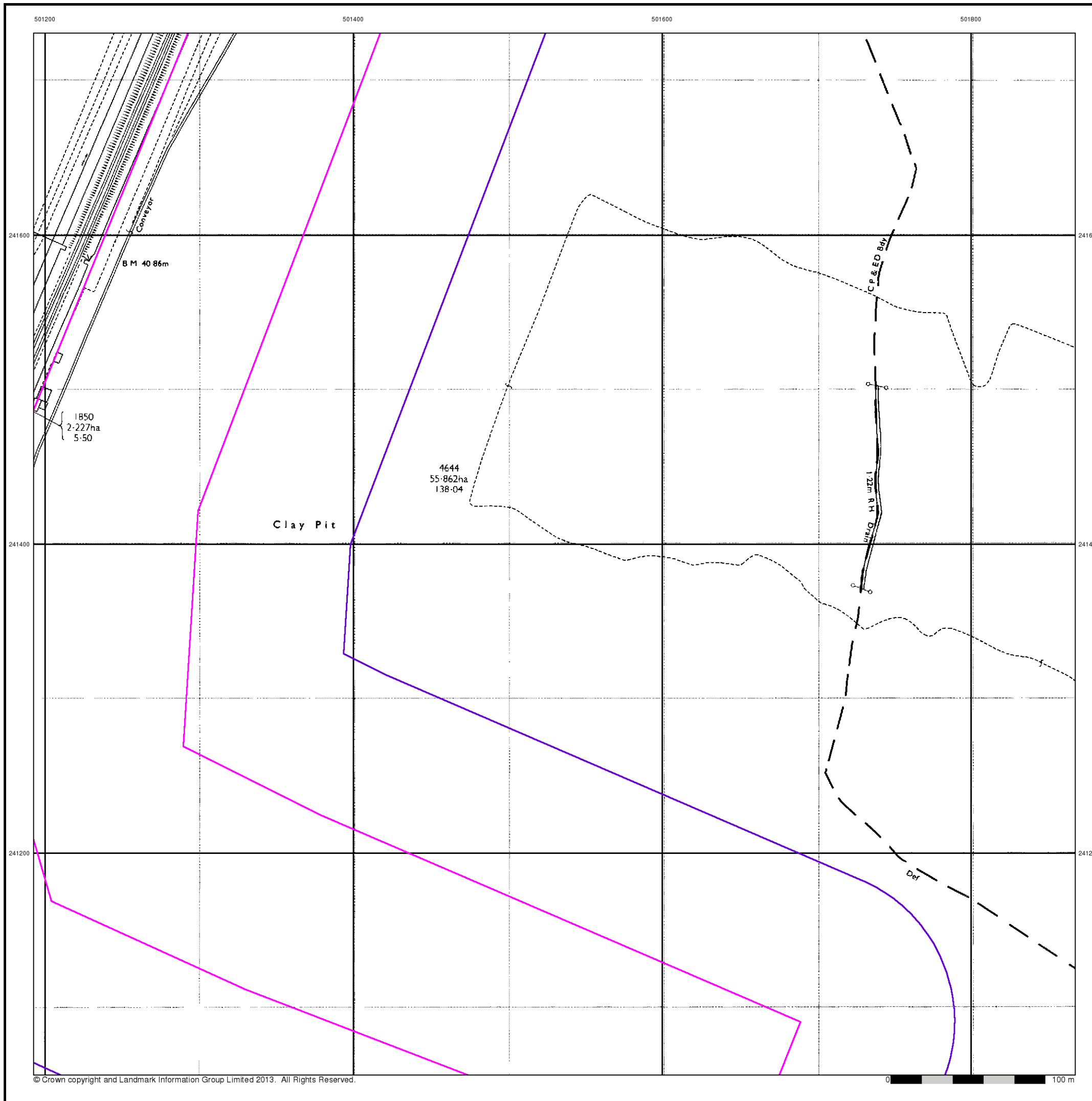


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

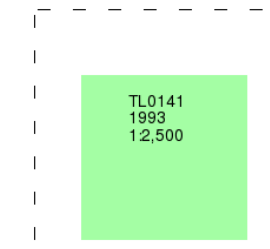
**Site Details**

Millbrook Power Project, Green Lane, Stewartby

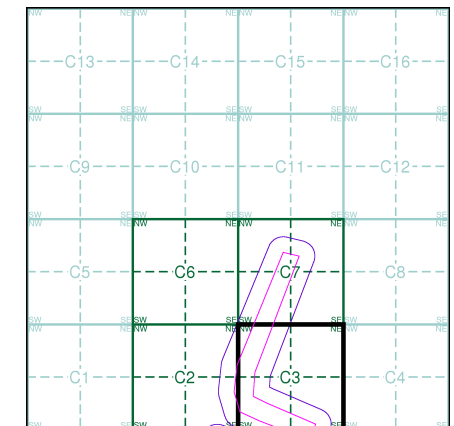


'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic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

**Map Name(s) and Date(s)**



**Historical Map - Segment C3**

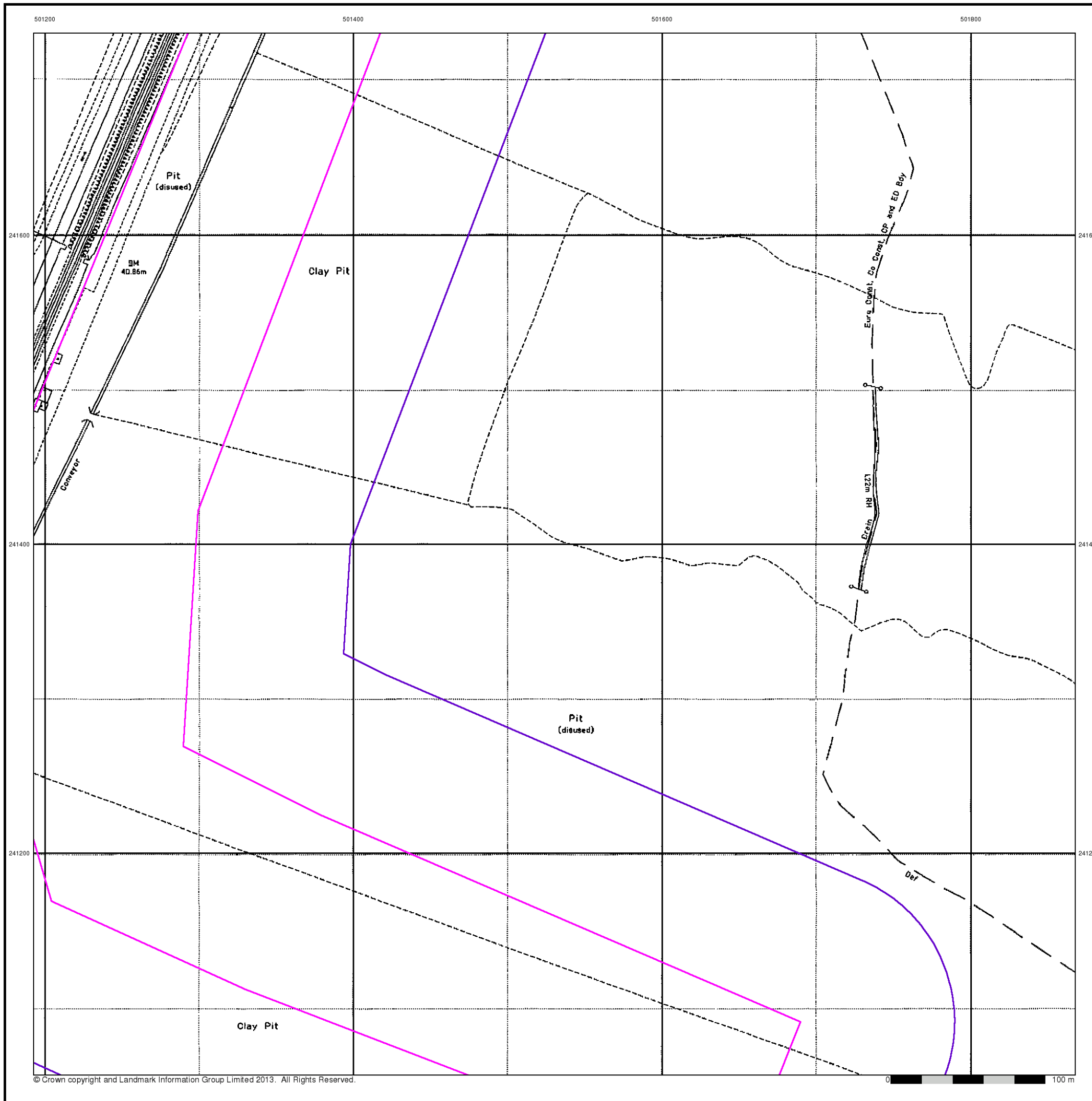


**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



501200

501400

501600

501800

241600

241600

241400

241400

241200

241200

# 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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**Co. Boro. Bdy.**  
**County Burgh Boundary (Scotland)**  
**Boundary Post or Stone**   **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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**London Borough Boundary**  
**Symbol marking point where boundary mereing changes**  
**Beer House**   **Pillar, Pole or Post**  
**Boundary Post or Stone**   **Post Office**  
**Capstan, Crane**   **Public Convenience**  
**Chimney**   **Public House**  
**Drinking Fountain**   **Pump**  
**Electricity Pillar or Post**   **Signal Box or Bridge**  
**Fire Alarm Pillar**   **Signal Post or Light**  
**Foot Bridge**   **Spring**  
**Guide Post**   **Tank or Track**  
**Hydrant or Hydraulic**   **Telephone Call Box**  
**Level Crossing**   **Telephone Call Post**  
**Manhole**   **Trough**  
**Mile Post or Mooring Post**   **Water Point, Water Tap**  
**Mile Stone**   **Well**  
**Normal Tidal Limit**   **Wind Pump**

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

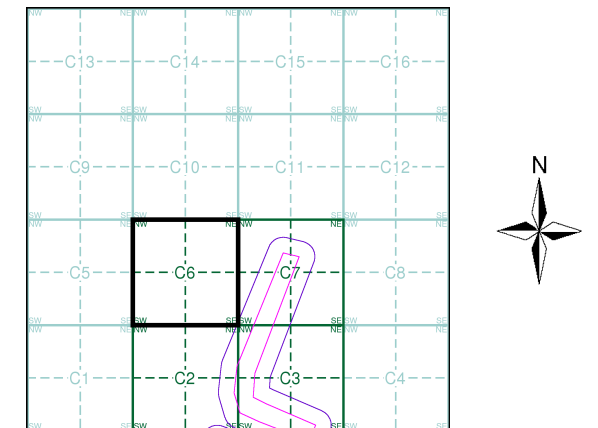
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**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)**  
**Barracks**   **Pillar, Pole or Post**  
**Battery**   **Post Office**  
**Cemetery**   **Public Convenience**  
**Chimney**   **Pump**  
**Cistern**   **Pumping Station**  
**Dismtd Rly**   **Place of Worship**  
**Electricity Generating Station**   **Sewage Ppg Sta**   **Sewage Pumping Station**  
**Electricity Pole, Pillar**   **Signal Box or Bridge**  
**Electricity Sub Station**   **Signal Post or Light**  
**Filter Bed**   **Spring**  
**Fountain / Drinking Ftn.**   **Tank or Track**  
**Gas Valve Compound**   **Trough**  
**Gas Governor**   **Wind Pump**  
**Guide Post**   **Water Point, Water Tap**  
**Manhole**   **Works (building or area)**  
**Mile Post or Mile Stone**   **Well**



## Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1976	5
Additional SIMs	1:2,500	1988	6
Large-Scale National Grid Data	1:2,500	1993	7
Large-Scale National Grid Data	1:2,500	1994	8
Large-Scale National Grid Data	1:2,500	1996	9

## Historical Map - Segment C6



## Order Details

**Order Number:** 60770728\_1\_1  
**Customer Ref:** 31116  
**National Grid Reference:** 501420, 241770  
**Slice:** C  
**Site Area (Ha):** 240.61  
**Search Buffer (m):** 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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

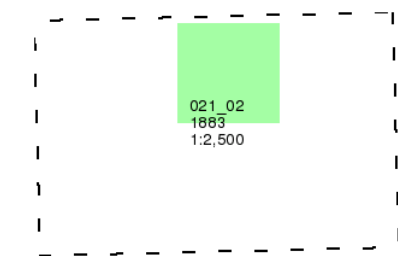


**Bedfordshire**  
**Published 1883**

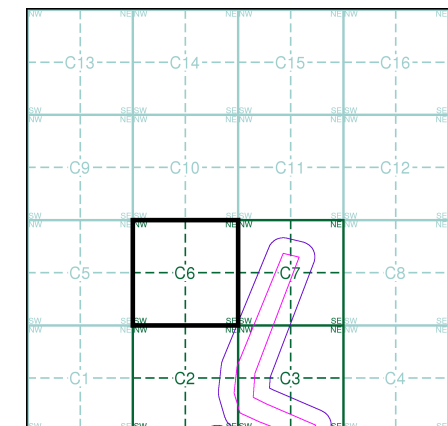
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C6**



**Order Details**

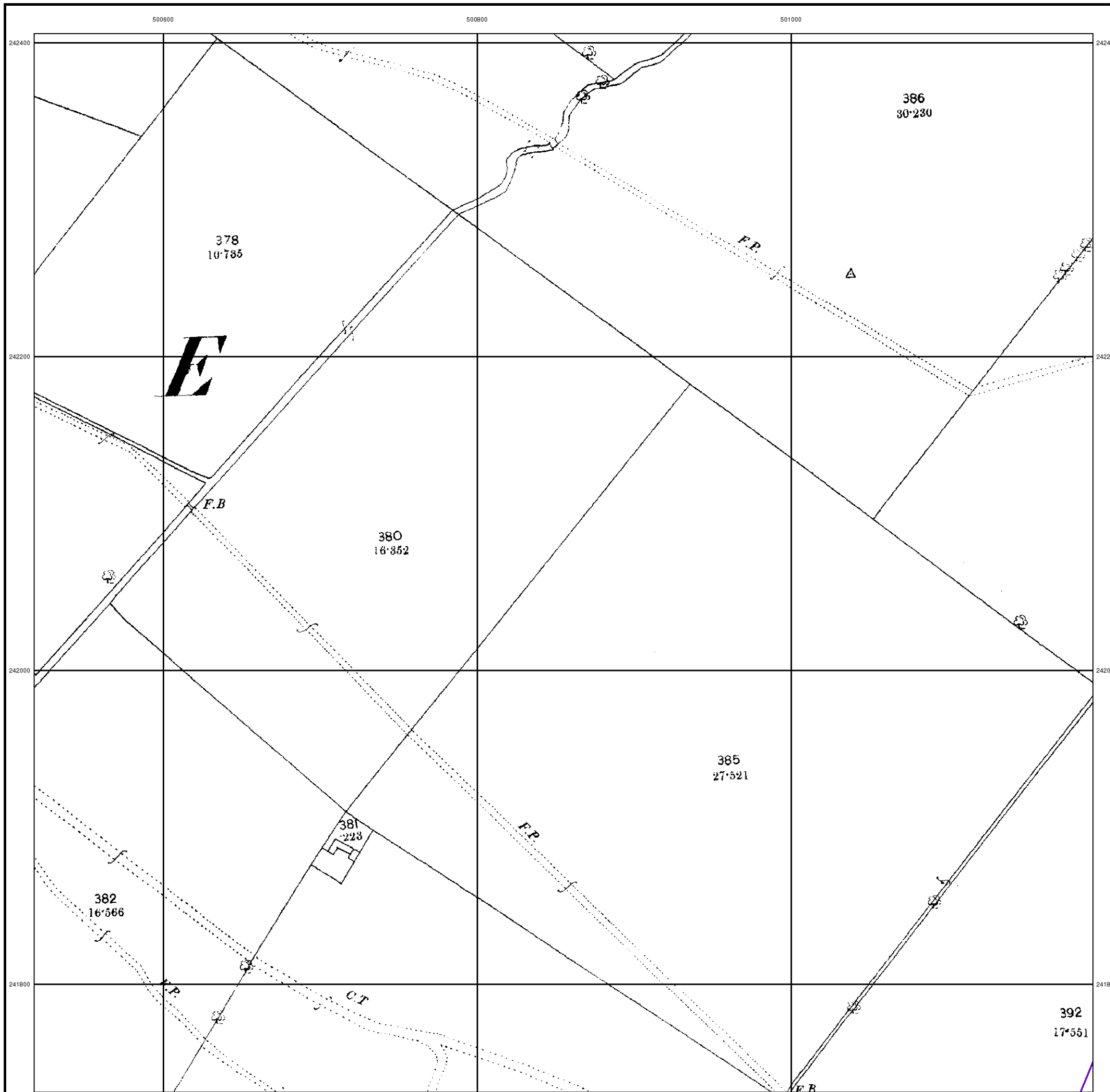
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
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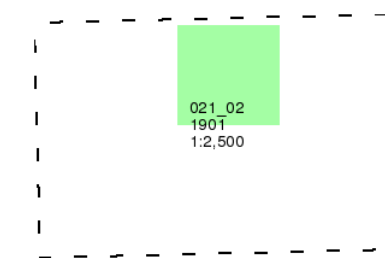
Bedfordshire

Published 1901

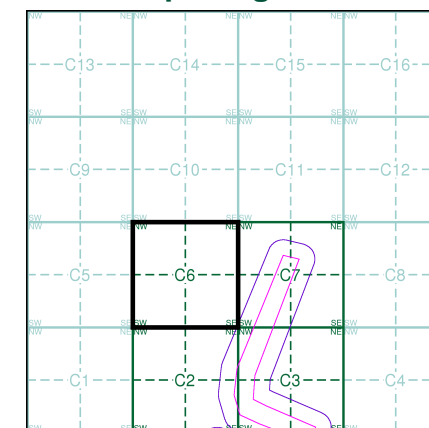
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment C6



Order Details

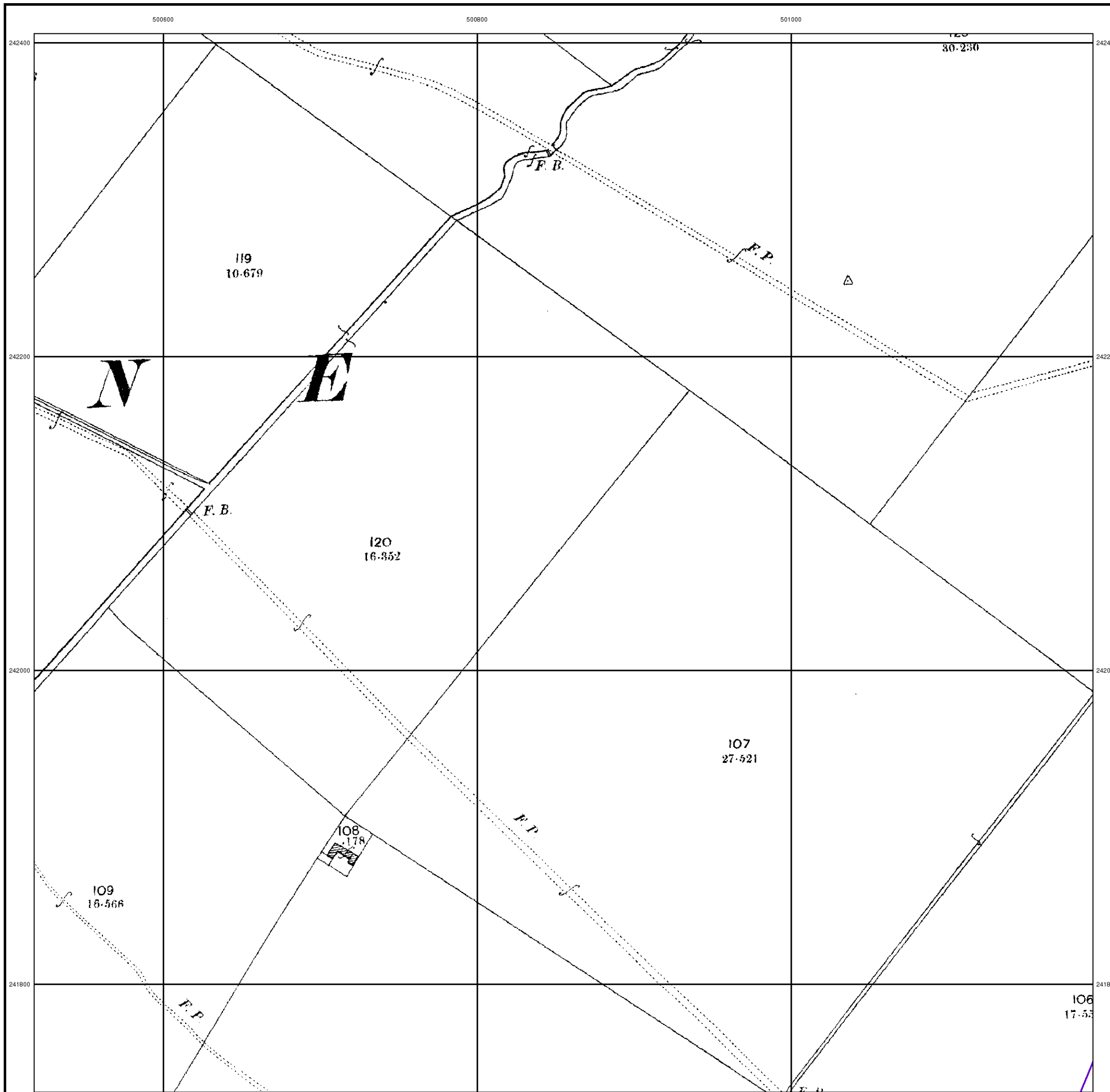
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

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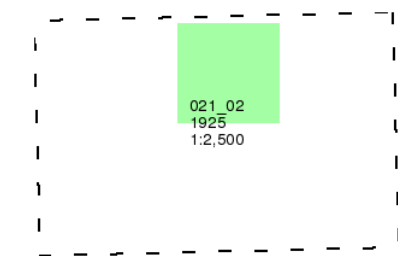
Bedfordshire

Published 1925

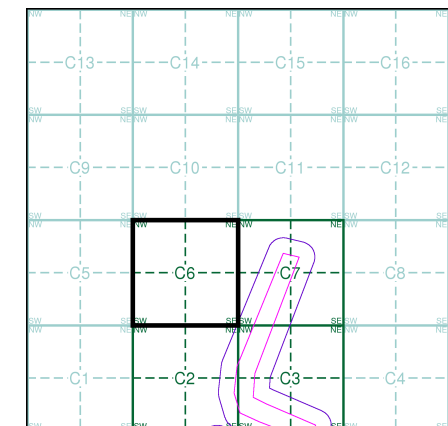
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment C6



Order Details

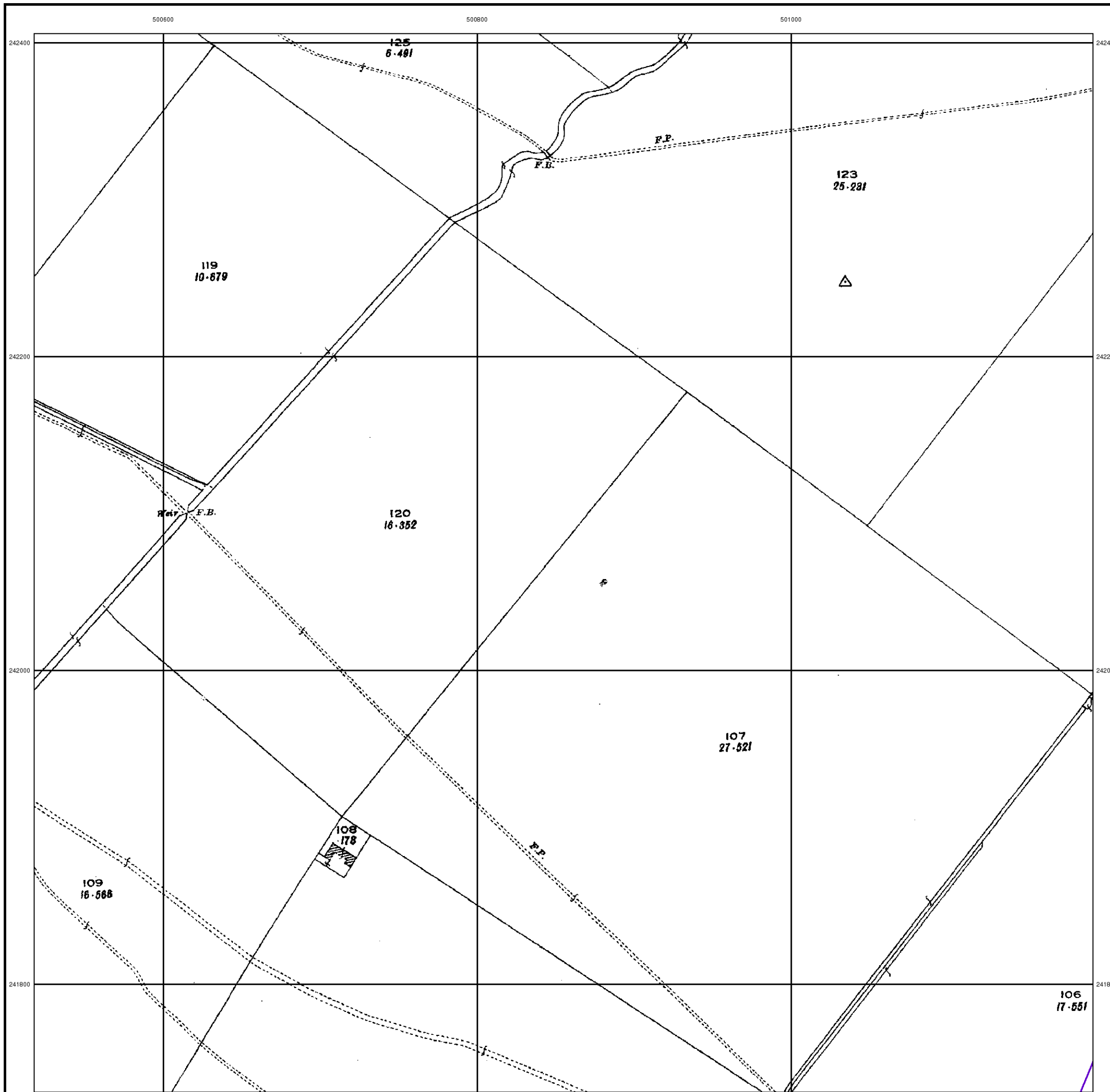
Order Number: 60770728\_1\_1  
Customer Ref: 31116  
National Grid Reference: 501420, 241770  
Slice: C  
Site Area (Ha): 240.61  
Search Buffer (m): 100

Site Details

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### Ordnance Survey Plan

Published 1976

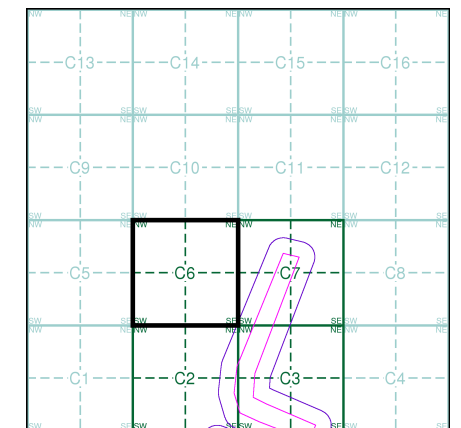
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0042 1976 12,500	TL0142 1976 12,500
TL0041 1976 12,500	TL0141 1976 12,500

### Historical Map - Segment C6



### Order Details

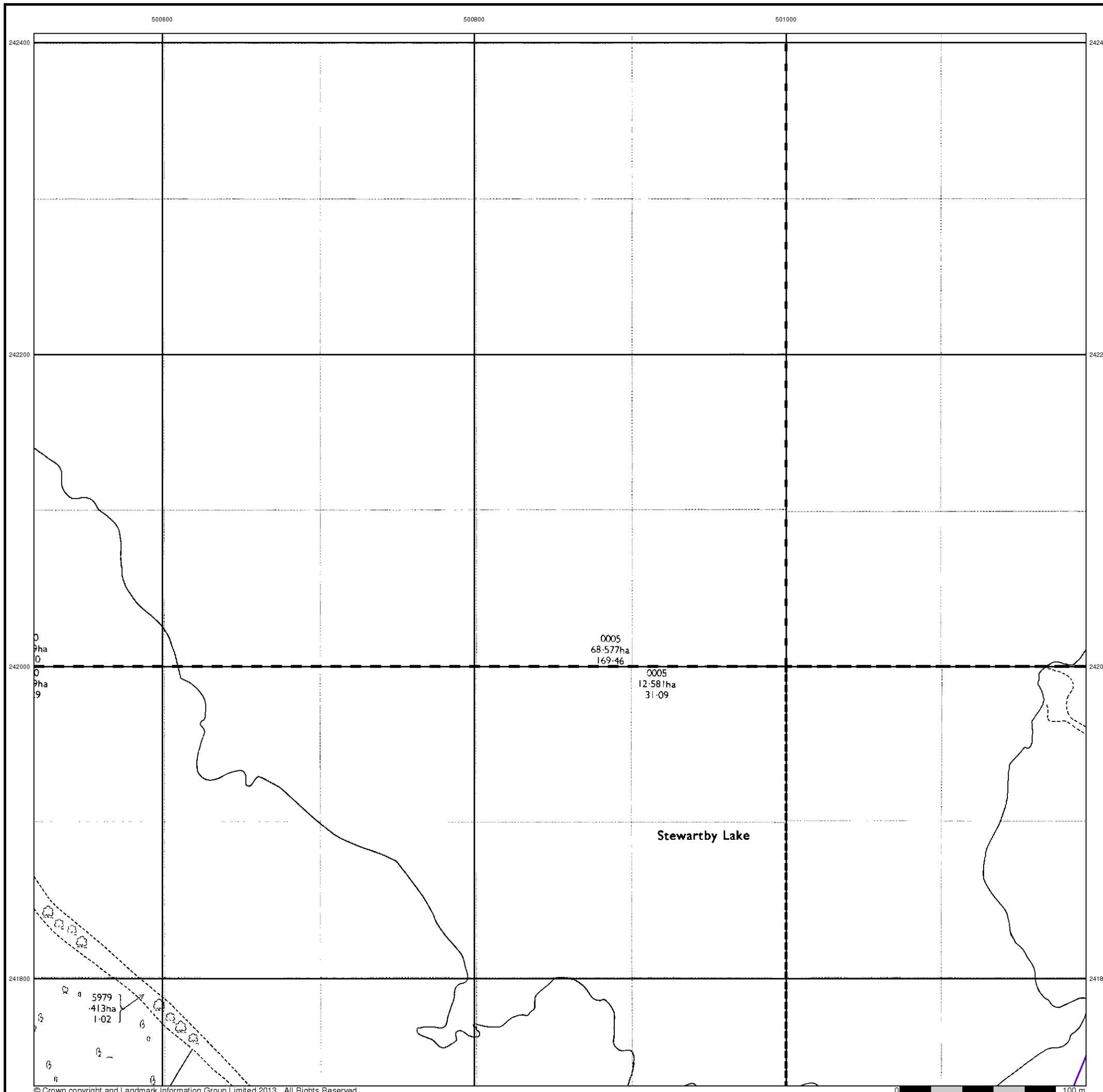
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 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

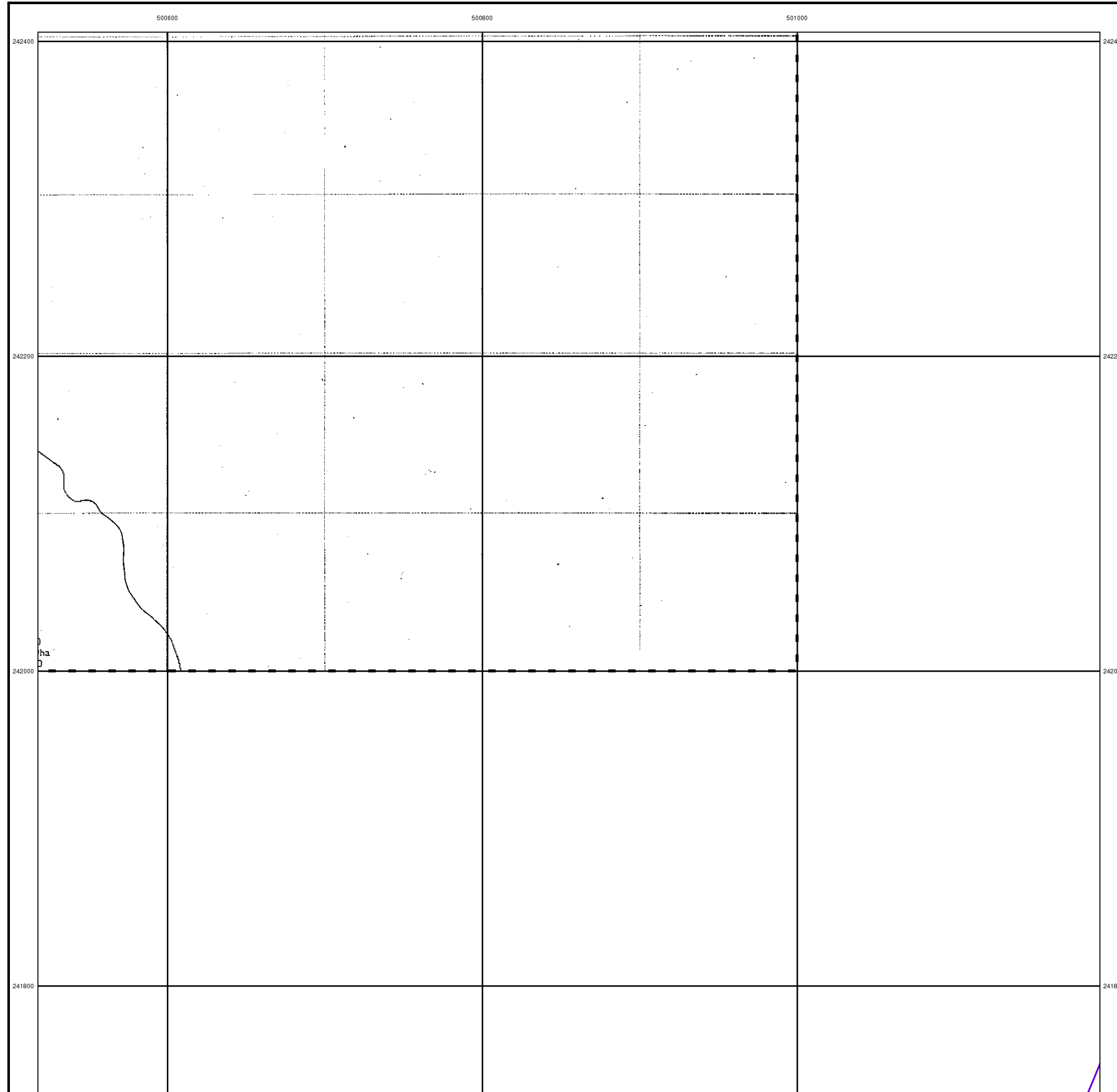
### Site Details

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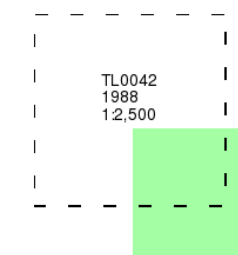
**Additional SIMs**

**Published 1988**

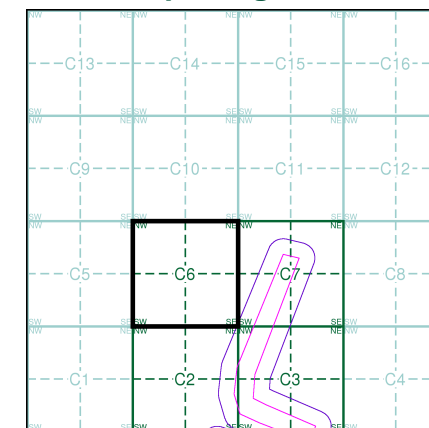
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C6**



**Order Details**

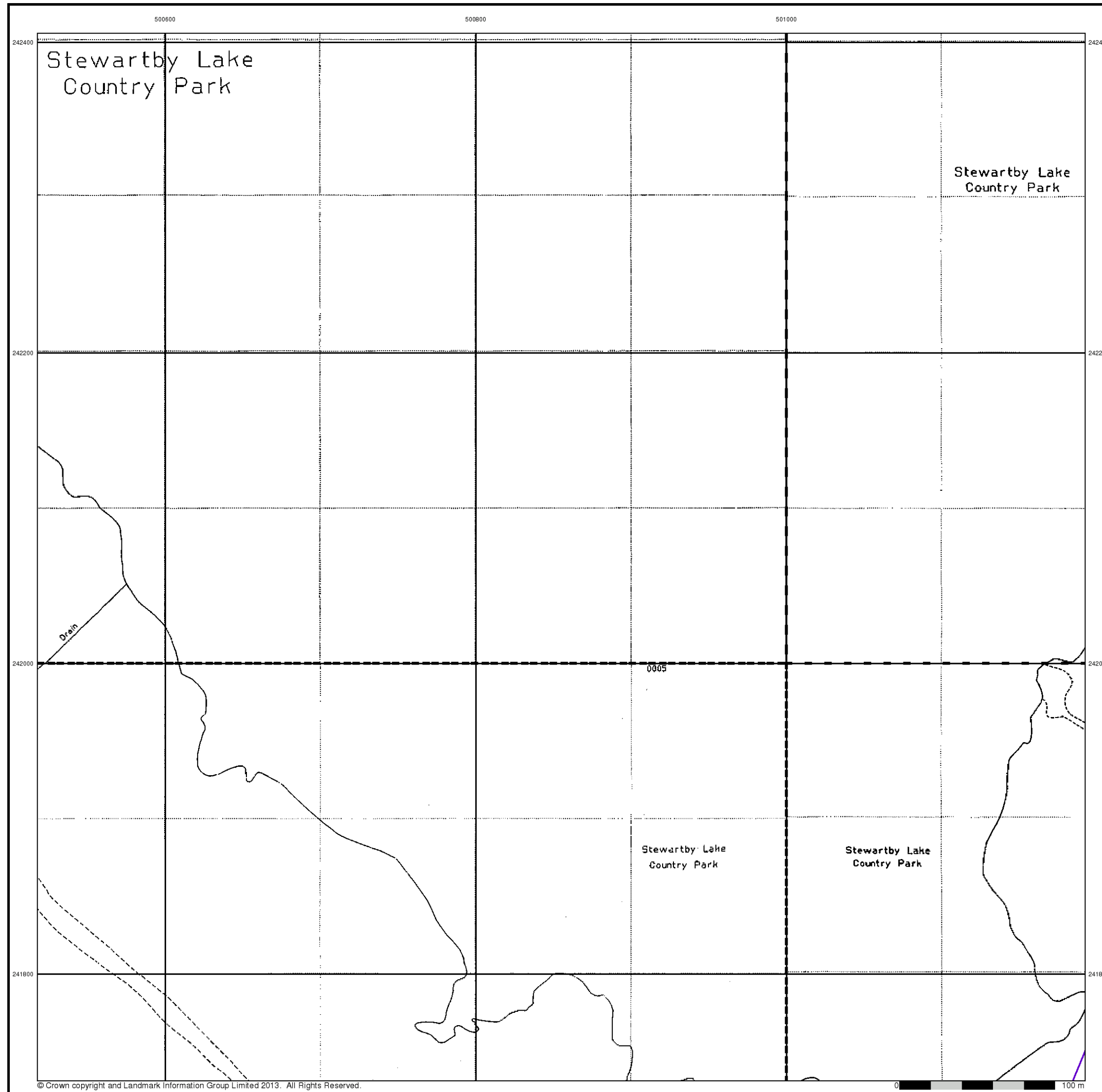
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
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## Large-Scale National Grid Data

Published 1993

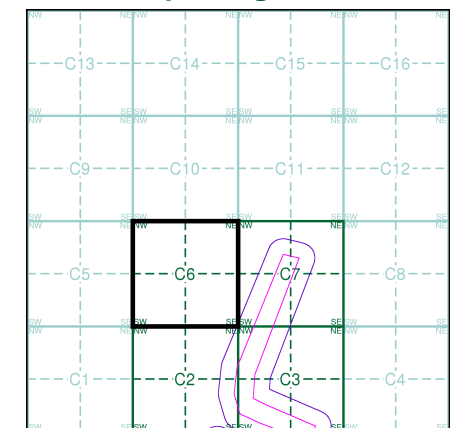
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0042 1993 1:2,500	TL0142 1993 1:2,500
TL0041 1993 1:2,500	TL0141 1993 1:2,500

### Historical Map - Segment C6



### Order Details

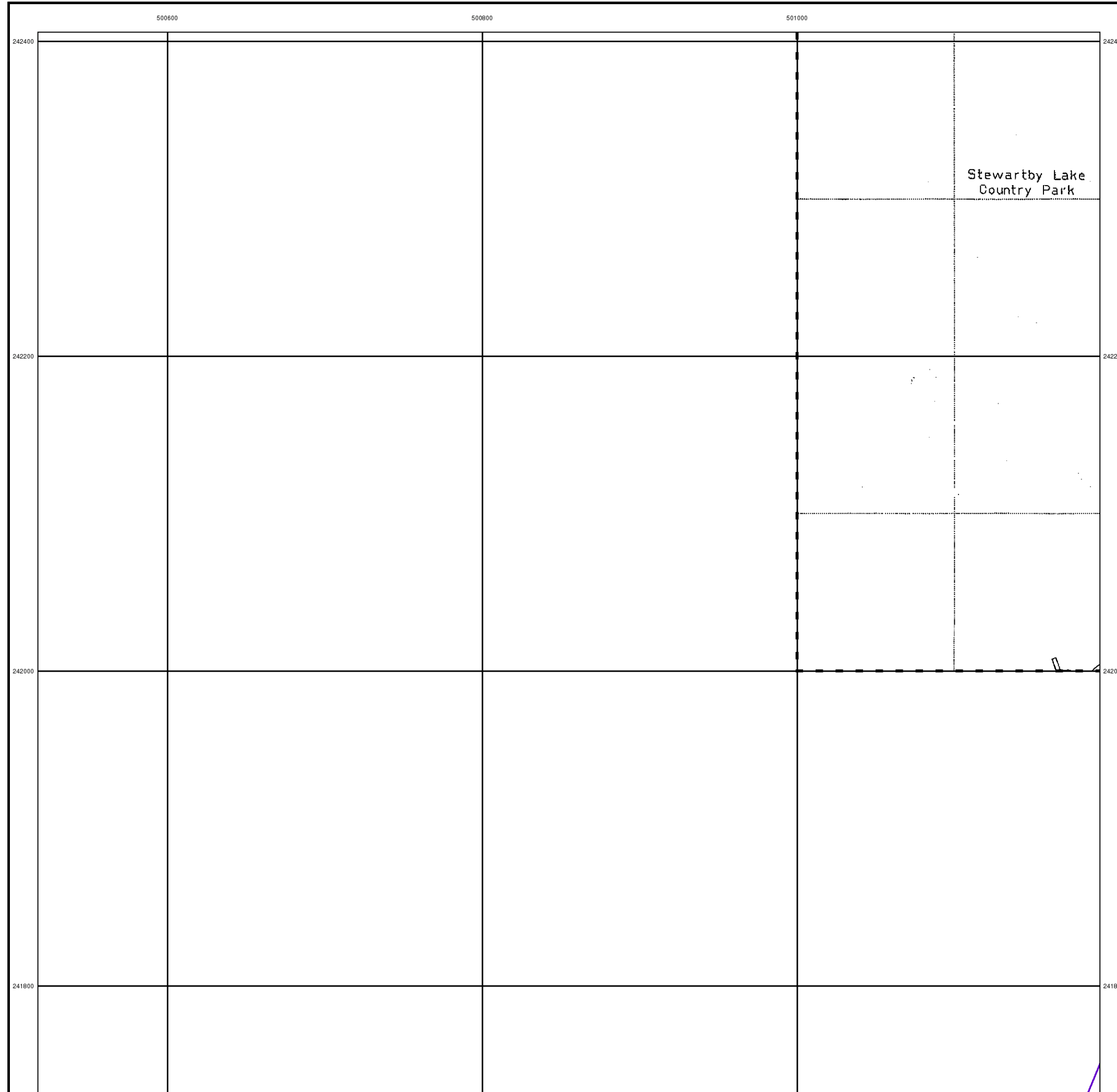
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



Tel: 0844 844 9952  
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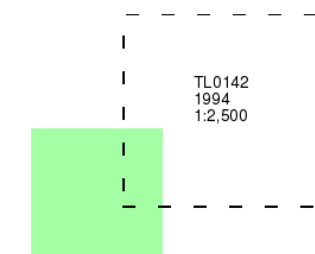
## Large-Scale National Grid Data

Published 1994

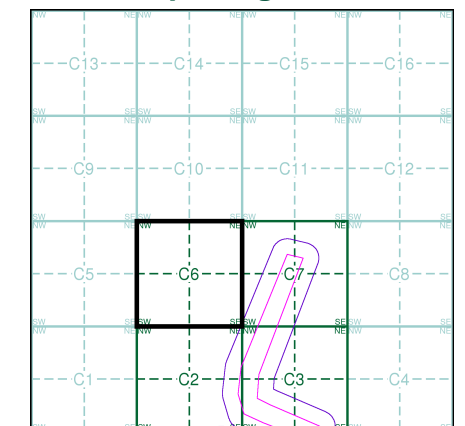
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment C6

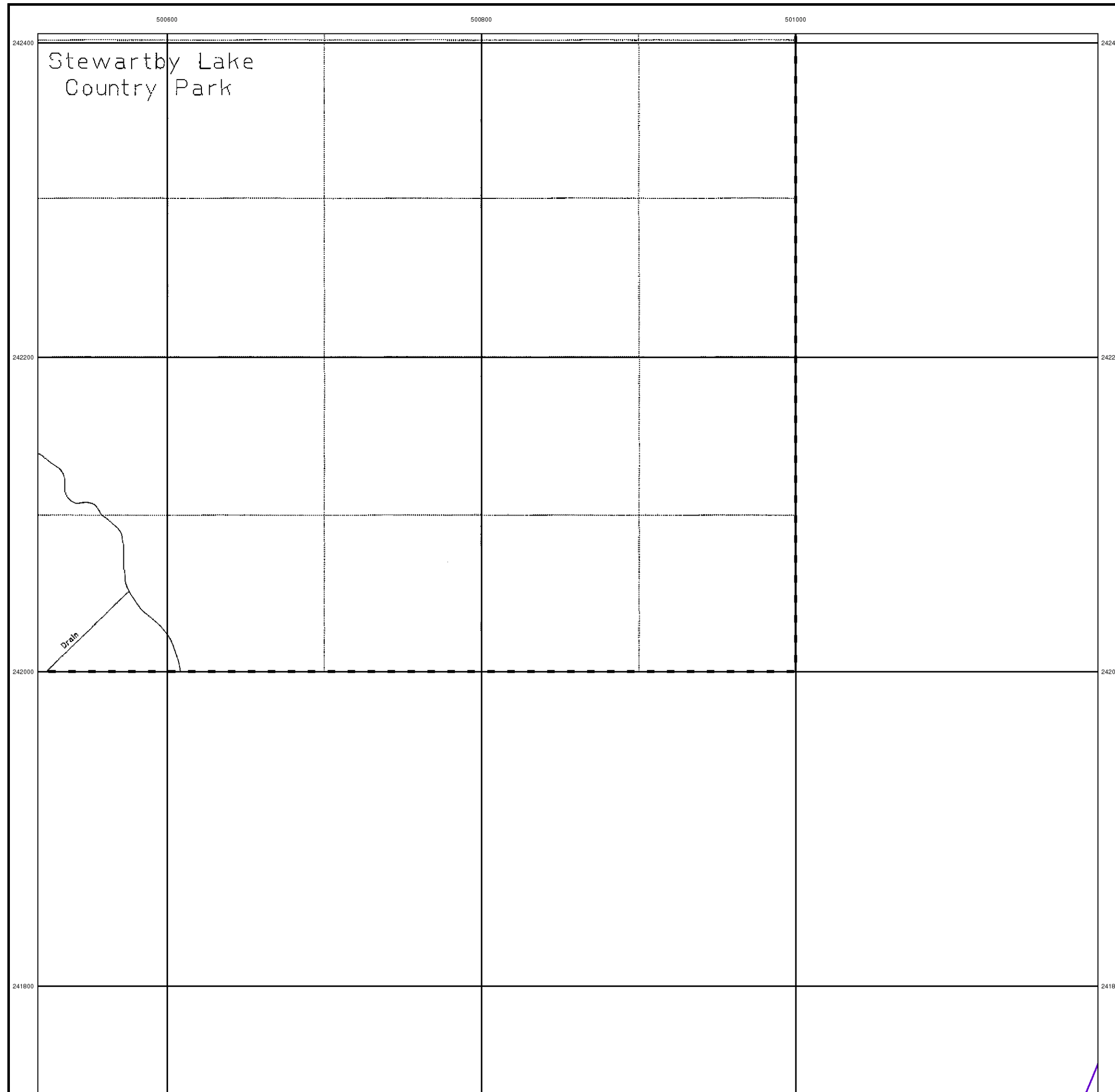


### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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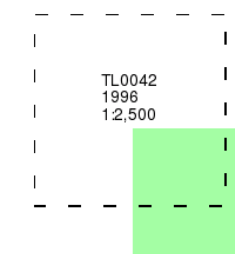
## Large-Scale National Grid Data

Published 1996

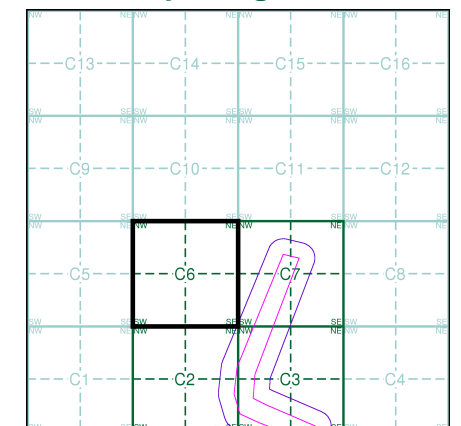
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment C6



### Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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 Fax: 0844 844 9951  
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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**   **Altitude at Trig. Station**  
**B.M. 325.9**   **Bench Mark**   **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**  
**County Borough Boundary (England)**  
**County Burgh Boundary (Scotland)**  
**Co. Boro. Bdy.**  
**Co. Burgh Bdy.**  
**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**   **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**   **Bench Mark**   **Antiquity (site of)**  
**Cave Entrance**   **Triangulation Station**   **Electricity Pylon**  
**Electricity Transmission Line**  
**County Boundary (Geographical)**  
**County & Civil Parish Boundary**  
**Civil Parish Boundary**  
**Admin. County or County Bor. Boundary**  
**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  
**EI 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

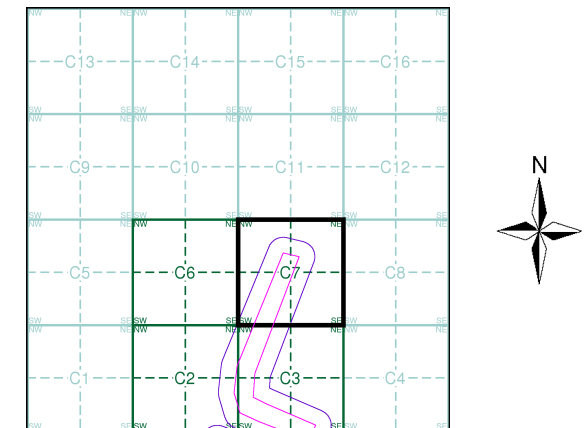
**Cliff**   **Slopes**   **Top**  
**Rock**   **Rock (scattered)**  
**Boulders**   **Boulders (scattered)**  
**Positioned Boulder**   **Scree**  
**Non-Coniferous Tree (surveyed)**   **Coniferous Tree (surveyed)**  
**Non-Coniferous Trees (not surveyed)**   **Coniferous Trees (not surveyed)**  
**Orchard Tree**   **Scrub**   **Bracken**  
**Coppice, Osier**   **Reeds**   **Marsh, Saltings**  
**Rough Grassland**   **Heath**   **Culvert**  
**Direction of water flow**   **Triangulation Station**   **Antiquity (site of)**  
**Electricity Transmission Line**   **Electricity Pylon**  
**B.M. 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  
**EI Gen Sta** Electricity Generating Station   **Sewage Ppg Sta** Sewage Pumping Station  
**EI P** Electricity Pole, Pillar   **SB, S Br** Signal Box or Bridge  
**EI 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 Governor   **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
Bedfordshire	1:2,500	1883	2
Bedfordshire	1:2,500	1901	3
Bedfordshire	1:2,500	1925	4
Ordnance Survey Plan	1:2,500	1976	5
Large-Scale National Grid Data	1:2,500	1993	6
Large-Scale National Grid Data	1:2,500	1994	7

## Historical Map - Segment C7



## Order Details

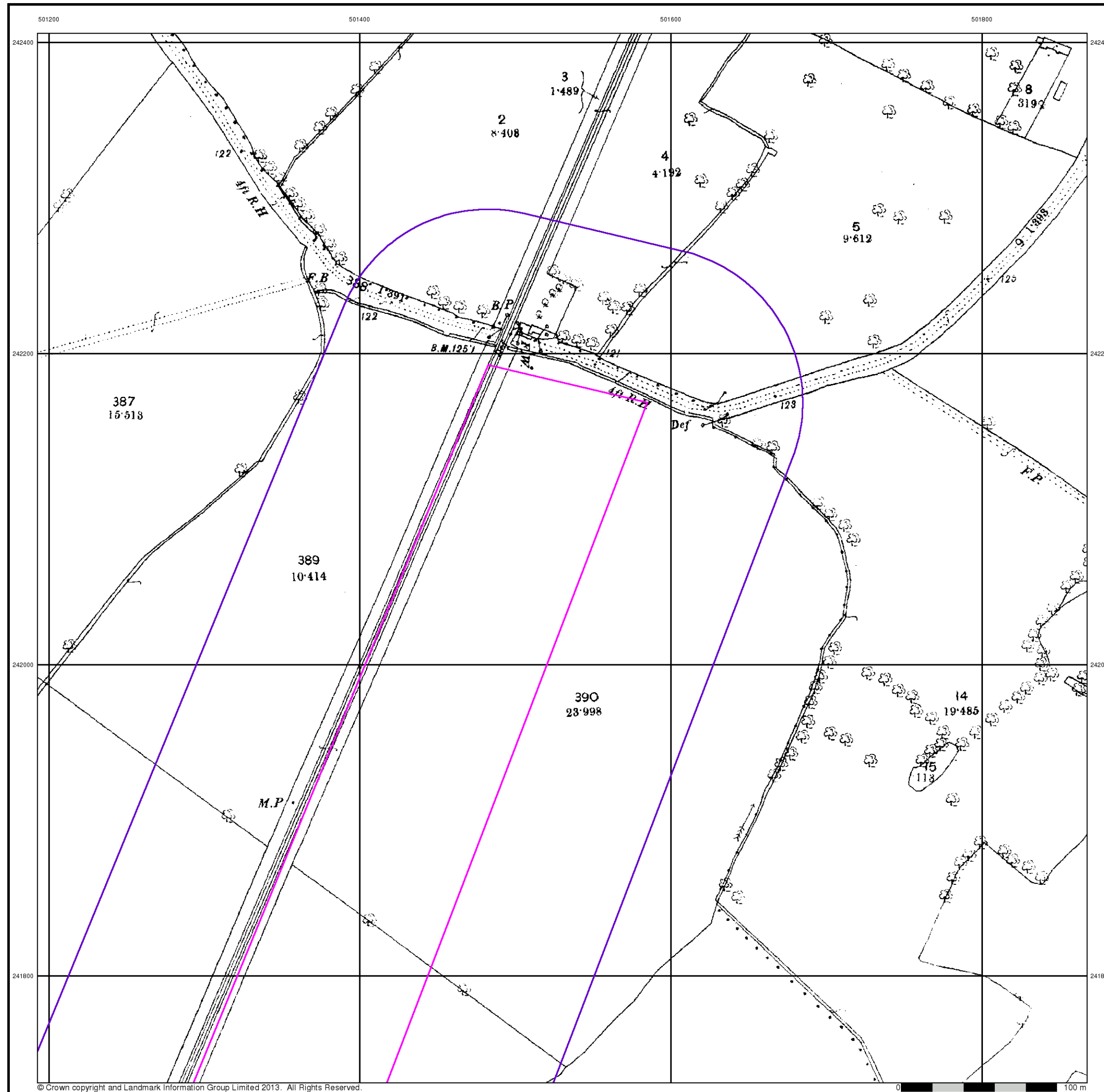
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

## Site Details

Millbrook Power Project, Green Lane, Stewartby



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 Fax: 0844 844 9951  
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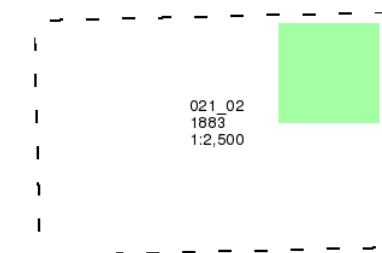


**Bedfordshire**  
**Published 1883**

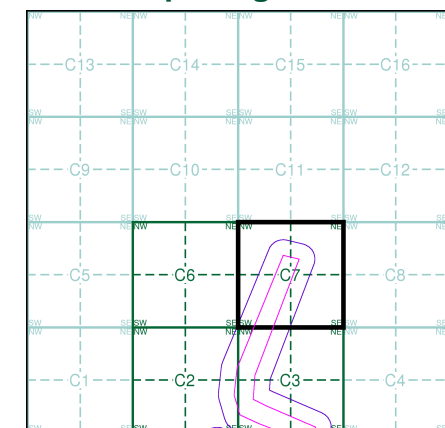
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C7**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby

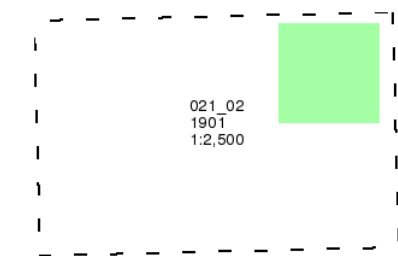


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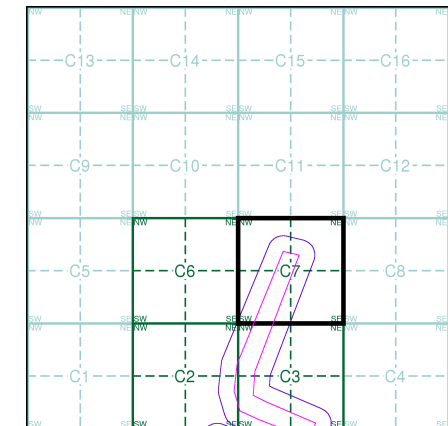


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain.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

**Map Name(s) and Date(s)**



**Historical Map - Segment C7**

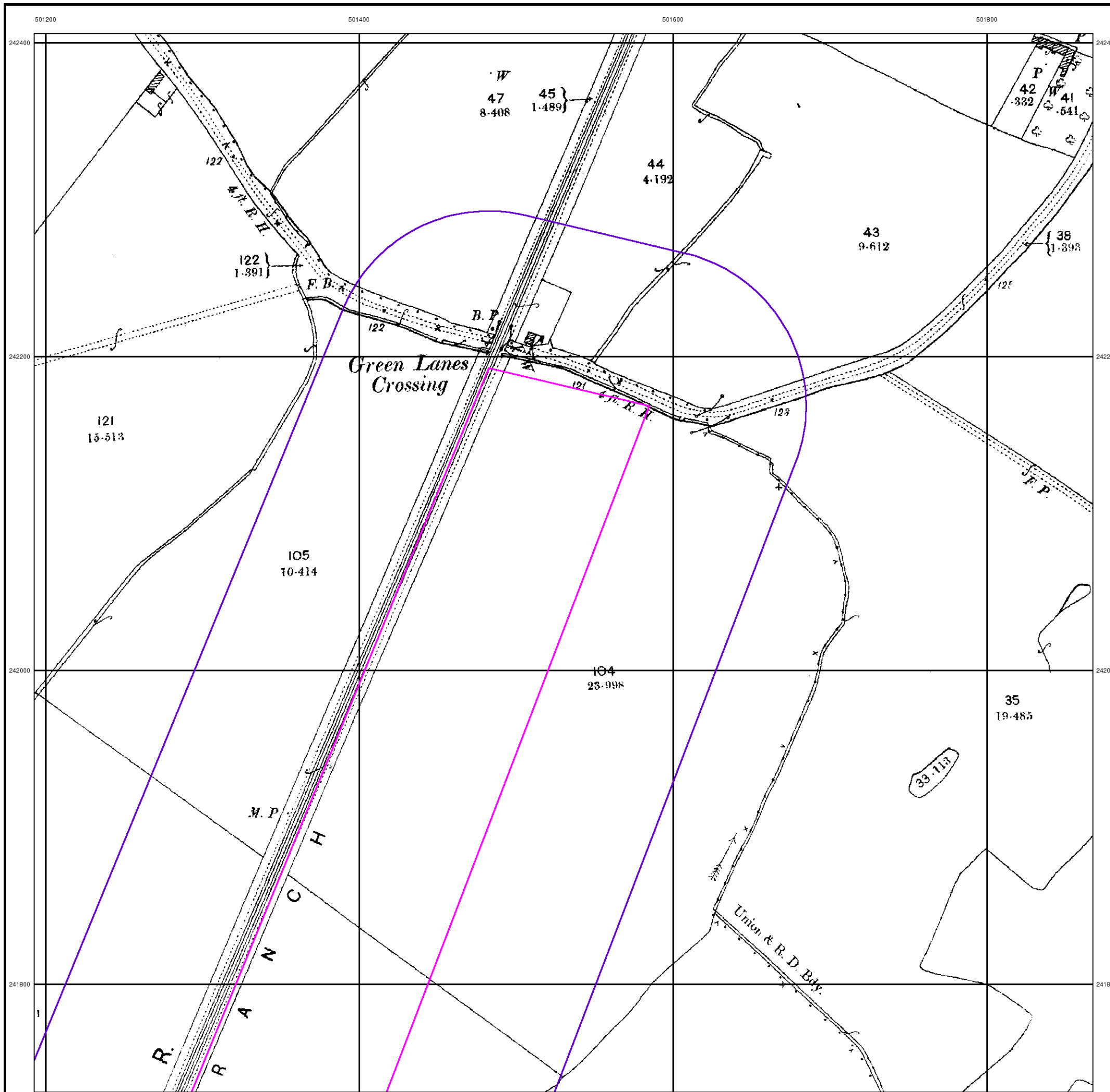


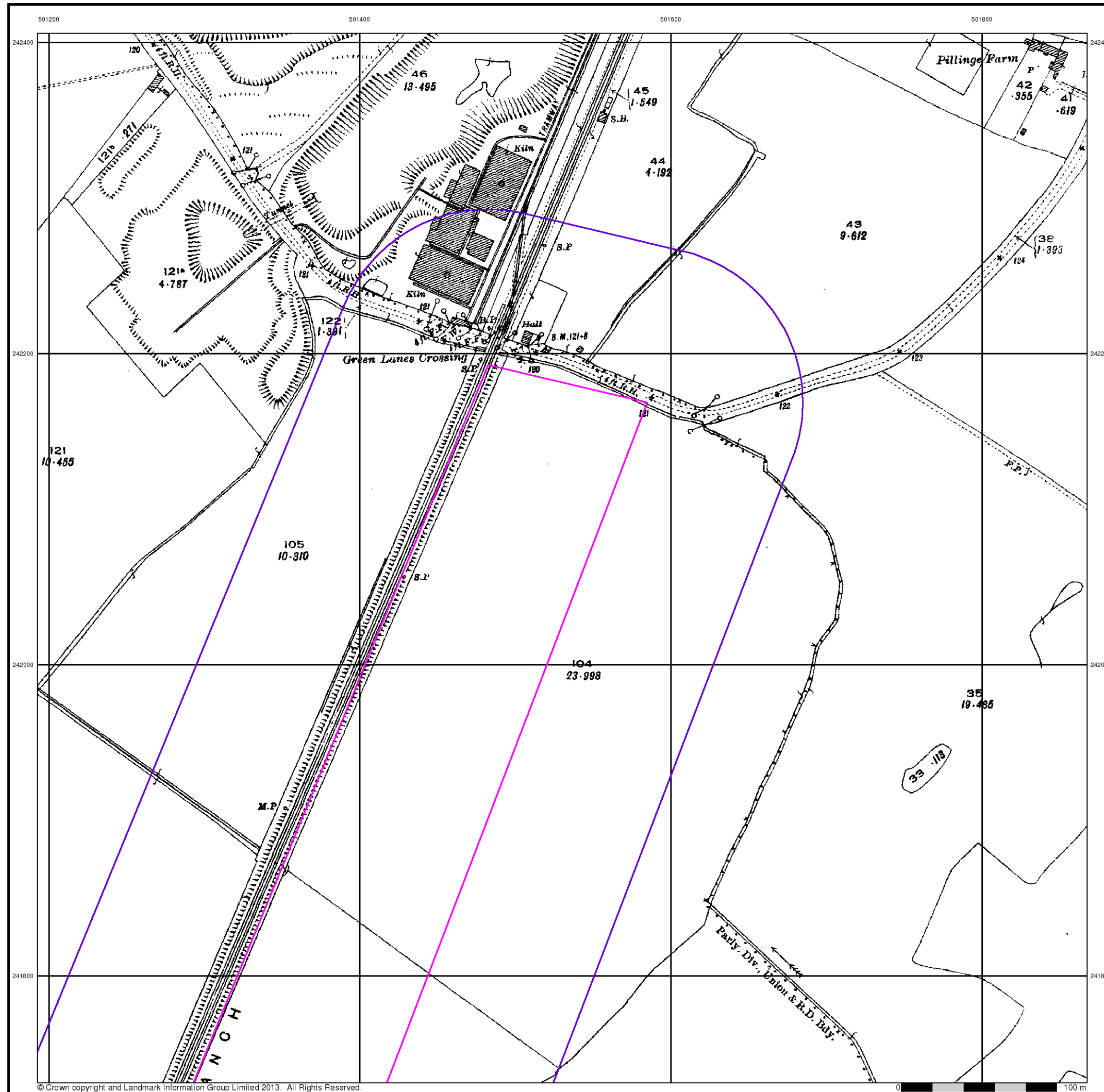
**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

Millbrook Power Project, Green Lane, Stewartby



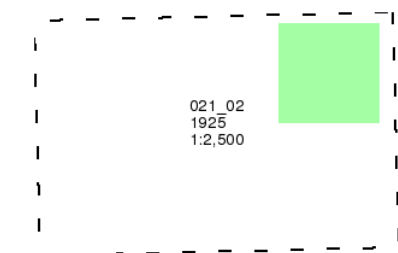


**Bedfordshire**  
**Published 1925**

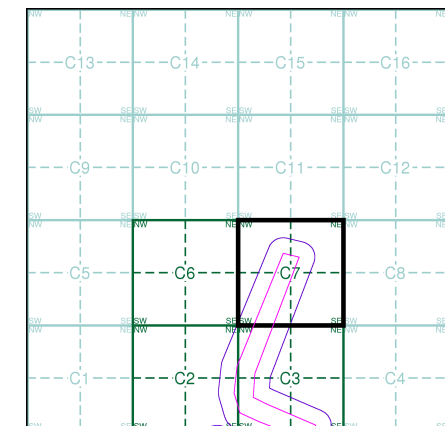
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**



**Historical Map - Segment C7**



**Order Details**

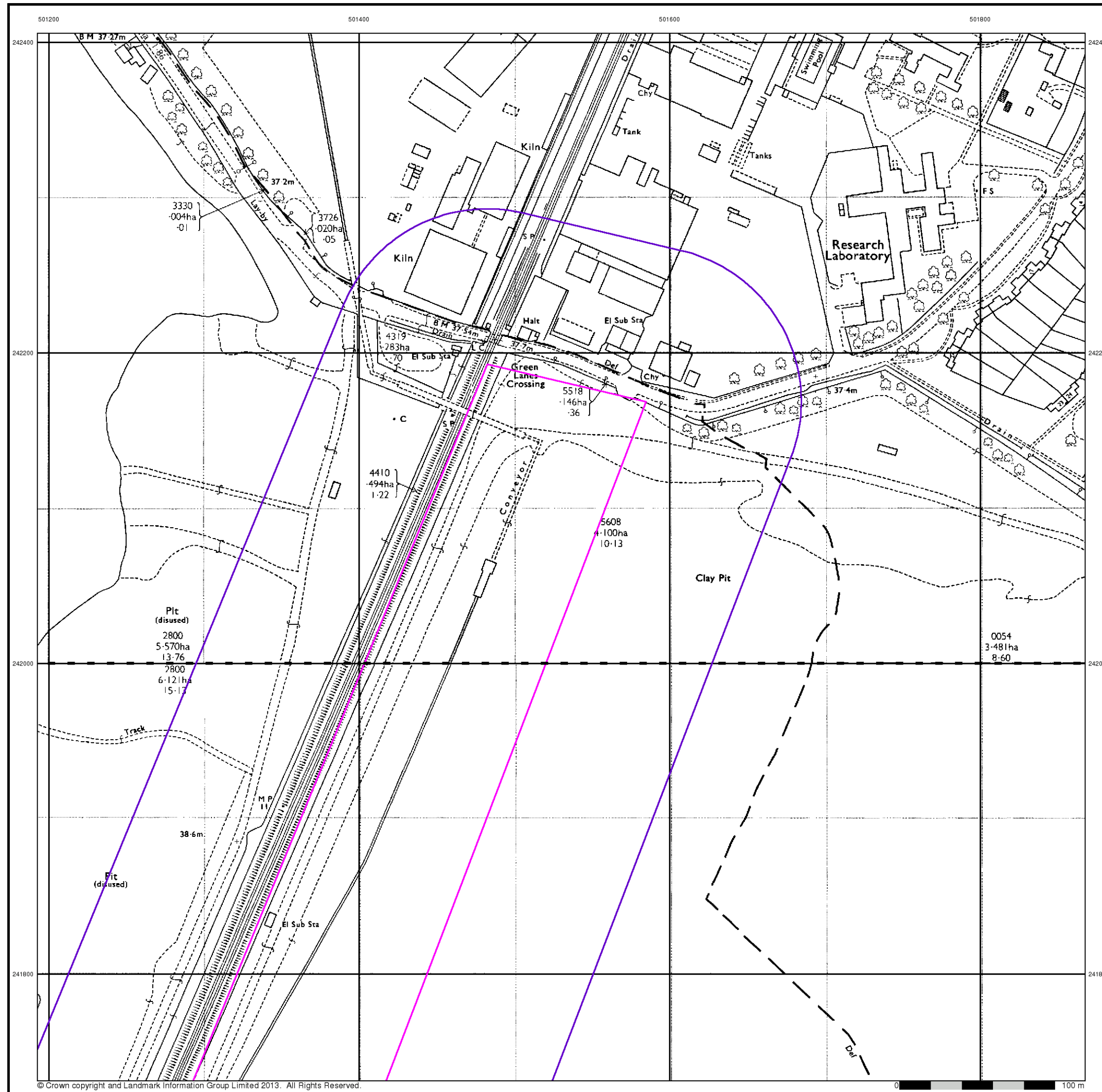
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

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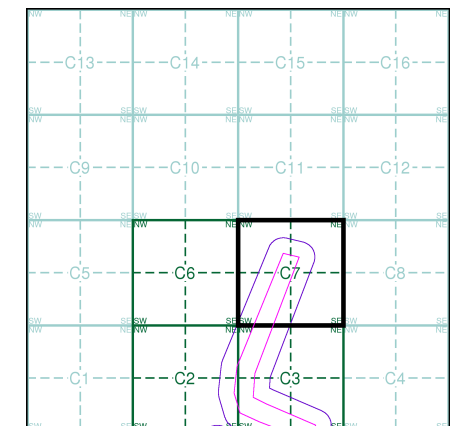
**Ordnance Survey Plan**  
**Published 1976**  
**Source map scale - 1:2,500**

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

**Map Name(s) and Date(s)**

TL0142	1976	1:2,500
TL0141	1976	1:2,500

**Historical Map - Segment C7**



**Order Details**

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

**Site Details**

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### Large-Scale National Grid Data

Published 1993

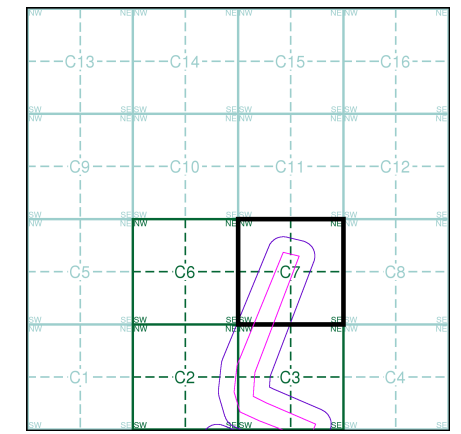
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)

TL0142	
1993	
1:2,500	
TL0141	
1993	
1:2,500	

### Historical Map - Segment C7



### Order Details

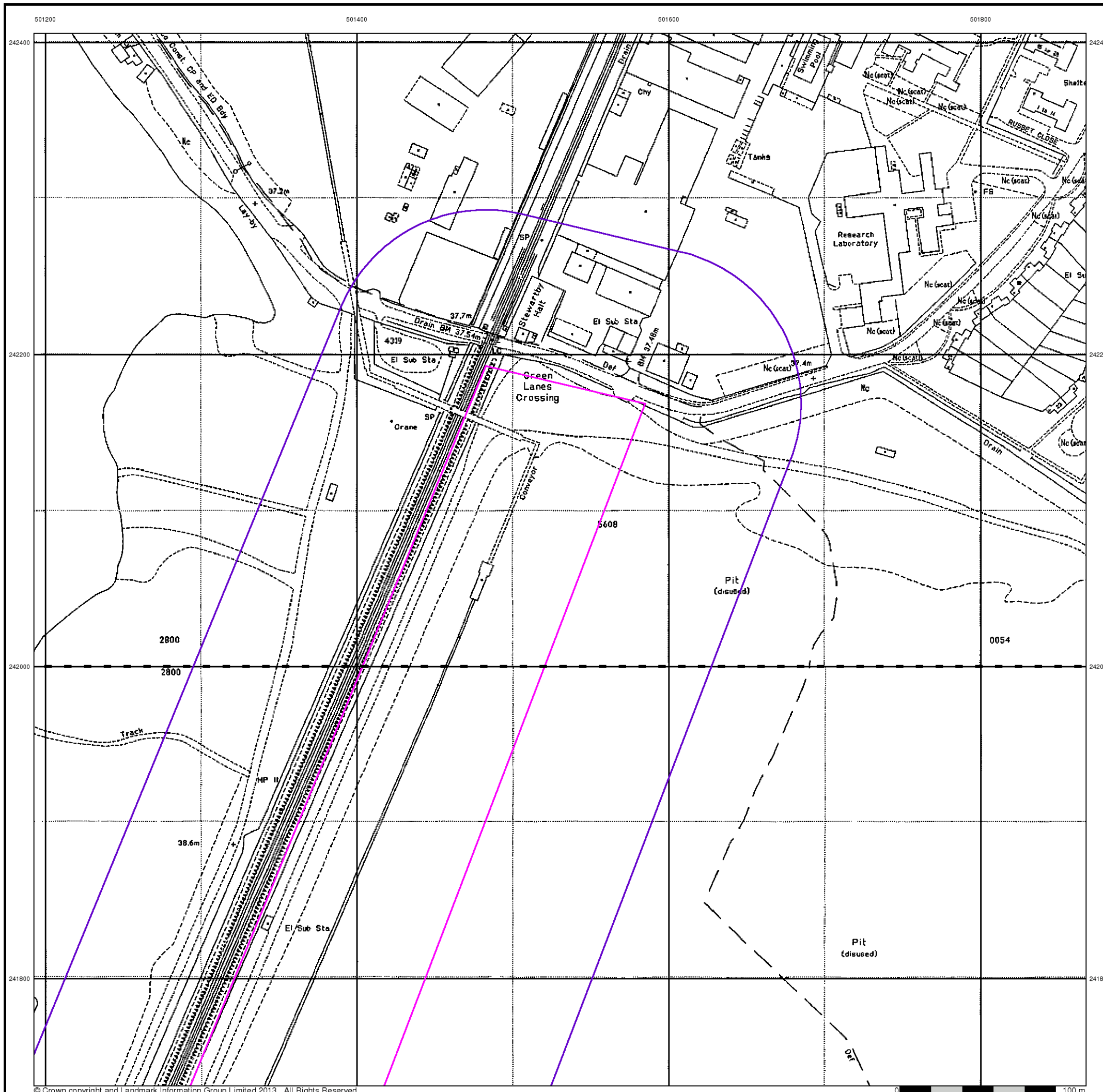
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

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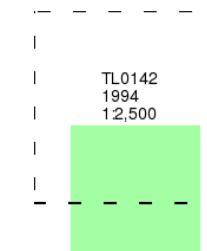
## Large-Scale National Grid Data

Published 1994

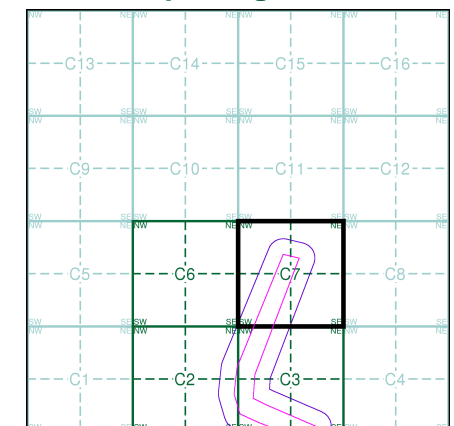
Source map scale - 1:2,500

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

### Map Name(s) and Date(s)



### Historical Map - Segment C7



### Order Details

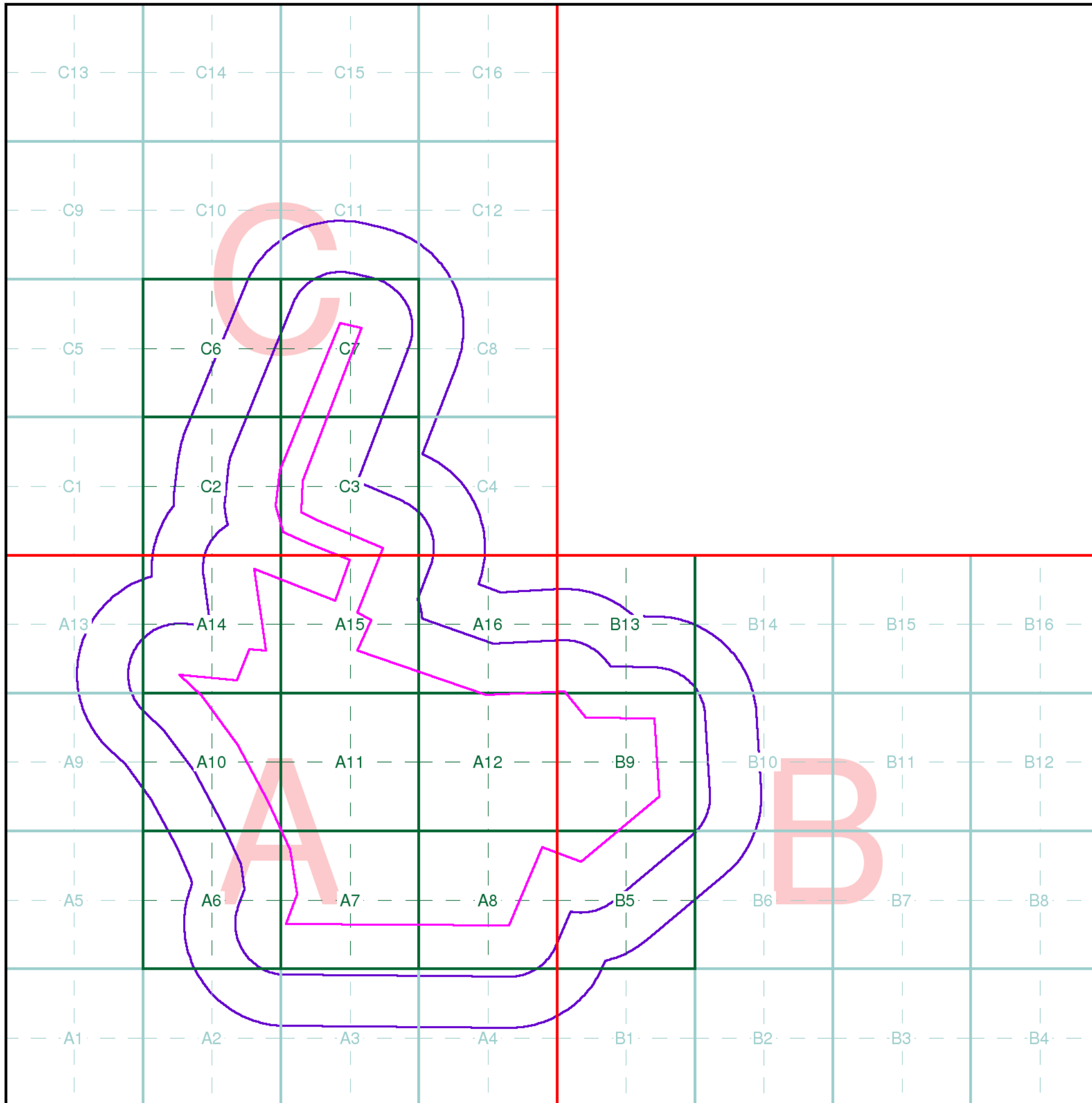
Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501420, 241770  
 Slice: C  
 Site Area (Ha): 240.61  
 Search Buffer (m): 100

### Site Details

Millbrook Power Project, Green Lane, Stewartby



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## 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:



Envirocheck reports are compiled from 136 different sources of data.

## Client Details

Ms K Riley, Brett Consulting Ltd, Caversham Bridge House, Waterman Place, Reading, Berkshire, RG1 8DN

## Order Details

Order Number: 60770728\_1\_1  
 Customer Ref: 31116  
 National Grid Reference: 501820, 240110  
 Site Area (Ha): 240.61  
 Search Buffer (m): 500

## Site Details

Millbrook Power Project, Green Lane, Stewartby

Full Terms and Conditions can be found on the following link:  
<http://www.landmarkinfo.co.uk/Terms/Show/515>



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## Envirocheck<sup>®</sup> Report:

### Datasheet

#### Order Details:

**Order Number:**

60770728\_1\_1

**Customer Reference:**

31116

**National Grid Reference:**

501510, 239960

**Slice:**

A

**Site Area (Ha):**

240.61

**Search Buffer (m):**

500

#### Site Details:

Millbrook Power Project

Green Lane

Stewartby

#### Client Details:

Ms K Riley

Brett Consulting Ltd

Caversham Bridge House

Waterman Place

Reading

Berkshire

RG1 8DN

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	11
Hazardous Substances	-
Geological	12
Industrial Land Use	22
Sensitive Land Use	23
Data Currency	24
Data Suppliers	28
Useful Contacts	29

## Introduction

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

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

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## Report Version v49.0



Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Agency &amp; Hydrological</b>				
Contaminated Land Register Entries and Notices				
Discharge Consents	pg 1	3		7
Enforcement and Prohibition Notices				
Integrated Pollution Controls				
Integrated Pollution Prevention And Control	pg 3		1	
Local Authority Integrated Pollution Prevention And Control				
Local Authority Pollution Prevention and Controls	pg 3		1	
Local Authority Pollution Prevention and Control Enforcements				
Nearest Surface Water Feature	pg 3	Yes		
Pollution Incidents to Controlled Waters	pg 3			1
Prosecutions Relating to Authorised Processes				
Prosecutions Relating to Controlled Waters				
Registered Radioactive Substances				
River Quality				
River Quality Biology Sampling Points				
River Quality Chemistry Sampling Points				
Substantiated Pollution Incident Register				
Water Abstractions	pg 4	1		1 (*1)
Water Industry Act Referrals				
Groundwater Vulnerability	pg 4	Yes	n/a	n/a
Bedrock Aquifer Designations	pg 5	Yes	n/a	n/a
Superficial Aquifer Designations	pg 5	Yes	n/a	n/a
Source Protection Zones				
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
Detailed River Network Lines	pg 5	Yes	Yes	Yes
Detailed River Network Offline Drainage	pg 10			Yes

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Waste</b>				
BGS Recorded Landfill Sites				
Historical Landfill Sites	pg 11	1		
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				
<b>Hazardous Substances</b>				
Control of Major Accident Hazards Sites (COMAH)				
Explosive Sites				
Notification of Installations Handling Hazardous Substances (NIHHS)				
Planning Hazardous Substance Consents				
Planning Hazardous Substance Enforcements				
<b>Geological</b>				
BGS 1:625,000 Solid Geology	pg 12	Yes	n/a	n/a
BGS Estimated Soil Chemistry	pg 12	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 18	1		
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 19	Yes		n/a
Potential for Compressible Ground Stability Hazards	pg 19	Yes	Yes	n/a
Potential for Ground Dissolution Stability Hazards				n/a
Potential for Landslide Ground Stability Hazards	pg 19	Yes	Yes	n/a
Potential for Running Sand Ground Stability Hazards	pg 20	Yes		n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 20	Yes		n/a
Radon Potential - Radon Affected Areas			n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m (*up to 1000m)
<b>Industrial Land Use</b>				
Contemporary Trade Directory Entries (50m)	pg 22		1	n/a
Fuel Station Entries				
<b>Sensitive Land Use</b>				
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 23	3		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	<p><b>Discharge Consents</b></p> <p>Operator: London Brick Company Limited  Property Type: Domestic Property (Single)  Location: 3 Pillinge Cottages Station Road, Millbrook, Bedford, Mk45 2jh  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Prcnf03360  Permit Version: 2  Effective Date: 24th January 1992  Issued Date: 24th January 1992  Revocation Date: Not Supplied  Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A14SW (NW)	0	2	500800 240430
1	<p><b>Discharge Consents</b></p> <p>Operator: London Brick Property  Property Type: Domestic Property (Single)  Location: 3 Pillinge Cottages Station Road, Millbrook, Bedford, Mk45 2jh  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Prcnf03360  Permit Version: 1  Effective Date: 28th August 1990  Issued Date: 28th August 1990  Revocation Date: 23rd January 1992  Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	A14SW (NW)	0	2	500800 240430
2	<p><b>Discharge Consents</b></p> <p>Operator: Millbrook Proving Ground Ltd  Property Type: Manufacture Of Motor Vehicles &amp; Engines  Location: Millbrook Bedfordshire, Millbrook, Bedford, Mk45  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Pr1nf2148  Permit Version: 1  Effective Date: 17th September 1985  Issued Date: 17th September 1985  Revocation Date: Not Supplied  Discharge Type: Discharge Of Other Matter-Surface Water  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Trib Elstow Brook  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A7NW (S)	0	2	501300 239400
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 3  Effective Date: 15th June 1985  Issued Date: 15th June 1985  Revocation Date: 15th August 1991  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	355	2	501200 238900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Ltd.  Property Type: Undefined Or Other  Location: Millbrook Stw  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 1  Effective Date: 15th June 1985  Issued Date: 15th June 1985  Revocation Date: 15th August 1991  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	355	2	501200 238900
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 2  Effective Date: 21st October 1981  Issued Date: 21st October 1981  Revocation Date: 14th June 1985  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	355	2	501200 238900
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Awcnf10501  Permit Version: 3  Effective Date: 1st January 2010  Issued Date: 24th September 2009  Revocation Date: Not Supplied  Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	A2NE (S)	389	2	501160 238870
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Awcnf10501  Permit Version: 2  Effective Date: 27th June 1995  Issued Date: 27th June 1995  Revocation Date: 31st December 2009  Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A2NE (S)	389	2	501160 238870

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Awcnf10501  Permit Version: 1  Effective Date: 15th August 1991  Issued Date: 15th August 1991  Revocation Date: 26th June 1995  Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Brook  <b>Status: Post National Rivers Authority Legislation where issue date &gt; 31/08/1989</b>  Positional Accuracy: Located by supplier to within 10m</p>	A2NE (S)	389	2	501160 238870
4	<p><b>Discharge Consents</b></p> <p>Operator: Anglian Water Services Limited  Property Type: Sewage Disposal Works - Water Company  Location: Millbrook Stw Sandhill Close, Millbrook, Bedford, Mk45 2jd  Authority: Environment Agency, Anglian Region  Catchment Area: Mid River Ouse / Elstow Brook  Reference: Aw1nf792  Permit Version: 1  Effective Date: 31st December 1970  Issued Date: 31st December 1970  Revocation Date: 20th October 1981  Discharge Type: Unknown  Discharge: Freshwater Stream/River  Environment:  Receiving Water: Boiling Pot Br Elstow Br River  <b>Status: Pre National Rivers Authority Legislation where issue date &lt; 01/09/1989</b>  Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	455	2	501200 238800
5	<p><b>Integrated Pollution Prevention And Control</b></p> <p>Name: Covanta Energy Limited  Location: Rookery Pit 3 Energy From Waste Facility, Rookery South Pit, Nr Stewartby, Bedford, Bedfordshire  Authority: Environment Agency, Anglian Region  Permit Reference: NP3030TV  Original Permit Ref: Np3030tv  Effective Date: Not Supplied  <b>Status: Valid</b>  Application Type: Application  App. Sub Type: New  Positional Accuracy: Located by supplier to within 100m  Activity Code: 5.1 A(1) (C)  Activity Description: Incineration Of Non Hazardous Waste Greater Than 1 T/Hr  Primary Activity: Y  Activity Code: 0.0 Associated Process  Activity Description: Associated Process  Primary Activity: N</p>	A15NW (N)	100	2	501280 241010
6	<p><b>Local Authority Pollution Prevention and Controls</b></p> <p>Name: Millbrook Proving Ground  Location: Station Road, Millbrook, BEDFORD, Bedfordshire, MK45 2JQ  Authority: Central Bedfordshire Council, Environmental Health Department  Permit Reference: EP/CB/44  Dated: 1st July 1999  Process Type: Local Authority Pollution Prevention and Control  Description: PG1/14 Petrol filling station  <b>Status: Permitted</b>  Positional Accuracy: Manually positioned to the address or location</p>	A10NW (W)	143	3	500786 240153
	<p><b>Nearest Surface Water Feature</b></p>	A14SE (NW)	0	-	500976 240444
7	<p><b>Pollution Incidents to Controlled Waters</b></p> <p>Property Type: Water Company Sewage: Sewage Treatment Works  Location: Bedford District, MILLBROOK, Bedfordshire  Authority: Environment Agency, Anglian Region  Pollutant: Sewage - Treated Effluent  Note: Boiling Pot Brook  Incident Date: 29th January 1999  Incident Reference: 4434  Catchment Area: Not Given  Receiving Water: Freshwater Stream/River  Cause of Incident: Other Cause  Incident Severity: Category 3 - Minor Incident  Positional Accuracy: Located by supplier to within 100m</p>	A3NE (S)	251	2	501600 239000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son Licence Number: 6/33/12/*S/0067 Permit Version: 100 Location: Catchpit At Ampthill 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 April Authorised End: 30 September Permit Start Date: 1st November 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m</p>	A7NW (SW)	0	2	501300 239500
9	<p><b>Water Abstractions</b></p> <p>Operator: R J Parrish &amp; Son Licence Number: 6/33/12/*S/0067 Permit Version: 100 Location: Catchpit At Ampthill 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 April Authorised End: 30 September Permit Start Date: 1st November 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m</p>	A2NE (SW)	281	2	501100 239000
	<p><b>Water Abstractions</b></p> <p>Operator: Messrs A J Woodward And Co Licence Number: 6/33/12/*s/028 Permit Version: Not Supplied Location: Elstow Brook At, MILLBROOK Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 11 Yearly Rate (m3): 245450 Details: Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m</p>	A3NW (S)	555	2	501200 238700
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000</p>	A12SE (E)	0	2	502429 240002
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Not classified Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000</p>	A11SW (W)	0	2	501512 239957
	<p><b>Groundwater Vulnerability</b></p> <p>Soil Classification: Soils of Intermediate Leaching Potential (I1) - Soils which can possibly transmit a wide range of pollutants Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000</p>	A10SE (W)	0	2	500965 240001
	<p><b>Groundwater Vulnerability</b></p> <p>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 31 Bedfordshire Scale: 1:100,000</p>	(E)	0	2	502836 240244

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Groundwater Vulnerability</b> 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 31 Bedfordshire Scale: 1:100,000	A14SE (NW)	0	2	501148 240568
	<b>Groundwater Vulnerability</b> Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 31 Bedfordshire Scale: 1:100,000	A14NE (NW)	0	2	501058 240915
	<b>Drift Deposits</b> None				
	<b>Bedrock Aquifer Designations</b> Aquifer Designation: Unproductive Strata	A11SW (W)	0	4	501512 239957
	<b>Bedrock Aquifer Designations</b> Aquifer Designation: Unproductive Strata	A11SW (N)	0	4	501512 240001
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - A	A15SW (NW)	0	4	501324 240410
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A12SE (E)	0	4	502463 239948
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A11SW (SW)	0	4	501228 239726
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A12SE (E)	0	4	502475 240001
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	(E)	0	4	502829 240270
	<b>Superficial Aquifer Designations</b> Aquifer Designation: Secondary Aquifer - Undifferentiated	A10NE (W)	0	4	500972 240126
	<b>Extreme Flooding from Rivers or Sea without Defences</b> None				
	<b>Flooding from Rivers or Sea without Defences</b> None				
	<b>Areas Benefiting from Flood Defences</b> None				
	<b>Flood Water Storage Areas</b> None				
	<b>Flood Defences</b> None				
10	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SE (SW)	0	2	501179 239768



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	0	2	500991 240105
12	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A8NE (SE)	0	2	502418 239463
13	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	0	2	501004 240077
14	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A12NE (E)	0	2	502427 240108
15	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A11SE (E)	0	2	501854 239936
16	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NW (NW)	0	2	500798 240378

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A11SW (SW)	0	2	501209 239720
18	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	0	2	500928 240174
19	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	0	2	500796 240429
20	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SE (NW)	8	2	501030 240601
21	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SE (NW)	9	2	500885 240462
22	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	16	2	500784 240479

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10NE (W)	16	2	500928 240174
24	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A8NE (SE)	18	2	502418 239463
25	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A16SW (NE)	128	2	502050 240557
26	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14NW (NW)	199	2	500852 241031
27	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	219	2	500835 240681
28	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SW (W)	233	2	500783 240005

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14SW (NW)	247	2	500787 240711
30	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SW (W)	411	2	500737 239714
31	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A10SW (W)	411	2	500737 239714
32	<b>Detailed River Network Lines</b> River Type: Extended Culvert (greater than 50m) River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Below Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (W)	444	2	500727 239662
33	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A2NE (S)	456	2	501191 238800
34	<b>Detailed River Network Lines</b> River Type: Secondary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A14NW (NW)	460	2	500595 240920

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
35	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Not Supplied Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Not a Drain Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A2NE (S)	462	2	501192 238794
36	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (W)	466	2	500683 239699
37	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A9NE (W)	474	2	500188 240351
38	<b>Detailed River Network Lines</b> River Type: Tertiary River River Name: Drain Hydrographic Area: D005 River Flow Type: Primary Flow Path River Surface Level: Surface Drain Feature: Drain (ditch, Reen, Rhyne, Drain) Flood Risk: Other Rivers Management Status: Water Course: Not Supplied Name: Water Course: Not Supplied Reference:	A6NW (SW)	484	2	500715 239595
39	<b>Detailed River Network Offline Drainage</b> River Type: Tertiary River Hydrographic Area: D005	A6NE (SW)	263	2	500911 239697

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	<p><b>Historical Landfill Sites</b></p> <p>Licence Holder: London Brick Landfill Limited            Location: Stewartby, Bedford, Bedfordshire            Name: Rookery Clay Pit            Operator Location: Not Supplied            Boundary Accuracy: As Supplied            Provider Reference: EAHLD01024            First Input Date: 1st January 1971            Last Input Date: 1st April 1987            Specified Waste Type: Deposited Waste included Industrial and Household Waste, and Liquid Sludge            EA Waste Ref: 75174            Regis Ref: AX1/L/LON010            WRC Ref: 0200/0045            BGS Ref: Not Supplied            Other Ref: 8/1977, PIT 80</p>	A16NW (N)	0	2	501929 240987
	<p><b>Local Authority Landfill Coverage</b></p> <p>Name: Mid Bedfordshire District Council            - Has supplied landfill data</p>		0	10	501512 239957
	<p><b>Local Authority Landfill Coverage</b></p> <p>Name: Bedfordshire County Council            - Has no landfill data to supply</p>		0	9	501512 239957
	<p><b>Local Authority Landfill Coverage</b></p> <p>Name: Bedford Borough Council            - Has supplied landfill data</p>		11	11	502210 240716

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS 1:625,000 Solid Geology</b> Description: Oxford Clay and Kellaways Beds	A11SW (W)	0	4	501512 239957
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SW (SW)	0	5	501227 239725
	<b>BGS Estimated Soil Chemistry</b> 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	A10SE (W)	0	5	501000 240034
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12SW (E)	0	5	502000 240000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NE (NW)	0	5	501031 241000
	<b>BGS Estimated Soil Chemistry</b> Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A10NE (W)	0	5	500971 240125
	<b>BGS Estimated Soil Chemistry</b> 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	A11NW (N)	0	5	501450 240155

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A12SE (E)	0	5	502474 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A15NW (N)	0	5	501512 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A11SW (W)	0	5	501512 239957
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A12SE (E)	0	5	502462 239947
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A12SW (E)	0	5	502000 239957
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14SE (NW)	0	5	501140 240487



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A11SW (N)	0	5	501512 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A15SW (NW)	0	5	501323 240409
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14NE (NW)	28	5	501000 240788
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A10SE (W)	28	5	501000 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14SE (NW)	29	5	501000 240581
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14SE (NW)	30	5	501000 240688

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A10SE (W)	44	5	501000 239957
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14NE (NW)	61	5	501000 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A8SE (SE)	63	5	502390 239279
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A10SE (W)	77	5	500963 240000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic &lt;15 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	(NW)	209	5	500799 241079
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NE (S)	221	5	501837 239023

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16SW (NE)	228	5	502000 240681
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A4NW (SE)	245	5	502000 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NE (S)	248	5	501797 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A4NW (SE)	248	5	501921 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NW (S)	249	5	501512 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A3NW (S)	255	5	501204 239000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A4NW (SE)	260	5	502150 238913
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A2NE (S)	268	5	501135 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16SW (NE)	272	5	502137 240679
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A14NW (NW)	286	5	500637 240752
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16NW (NE)	311	5	502000 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A9NE (W)	325	5	500472 240236

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 40 - 60 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 15 - 30 mg/kg</p> <p>Concentration:</p>	A3NW (S)	333	5	501323 238920
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A2NE (SW)	335	5	501000 239000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 25 - 35 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 40 - 60 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 15 - 30 mg/kg</p> <p>Concentration:</p>	A3NE (S)	385	5	501795 238864
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 90 - 120 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A16NW (NE)	408	5	502087 241000
	<p><b>BGS Estimated Soil Chemistry</b></p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Soil Sample Type: Rural Soil</p> <p>Arsenic 15 - 25 mg/kg</p> <p>Concentration:</p> <p>Cadmium &lt;1.8 mg/kg</p> <p>Concentration:</p> <p>Chromium 60 - 90 mg/kg</p> <p>Concentration:</p> <p>Lead Concentration: &lt;150 mg/kg</p> <p>Nickel 30 - 45 mg/kg</p> <p>Concentration:</p>	A2NE (SW)	500	5	501000 238804
41	<p><b>BGS Recorded Mineral Sites</b></p> <p>Site Name: Rookery Clay Pit</p> <p>Location: , Stewartby, Bedford</p> <p>Source: British Geological Survey, National Geoscience Information Service</p> <p>Reference: 35590</p> <p>Type: Opencast</p> <p><b>Status: Ceased</b></p> <p>Operator: London Brick Co Ltd</p> <p>Operator Location: London Brick Co Ltd, Arden House, West Street, Leighton Buzzard, Bedfordshire, Lu7 7dd</p> <p>Periodic Type: Jurassic</p> <p>Geology: Oxford Clay Formation</p> <p>Commodity: Common Clay and Shale</p> <p>Positional Accuracy: Located by supplier to within 10m</p>	A15NW (N)	0	4	501510 240915
	<p><b>BGS Measured Urban Soil Chemistry</b></p> <p>No data available</p>				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>BGS Urban Soil Chemistry Averages</b> No data available				
	<b>Coal Mining Affected Areas</b> In an area that might not be affected by coal mining				
	<b>Non Coal Mining Areas of Great Britain</b> No Hazard				
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Collapsible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	0	4	501323 240405
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	0	4	501323 240405
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (W)	0	4	501026 240000
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Compressible Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (SW)	11	4	501149 239783
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Ground Dissolution Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A16SW (NE)	0	4	501967 240446
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SW (N)	0	4	501458 240480
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (NE)	0	4	501715 240405
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	4	501625 240431
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11SW (SW)	0	4	501324 239872
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A10SE (W)	0	4	501088 239942
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NW (NE)	0	4	501952 240361
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	4	501667 240407

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NW (NW)	0	4	501333 240121
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A7NW (SW)	39	4	501197 239572
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A6NE (SW)	102	4	501140 239527
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A8SW (SE)	146	4	502008 239101
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A6SE (SW)	164	4	501062 239196
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6SE (SW)	180	4	501042 239218
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A6SE (SW)	205	4	501021 239199
	<b>Potential for Landslide Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A3NE (S)	250	4	501780 238999
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	4	502466 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (E)	0	4	502461 239942
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11SW (SW)	0	4	501225 239729
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15SW (NW)	0	4	501323 240405
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A6NE (SW)	0	4	501184 239698
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11SW (W)	0	4	501512 239957
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A10SE (W)	0	4	501026 240000
	<b>Potential for Running Sand Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A14SW (NW)	70	4	500660 240551
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15SE (N)	0	4	501539 240691
	<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11SW (N)	0	4	501512 240000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	<p><b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b></p> <p>Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service</p>	A11SW (W)	0	4	501512 239957
	<p><b>Radon Potential - Radon Protection Measures</b></p> <p>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service</p>	A11SW (W)	0	4	501512 239957
	<p><b>Radon Potential - Radon Protection Measures</b></p> <p>Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service</p>	A11SW (N)	0	4	501512 240001
	<p><b>Radon Potential - Radon Affected Areas</b></p> <p>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</p>	A11SW (W)	0	4	501512 239957
	<p><b>Radon Potential - Radon Affected Areas</b></p> <p>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</p>	A11SW (N)	0	4	501512 240001



Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
42	<p><b>Contemporary Trade Directory Entries</b></p> <p>Name: Select Engineering            Location: Moreteyne House, Station Lane, Millbrook, Bedford, MK45 2JH            Classification: Sheet Metal Work  <b>Status:</b> Inactive            Positional Accuracy: Automatically positioned to the address</p>	A14SW (NW)	8	-	500713 240478

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Eutrophic Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A10NE (W)	0	8	500926 240134
44	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Surface Water Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A11SW (W)	0	8	501512 239957
45	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A11SW (W)	0	8	501512 239957
46	<b>Nitrate Vulnerable Zones</b> Name: Not Supplied Description: Groundwater Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A3NW (S)	375	8	501349 238878

Agency & Hydrological	Version	Update Cycle
<b>Contaminated Land Register Entries and Notices</b> Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	December 2013 February 2013 July 2008	Annually Annual Rolling Update Not Applicable
<b>Discharge Consents</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Enforcement and Prohibition Notices</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Integrated Pollution Controls</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Integrated Pollution Prevention And Control</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Local Authority Integrated Pollution Prevention And Control</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Controls</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Local Authority Pollution Prevention and Control Enforcements</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department Bedford Borough Council - Environmental Health Department	December 2008 March 2013 September 2013	Not Applicable Annually Annual Rolling Update
<b>Nearest Surface Water Feature</b> Ordnance Survey	July 2012	Quarterly
<b>Pollution Incidents to Controlled Waters</b> Environment Agency - Anglian Region	September 1999	Not Applicable
<b>Prosecutions Relating to Authorised Processes</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Prosecutions Relating to Controlled Waters</b> Environment Agency - Anglian Region	March 2013	As notified
<b>Registered Radioactive Substances</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>River Quality</b> Environment Agency - Head Office	November 2001	Not Applicable
<b>River Quality Biology Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>River Quality Chemistry Sampling Points</b> Environment Agency - Head Office	July 2012	Annually
<b>Substantiated Pollution Incident Register</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Water Abstractions</b> Environment Agency - Anglian Region	July 2014	Quarterly
<b>Water Industry Act Referrals</b> Environment Agency - Anglian Region	August 2014	Quarterly
<b>Groundwater Vulnerability</b> Environment Agency - Head Office	January 2011	Not Applicable

Agency & Hydrological	Version	Update Cycle
<b>Drift Deposits</b> Environment Agency - Head Office	January 1999	Not Applicable
<b>Bedrock Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Superficial Aquifer Designations</b> British Geological Survey - National Geoscience Information Service	October 2012	Annually
<b>Source Protection Zones</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Extreme Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flooding from Rivers or Sea without Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Areas Benefiting from Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Water Storage Areas</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Flood Defences</b> Environment Agency - Head Office	August 2014	Quarterly
<b>Detailed River Network Lines</b> Environment Agency - Head Office	March 2012	Annually
<b>Detailed River Network Offline Drainage</b> Environment Agency - Head Office	March 2012	Annually
Waste	Version	Update Cycle
<b>BGS Recorded Landfill Sites</b> British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
<b>Historical Landfill Sites</b> Environment Agency - Anglian Region - Central Area	May 2014	Quarterly
<b>Integrated Pollution Control Registered Waste Sites</b> Environment Agency - Anglian Region	October 2008	Not Applicable
<b>Licensed Waste Management Facilities (Landfill Boundaries)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Licensed Waste Management Facilities (Locations)</b> Environment Agency - Anglian Region - Central Area	August 2014	Quarterly
<b>Local Authority Landfill Coverage</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Local Authority Recorded Landfill Sites</b> Bedford Borough Council - Environmental Health Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	April 2003 May 2000 May 2000	Not Applicable Not Applicable Not Applicable
<b>Registered Landfill Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Transfer Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable
<b>Registered Waste Treatment or Disposal Sites</b> Environment Agency - Anglian Region - Central Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
<b>Control of Major Accident Hazards Sites (COMAH)</b> Health and Safety Executive	August 2014	Bi-Annually
<b>Explosive Sites</b> Health and Safety Executive	November 2013	Bi-Annually
<b>Notification of Installations Handling Hazardous Substances (NIHHS)</b> Health and Safety Executive	November 2000	Not Applicable
<b>Planning Hazardous Substance Enforcements</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
<b>Planning Hazardous Substance Consents</b> Bedford Borough Council Central Bedfordshire Council - Planning Department Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	April 2013 August 2013 July 2008 May 2008	Annual Rolling Update Annually Annual Rolling Update Not Applicable
Geological	Version	Update Cycle
<b>BGS 1:625,000 Solid Geology</b> British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
<b>BGS Estimated Soil Chemistry</b> British Geological Survey - National Geoscience Information Service	January 2010	Annually
<b>BGS Recorded Mineral Sites</b> British Geological Survey - National Geoscience Information Service	April 2014	Bi-Annually
<b>Brine Compensation Area</b> Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
<b>Coal Mining Affected Areas</b> The Coal Authority - Mining Report Service	December 2013	As notified
<b>Mining Instability</b> Ove Arup & Partners	October 2000	Not Applicable
<b>Non Coal Mining Areas of Great Britain</b> British Geological Survey - National Geoscience Information Service	July 2014	Not Applicable
<b>Potential for Collapsible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Compressible Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Ground Dissolution Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Landslide Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Running Sand Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Potential for Shrinking or Swelling Clay Ground Stability Hazards</b> British Geological Survey - National Geoscience Information Service	June 2014	Annually
<b>Radon Potential - Radon Affected Areas</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually
<b>Radon Potential - Radon Protection Measures</b> British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
<b>Contemporary Trade Directory Entries</b> Thomson Directories	August 2014	Quarterly
<b>Fuel Station Entries</b> Catalist Ltd - Experian	August 2014	Quarterly
Sensitive Land Use	Version	Update Cycle
<b>Areas of Adopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Planning Department	August 2014 May 2011	As notified As notified
<b>Areas of Unadopted Green Belt</b> Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department	August 2014	As notified
<b>Areas of Outstanding Natural Beauty</b> Natural England	August 2014	Bi-Annually
<b>Environmentally Sensitive Areas</b> Natural England	August 2014	Annually
<b>Forest Parks</b> Forestry Commission	April 1997	Not Applicable
<b>Local Nature Reserves</b> Natural England	October 2014	Bi-Annually
<b>Marine Nature Reserves</b> Natural England	July 2013	Bi-Annually
<b>National Nature Reserves</b> Natural England	September 2014	Bi-Annually
<b>National Parks</b> Natural England	August 2014	Bi-Annually
<b>Nitrate Sensitive Areas</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
<b>Nitrate Vulnerable Zones</b> Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	July 2014	Annually
<b>Ramsar Sites</b> Natural England	March 2014	Bi-Annually
<b>Sites of Special Scientific Interest</b> Natural England	September 2014	Bi-Annually
<b>Special Areas of Conservation</b> Natural England	March 2014	Bi-Annually
<b>Special Protection Areas</b> Natural England	September 2014	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 <p><b>British Geological Survey</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Centre for Ecology and Hydrology	 <p><b>Centre for Ecology &amp; Hydrology</b> NATURAL ENVIRONMENT RESEARCH COUNCIL</p>
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Peter Brett Associates	

Contact	Name and Address	Contact Details
2	<b>Environment Agency - National Customer Contact Centre (NCCC)</b> PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
3	<b>Central Bedfordshire Council - Environmental Health Department</b> Priory House, Monks Walk, Chicksands, Shefford, Bedfordshire, SG17 5TQ	Telephone: 0300 300 8000 Email: info@centralbedfordshire.gov.uk Website: www.centralbedfordshire.gov.uk
4	<b>British Geological Survey - Enquiry Service</b> 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
5	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
6	<b>Central Bedfordshire Council - Planning Department</b> Priory House, Monks Walk, Chicksands, Shefford, Bedfordshire, SG17 5TQ	Telephone: 0300 300 8000 Email: info@centralbedfordshire.gov.uk Website: www.centralbedfordshire.gov.uk
7	<b>Natural England</b> Suite D, Unex House, Bourges Boulevard, Peterborough, Cambridgeshire, PE1 1NG	Telephone: 0845 600 3078 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
8	<b>Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)</b> Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
9	<b>Bedfordshire County Council (now part of Central Bedfordshire Council)</b> County Hall, Cauldwell Street, Bedford, Bedfordshire, MK42 9AP	Telephone: 01234 363222 Fax: 01234 228656 Website: www.bedfordshire.gov.uk
10	<b>Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department</b> 23 London Road, Biggleswade, Bedford, Bedfordshire, SG18 8ER	Telephone: 01767 313137 Fax: 01767 316717 Website: www.midbeds.gov.uk
11	<b>Bedford Borough Council - Environmental Health Department</b> Town Hall, St Pauls Street, Bedford, Bedfordshire, MK40 1SJ	Telephone: 01234 267422 Fax: 01234 325671 Email: enquiries@bedford.gov.uk Website: www.bedford.gov.uk
-	<b>Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards</b> Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	<b>Landmark Information Group Limited</b> Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



## APPENDIX 4

# TRIAL PIT LOG



**TP102**

CLIENT COVANTA ENERGY LTD

SITE ROOKERY SOUTH, STEWARTBY, BEDFORDSHIRE

Sheet 1 of 2

Start Date 25 February 2009 Easting 501117.9

Scale 1 : 25

End Date 25 February 2009 Northing 240982.4 Ground level 31.55mOD

Depth 4.20 m

water record	sample/test			description	depth (m)	level (m)	legend
	no/type	result	depth (m)				
1.70m: Slight seepage from North-East face.	1D*	H 46	0.50	MADE GROUND: Firm dark greyish blue mottled orangish brown slightly sandy slightly gravelly CLAY with occasional sand to medium gravel sized shell fragments. Gravel is very angular and angular fine to coarse and occasional cobbles of brick and mudstone. (MADE GROUND)  0.40m: Becoming dark bluish grey. 0.50m: Medium strength.	1.70	29.85	
	2B	H 43	1.00	1.00m: Medium strength and becoming gravelly. Gravel is subangular fine to coarse and occasional cobbles of mudstone and rare brick.			
	3D*		1.50				
	4D		2.00	Hard indistinctly thinly laminated dark bluish grey CLAY with occasional sand to medium gravel sized shell fragments. (OXFORD CLAY FORMATION)			
	5B		3.00				
				Hard indistinctly thinly laminated dark bluish grey slightly sandy CLAY with	3.90	27.85	

Geotechnical Engineering Ltd, Tel. 01482 527743 22607.GPJ TRIAL.H.GPJ GEOTECH.GLB 05/02/2009 16:24:15 MTGA

**Notes**

Trial pit excavated by 8 Tonne rubber tracked mechanical excavator.  
 Ground water seepage at 1.70m.  
 Trial pit dimensions 4.00x0.70x4.20m.  
 Trial pit sides remained stable and vertical.  
 On completion, the trial pit was backfilled with materials arising.  
 Hand vane readings presented are an average of three readings.  
 Stratum names provided by the Engineer.

Sketch of Foundation - Not to scale. All dimensions in metres.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS



CONTRACT  
**22607**

CHECKED  
*[Signature]*

# TRIAL PIT LOG



**TP102**

CLIENT COVANTA ENERGY LTD

SITE ROOKERY SOUTH, STEWARTBY, BEDFORDSHIRE

Sheet 2 of 2

Start Date 25 February 2009 Easting 501117.9

Scale 1 : 25

End Date 25 February 2009 Northing 240982.4 Ground level 31.55mOD

Depth 4.20 m

water record	sample/test			description	depth (m)	level (m)	legend
	no/type	result	depth (m)				
Dry.	6B		4.10	frequent sand to medium gravel sized shell fragments. (OXFORD CLAY FORMATION) Trial pit completed at 4.20m.	4.20	27.35	

Geotechnical Engineering Ltd, Tel. 01452 627743 22607.GPJ TRIAL.PIT.GPJ GEOTECH.GLB 05/08/2009 15:24:16 MT/GA

**Notes**

Trial pit excavated by 8 Tonne rubber tracked mechanical excavator.  
Ground water seepage at 1.70m.  
Trial pit dimensions 4.00x0.70x4.20m.  
Trial pit sides remained stable and vertical.  
On completion, the trial pit was backfilled with materials arising.  
Hand vane readings presented are an average of three readings.  
Stratum names provided by the Engineer.

Sketch of Foundation - Not to scale. All dimensions in metres.



CONTRACT

22607

CHECKED

# BOREHOLE LOG



**WS104**

CLIENT COVANTA ENERGY LTD

SITE ROOKERY SOUTH, STEWARTBY, BEDFORDSHIRE

Sheet 1 of 1

Start Date 27 February 2009 Easting 501218.9

Scale 1 : 50

End Date 27 February 2009 Northing 240961.1 Ground level 28.98mOD

Depth 3.20 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru-ment	description	depth (m)	reduced level (m)	legend
27/02/09 1430hrs	1X	0.00 - 1.00					MADE GROUND: Reeds over firm medium strength fissured greyish brown mottled orangish brown slightly sandy slightly gravelly CLAY with occasional rootlets and fine and medium gravel sized shell fragments. Gravel is angular and subangular fine and medium brick fragments. (CALLOW CLAY FILL)	0.80	28.18	
	2D*	0.40		H 48						
	3D	0.60 - 0.80								
	4X	0.80		H 61						
	5D*	1.00 - 2.00					MADE GROUND: Firm medium strength fissured grey slightly sandy CLAY with occasional fine and medium gravel sized shell fragments and rare fine and medium gravel sized brick fragments. (CALLOW CLAY FILL)	2.00	26.98	
	6D	1.30		H 89						
	7X	1.40 - 1.60								
27/02/09 1600hrs Dry	X 8D	1.90		H 44		MADE GROUND?: Firm to stiff low strength fissured locally indistinctly thinly laminated grey CLAY with occasional sand to medium gravel sized shell fragments. (CALLOW CLAY FILL?)	2.45	26.53		
		2.40		H 36						
		2.90		H 122		Very stiff high strength dark grey sandy CLAY with occasional sandy partings and sand to medium gravel sized shell fragments. (OXFORD CLAY FORMATION)	3.20	25.78		
3.00 - 3.20		Nil								
							Borehole completed at 3.20m.			

Geotechnical Engineering Ltd, Tel. 01462 527743 22607.GPJ TRIAL.H.GPJ GEOTECH1.GLB 06/09/2009 15:23:44 SWGA

EQUIPMENT: Geotechnical Terrier 2000 rig.  
 METHOD: Dynamic sampled (101mm) 0.00-2.00m, (86mm) 2.00-3.00m and (76mm) 3.00-3.20m.  
 CASING: Not used.  
 BACKFILL: On completion, hole backfilled with bentonite pellets and the surface reinstated.  
 REMARKS: Hole refused on hard strata at 3.20m. Stratum names provided by the Engineer.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks	AGS	CONTRACT 22607	CHECKED 
				Groundwater not encountered.			

# BOREHOLE LOG



**WS105**

CLIENT COVANTA ENERGY LTD

SITE ROOKERY SOUTH, STEWARTBY, BEDFORDSHIRE

Sheet 1 of 1

Start Date 2 March 2009

Easting 501276.9

Scale 1 : 50

End Date 2 March 2009

Northing 240895.5 Ground level 28.62mOD

Depth 3.00 m

progress date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	instru-ment	description	depth (m)	reduced level (m)	legend
02/03/09 0930hrs	1X	0.00 - 1.00					MADE GROUND: Reeds over soft brownish grey locally stained black slightly sandy slightly gravelly CLAY with frequent rootlets and occasional fine and medium gravel sized shell and pyritised wood fragments. Gravel is angular to subrounded fine and medium brick fragments. (ALLOW CLAY FILL)	0.40	28.22	
	2D*	0.35 - 0.60		H 45						
	3D	0.60 - 0.80		H 54						
	4X	0.85 - 1.00								
	5D*	1.00 - 1.40		H 53						
	6D	1.40 - 1.80		H 39						
	7X	1.85 - 2.00								
02/03/09 1100hrs Dry	8D	2.00 - 2.40		H 91		Stiff high strength thinly laminated grey slightly sandy CLAY with occasional fine and medium gravel sized shell and fossil fragments, occasional medium gravel sized lenses of light grey silt and rare sandy partings. (OXFORD CLAY FORMATION)	2.30	26.32		
		2.40 - 2.85		H 125		Borehole completed at 3.00m.				3.00

EQUIPMENT: Geotechnical Terrier 2000 rig.  
 METHOD: Dynamic sampled (101mm) 0.00-2.00m and (86mm) 2.00-3.00m.  
 CASING: Not used.  
 BACKFILL: On completion, hole backfilled with bentonite pellets and the surface reinstated.  
 REMARKS: Hole refused on hard strata at 3.00m. Stratum names provided by the Engineer.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks	AGS	CONTRACT 22607	CHECKED <i>MW</i>
				Groundwater not encountered.			

Geotechnical Engineering Ltd, Tel. 01462 527743 22607.GPJ TRIAL.H.GPJ GEOTECH.OLB 05/06/2009 15:25:46 5M/GA

# BOREHOLE LOG



**WS106**

CLIENT COVANTA ENERGY LTD

SITE ROOKERY SOUTH, STEWARTBY, BEDFORDSHIRE

Sheet 1 of 1

Start Date 2 March 2009

Easting 501430.0

Scale 1 : 50

End Date 2 March 2009

Northing 240849.2 Ground level 28.72mOD

Depth 3.55 m

prograse date/time water depth	sample no & type	depth (m) from to	casing depth (m)	test type & value	samp. /core range	Instru-ment	description	depth (m)	reduced level (m)	legend
02/03/09 1203hrs	1X	0.00 - 1.00					<p>MADE GROUND: Reeds over firm medium strength fissured greyish brown mottled orangish brown slightly sandy slightly gravelly CLAY with occasional rootlets and fine and medium gravel sized shell fragments. Gravel is angular and subangular fine and medium brick fragments. (CALLOW CLAY FILL)</p> <p>MADE GROUND: Firm high strength fissured grey slightly sandy CLAY with occasional fine and medium gravel sized shell fragments and rare fine and medium gravel sized brick fragments. (CALLOW CLAY FILL) 1.40m: Medium strength.</p> <p>2.40m: Medium strength.</p> <p>Very stiff fissured dark grey slightly sandy CLAY with occasional sand to medium gravel sized shell fragments and rare medium gravel sized lenses of light grey sand. (OXFORD CLAY FORMATION)</p> <p>Very stiff dark grey sandy CLAY with occasional sandy partings and sand to medium gravel sized shell fragments. (OXFORD CLAY FORMATION)</p> <p>Borehole completed at 3.55m.</p>	0.80	27.92	
	2D*	0.40 - 0.80		H 41						
	3D	0.80 - 0.85		H 100						
	4X	1.00 - 2.00								
	5D*	1.40 - 1.40		H 41						
	6D	1.85 - 1.90		H 101						
	7X	2.00 - 3.00								
	8D*	2.40 - 2.50		H 80						
	9D	2.85 - 3.00								
	10X	3.00 - 3.55								
02/03/09 1400hrs 2.00m	11D	3.40 - 3.55	NII							

EQUIPMENT: Geotechnical Terrier 2000 rig.  
 METHOD: Dynamic sampled (101mm) 0.00-2.00m and (88mm) 2.00-3.55m.  
 CASING: Not used.  
 BACKFILL: On completion, hole backfilled with bentonite pellets and the surface reinstated.  
 REMARKS: Hole refused on hard strata at 3.55m. Stratum names provided by the Engineer.

EXPLORATORY HOLE LOGS SHOULD BE READ IN CONJUNCTION WITH KEY SHEETS

water strike (m)	casing (m)	rose to (m)	time to rise (min)	remarks		CONTRACT <b>22607</b>	CHECKED 
2.00	NII	2.00	20	Seepage			

Geotechnical Engineering Ltd, Tel. 01462 827743 22607.GPJ TRIAL.H.GPJ GEOTECH.GLB 05/06/2008 16:23:48 SMICA





Equipment & Methods  
Cable tool boring, 200mm dia to 17.00m, then 150mm dia to 24.00m.

Location No. 269077  
Location  
ROOKERY SOUTH

Carried out for  
A J Bull Ltd

Ground Level  
48.283 mOD

Coordinates  
501088.480 mE  
240578.073 mN

Date  
11/11/99  
to 16/11/99

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample		
					Type	No.	
0							
MADE GROUND: Firm yellow brown sandy clay with some fragments of brick. (Driller's description)	46.283		(0.45)				
	45.81		0.45	0.50 - 1.00	B	1	
MADE GROUND: Firm, locally soft or stiff, orange brown and light blue grey clay, with some fine to coarse gravel size fragments of brick. Occasional shells and shell fragments, root tracks gleyed grey and brown organic matter.  (REWORKED CLAY)			(3.65)	1.50 - 2.00	B	2	
				2.50 - 3.00	B	3	
				3.50 - 4.00	B	4	
				4.00	4.00	W	11
3.50 - 4.10m Some rootlets and occasional cobble size fragments of brick	42.16		4.10				
			4.50 - 5.00	B	5		
			6.00 - 6.50	B	6		
			(13.40)				
			7.50 - 8.00	B	7		
			9.00 - 9.50	B	8		
Stiff fissured thinly to thickly laminated grey green very silty CLAY. Frequent shells and shell fragments.  (OXFORD CLAY)							

Remarks

Logged by

BC

Scale

1:50

Figure

Notes:

Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Figure 1.







Equipment & Methods  
As sheet 1

Location No. 269077  
Location  
ROOKERY SOUTH

Carried out for  
A J Bull Ltd

Ground Level  
Coordinates  
Data  
As sheet 1

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample		
					Type	No.	
Interbedded SAND and CLAY (as Sheet 2) (KELLAWAYS FORMATION)	25.61		(3.15)				
			20.65				
Stiff thinly to thickly laminated grey green slightly sandy CLAY with rare shell fragments. Sand concentrated along laminae. (KELLAWAYS FORMATION)				21.00 - 21.50	B	17	
			(3.15)				
				22.50 - 23.00	B	18	
Dark grey fine to medium grained muddy LIMESTONE with occasional shell fragments. Recovered as gravel size fragments. (CORNBRAsh FORMATION)	22.48		23.80				
BOREHOLE ENDS AT 24.00 m.	22.28		(0.20p) 24.00	24.00	D	19	

Remarks

Notes:  
Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Figure 1.

Logged by  
BC  
Scale  
1:50  
Figure



C L Associates

Borehole No. BH3

Sheet 4 of 5

Location No. 269077

Location  
ROOKERY SOUTH

Carried out for  
A J Bull Ltd

Ground Level

Coordinates

Date

As sheet 1

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
11/11/99	-	7.00	-	-	End of shift
12/11/99	09:00	7.00	-	2.80	Start of shift.
12/11/99	12:00	17.00	-	4.35	End of shift.
15/11/99	11:30	17.00	-	4.00	Start of shift.
15/11/99	18:00	23.00	-	4.50	End of shift.
18/11/99	09:15	23.00	-	3.25	Start of shift.
18/11/99	18:00	24.00	-	4.10	End of boring.

Hole Diameter by Depth Table

Depth of Hole (m)	Diameter of Hole (mm)	Diameter of Casing (mm)	Depth of Casing (m)
17.00	200	-	-
24.00	150	-	-

Water Strike Table

Depth of Strike (m)	Casing Depth (m)	Date	Time	Post Strike Depth (m)	Minutes After Strike	Sealed at (m)	Remarks
6.75	-	11/11/99	-	4.00	30	-	-

Depth related Remarks Table

Top Depth (m)	Base Depth (m)	Remarks
17.85	18.10	Hard boring for 45 minutes.
18.90	19.20	Hard boring 45 minutes.
20.20	20.85	Hard boring for 60 minutes.
23.00	24.00	Hard boring for 120 minutes.

Remarks

- No records of casing depths.

Notes:

Materials are described in accordance with Appendices. For explanation of symbols and abbreviations see Figure 1.

Logged by

BC

Scale

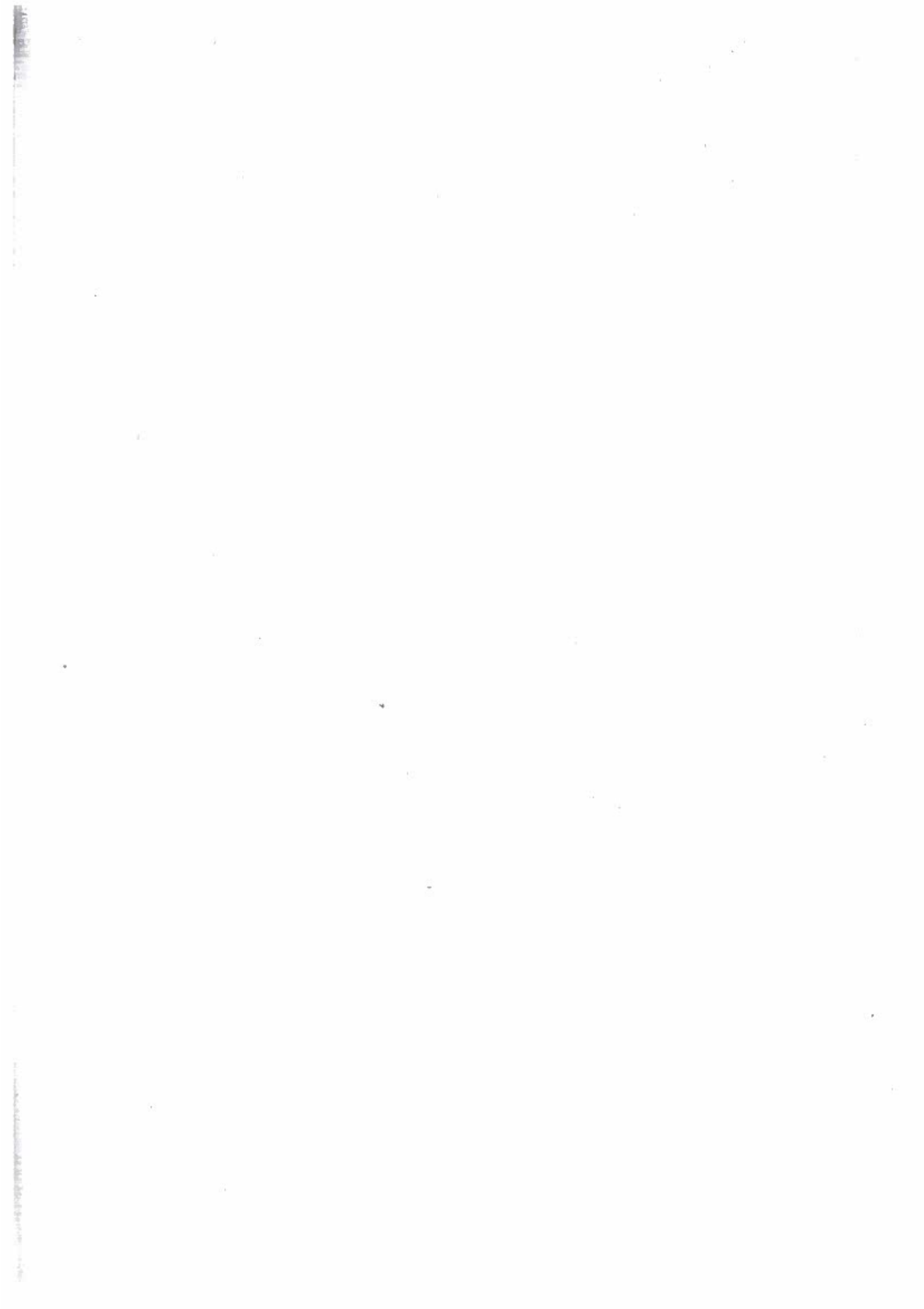
1:50

Figure

(c) C L Associates (Ver 5.1)

11/02/00 11:50:02







Equipment & Methods  
Machine dug using 300 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None.  
Backfill : Arisings

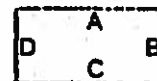
Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level 39.276 mOD  
Coordinates 501053.097 mE  
240938.875 mN  
Date 09/11/99

Description FACE A	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No.	
MADE GROUND: Brick rubble comprising fine to coarse gravel and small cobble size fragments.	39.276		(0.70)				
	38.58		0.70	1.50	B	1	
Firm thinly laminated dark green brown very silty CLAY with abundant shells and shell fragments. Recovered as blocky fragments. Becoming more difficult to dig with depth.  (OXFORD CLAY)			(3.60 pen)				
TRIAL PIT ENDS AT 4.30 m.	34.88		4.30				

Remarks  
Stability : Stable

Sketch



Logged by

PAC  
Scale 1:25  
Figure





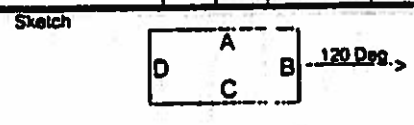
Equipment & Methods  
Machine dug using 360 Excavator  
Pit dimensions 1.20m by 4.00m.  
Backfill : Arisings  
Support used : none

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level 43.571 mOD  
Coordinates 501002.602 mE 240868.190 mN  
Date 11/11/99

Description FACE A	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No	
TOPSOIL	43.571 43.47		(1.50) 0.10				
Soft orangish brown slightly sandy CLAY with a little rounded to subrounded fine to coarse gravel and frequent rootlets.  (Weathered OXFORD CLAY)			(1.10)				
	42.37		1.20				
Firm to stiff light gray mottled light brown slightly sandy locally sandy CLAY with occasional subrounded to subangular fine to medium gravel. Frequent rootlets.  (Weathered OXFORD CLAY)			(1.60)	1.50	B	1	
	40.57		3.00				
Firm friable thinly laminated dark green brown very silty CLAY with abundant shells and shell fragments.  (OXFORD CLAY)			(1.50 pen)				
TRIAL PIT ENDS AT 4.50 m.	39.07		4.50	4.50	B	2	

Remarks  
Stability : Stable



Logged by  
PAC  
Scale  
1:25  
Figure





Equipment & Methods  
Machine dug using 360 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None.  
Backfill : Arisings

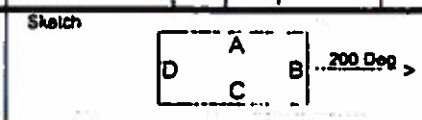
Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level 42.035 mOD  
Coordinates 501159.337 mE  
240589.489 mN  
Date 10/11/09

Description FACE A	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Type	No.	
Frequent bricks and brick fragments  Firm to stiff friable thinly laminated brown becoming greenish brown very silty CLAY with abundant shells and shell fragments. Recovered as blocky fragments. Becoming difficult to dig with depth.  (OXFORD CLAY)	42.035	X X	4.00 (4.00 pen)	1.50	B	1	
	38.04	X X		4.00	B	2	

TRIAL PIT ENDS AT 4.00 m.

Remarks  
Stability : Stable.



Logged by
PAC
Scale
1:25
Figure



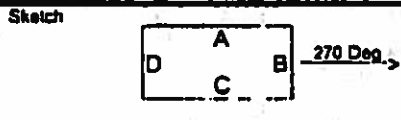
Equipment & Methods  
Machine dug using 380 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None  
Backfill : Arisings

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level 31.600 mOD  
Coordinates 501155.184 mE  
240738.874 mN  
Date 10/11/99

Description FACE A	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No.	
<p>MADE GROUND: Soft to firm grey brown silty sandy clay with some fine to coarse gravel and cobble size brick fragments. Occasional pockets of black organic matter.</p> <p>(REWORKED CLAY)</p>	31.600		(3.10)	2.00	B	1	
	28.50		3.10 (0.40 pen)	3.40	B	2	
<p>Firm thinly to thickly laminated dark grey slightly sandy very silty CLAY thinly interbedded with firm dark grey slightly sand, to sandy CLAY. Silt and fine sand along some partings. Abundant shells and shell fragments.</p> <p>(OXFORD CLAY)</p>	28.10		3.50				

Remarks  
Stability : Stable.



Logged by  
PAC  
Scale  
1:25  
Figure



Equipment & Methods  
Machine dug using 380 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used: None.  
Backfill: Arisings

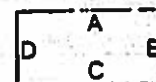
Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level 29.911 mOD  
Coordinates 501159.390 mE  
240994.297 mN  
Date 09/11/00

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No.	
FACE A							
MADE GROUND: Soft to firm grey brown slightly sandy clay with some fine to coarse gravel and cobble size brick fragments intermixed with firm grey very silty clay. Abundant shells and shell fragments.  (REWORKED CLAY)	29.911		(2.00)	1.00	B	1	
Firm thinly laminated grey slightly sandy very silty CLAY with abundant shells and shell fragments.  (OXFORD CLAY)	27.91		(1.00 pen)				
TRIAL PIT ENDS AT 3.00 m.	26.91		3.00	3.00	B	2	

Remarks  
Stability: Stable

Sketch



Logged by  
PAC  
Scale  
1:25  
Figure



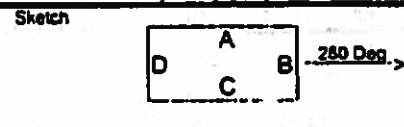
Equipment & Methods  
Machine dug using 360 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None.  
Backfill : Arisings

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level 29.002 mOD  
Coordinates 501526.452 mE  
240830.456 mN  
Date 09/11/99

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No.	
FACE A							
MADE GROUND: Soft to firm grey brown slightly sandy clay with some fine to coarse gravel and cobble size brick fragments intermixed with firm grey very silty clay with abundant shells and shell fragments.  (REWORKED CLAY)	29.002		(1.90)	1.00	B 1		
Firm thinly laminated grey slightly sandy very silty CLAY with abundant shells and shell fragments.  (OXFORD CLAY)	27.10		(1.10 pen)				
TRIAL PIT ENDS AT 3.00 m.	26.00		3.00	3.00	B 2		

Remarks  
Stability : Stable.



Logged by  
PAC  
Scale  
1:25  
Figure



C L Associates

Trial Pit No. TP12

Sheet 2 of 2

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

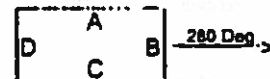
Ground Level                      Coordinates                      Date  
As sheet 1

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
09/11/89	11:00	3.00	-	1.90	Slight ingress.

Remarks

Sketch



Logged by

PAC

Scale

1:25

Figure

(c) C L Associates (Ver 6.1)

11/02/00 12:09:21



Equipment & Methods  
Machine dug using 360 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None.  
Backfill : Arisings

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level  
31.711 mOD

Coordinates  
501276.074 mE  
240643.889 mN

Date  
10/11/99

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No.	
FACE A	31.711						
MADE GROUND: Soft to firm grey brown slightly sandy clay with a little angular to subangular fine to coarse gravel and cobble size brick fragments. Frequent pockets of soft orange brown clay and firm friable greenish brown clay.  (REWORKED CLAY)			(3.00)	1.50	B	1	
Firm friable thinly laminated dark greenish brown very silty CLAY with abundant shells and shell fragments.  (OXFORD CLAY)	28.71		3.00 (0.30 pen)				
TRIAL PIT ENDS AT 3.30 m.	28.41		3.30	3.30	B	2	

Remarks  
Stability : Stable.

Sketch



270 Deg >

Logged by

PAC

Scale

1:25

Figure



Equipment & Methods  
Machine dug using 360 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None.  
Backfill : Arisings

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level  
34.468 mOD

Coordinates  
501485.811 mE  
240888.387 mN

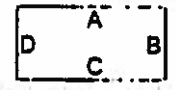
Date  
10/11/99

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Test No.	
FACE A	34.468						
MADE GROUND: Firm grey brown clay with a little angular to subangular fine to coarse gravel and cobble size brick fragments intermixed with firm dark greenish brown clay and firm blue grey very silty clay. Occasional pockets of very soft orange brown clay.  (REWORKED CLAY)			(4.70 pen)	1.50	B	1	
				4.50	B	2	
TRIAL PIT ENDS AT 4.70 m.	29.77		4.70				

Remarks

Stability : Stable.

Sketch



Logged by

PAC

Scale  
1:25

Figure



Equipment & Methods  
Machine dug using 380 Excavator  
Pit dimensions 1.20m by 4.00m.  
Support used : None.  
Backfill : Arisings

Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

Ground Level  
28.513 mOD

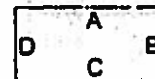
Coordinates  
501280.016 mE  
240901.698 mN

Date  
10/11/99

Description	Reduced Level	Legend	Depth (Thick)	Samples/Tests			Field Records
				Depth	Sample Type	Sample No.	
FACE A	28.513						
MADE GROUND: Firm grey brown clay with a little angular to subangular fine to coarse gravel and cobble size brick fragments and firm friable greenish brown clay fragments intermixed with firm blue grey very silty clay. Occasional pockets of very soft orange brown clay.  (REWORKED CLAY)			(2.80)	2.00	B	1	
Firm friable thinly laminated dark greenish brown very silty CLAY with abundant shells and shell fragments.  (OXFORD CLAY)	25.71		2.80 (0.50 pen)				
TRIAL PIT ENDS AT 3.30 m.	25.21		3.30	3.30	B	2	

Remarks  
Stability : Stable.

Sketch



Logged by

PAC

Scale

1:25

Figure





Location No. 269077  
Location ROOKERY SOUTH  
Carried out for A J Bull Ltd

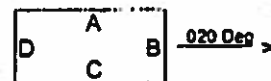
Ground Level                      Coordinates                      Date  
As sheet 1

Water Level Observations During Boring

Date	Time	Depth of Hole (m)	Depth of Casing (m)	Depth to Water (m)	Remarks
10/1/99	-	3.30	-	2.80	Slight Ingress.

Remarks

Sketch



Logged by

PAC

Scale


1:25

Figure

## APPENDIX 5

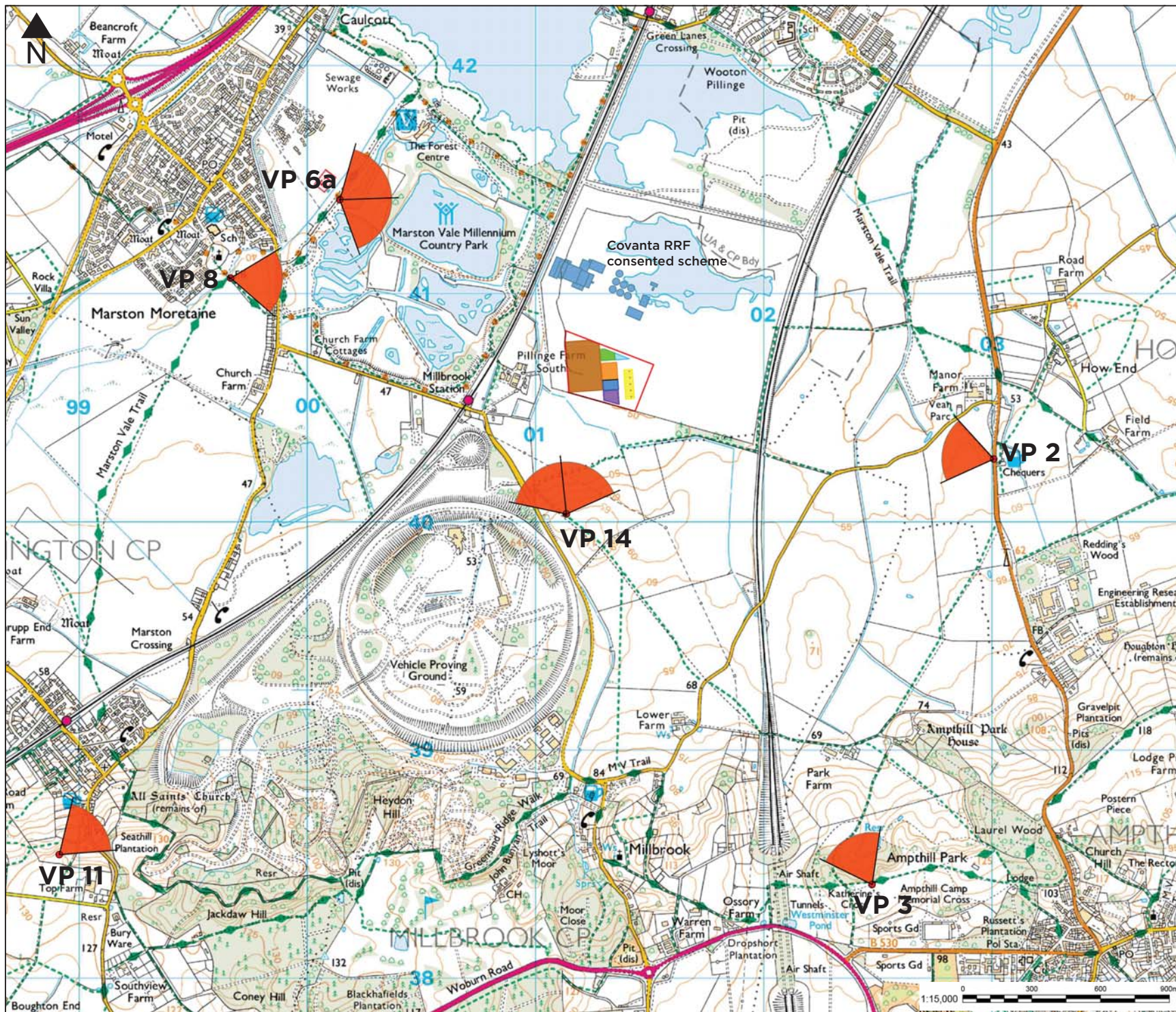
Receptor	Present (Y/N) & Sensitivity Value	Pathway	Present (Y/N)	EPH & Solvent	PAH	Metals	Inorganic	Biocides	Radioactivity	Ground Gas	Consequence (Hazard Classification x Sensitivity)	Probability	Estimated Risk	
Human Health - On-Site Current Users	N	Ingestion of fruit or vegetable leaf or roots	N	x	x	√	x	√	√	x				
		Ingestion of contaminated drinking water	N	√	√	x	x	√	√	x				
		Ingestion of water / sediments when swimming	N	√	√	√	√	√	√	√	x			
		Ingestion of soil/dust indoors	N	√	√	√	√	√	√	√	x			
		Ingestion of soil/dust outdoors	N	√	√	√	√	√	√	√	x			
		Inhalation of particles (dust / soil) indoor and outdoor	N	√	√	√	√	√	√	√	x			
		Inhalation of vapours/gases – outdoor	Y	√	x	x	x	x	√	√	√			
		Inhalation of vapours/gases - indoor	Y	√	x	x	x	x	√	√	√			
		Dermal absorption via direct contact with soil	N	√	√	√	√	√	√	√	x			
Dermal absorption via waters (swimming / showering)	N	√	√	√	√	√	√	√	x					
Human Health On-Site Future User	Y (4)	Ingestion of fruit or vegetable leaf or roots	N	x	x	√	x	√	√	x				
		Ingestion of contaminated drinking water	N	√	√	x	x	√	√	x				
		Ingestion of water / sediments when swimming	N	√	√	x	x	√	√	x				
		Ingestion of soil/dust indoors	N	√	√	√	√	√	√	√	x			
		Ingestion of soil/dust outdoors	Y	√	√	√	√	√	√	√	x	4 (Minor)	Low	Very Low
		Inhalation of particles (dust / soil) indoor and outdoor	Y	√	√	√	√	√	√	√	x	4 (Minor)	Low	Very Low
		Inhalation of vapours – outdoor	Y	√	x	x	x	x	√	√	√	4 (Minor)	Low	Very Low
		Inhalation of vapours - indoor	Y	√	x	x	x	x	√	√	√	4 (Minor)	Low	Very Low
		Dermal absorption via direct contact with soil	Y	√	√	√	√	√	√	√	x	4 (Minor)	Low	Very Low
Dermal absorption via waters (swimming / showering)	N	√	√	√	√	√	√	√	x					
Human Health - Off-Site	N	Ingestion of fruit or vegetable leaf or roots	N	x	x	√	x	√	√	x				
		Ingestion of contaminated drinking water	N	√	√	x	x	√	√	x				
		Ingestion of water / sediments when swimming	N	√	√	x	x	√	√	x				
		Ingestion of soil/dust indoors	N	√	√	√	√	√	√	√	x			
		Ingestion of soil/dust outdoors	N	√	√	√	√	√	√	√	x			
		Inhalation of particles (dust / soil) indoor and outdoor	Y	√	√	√	√	√	√	√	x			
		Inhalation of vapours – outdoor	Y	√	x	x	x	x	√	√	√			
		Inhalation of vapours - indoor	Y	√	x	x	x	x	√	√	√			
		Dermal absorption via direct contact with soil	N	√	√	√	√	√	√	√	x			
Dermal absorption via waters (swimming / showering)	N	√	√	√	√	√	√	√	x					
Human Health - Construction/ Maintenance Workers*	Y (4)	Ingestion of soil/dust indoors	Y	√	√	√	√	√	√	x	4 (Mild)	Low	Very Low	
		Ingestion of soil/dust outdoors	Y	√	√	√	√	√	√	x	4 (Mild)	Low	Very Low	
		Inhalation of particles (dust / soil) outdoor	Y	√	√	√	√	√	√	x	4 (Mild)	Low	Very Low	
		Inhalation of vapours – outdoor	Y	√	x	x	x	x	√	√	√	4 (Mild)	Low	Very Low
		Inhalation of vapours - indoor	N	√	x	x	x	x	√	√	√			
		Dermal absorption via direct contact with soil	Y	√	√	√	√	√	√	√	x	4 (Mild)	Low	Very Low
Groundwater	Y (3)	Leaching	N	√	√	√	√	√	√	x				
		Migration via natural or anthropogenic	Y	√	√	√	√	√	√	√	√	3 (Minor)	Low	Very Low
Surface Water	Y (3)	Direct runoff or discharges from pipes	N	√	√	√	√	√	√	x				
		Indirect via recharge from groundwater (hydraulic flow)	Y	√	√	√	√	√	√	√	x	3 (Minor)	Low	Very Low
		Deposition of wind blown dust	Y	√	√	√	√	√	√	√	x	3 (Minor)	Low	Very Low
Buildings	Y (2)	Direct contact	Y	√	√	x	x	x	x	x	2 (Minor)	Low	Very Low	
		Explosion due to gas migration via natural / anthropogenic	Y	√	x	x	x	x	x	x	√	2 (Minor)	Low	Very Low
Ecological Systems	N	Direct deposition of particles / dust - wind blown or flood		√	√	√	√	√	√	x				
		Indirect - through watering		√	√	√	x	x	√	x				
		Inhalation of gases/vapours or particulates/dust by animals		√	√	√	x	x	√	√				
		Ingestion of of vegetation / water / soil by animals		√	√	√	√	√	√	√	x			
Property	N	Direct deposition via wind or flood		√	√	√	√	√	√	x				
		Indirect through watering		√	√	√	x	x	√	x				
		Inhalation of gas / vapour / particulates / dust by animals		√	x	x	x	x	√	√				
		Ingestion of vegetation / water / soil by animals		√	√	√	√	√	√	√	x			

Risk estimation establishes the magnitude and probability of the possible consequences (what degree of harm might result and how likely).  
The criteria for classifying probability and consequence are set out in Tables 3 and 4 of the PBA methodology.  
Green text highlights one or more elements of the Pollutant Linkage are missing and therefore eliminated

	Client	<b>TABLE SUMMARISING POLLUTANT LINKAGES AND RISK ESTIMATION: POTENTIAL HAZARDS ARE METALS, HYDROCARBONS AND ASBESTOS (HAZARD CLASSIFICATION 1)</b>	Date	30/09/2014
	<b>Millbrook Power Ltd</b>		<b>Millbrook Power Project</b>	A3 Scale
Caversham Bridge House, Waterman Place, Reading, RG1 8DN Tel 0118 950 0761 Fax 0118 959 7499			Drawn	JG
			Checked	RHT
			Table	1

## **Appendix 11. LVIA**

### **11.1 - Photomontages**



**Legend:**

- Generating Equipment Site and Substation Area
- ∠ 72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

**Viewpoints:-**

2. Footpath by Chequers Pub
- 6a. Country Park access
7. Ampthill Park, Katherine's Cross
8. Marston Church Path
11. Picnic Area Lidlington
14. Footpath Option Land

**Source:**

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NOTE – Published for the purpose of identification only and although believed to be correct accuracy is not guaranteed.

**Client:**

MILLBROOK POWER LIMITED

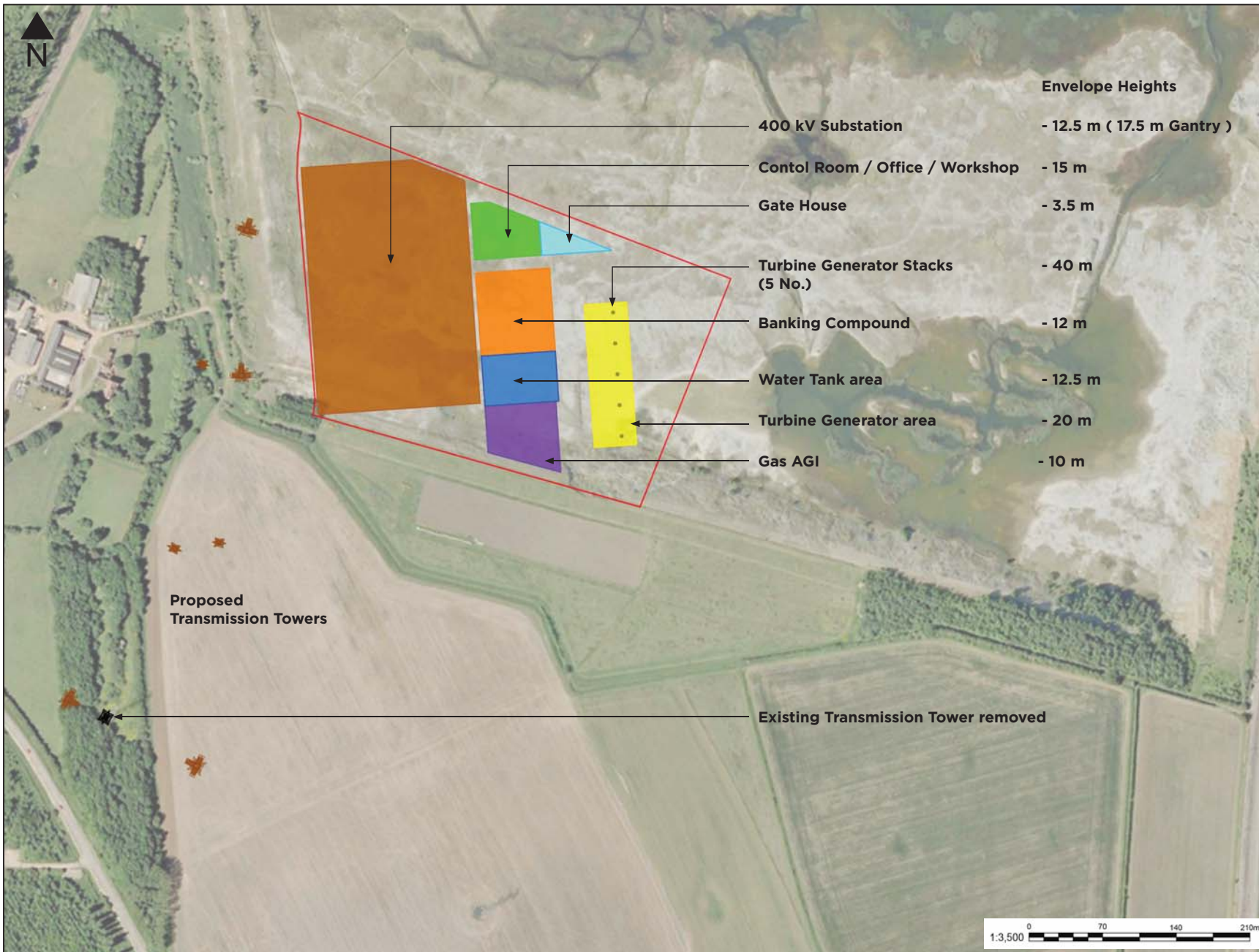
<b>Drawn by:</b> LCT	<b>Checked:</b> JW
<b>Date:</b> October 2014	<b>Figure:</b> 1
<b>Scale:</b> 1:15,000	<b>Revision No.:</b> -

**Project:**

Millbrook SCGT

**Title:**

FIGURE 1: Viewpoint Location Plan



**Envelope Heights**

- 400 kV Substation - 12.5 m ( 17.5 m Gantry )
- Control Room / Office / Workshop - 15 m
- Gate House - 3.5 m
- Turbine Generator Stacks (5 No.) - 40 m
- Banking Compound - 12 m
- Water Tank area - 12.5 m
- Turbine Generator area - 20 m
- Gas AGI - 10 m



**Legend:**  
 Generating Equipment Site and Substation Area

**Source:**  
 Aerial Photograph date 2009. © Google 2014.  
 © 2014 Infoterra Ltd & Bluesky.  
 NOTE – Published for the purpose of identification only and although believed to be correct accuracy is not guaranteed.

**Client:**  
 MILLBROOK POWER LIMITED

<b>Drawn by:</b> LCT	<b>Checked:</b> JW
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<b>Date:</b> October 2014	<b>Figure:</b> 2
------------------------------	---------------------

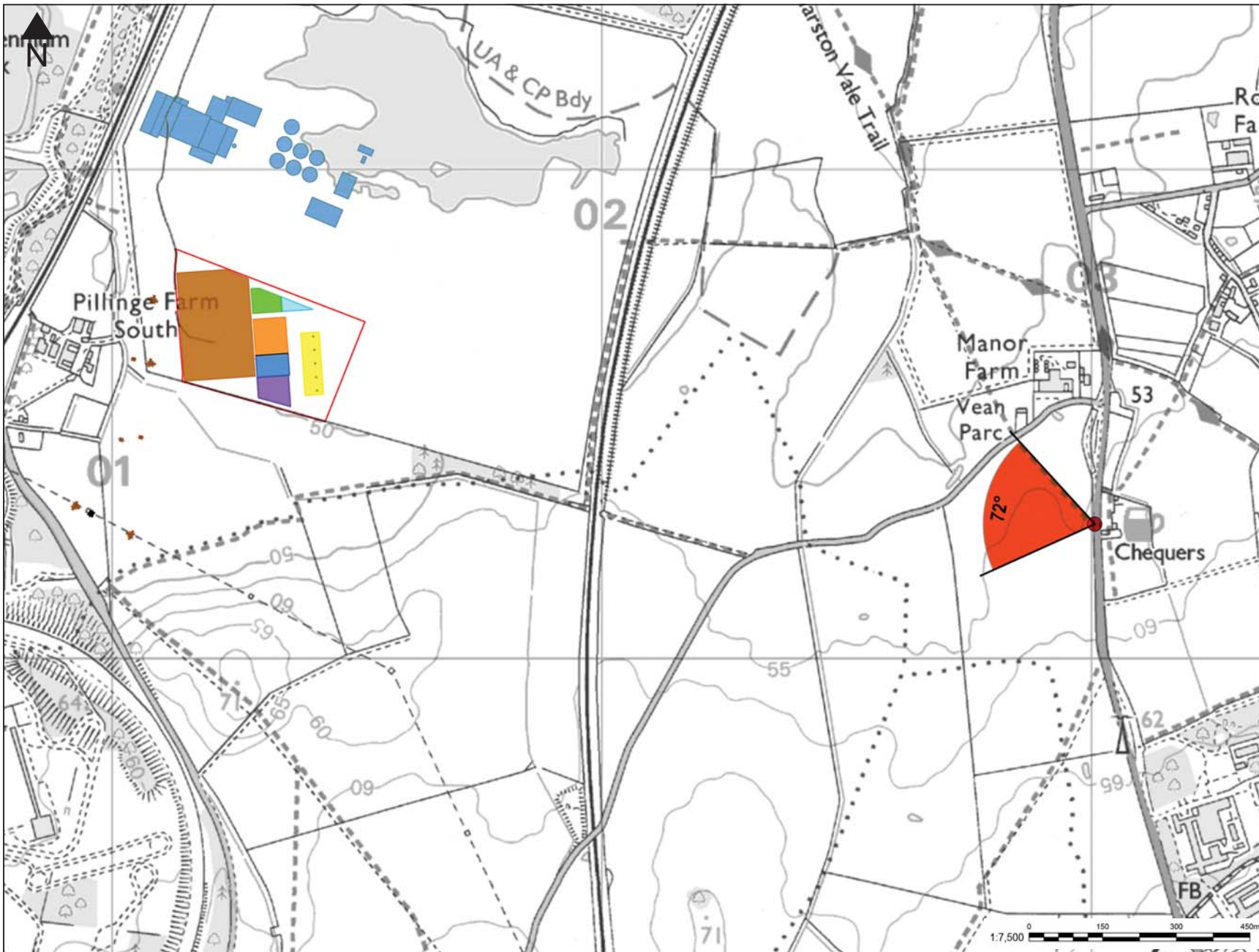
<b>Scale:</b> 1:3,500	<b>Revision No.:</b> -
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Development Parameters Plan

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan above ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

**Project:**  
 Millbrook SCGT

**Title:**  
 FIGURE 2: Parameters Plan



**Legend:**

- Generating Equipment Site and Substation Area
- ∠ 72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

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**Checked:**

JW

**Date:**

October 2014

**Figure:**

3

**Scale:**

1:7,500

**Revision No:**

-

**Data for viewpoint 2: Footpath by Chequers Pub**

Viewpoint Grid Reference	- 503006 E 240275 N
View Direction	- 282 degrees
Viewpoint Elevation	- c 55 m AOD
Horizontal Field of View	- 72 degrees
Nearst proposed development block	- 1.60 km
Viewing Distance	- 32 cm
Date and time of photo	- 20/08/2014 11:45

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan Figure 2 ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

**Project:**

**Millbrook SCGT**

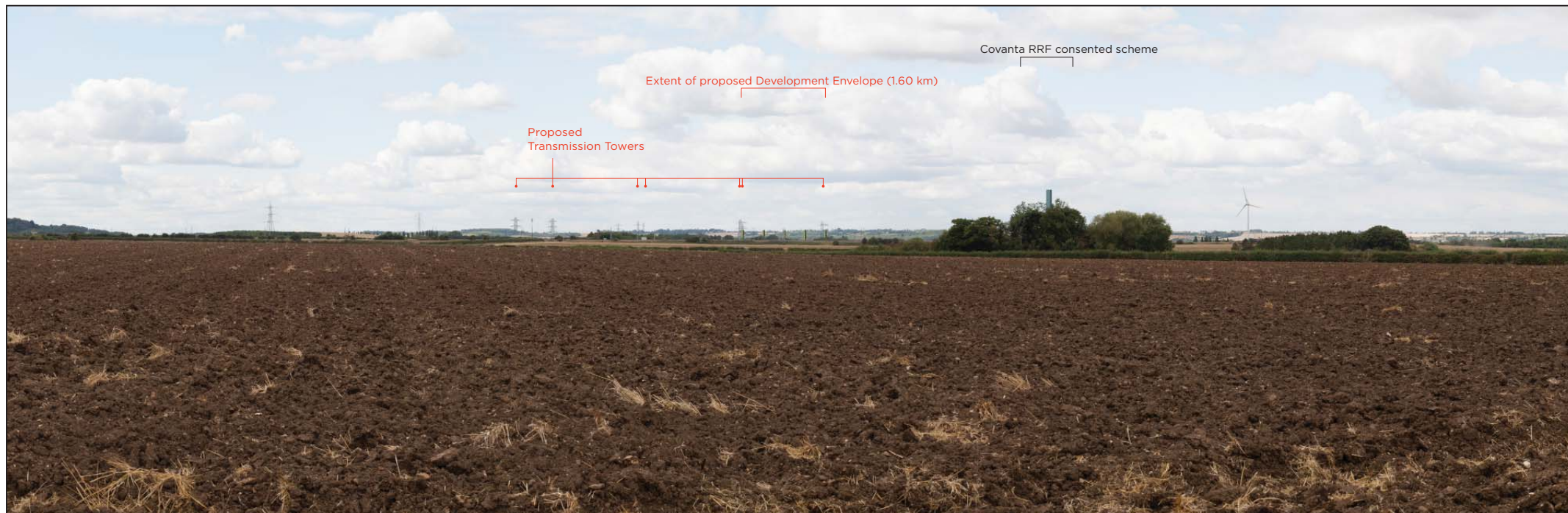
**Title:**

**FIGURE 3: Viewpoint 2**  
Footpath by Chequers Pub



Existing baseline view from footpath by Chequers Pub. (72 degrees horizontal field of view, 32 cm viewing distance). View direction 282 degrees.

Camera: Canon EOS 5D Mark II Focal Length: 50mm Camera Height: 1.5m Date: 20/08/14 Time: 11:45

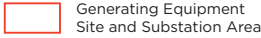



Photomontage view from footpath by Chequers Pub. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.





**Legend:**

-  Generating Equipment Site and Substation Area
-  72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

**Source:**

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**Checked:**

JW

**Date:**

October 2014

**Figure:**

4

**Scale:**

1:7,500

**Revision No:**

-

**Data for viewpoint 3: Ampt Hill Park, Katherine's Cross**

Viewpoint Grid Reference	- 502473 E 238410 N
View Direction	- 332 degrees
Viewpoint Elevation	- c 115 m AOD
Horizontal Field of View	- 72 degrees
Nearest proposed development block	- 2.38 km
Viewing Distance	- 32 cm
Date and time of photo	- 20/08/2014 13:38

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan Figure 2 ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

**Project:**

Millbrook SCGT

**Title:**

FIGURE 4: Viewpoint 3  
Ampt Hill Park Katherine's Cross

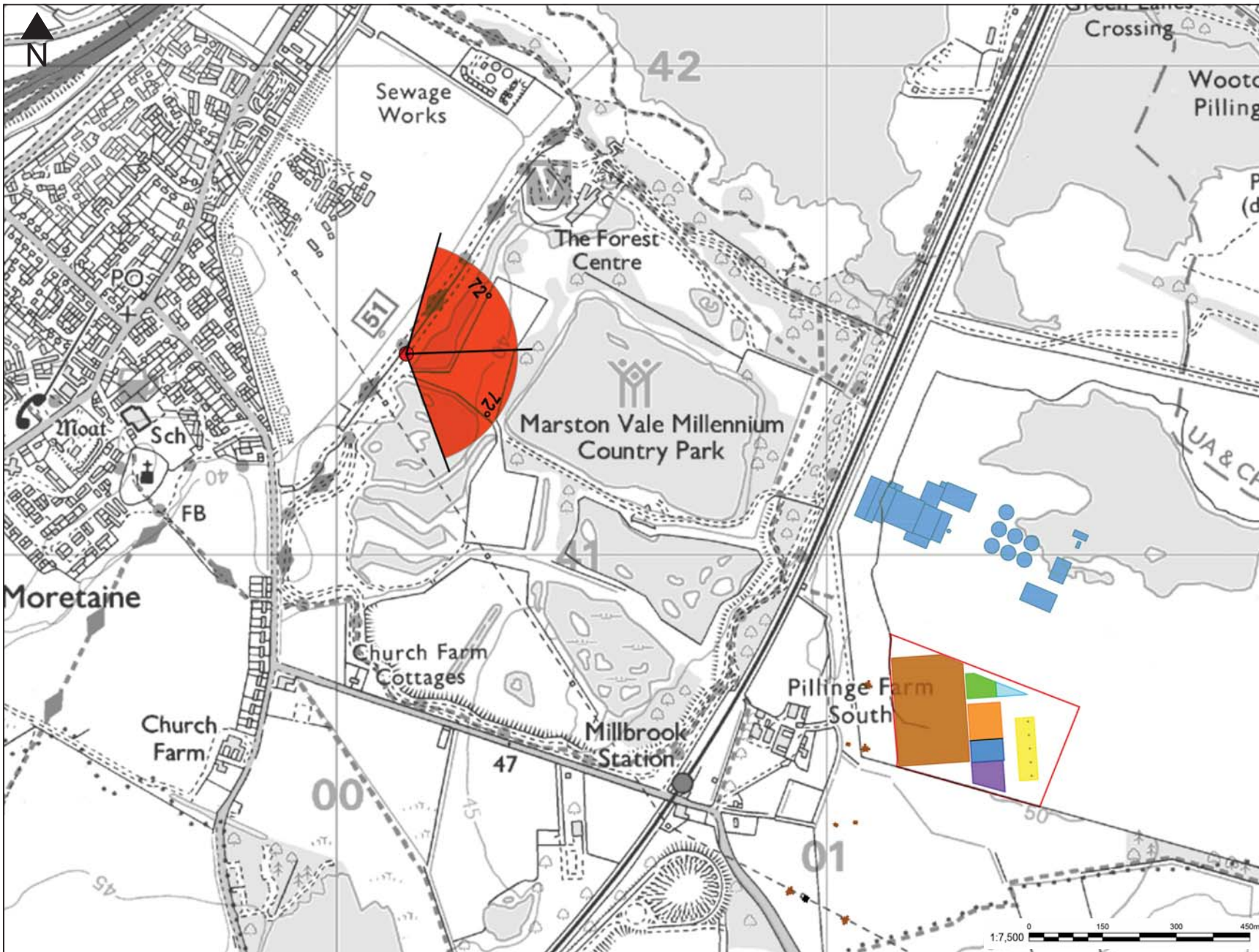


Existing baseline view from Amphill Park, Katherine's Cross. (72 degrees horizontal field of view, 32 cm viewing distance). View direction 332 degrees., Camera: Canon EOS 5D Mark II Focal Length: 50mm Camera Height: 1.5m Date: 20/08/14 Time: 13:38



Photomontage view from Amphill Park, Katherine's Cross. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.

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**Legend:**

- Generating Equipment Site and Substation Area
- ∠ 72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

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**Date:**

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**Figure:**

5

**Scale:**

1:7,500

**Revision No:**

-

**Data for viewpoint 6a: Country Park Access**

Viewpoint Grid Reference	- 500140 E 241411 N
View Direction	- 52 - 124 degrees
Viewpoint Elevation	- c 37 m AOD
Horizontal Field of View	- 2 X 72 degrees
Nearest proposed development block	- 1.17 km
Viewing Distance	- 32 cm
Date and time of photo	- 20/08/2014 15:25

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan Figure 2 ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

**Project:**

**Millbrook SCGT**

**Title:**

**FIGURE 5: Viewpoint 6a**  
Country Park Access

**Viewpoint 6a: Country Park Access**

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**Existing baseline view** from Country Park Access (72 degrees horizontal field of view, 32 cm viewing distance). View direction **52** - 124 degrees.



**Photomontage view** from Country Park Access. (72 degrees horizontal field of view, 32 cm viewing distance). **\*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.**

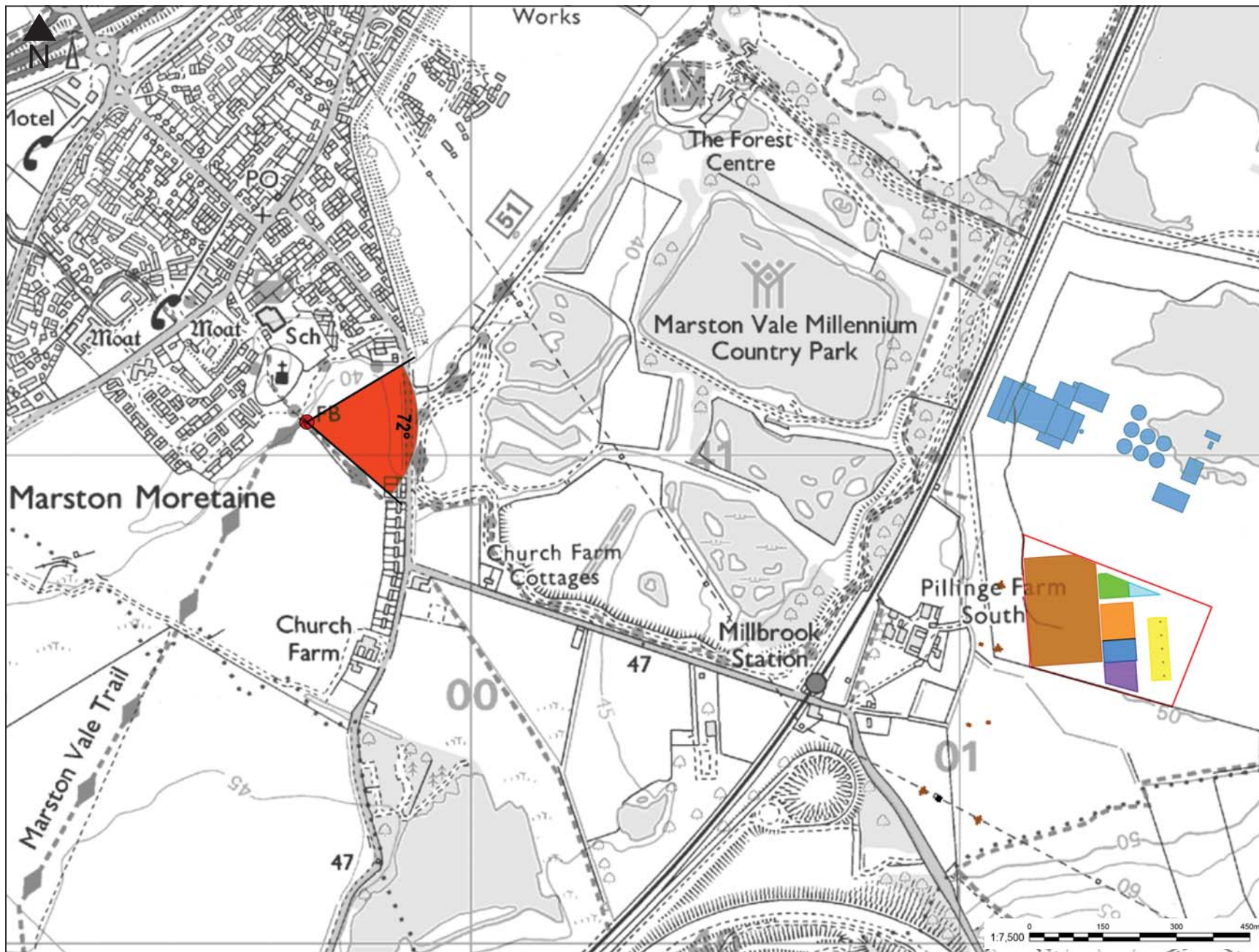


Existing baseline view from Country Park Access (72 degrees horizontal field of view, 32 cm viewing distance). View direction 52 - 124 degrees.

Camera: Canon EOS 5D Mark II Focal Length: 50mm Camera Height: 1.5m Date: 20/08/14 Time: 15:25



Photomontage view from Country Park Access. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.



**Legend:**

- Generating Equipment Site and Substation Area
- ∠ 72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

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**Date:**

October 2014

**Figure:**

6

**Scale:**

1:7,500

**Revision No:**

-

**Data for viewpoint 8: Marston Church Path**

Viewpoint Grid Reference	- 499662 E 241068 N
View Direction	- 95 degrees
Viewpoint Elevation	- c 40 m AOD
Horizontal Field of View	- 72 degrees
Nearest proposed development block	- 1.50 km
Viewing Distance	- 32 cm
Date and time of photo	- 21/08/2014 09:11

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan Figure 2 ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

**Project:**

**Millbrook SCGT**

**Title:**

**FIGURE 6: Viewpoint 8**  
Marston Church Path



Existing baseline view from Marston Church Path (72 degrees horizontal field of view, 32 cm viewing distance). View direction 95 degrees.

Camera: Canon EOS 5D Mark II Focal Length: 50mm Camera Height: 1.5m Date: 21/08/14 Time: 09:11



Photomontage view from Marston Church Path. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.





- Legend:**
- Generating Equipment Site and Substation Area
  - ∠ 72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

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<b>Date:</b> October 2014	<b>Figure:</b> 7
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<b>Scale:</b> 1:7,500	<b>Revision No.:</b> -
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Data for viewpoint 11: Picnic Area Lidlington

Viewpoint Grid Reference	- 502473 E 238410 N
View Direction	- 49 degrees
Viewpoint Elevation	- c 130 m AOD
Horizontal Field of View	- 72 degrees
Nearest proposed development block	- 3.02 km
Viewing Distance	- 32 cm
Date and time of photo	- 20/08/2014 14:27

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan Figure 2 ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

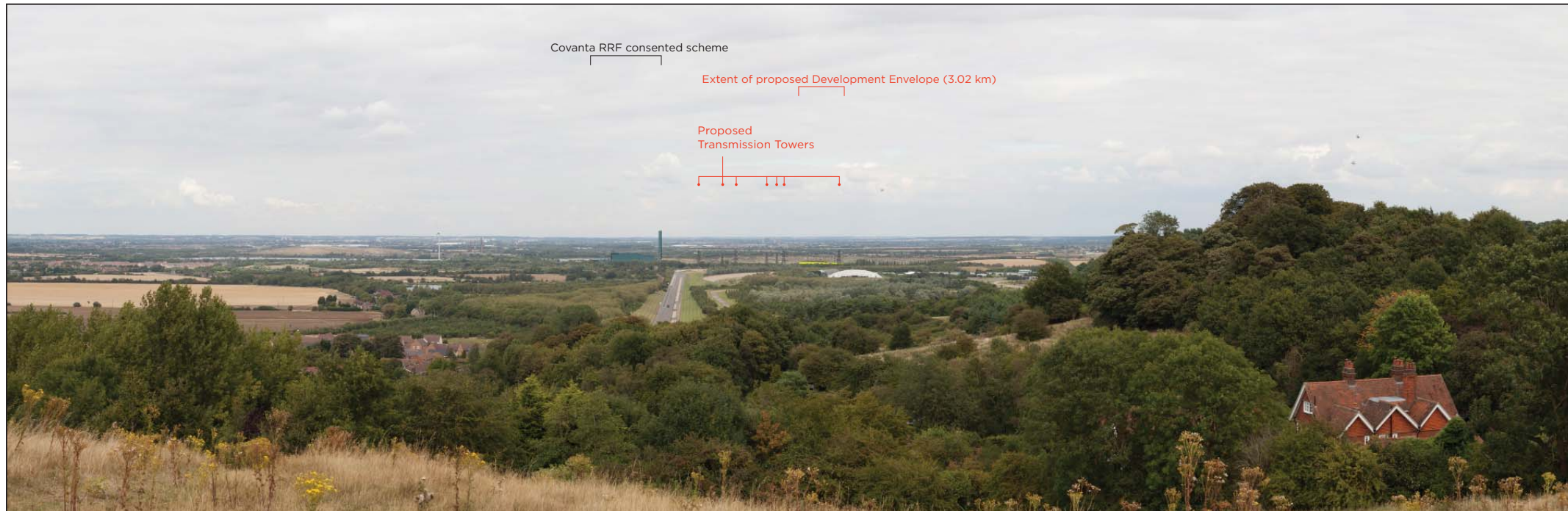
**Project:**  
 Millbrook SCGT

**Title:**  
 FIGURE 7: Viewpoint 11  
 Picnic Area Lidlington



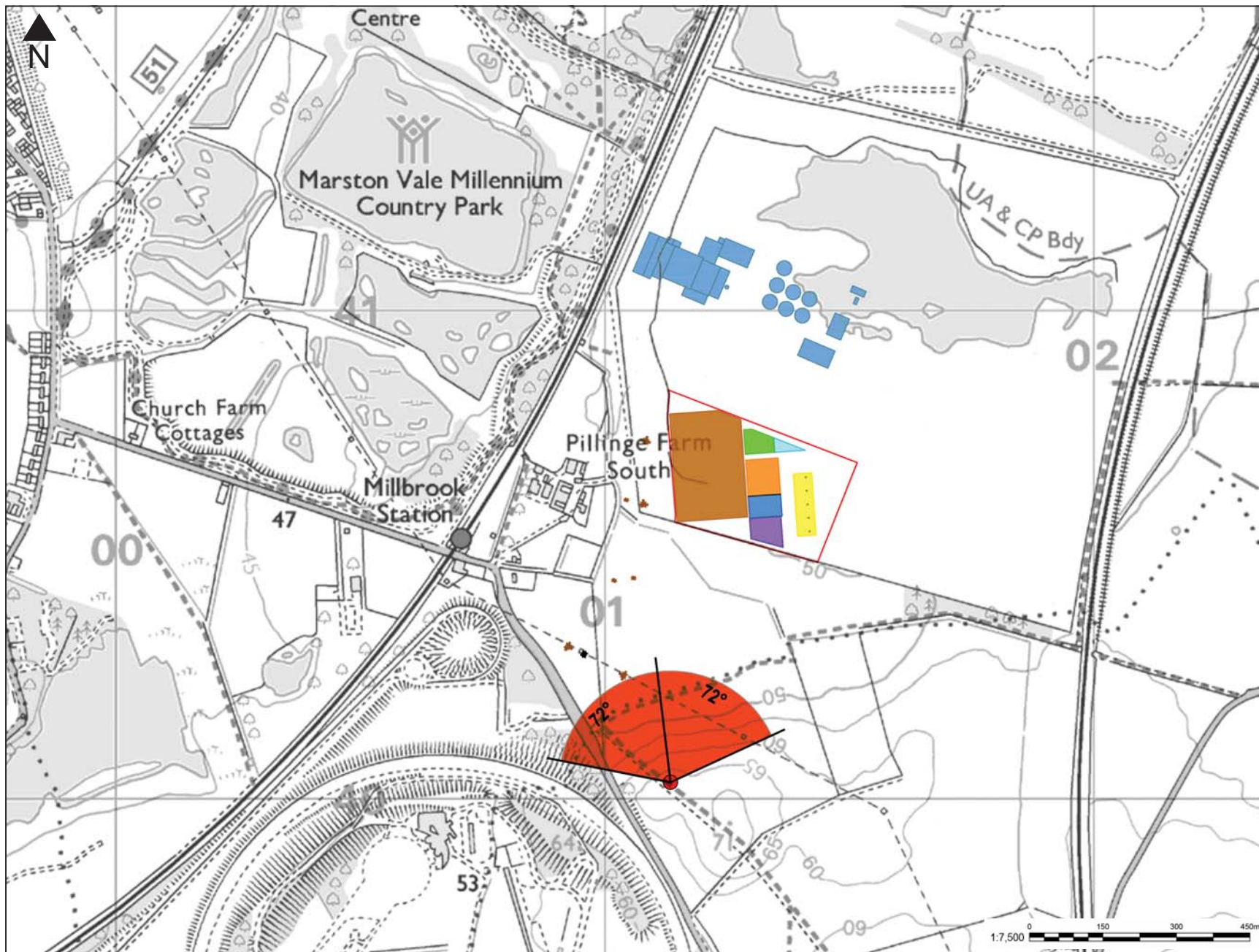
Existing baseline view from Picnic Area Lidlington. (72 degrees horizontal field of view, 32 cm viewing distance). View direction 49 degrees.

Camera: Canon EOS 5D Mark II Focal Length: 50mm Camera Height: 1.5m Date: 20/08/14 Time: 14:27



Photomontage view from Picnic Area Lidlington. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.

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**Legend:**

- Generating Equipment Site and Substation Area
- ∠ 72 degree horizontal field of view viewpoint comprising existing baseline view and photomontage.

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**Date:**

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**Figure:**

8

**Scale:**

1:7,500

**Revision No:**

-

**Data for viewpoint 14: Footpath Option Land**

Viewpoint Grid Reference	- 501133 E 240034 N
View Direction	- 317 - 29 degrees
Viewpoint Elevation	- c 65 m AOD
Horizontal Field of View	- 2 X 72 degrees
Nearest proposed development block	- 0.54 km
Viewing Distance	- 32 cm
Date and time of photo	- 21/08/2014 07:58

**\*\*Note :** A layout of the gas processing plant has been modelled using several coloured 'development envelopes' related to the height, width and depth of each part of the plant ( shown in the plan Figure 2 ). The envelopes are modelled at the maximum height of the structures or buildings within each area and therefore represent a worse case scenario, showing the area in which development of the gas processing structures will be built. Indicative wireline models of the proposed transmission towers are shown and a 3D model of the Covanta RRF consented scheme is included in the photomontages. Areas with taller stacks have been modelled with cylinders rising out of the development blocks in order to illustrate the proposed position of the turbine generator stacks. These envelopes have been used as the basis for visual modelling in the photomontages and the assessment of impacts. **Colours are used to illustrate the different development envelopes and are not indicative of the colour of the plant.** The actual colours of gas processing plant and buildings will be agreed with the Local Planning Authority to help minimise the visual impact of the development. **Photomontages do not illustrate any planting which may be incorporated to further reduce the visibility of the Project.**

**Project:**

**Millbrook SCGT**

**Title:**

**FIGURE 8: Viewpoint 14**  
Footpath Option Land

**Viewpoint 14: Footpath Option Land**

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**Existing baseline view** from Country Park Access (72 degrees horizontal field of view, 32 cm viewing distance). View direction **317** - 29 degrees.

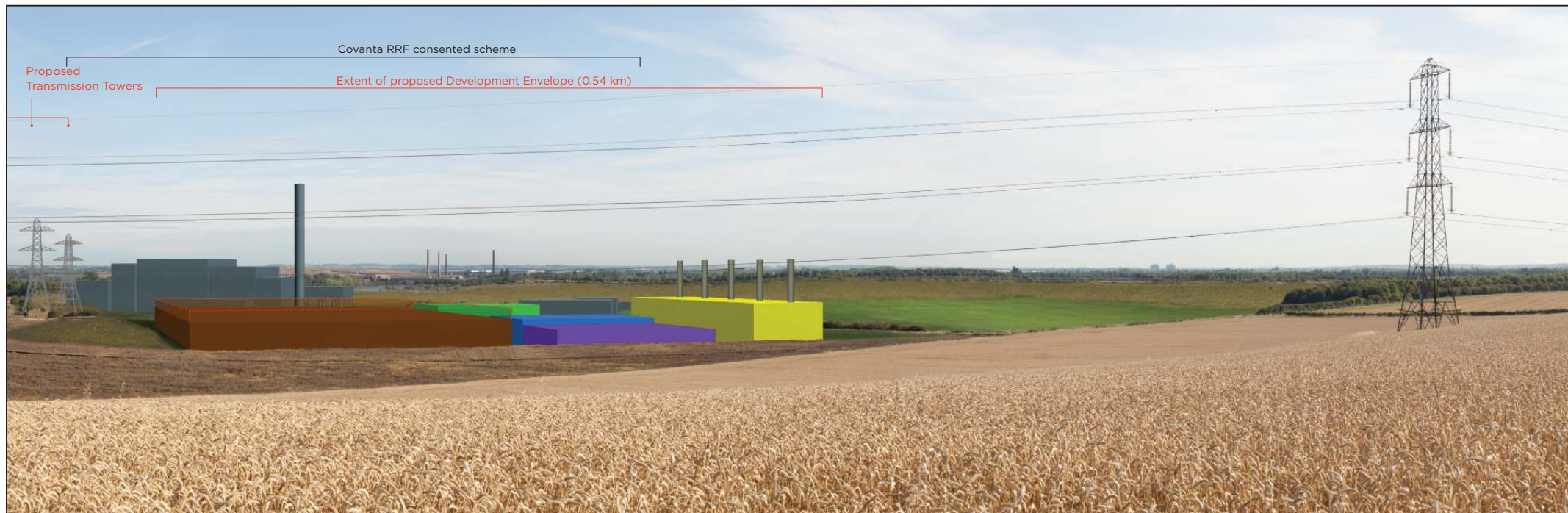


**Photomontage view** from Country Park Access. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.



Existing baseline view from Footpath Option Land. (72 degrees horizontal field of view, 32 cm viewing distance). View direction 317 - 29 degrees.

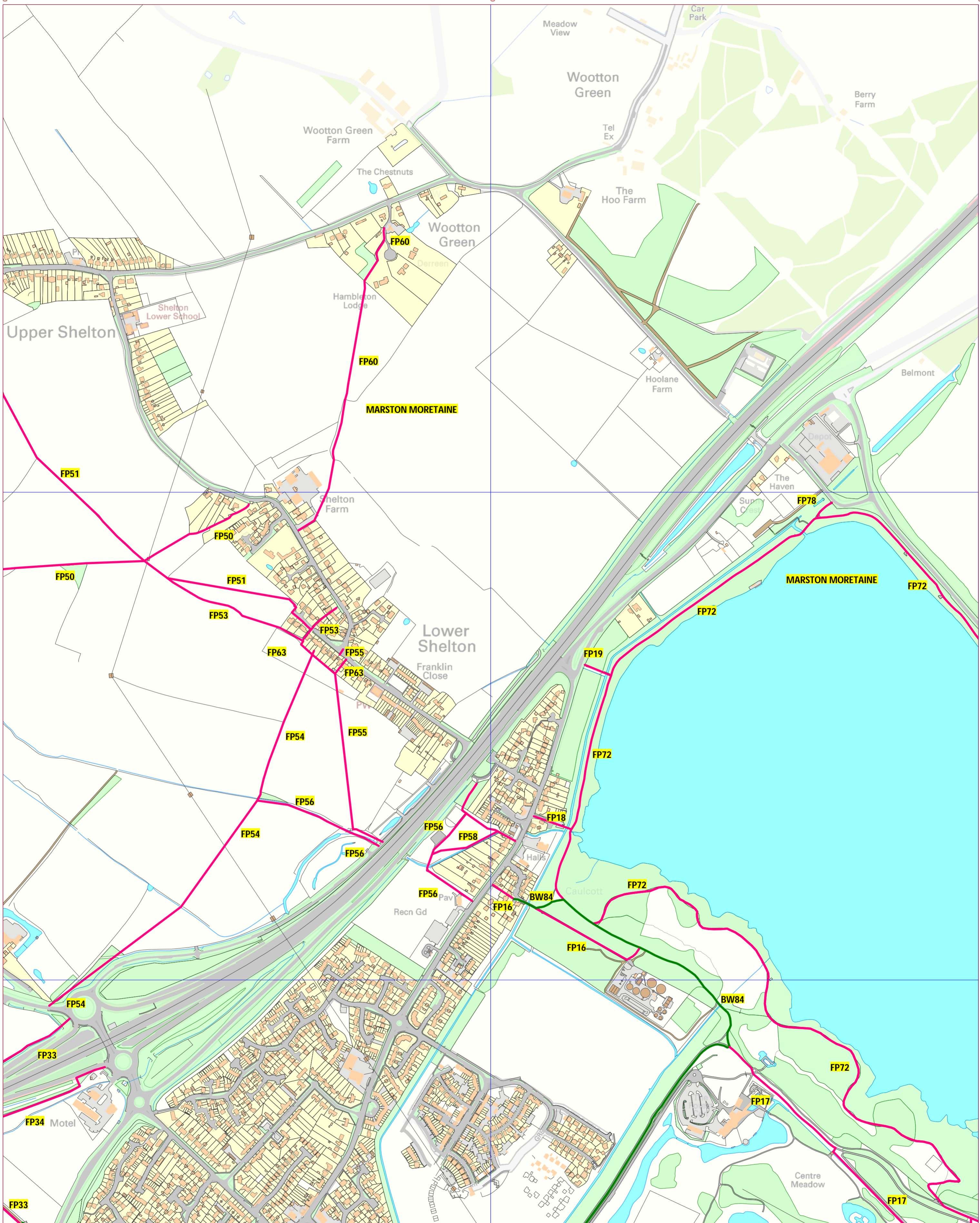
Camera: Canon EOS 5D Mark II Focal Length: 50mm Camera Height: 1.5m Date: 21/08/14 Time: 07:58



Photomontage view from Footpath Option Land. (72 degrees horizontal field of view, 32 cm viewing distance). \*\* Refer to the note at the bottom of the parameters plan Figure 2 for a description of the development envelope.

## **Appendix 12. Traffic and Transport**

### **12.1 – Public Rights of Way – CBC**



# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

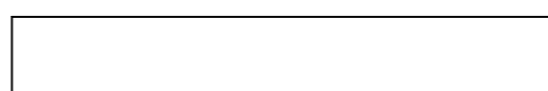
Scale 1 : 5000

Sheet Number



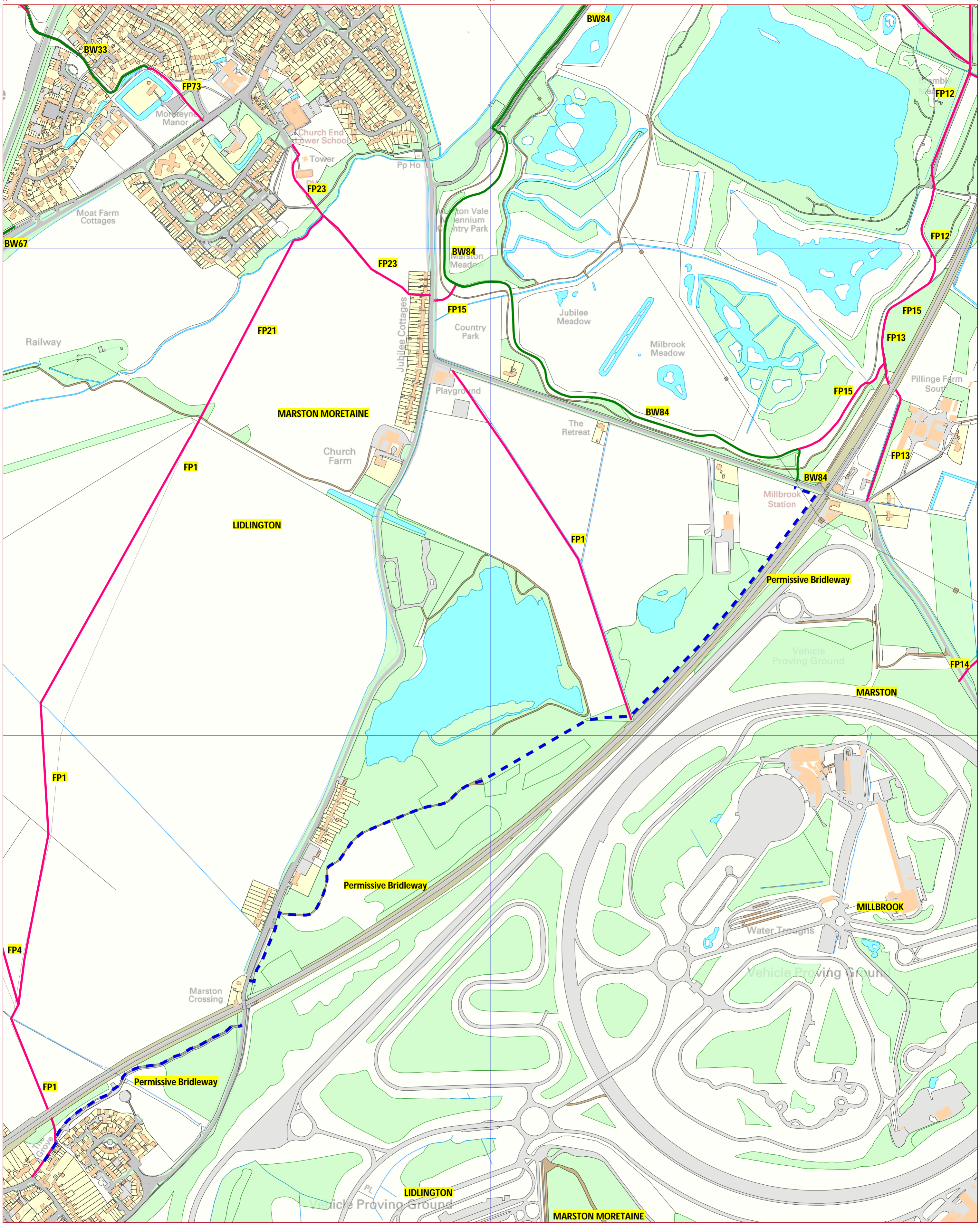
Produced by Central Bedfordshire Council. Based on Ordnance Survey Mapping. Crown Copyright. All rights reserved. OS Licence Number 100049029.

- Public Footpath —
- Public Bridleway —
- Byway Open to All Traffic —
- Parish Boundary - - - -



**1**





# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

Scale 1 : 5000

Sheet Number

**2**



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- Public Footpath —
- Public Bridleway —
- Byway Open to All Traffic —
- Parish Boundary - - - -





# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

Scale 1 : 5000

Sheet Number

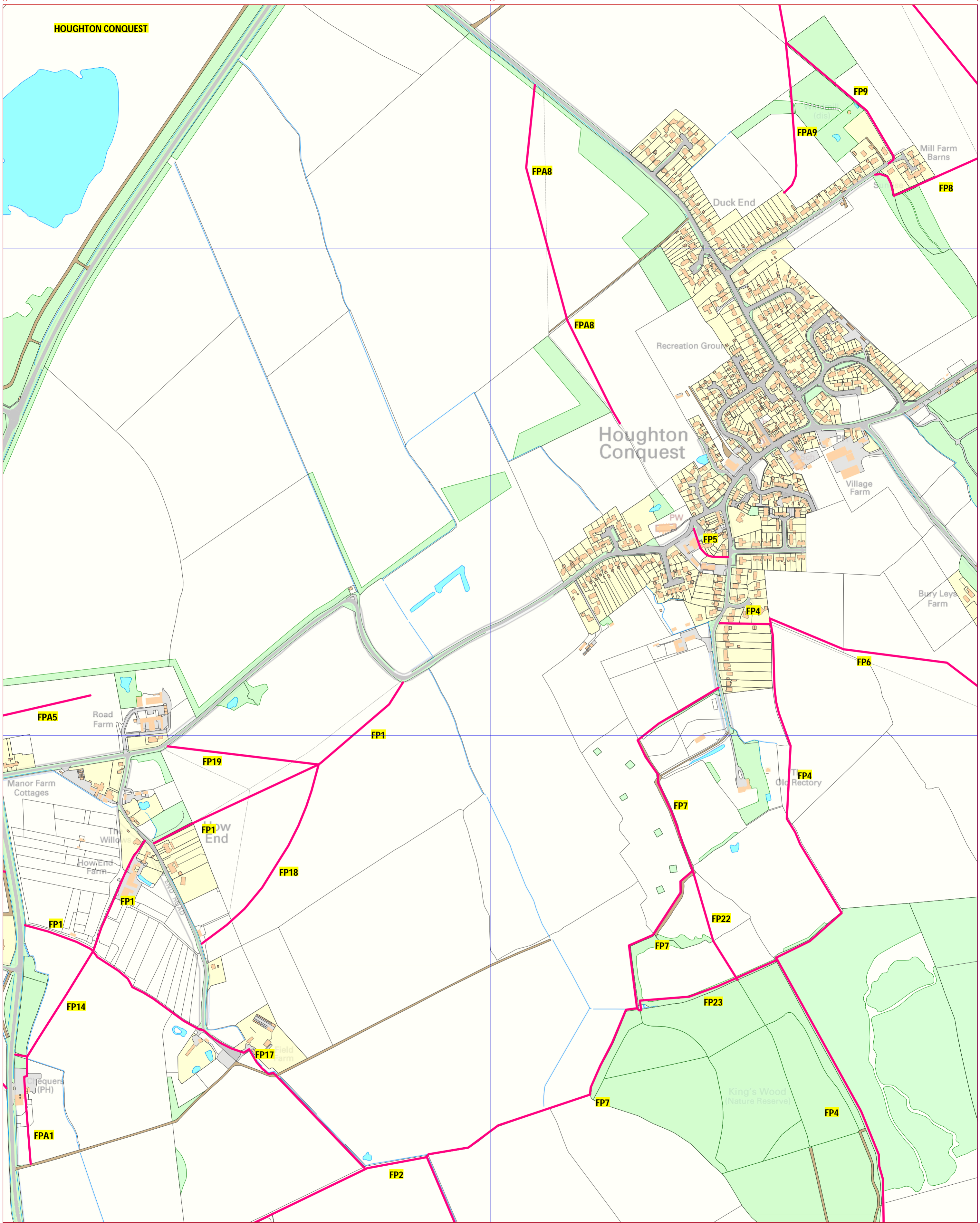
**3**



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- Public Footpath
- Public Bridleway
- Byway Open to All Traffic
- Parish Boundary





# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

Scale 1 : 5000

Sheet Number

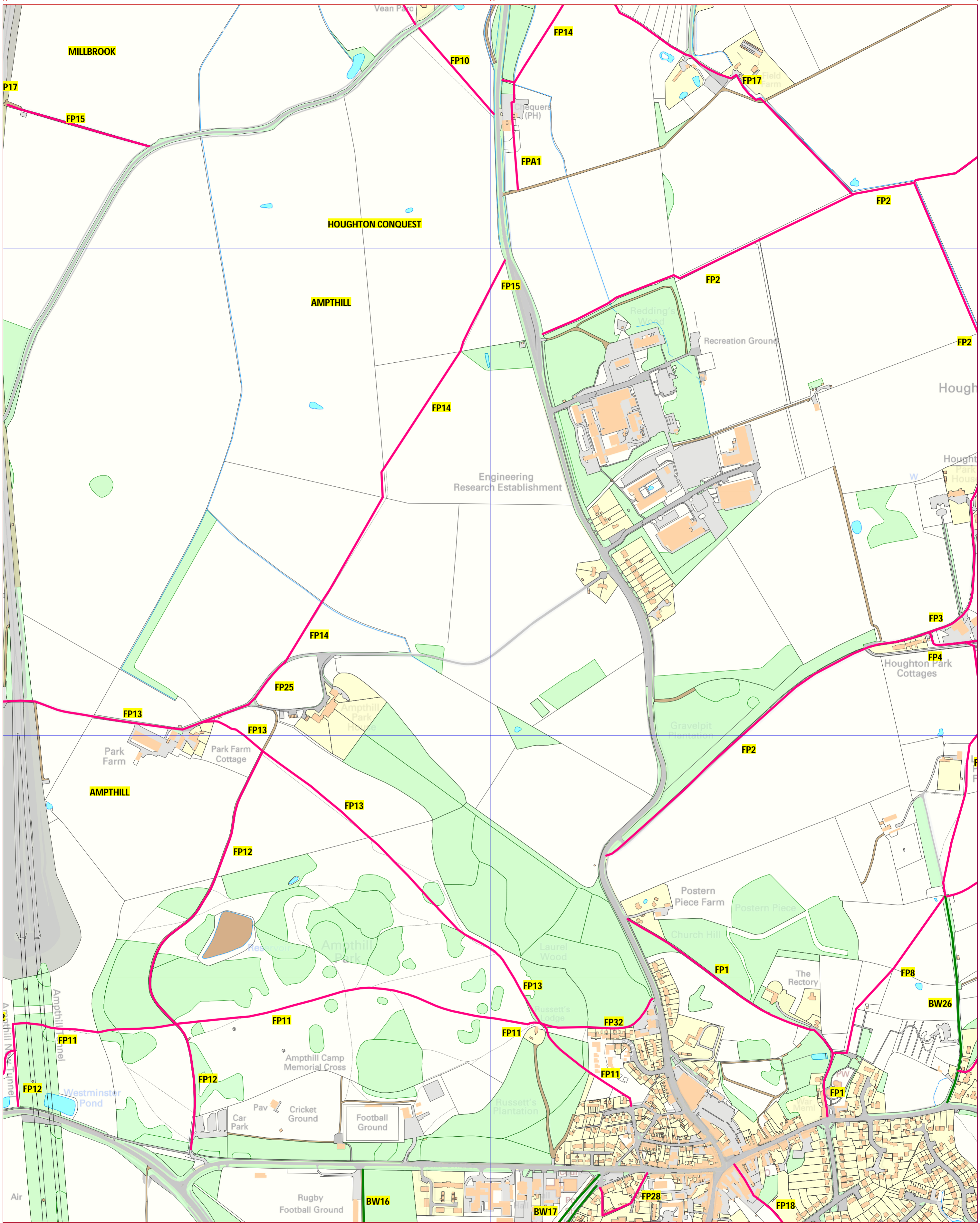
**4**



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- Public Footpath —
- Public Bridleway —
- Byway Open to All Traffic —
- Parish Boundary - - - -





# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

Scale 1 : 5000



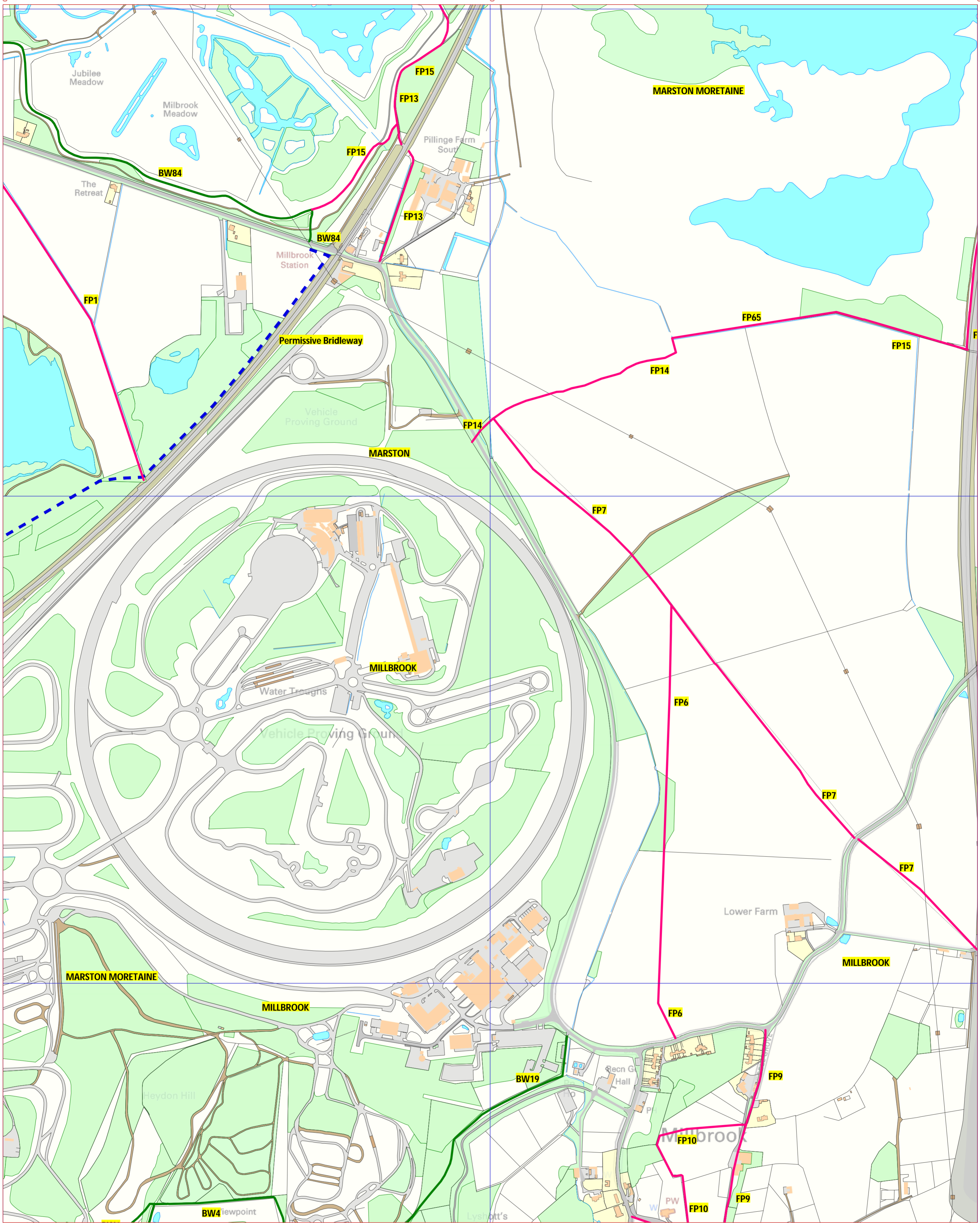
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- Public Footpath —
- Public Bridleway —
- Byway Open to All Traffic —
- Parish Boundary - - - -



Sheet Number

**5**



# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

Scale 1 : 5000



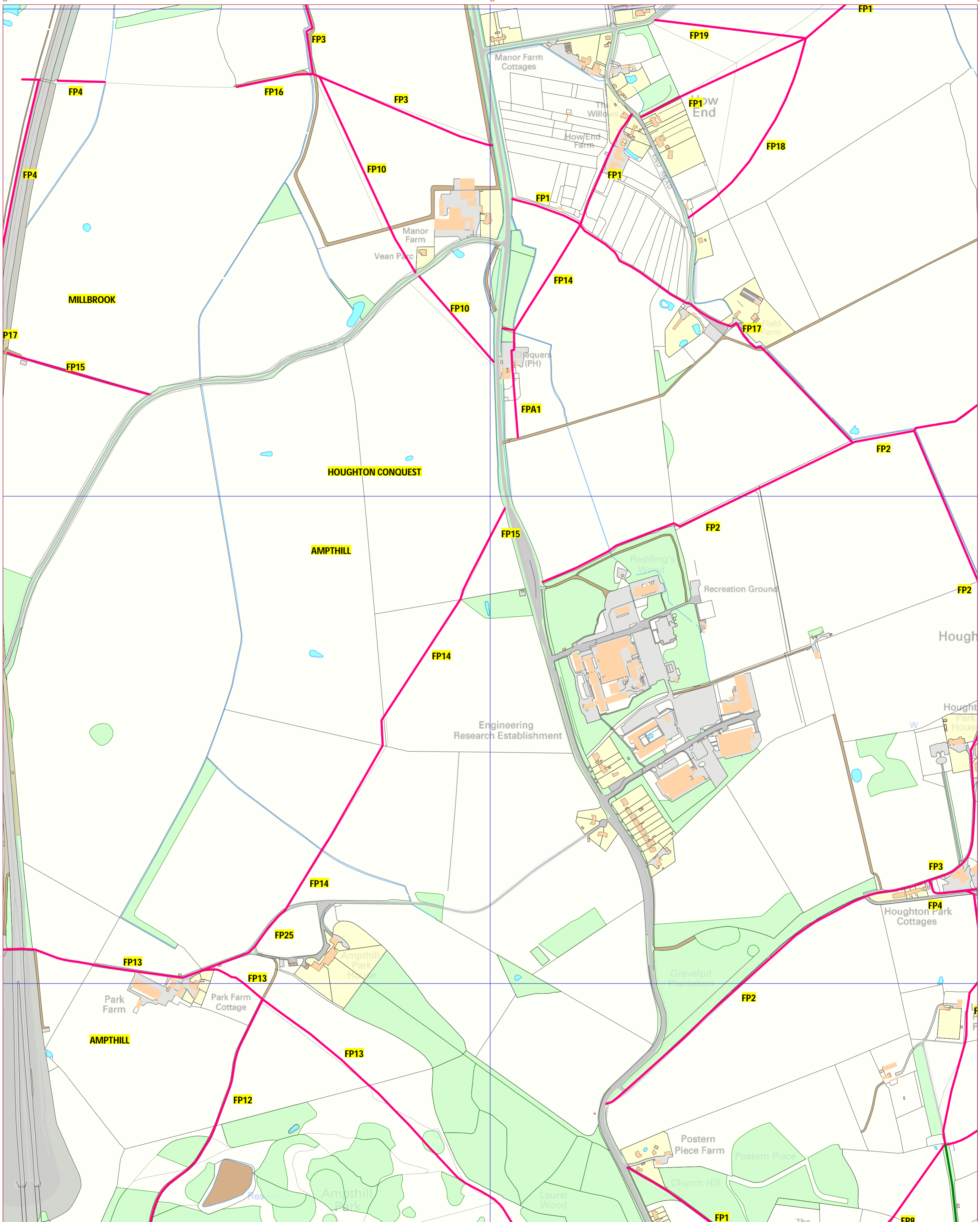
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- Public Footpath —
- Public Bridleway —
- Byway Open to All Traffic —
- Parish Boundary - - -



Sheet Number

# 100



# THE DEFINITIVE MAP FOR CENTRAL BEDFORDSHIRE

Scale 1 : 5000

Sheet Number

**100**

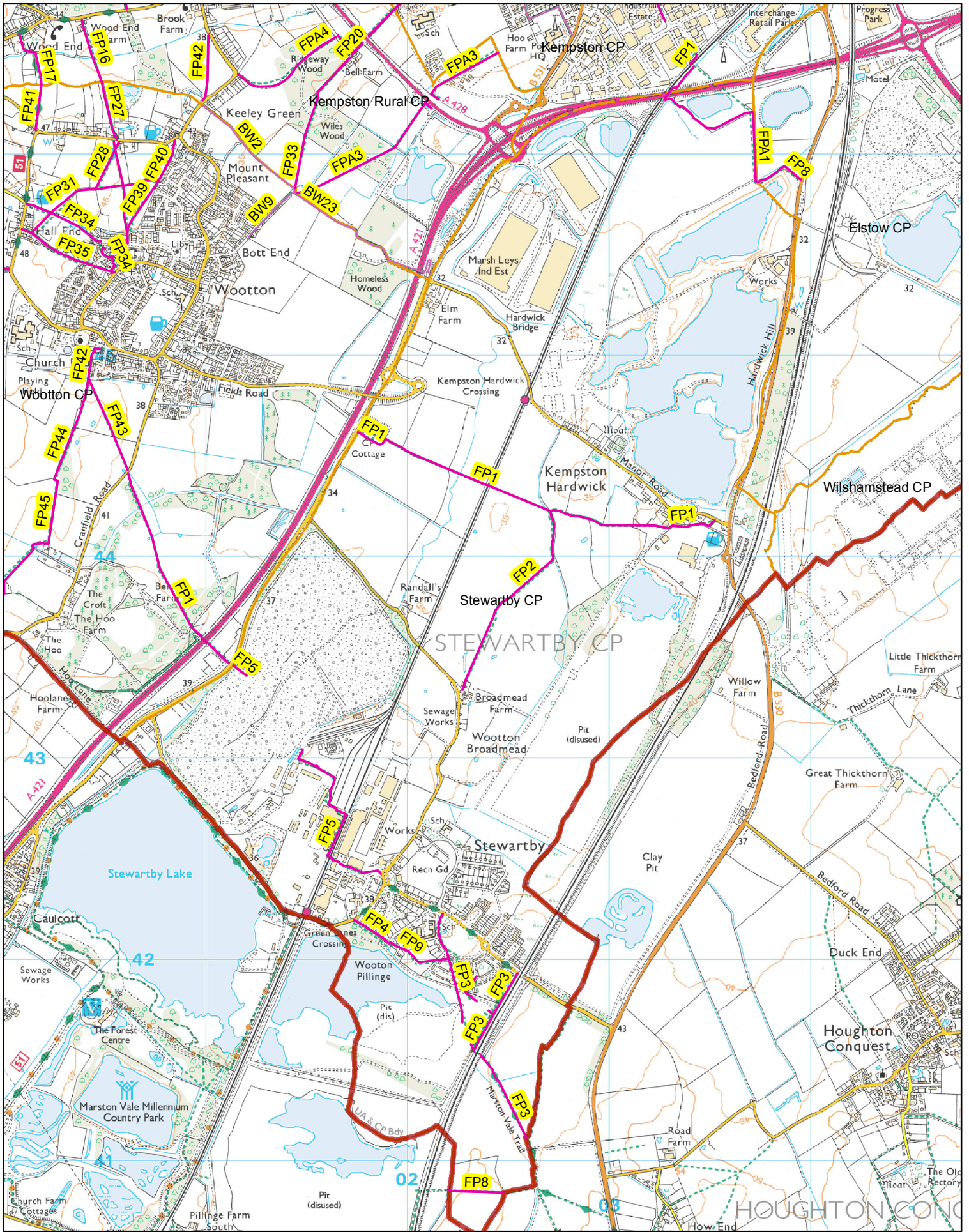


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## 12.2 – Public Rights of Way - BBC



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- PUBLIC FOOTPATH
- PUBLIC BRIDLEWAY
- BYWAY OPEN TO ALL TRAFFIC (BOAT)
- BOROUGH BOUNDARY
- PARISH BOUNDARY

**A4P**  
 1:24,000  
 Date: 12/08/2014



**BEDFORD**  
 BOROUGH COUNCIL