GeoDyne

Geotechnical &
Environmental
Consultants

High Road
Weston

Combined Phase I Desk Study and Phase II Exploratory Investigation For Ashwood Homes

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Project No: D41072		**Date: 30th July 2021**	
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Comments			

EXECUTIVE SUMMARY

GEOTECHNICAL CONSIDERATIONS	
Ground Conditions	No Made Ground was encountered at the site. Topsoil was encountered at the surface in all exploratory holes to depths between 0.30m and 0.45m begl. The Natural Strata typically comprised firm sandy SILT underlain by firm silty sandy CLAY, which became softer with depth. Peat was encountered at approximately 12.50m begl, underlain by silty gravelly SAND. The bedrock was encountered at 17.00m begl comprising a stiff gravelly CLAY.
Foundation Design	Structural Engineer designed strip or raft foundations. The natural soils appear suitable to support a nett allowable ground bearing pressure of up to 75kN/m^2. Foundations should be advanced to a minimum depth of 1.00m below existing or proposed ground level (whichever being the deeper). It is important to ensure that all foundation excavations are kept as shallow as possible to avoid potential decreases in soil strength from affecting foundation integrity.
Floor Slab Design	A Structural Engineer designed suspended slab should be adopted for the proposed dwellings. This may be either a reinforced cast in-situ, or a pre-cast suspended floor with a clear ventilated void (i.e. beam and block).
Ground Gas Precautions	CS2 ground gas precautions are required at the site.
Radon	No radon precautions are required at the site.
Building Near Trees	Foundation designs may need to be adjusted where building near existing, proposed or recently removed trees and hedgerows. High volume change potential should be assumed for design purposes.
Water	Water is likely to be encountered within excavations for construction purposes at the site and dewatering of excavations may be necessary.
Excavations/Stability	Excavations were stable for the short period of time they were left open after completion. The assessment of excavations and provision of support will be the responsibility of the contractor on site.
Sulphate Classification	Design Class DS-1 / ACEC Class AC-1 (BRE Special Digest 1: 2005)
Coal Mining	No coal mining precautions or associated investigation works are required at the site.
CBRs	The remoulded soaked CBR testing has revealed CBR values for the Natural Strata between 0.3% and 4.6%.
Surface Water Drainage	Preliminary soakaway testing has been undertaken at the site. It is recommended that the Client's Drainage Engineer should consider the results in relation to the potential suitability for a soakaway and permeable paving design.
ENVIRONMENTAL CONSIDERATIONS	
Soil Contamination Assessment	The soils may be considered to be uncontaminated in the context of the proposed end-use. There are considered to be no specific risks posed to Controlled Waters by the findings of the laboratory analysis undertaken.
Remediation Proposals	No specific remediation works will be required other than the provision of existing topsoil in proposed gardens and any other areas of soft landscape to provide a suitable growing media for plants.
GENERAL CONSIDERATIONS	
Construction Workers	Construction personnel should use appropriate PPE equipment and hygiene facilities.
Utilities	We would recommend that our report is supplied to utility companies and their recommendations are adhered to.
Unforeseen Circumstances	Should any areas of potentially contaminated soil/anomalous features be encountered we would recommend consultation with GeoDyne.
Flood Risk	The desk study information has revealed the site to lie within an area identified as being at risk of flooding. It is recommended that advice be sought from a Drainage Consultant with respect to this matter.
Licenses etc.	The Contractor/Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the construction works at the site.
Statutory Consultation	We would recommend that our report is issued to the Local Authority (and NHBC or other Warranty Provider).

1.0 INTRODUCTION

1.1 Introduction

GeoDyne Limited has been appointed by the Client, Ashwood Homes, to undertake a combined Phase I Desk Study & Phase II Exploratory Investigation on land located off High Road, Weston, near Spalding. A site location plan (Figure No. D41072/01) is included in Appendix I.

1.2 Project Understanding

We understand that it is proposed to develop the site with low-rise residential properties incorporating private gardens as shown on the preliminary development layout plan included within Appendix II.

This understanding has formed the basis of our report. Where our understanding is incorrect, it may be necessary to review our assessment to ensure that it continues to apply.

1.3 Objectives

The scope of works detailed herein have been designed to ascertain the key geotechnical and environmental issues pertaining to the proposed development.

1.4 Scope of Works

Based on the defined objectives of the works (detailed in Section 1.3), the scope of the Phase I Desk Study included the following:

- A site walkover.
- Review of available historical and contemporary Ordnance Survey publications relating to the site.
- Review of the site's geology, hydrology, hydrogeology and groundwater vulnerability.
- Review of the site's coal mining status.
- Review of the site's radon status.
- Commission of a full detailed Landmark Envirocheck Report relating to the site.
- Commission of Landmark geological mapping data.
- Production of a preliminary Conceptual Site Model (pCSM).

Phase II Exploratory Investigation works comprised:

- A sub-contracted sub-surface utility scan of proposed exploratory hole locations.
- A series of mechanically excavated trial pits and window sampling boreholes.
- The advancement of cable percussive boreholes.
- Geotechnical and environmental soil testing.
- An initial programme of ground gas and water level monitoring.
- Preliminary in-situ soakaway testing.
- Revision of the pCSM.

1.5 Limitations

The conclusions and recommendations made in this report are limited to those that can be made based on the findings of the investigation.

Where comments are made based on information obtained from third parties, GeoDyne Limited assumes that all third-party information is true and correct. No independent action has been undertaken to validate the findings of third parties.

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

GeoDyne Limited has prepared this report for the sole use and reliance of Ashwood Homes, in accordance with our standard Conditions & Limitations (included in Appendix XV). This report may not be used or relied upon by any unauthorised third party without the explicit written agreement of GeoDyne Limited. Reliance may not be placed on our report until all invoices associated with the project have been paid.

2.0 SITE DESCRIPTION & HISTORY

2.1 Site Description

The site is situated to the north of High Road, Weston, near Spalding, Lincolnshire. The site may be located centred around approximate Ordnance Survey National Grid Reference 5286600E 324810N. The irregularly shaped site covers an area of approximately 2.35 hectares.

At the time of the site works (April 2021), the site comprised a field divided into two areas (eastern and western) by a fence running northwest to southeast though the site. The eastern area of the site comprised an enclosed paddock containing deer. The paddock was grassed with a small number of trees. The western area of the site comprised an open, uncropped agricultural field. A hedgerow was present in the eastern area of the western portion of the site, along the fence line of the deer paddock. At the southern end of the hedge was a small stockpile of soil. The site was sensibly level.

Drainage ditches were present along the northwestern and eastern site boundaries. To the immediate north and east of the site were further agricultural fields. To the west of the site was a smaller agricultural field beyond which was the Baytree Garden Centre and associated buildings. To the immediate south of the site were several bungalows (close to the southeast and southwest corners of the of the site. High Road was present to the south of the site, beyond which were further dwellings.

An annotated site plan showing the main features of the site and the immediate surrounding area is included as Appendix III of this report (Figure No. D41072/02) and a plan showing general views of the site is included as Appendix IV (Figure No. D41042/03).

An aerial photograph of the site, obtained from the Landmark Analysis tool commissioned as part of our works, is presented in Figure 1 on the following page, with the current OS mapping plan for the site and surrounding area presented in Figure 2. We would note that the site boundary has been extended since commissioning the Envirocheck report, and now includes an area on the southern side of the site adjacent to High Road. The figures below are based on the boundary within the Envirocheck report and use the original supplied reduced site boundary, with the additional boundary added as a dashed line.

Figure 1: Aerial photograph of the site (2021 image)



Figure 2: Current OS Mastermap Plan



2.2 Site History

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

We would note that the boundary marked on the historical sheets within the Envirocheck Report appears to 'shift' on several of the maps due to scaling inaccuracies between maps of differing dates. This is a function of Envirocheck transposition algorithms. It should be noted that the Envirocheck Report portrays a slightly larger overall site area.

The historical plans show the original (reduced) site boundary and do not show an outline of the additional site area.

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

TABLE 1 – HISTORICAL PUBLICATION DATA

Date	Features on Site	Features off Site
1880s	• The site comprises part of five undeveloped (potentially agricultural) fields. • An open drain is present along the northern site boundary.	• The area surrounding the site generally comprises further fields with drains. • A small dwelling is located adjacent to the southeast corner of the site, along *High Road* which runs east to west along the southeastern boundary of the site. • A pond is located approximately 130m to the southeast of the site.
1890s	• No maps available for viewing.	• No maps available for viewing.
1900s	• The site remains essentially unchanged.	• The area surrounding the site remains essentially unchanged.
1910s and 1920s	• No maps available for viewing.	• No maps available for viewing.
1930s	• The site now appears to comprise one field with no internal field boundaries.	• Several dwellings have been constructed to the south and southeast of the site beyond High Road.
1940s	• No maps available for viewing.	• No maps available for viewing.
1950s	• The site remains essentially unchanged.	• Further dwellings have been constructed to the south of the site beyond High Road, along with a large glasshouse approximately 100m to the south east. • Allotment gardens are shown approximately 200m southeast of the site. • Drains to the east of the site and one to the south of the site appear to have been infilled.
1960s	• The site remains essentially unchanged.	• A dwelling has been constructed adjacent to the southeastern corner of the site. • The area to the immediate west of the site is referenced as *Allotment Gardens*. • The large glasshouse to the south east of the site has been extended and is now shown to be approximately 75m from the site. • The pond to the southeast of the site appears to have been infilled. More drains to the north, west and south east of the site also appear to have been infilled.
1970s	• The site remains essentially unchanged.	• Further residential development has occurred to the south of the site beyond High Road.
1980s	• The site remains essentially unchanged.	• Further residential development has occurred to the south and south east of the site beyond High Road, including demolition of the glasshouse which has been replaced with dwellings. • The Allotment Gardens to the west of the site are no longer referenced as allotment gardens. • *Baytree Nursery* has been constructed approximately 120m west of the site, which includes a tank.

TABLE 1 – HISTORICAL PUBLICATION DATA		
Date	**Features on Site**	**Features off Site**
1990s	• The 1999 Aerial Photo shows the site under use as agricultural land.	• The area surrounding the site remains essentially unchanged.
2000s to 2021	• The site remains essentially unchanged, except for two internal field boundaries running parallel from north west to south east on the 2021 map.	• The area surrounding the site remains essentially unchanged.

2.3 Aerial Photography & Historical Map Overlays

As part of the commissioned Landmark Report, the use of the Landmark Envirocheck Analysis tool was purchased to provide site specific aerial photographic imagery, and to provide the ability to undertake limited historical map overlay manipulation.

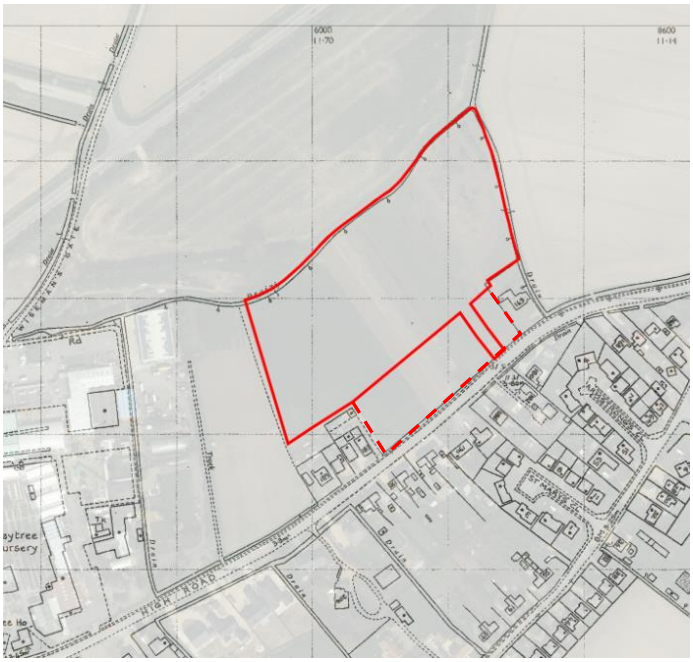
The following pictures (Figures 3 & 4) show overlays of the historical map publications, as shown on current aerial imagery.

Figure 3: Current Aerial Imagery Overlain with 1904 Historical Map Data.



The site comprises a number of fields. The surrounding area is dominated by further fields and drains.

Figure 4: Current Aerial Imagery Overlain with 1987 Historical Map Data.



The site is one large field. Residential development within Weston to the south and southeast of the site has occurred. Baytree Nursery is present to the west of the site.

3.0 GEOLOGY & ENVIRONMENTAL SETTING

3.1 Geological References

The following geological publications were referred to:

- BGS 1:50000 Series Sheet 144 *'Spalding'* (1992).
- Landmark geological map sheets (included in Appendix VI).
- The BGS online interactive map viewer and Lexicon of Named Rock Units.
- The Coal Authority online interactive map viewer.

3.2 Geology

Superficial Drift Deposits

The entire site and immediate surrounding area are indicated to be underlain by superficial drift deposits comprising Tidal Flat Deposits (formerly referred to as the Terrington Beds), which date from the Quaternary. These deposits are typically described as marine alluvium comprising salt marsh, tidal creek and river deposits (i.e. sandy silt, sand and clay). Drift deposits have the potential to alter rapidly in character and geotechnical properties both laterally and vertically over relatively short distances and may also be water bearing. Tidal Flat Deposits may also contain peat as pockets, lenses or discrete layers.

Bedrock Geology

Beneath the drift deposits across the site, bedrock of the Oxford Clay Formation is indicated to be present, which dates from the Jurassic. The Oxford Clay Formation is described on the BGS Lexicon of Named Rock Units as *'Silicate-mudstone, grey, generally smooth to slightly silty, with sporadic beds of argillaceous limestone nodules'.*

The West Walton Formation is indicated to slightly encroach beneath the spur in the far south eastern part of the site. The West Walton Formation, which dates from the also dating from the Jurassic, is described on the BGS Lexicon of Named Rock Units as '*Calcareous mudstone, silty mudstone and siltstone with subordinate fine-grained sandstones and argillaceous limestone (cementstone) or siltstone nodules.'*

3.3 Faults

No faults are indicated to be present within the boundary of the site or within the immediate vicinity of the site, on the geological maps viewed.

3.4 Man-Made Deposits

The geological publications do not show the presence of any man-made deposits (i.e. Made Ground, Worked Ground or Landscaped Ground) beneath the site, or within a 250m radius of the site.

We would note that the reviewed historical publications have revealed the presence of former drains and a small pond within the vicinity of the site which may have been infilled. Any infill materials to these features could represent potential sources of hazardous ground gas (i.e. carbon dioxide and methane) that may, under the right circumstances, affect the proposed development site. However, due to the small scale of these features and the distances of the majority of the features to the site, the risk of ground gas generation from these off-site sources is considered to be very low.

3.5 Landmark Envirocheck Report

A Landmark Envirocheck Report was commissioned to assist in ascertaining the environmental setting of the site. The full Envirocheck Report is presented in Appendix VII and has revealed the following key relevant information (details are only listed where they are within potential influencing distance of the site). We would note that the site boundary was extended to the south after commission of the Landmark report and the plans do not show the boundary of the additional site area.

3.5.1 Agency and Hydrological

Aquifer Status

The aquifer designation maps are presented in Appendix VII and are based on geological mapping provided to Landmark by the British Geological Survey. Different aquifer classifications may be applied to superficial (drift) deposits (typically forming shallow perched groundwater units where present) and bedrock aquifers (which may contain regional groundwater units). Possible aquifer designations comprise Principal Aquifers, Secondary (A, B or Undifferentiated) Aquifers and Unproductive Strata.

The superficial deposits (i.e. Tidal Flat Deposits) and the underlying bedrock (i.e. Oxford Clay Formation and West Walton Formation) are both classified as *'Unproductive Strata'*.

Unproductive Strata are described by the Environment Agency as *'rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.*'

Source Protection Zone Status

The site is not shown to lie within a Source Protection Zone (SPZ), as designated by the Environment Agency. SPZs relate to the protection of groundwater resources principally for public drinking water supply.

Flood Risk Status & BGS Groundwater Flooding Susceptibility

The site is indicated to be situated within an area of extreme risk from flooding from rivers or sea without defences.

This report does not constitute a formal flood risk assessment.

Water Abstractions

There are no entries related to the site of within 250m of the site boundary.

Discharge Consents

There is one entry within 250m of the site. This was operated by Mr M.K. Bowers between 1981 and 1997 and relates to a discharge *'onto land'* from a single domestic property situated 210m to the south west of the site.

Surface Water

The nearest surface water feature is indicated to be present on site. This relates to drains, which are present along the north western and eastern site boundaries.

3.5.2 Waste

Landfill Sites

There are no entries relating to landfills or waste management (i.e. Historic Landfill Sites, Licensed Waste Management Facilities or Registered Waste Transfer Sites) located within 250m of the site boundary.

Potentially Infilled Land (Water)

There are no Potentially Infilled Land (Water) entries at the site.

There are two entries within 250m of the site. These relate to unknown filled ground between 150m west and 222m southeast of the site. Based on the review of the historical maps with Table 1, these appear to be infilled drain features.

3.5.3 Hazardous Substances

There are no sites associated with hazardous substances (i.e. sites dealing with explosives etc.) identified on the site, or within a 250m radius of the site, in the Landmark Envirocheck Report.

3.5.4 Geological Issues

BGS Soil Chemistry

The BGS has prepared estimated soil concentration maps for several metals (including Arsenic, Lead, Nickel, Chromium and Cadmium), which are extrapolated from records available for use within their assessments.

Whilst potentially useful for the inference of Natural Metal Enrichment (NME) of the natural soils in a general locale, the data should not be used to inform any detailed decisions with regards to the chemistry of a particular site as it does not allow for anthropogenic effects. Estimates of the soil chemistry at the site indicate anticipated concentrations of Arsenic of <15mg/kg, Cadmium of <1.8mg/kg, Chromium of 40-60mg/kg, Lead <100mg/kg and Nickel of 15-30mg/kg.

Based on the information supplied within the Envirocheck report, the site is not shown to be located within an area where Natural Metal Enrichment of the underlying natural soils is likely to be present. However, this is only applicable to the specific determinands listed above.

Ground Stability Hazards

No significant ground stability hazards have been identified by the Landmark Envirocheck Report that relate to the site (including from collapsible, ground dissolution, landslide and shrinking or swelling clay ground stability hazards). However, it should be noted that the site is listed as having a Moderate Hazard Potential associated with both the Potential for Compressible Ground and Running Sand.

Radon

The Landmark Envirocheck Report identifies that the site lies within a lower probability Radon area and no Radon protective measures are necessary in the construction of new dwellings or extensions.

BGS Borehole Records

There are no BGS borehole records for the site or within the immediate vicinity of the site.

3.5.5 Industrial Land Use

There are no industrial land use entries identified at the site.

Contemporary Trade Directory Entries

There are three contemporary trade directory entries recorded within 250m of the site comprising two active entries and one inactive entry.

The active entries relate to a lawnmowers and garden machinery sales and service company 66m south of the site and a fireplace and mantlepiece sales company 244m southwest of the site.

The inactive entry also relates to a lawnmowers and garden machinery sales and service company 244m southwest of the site.

3.5.6 Sensitive Land Use

There are no entries relating to Sensitive Land Use at the site or within 250m of the site boundary.

3.6 Land Use Assessment

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

We have also made reference to the Department for Environment, Food and Rural Affairs and the Environment Agency Contaminated Land Report CLR8 '*Potential Contaminants for the Assessment of Land*' (March 2002). Although now formally withdrawn, this document identifies key contaminants which may potentially be present at a site as a result of a given historical land use and is considered useful as a desk based ready reference guide.

3.6.1 On Site Assessment

At the time of our works (April 2021), the site essentially comprised an undeveloped field. Based on the reviewed historical information, the site has essentially remained unchanged according to the earliest available historical maps of the 1880s.

Based on the information obtained from our desk study enquiries, our walkover of the site and experience of similar sites, potential general soil contamination that may be present could include:

- Metals and metalloids associated with any potential localised Made Ground beneath the site.
- Polycyclic Aromatic Hydrocarbons (PAHs) from any ashy inclusions and/or carbonaceous inclusions in the near surface soils.
- Pesticides and herbicides associated with the agricultural use of the site.

- Hazardous ground gases (i.e. methane and carbon dioxide) associated with any localised Made Ground or within any natural peat / organic deposits potentially beneath the site.

3.6.2 Off Site Assessment

The site lies within an area dominated by agricultural fields and residential properties. With regards to potential sources of chemical contamination, based on the findings of the Phase I Desk Study enquiries, there are no significant potentially contaminative land uses known to be present within close proximity to the site.

Based on the information obtained from the desk study, the following sources of potentially hazardous ground gas (i.e. carbon dioxide and methane) have been identified within potential influencing distance (i.e. <250m) of the site:

- Made Ground potentially associated with infill materials to the former drains and ponds in the vicinity of the site.

As stated previously, due to the small scale of the features and the distances of the majority of the features to the site, the risk of ground gas generation from these sources are considered to be very low.

4.0 PRELIMINARY CONCEPTUAL SITE MODEL

4.1 General

The DEFRA publication '*Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance*' (dated April 2012) states the following with regards to the production of a Conceptual Site Model (CSM) for a site:

'*The process of risk assessment involves understanding the risks presented by land, and the associated uncertainties. In practice, this understanding is usually developed and communicated in the form of a "conceptual model"*. The development of a CSM is typically undertaken in an iterative process, reflecting the changes in understanding as more detailed site information becomes available.

In developing a CSM, and specifically in the context of land contamination, consideration needs to be given to three essential elements; which form the basis of any risk present. The statutory guidance sections 3.8 and 3.9 (April 2012) states the following:

(a) '*A "contaminant" is a substance which is in, on or under the land and which has the potential to cause significant harm to a relevant receptor, or to cause significant pollution of controlled waters.*
(b) A "receptor" is something that could be adversely affected by a contaminant, for example a person, an organism, and ecosystem, property, or controlled waters...
(c) A "pathway" is a route by which a receptor is or might be affected by a contaminant.

The term "contaminant linkage" means the relationship between a contaminant, a pathway and a receptor.' For a contaminant linkage to be plausible, all three elements need to be present.

In undertaking a risk assessment and deriving a CSM for the purposes of the redevelopment of a site (i.e. planning and development control) reference has been made to both the Model Procedures for the Management of Land Contamination, as well as the National Planning Policy Framework (NPPF, dated July 2018).

The preliminary CSM should identify the hazards (source of potential contamination) and should set out the potential pollutant linkages with a view to identifying the nature and magnitude of the potential risks to receptors.

In order to undertake the foregoing assessment, consideration is required with respect to the probability or likelihood of the linkage occurring and the severity and significance of the potential consequences; taking account the nature of the pollutant linkage and the potential severity of the hazard and the sensitivity of the receptor within the context of the proposed land use (in consideration of the planning regime).

Consideration of consequence/severity, probability/likelihood and risk has been based on the following guidance documentation:

- CIRIA C552 '*Contaminated Land Risk Assessment, A Guide to Good Practice*', 2001.
- EA R&D publication 66 '*Guidance for the Safe Development of Housing on Land Affected by Contamination*', 2008.

4.2 Classification of Consequences

In order to apply a consequence classification to a particular potential pollutant linkage, it is first necessary to define the terminology used within the classification system. The following terminology and definitions detailed in Table 2 have been adopted within our assessment, based on the guidance referenced in Section 4.1.

TABLE 2 – CLASSIFICATION OF CONSEQUENCES

Classification	Definition
Severe	• Acute risks to human health. • Short-term risk of pollution of controlled waters or significant impact on controlled waters; e.g. large-scale pollution or very high levels of contamination. • Catastrophic damage to buildings or property (such as building explosion causing collapse). • Ecological system effects – immediate risks of major damage which is likely to result in irreversible substantial adverse changes in the functioning of the ecosystem or harm to a species of special interest that endangers the long-term maintenance of the population.
Medium	• Chronic risks to human health. • Pollution of sensitive water resources (such as leaching of contaminants into controlled waters) causing a significant effect on water quality. • Ecological system effects – Immediate risks of significant damage which may result in substantial adverse changes to the ecosystems functioning or harm to a species of special interest that may endanger the long-term maintenance of the population. • Significant damage to buildings, structures and services (for example foundation damage or rendering the building unsuitable for habitation).
Mild	• Non-permanent health effects to human health (i.e. exposure is unlikely to lead to 'significant harm' in the context of Part 2A of the Environmental Protection Act 1990. • Pollution of controlled waters or non-sensitive water resources (for example non-classified groundwater) that results in a short-lived effect to water quality or a marginal effect on amenity value, agriculture or commerce. • Minor damage to buildings, structures and services. • Ecological system effects – Minor or short-term damage which is unlikely to result in substantial adverse changes to the ecosystems functioning or harm to a species of special interest. • Substantial damage to non-sensitive environments (such as arable farmland for example).
Minor	• No measurable effects on human health including non-permanent health effects to human health that are easily preventable by appropriate use of PPE/RPE. • Minor pollution of controlled waters including non-sensitive water resources with no discernible effects on water quality or ecosystems. • Minor damage to non-sensitive environments (including arable farmland for example). • Easily repairable effects of damage to buildings, structures, services or the environment (for example discolouration of concrete, loss of plants in a landscaping scheme etc.).

4.3 Classification of Probability

Once the possibility of a pollutant linkage has been established (noting that probability classification does not apply when there is no possibility of a linkage being present), the probability should be classified in accordance with Table 3.

TABLE 3 – CLASSIFICATION OF PROBABILITY		
Classification	**Definition**	**Likelihood**
High Likelihood	There is a pollutant linkage and an event is highly likely to occur in the short-term, and is almost inevitable over the long-term OR there is evidence at the receptor of harm or pollution occurring.	>95% likelihood of Consequence Occurring
Likely	There is a pollutant linkage and it is probable that an event will occur. It is not inevitable, but possible in the short-term and likely over the long-term.	50 – 95% likelihood of Consequence Occurring
Low Likelihood	There is a pollutant linkage and circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short-term.	5 – 49% likelihood of Consequence Occurring
Unlikely	There is a pollutant linkage and it is improbable that an event would occur even in the very long-term.	<5% likelihood of Consequence Occurring

4.4 Classification of Risk

In order to establish the relevant risk term applicable to the identified pollutant linkage, one of the risk phrases identified within Table 4 must be adopted, with the definitions of each risk term detailed within Table 5.

TABLE 4 - RISK CLASSIFICATION MATRIX (BASED ON C552 CIRIA, 2001)					
		Consequence of Risk			
		Severe	**Medium**	**Mild**	**Minor**
Probability (Likelihood)	**High Likelihood**	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Negligible
	Unlikely	Moderate/Low	Low	Negligible	Negligible or No Potential Risk

TABLE 5 - RISK CLASSIFICATION DEFINITIONS (BASED ON C552 CIRIA, 2001)	
Very High	There is a high probability that severe harm will 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 are likely to be required.
High	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.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, there is a low likelihood that such harm would be severe, or if any harm were to occur it is more likely that the harm would be 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.
Moderate/Low	It is possible that harm could arise to a receptor. However, a combination of likelihood and consequence results in a risk that is above low but is not of sufficient concern to be classified as moderate. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely. Such harm would at worst normally be mild. The risk is unlikely to present a substantial liability. Some limited further investigation may be required to clarify the risk and any associated liability. If subsequent remediation works are necessary, they are likely to be limited in extent.
Low	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.
Negligible	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is unlikely to be any worse than mild. No liability would be associated with such risks.
No Potential Risk	There is no potential risk or liability where no pollutant linkage has been established.

4.5 Contaminant [C] - Pathway [P] - Receptor [R] Considerations

The following CPR assessment has been undertaken based on the assumption of a residential with plant uptake end-use for the proposed development.

4.6 Consideration of Potential Sources of Contamination [C]

Based on the findings of our desk study works, the potential key sources of contamination at the site that would require consideration for the derivation of a preliminary CSM would be the following:

TABLE 6 – SUMMARY OF POTENTIAL CONTAMINANT SOURCES	
Areas of Potential Concern (APCs)	**Associated Contaminants**
Near Surface Soils (including potential localised Made Ground)	• Metals & Metalloids. • PAHs. • Pesticides and herbicides. • Ground gases (including methane & carbon dioxide).
Off-Site Infilled Features	• Ground gases (including methane & carbon dioxide).

4.7 Consideration of Potential Pathways [P]

The potential pathways at the site are primarily:

- Direct ingestion of soil (either directly or as soil particles attached to produce).
- Inhalation of fugitive dust and vapours.
- Direct skin contact with the ground.
- Direct ground contact with construction materials (including supply pipes).
- Vertical and lateral migration of contamination.
- Vertical and lateral migration of potentially hazardous ground gases/vapours.

4.8 Consideration of Potential Receptors [R]

The potential receptors at the site are:

- The final end users (residents - typically long term (chronic) exposure) and site visitors – (typically short term (acute) exposure).
- The construction personnel (i.e. site workers) involved with the development of the site (typically short term (acute) exposure).
- Neighbouring properties (off-site receptors).
- Controlled Waters (i.e. underlying groundwater and nearby surface waters).
- Buildings and construction materials (including buried utilities).

In preparing this CSM, it has been assumed that construction personnel involved with the development of the site (typically short term (acute) exposure) will adopt all necessary personal protective equipment (PPE and RPE etc.) and conform to health and safety requirements of their site-specific Risk Assessments and Method Statements (RAMS). Site workers have therefore not been included within the following table, as the adoption of these appropriate mitigation measures will result in an overall low risk of exposure to the C-P-R linkages identified.

4.9 Preliminary Risk Assessment / Conceptual Site Model

Our preliminary conceptual model of possible pollutant linkages, applicable to the proposed site usage and based on our current understanding, is summarised in Table 7.

TABLE 7 – PRELIMINARY RISK ASSESSMENT SUMMARY TABLE
DESK STUDY

Potential Contaminant Source [C]	Potential Pathway(s) [P]	Potential Receptor [R]	Probability of CPR Linkage	Consequence of CPR Linkage	Risk Level	Comments / Justification
Near Surface Soils	Direct contact, ingestion or inhalation of fugitive dust	End users	Low Likelihood	Medium	Moderate/Low	No Made Ground is indicated to be present on the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site historically and currently comprises agricultural fields. End users are likely to come into contact with the in-situ soils. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Plant uptake	End users	Low Likelihood	Medium	Moderate/Low	No Made Ground is indicated to be present on the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site historically and currently comprises agricultural fields. End users are likely to come into contact with the in-situ soils. Growing of vegetables for private consumption may be anticipated at the site. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Vertical and lateral migration	Neighbouring properties	Low Likelihood	Medium	Moderate/Low	No Made Ground is indicated to be present on the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site historically and currently comprises agricultural fields. End users are likely to come into contact with the in-situ soils. No sources of potentially mobile contamination have been identified. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.

TABLE 7 – PRELIMINARY RISK ASSESSMENT SUMMARY TABLE DESK STUDY						
Potential Contaminant Source [C]	**Potential Pathway(s) [P]**	**Potential Receptor [R]**	**Probability of CPR Linkage**	**Consequence of CPR Linkage**	**Risk Level**	**Comments / Justification**
	Leaching of contaminants through unsaturated zone and/or vertical and lateral migration	Controlled Waters	Low Likelihood	Mild	Low	No Made Ground is indicated to be present on the site. No potentially significant historical contaminative land uses have been identified at the site. The desk study indicates the site historically and currently comprises agricultural fields. No sources of potentially mobile contamination have been identified. Both the underlying superficial (drift) deposits and bedrock are classified as Unproductive Strata. The site does not lie within a designated SPZ. A drain is present to the immediate north and east of the site. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Direct contact or contact with vapours	Plastic buildings products (e.g. water supply pipes) and buried concrete	Low Likelihood	Mild	Low	No Made Ground is indicated to be present on the site. No potentially significant historical contaminative land uses have been identified at the site that could affect plastic building products. Further consideration of this potential linkage should be provided during the course of the Phase II Exploratory Investigation works.
	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Low Likelihood	Severe	Moderate	No Made Ground is indicated to be present on the site. Peat / organic deposits may be present beneath the site. These deposits may represent potential sources of hazardous ground gases. No radon precautions are required at the site. Further consideration of this potential linkage (including a programme of ground gas monitoring) should be provided during the course of the Phase II Exploratory Investigation works.
Off-Site Infilled Features	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Unlikely	Severe	Moderate/Low	Potential Made Ground potentially associated with infill materials to former drains and ponds around the site may represent potential sources of hazardous ground gases. However, due to the small scale of the features and the distances of the majority of the features to the site, the risk of ground gas generation from these sources are considered to be very low. Further consideration of this potential linkage (including a programme of ground gas monitoring) should be provided during the course of the Phase II Exploratory Investigation works.

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

5.0 GROUND INVESTIGATION

5.1 Introduction

Sub-Surface Utility Avoidance Scan

Prior to the commencement of our intrusive works at the site, a sub-contracted sub-surface utility scan of proposed exploratory hole locations was undertaken to attempt to avoid buried services during the intrusive works. Based on the results of the service scan and taking account of the requirement to avoid buried services, the exploratory holes were positioned to maximise the amount of information obtained at the site.

Trial Pits & Soakaway Testing

A total of twenty-five trial pits (TP1 to TP25) were excavated at the site between 19th and 21st April 2021. The pits were excavated to depths of up to 3.00m below existing ground level (begl).

In addition, four soakaway test pits (SA1 to SA4) were excavated at the site on 26th April 2021, with testing undertaken on the same date. The test pits were excavated to depths of between 0.85m and 1.40m begl.

Cable Percussive Boreholes & Window Sampling Boreholes

Two cable percussive boreholes (BH1 & BH2) were advanced at the site between 26th and 29th April 2021. The boreholes were advanced to a depth of 20.00m begl.

In addition, five window sampling boreholes (WS1 to WS5) were advanced at the site on 7th May 2021. The boreholes were advanced to a depth of 5.00m begl.

Following completion, all of the cable percussive and window sampling boreholes were installed with combined ground gas and water monitoring wells in order to facilitate an initial programme of ground gas and water level monitoring.

Exploratory Hole Locations/Logs

The approximate locations of the exploratory holes are indicated on the plan presented in Appendix VIII of this report (Figure No. D41072/04). The exploratory hole logs are presented in Appendix IX of this report.

We would note that the site boundary was extended to the south after completion of the exploratory investigation works. The additional area comprised a continuation of the agricultural field which formed the western area of the site.

5.2 Ground Conditions

The general ground conditions encountered across the site may be summarised as follows.

5.2.1 Made Ground

Made Ground was not identified in any of the exploratory holes advanced at the site.

5.2.2 Topsoil

Natural Topsoil was encountered at the surface of the exploratory holes to depths of between 0.30m and 0.45m begl.

5.2.3 Natural Strata

Beneath the Topsoil, the Natural Strata typically comprised firm sandy slightly clayey SILT. It should be noted that from a visual perspective, the excavated Silt soils appeared to be cohesive in composition. Underlying the silt soils was a firm silty sandy CLAY. Peat inclusions were noted within the clay at depths below 4.50m begl.

The Clay generally reduced in strength with increased depth, becoming soft below depths of between 1.90m and 2.80m begl.

The cable percussive boreholes encountered a band of peat at approximately 12.50m begl. Underlying the peat soils, loose to medium dense silty slightly gravelly SAND was encountered.

The soils are considered to be typically representative of Tidal Flat Deposits, which are indicated by geological publications to underlie the site.

Underlying the Tidal Flat Deposits was a very stiff gravelly CLAY. These soils are considered to be representative of the Oxford Clay Formation, which are indicated by geological publications to underlie the site.

5.3 Visual & Olfactory Evidence of Soil Contamination

We would note that no obvious visual or olfactory evidence of significant soil contamination was identified during the course of the site works (such as ashy soils, hydrocarbons or asbestos fragments, for example).

5.4 Water

The soils at the site were noted to become gradually damp with depth. Slight water seepages were observed within several of the pits from variable depths below 1.80m begl. Water was locally encountered within the window sampling boreholes, at a depth of approximately 3.00m begl. The cable percussive boreholes encountered water at 14.00m begl.

5.5 Stability

The trial pits were generally stable during excavation and for the short period of time they were left open after completion of excavation.

The cable percussive boreholes were cased to 17.00m begl. The window sampling boreholes were cased to 4.00m begl during their advancement to enable the installation of the monitoring standpipes.

5.6 Plates

A photographic record of the exploratory investigation was obtained during the intrusive works. Selected photographs of the intrusive works are presented on the Plates presented in Appendix X of this report (Plate Nos. 1 to 20).

5.7 Preliminary Soil Infiltration Rates

A total of four soakaway test pits (SA1 to SA4) were constructed at the site. Two soakaway tests (SA2 and SA4) were conducted in deeper pits (i.e. 1.40m and 1.30m begl respectively) to determine the suitability of traditional soakaways for the site. The other two soakaway tests (SA1 and SA3) were conducted in shallower soakaway pits (advanced to 0.85m and 0.90m begl respectively) to determine the suitability of permeable paving as a possible drainage solution for the site as requested by the Client. Testing was carried out over one day on 26th April 2021, with one test in each pit.

The approximate locations of the soakaway pits are included on the plan presented in Appendix VIII (Figure No. D41072/04) of this report and the logs of the soakaway test pit are presented in Appendix IX.

The soil infiltration calculation sheets are included in Appendix XI and are summarised in Table 8.

TABLE 8 – SUMMARY OF INFILTRATION RATES

Soakaway Reference	Preliminary Infiltration Rate
SA1	4.04×10^{-6} m/s
SA2	1.92×10^{-6} m/s
SA3	3.84×10^{-6} m/s
SA4	1.59×10^{-6} m/s

In view of this and based on the limited preliminary testing undertaken, the use of traditional soakaways are considered not likely to be a feasible means of surface water drainage at the site.

Given the infiltration test results in the near surface soils, it is considered appropriate that the Client's drainage Engineer should consider the results in relation to the potential suitability for a permeable paving design.

5.8 Shear Vane Values

Shear vane testing was undertaken within the natural Silt and Clay soils within the trial pits.

Shear vane values obtained at depths in excess of 1.20m begl were taken ex-situ due to health and safety reasons.

A Chart showing the shear vane values in relation to depth recorded in the trial pits is provided on the next page for information. Table 9 shows a summary on the shear vane values between specific depth ranges. Individual shear vane results are provided on the exploratory hole logs included in Appendix IX of this report.

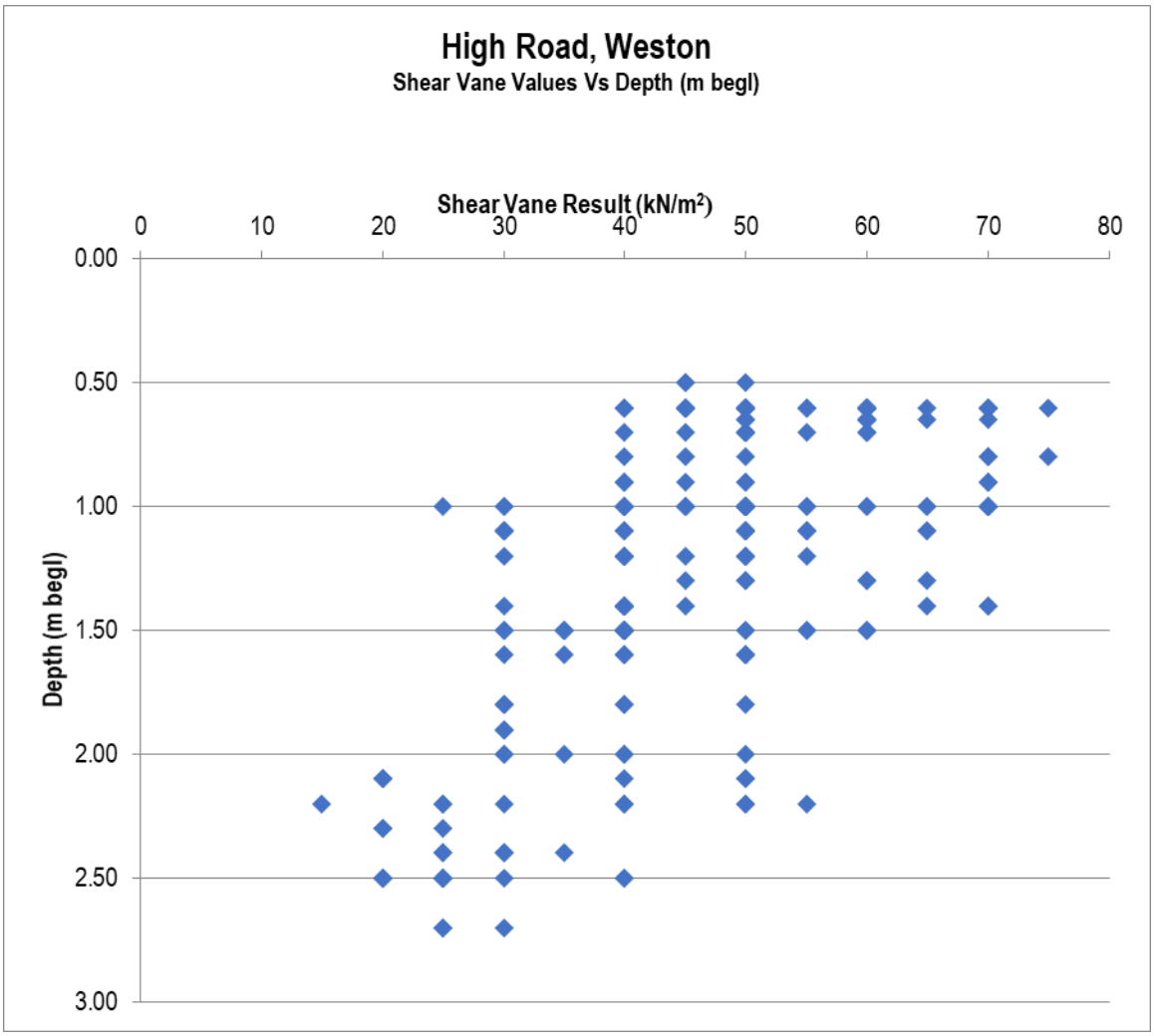


TABLE 9 – SUMMARY OF SHEAR VANE RESULTS			
Depth (m begl)	Minimum SV Reading (kN/m²)	Maximum SV Reading (kN/m²)	Average SV Reading (kN/m²)
0.50 - 1.00	25	75	53
1.10 - 1.50	30	70	44
1.60 - 2.00	30	50	39
2.10 - 2.70	15	55	29

5.9 Standard Penetration Test (SPT) Data

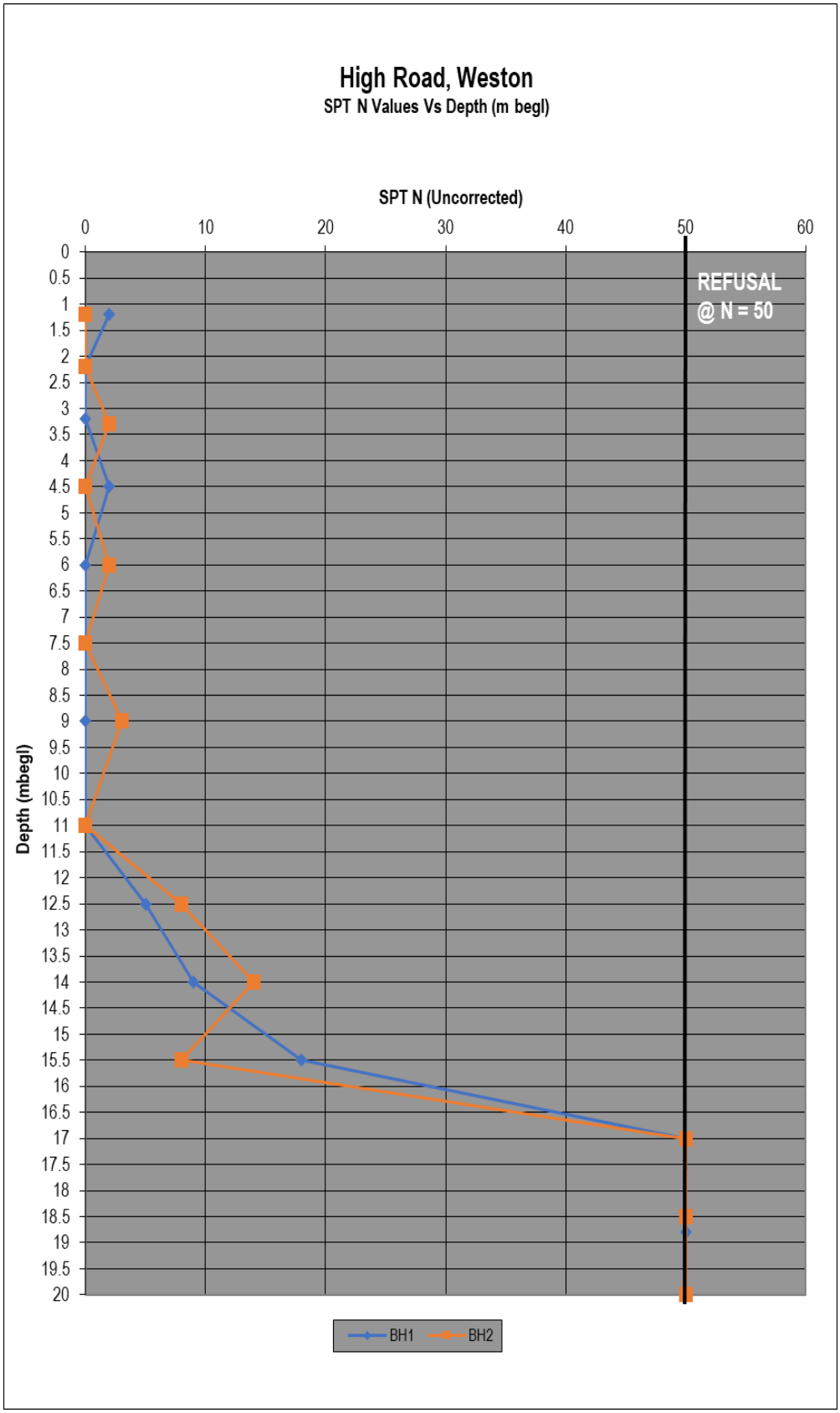
In order to establish a strength/depth profile of the strata beneath the site, SPT testing was undertaken in the cable percussive boreholes.

At depths between of 1.20m and 11.00m begl, uncorrected SPT 'N' values of between 0 and 3 were typically recorded within the Natural Strata.

At depths between of 11.00m and 17.00m begl, uncorrected SPT 'N' values of between 5 and 18 were typically recorded within the Natural Strata.

At depths between of 17.00m and 20.00m begl, uncorrected SPT 'N' values were recorded as refusals (i.e. an SPT value equal to or greater than 50 blows).

An SPT Vs Depth Chart of the data obtained from the boreholes advanced at the site is shown on the chart below.



6.0 LABORATORY TESTING & CONTAMINATION ASSESSMENT

6.1 Introduction

As part of our works a suite of geotechnical laboratory soils testing has been undertaken, which comprised the following:

- 12No. Plasticity Index tests.
- 10No. Water soluble sulphate tests.
- 19No. pH tests.
- 5No. Remoulded Soaked CBR tests.

In addition, environmental soil testing was carried out on visually representative samples recovered from the exploratory holes. The testing strategy was based on the land use assessment and preliminary CSM derived by the desk study works, and was considered sufficient to enable an assessment of the chemical status of the soils at the site. The following testing has been undertaken as part of our works:

- 10No. Contamination suites (including metals, speciated Polycyclic Aromatic Hydrocarbons and Total Organic Carbon).
- 4No. Combined pesticide screens - Organochlorine & Organophosphate (OCP & OPP).

All laboratory soil test results are included in Appendix XII.

6.2 Geotechnical Soil Test Results

Water Soluble Sulphate/pH

Water soluble sulphate testing was undertaken on 10No. samples of the Natural Strata obtained during the site works. The testing revealed water soluble sulphate concentrations of between <10mg/l SO_4 and 182mg/l SO_4 within the samples analysed. The pH values of the samples of soils analysed (excluding topsoil) ranged between 7.99 and 8.58.

In accordance with the Building Research Establishment publication Special Digest 1 '*Concrete in Aggressive Ground*' (2005) the mean of the highest 20% of the sulphate results should be used to indicate the Design Sulphate Class (i.e. 175mg/l SO_4), together with the mean of the 20% lowest of the pH values (8.02).

Therefore, in accordance with Special Digest 1:2005 the site falls into Design Sulfate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1s. This classification has been made based on the assumption of a natural ground location with potentially static groundwater conditions beneath the site.

Plasticity Index Tests

A total of 12No. Plasticity Index tests have been undertaken on selected samples of the visually cohesive near surface Natural Strata obtained during the site works (i.e. Clay and Silt). In accordance with NHBC standards Chapter 4.2 *'Building Near Trees'* and BRE Digest 240 '*Low-rise buildings on shrinkable clay soils: Part 1*' (1993) the reported PI values may be modified based on the portion of the sample passing the 425μm sieve.

The result of the PI analysis is summarised in Table 10.

TABLE 10 – SUMMARY OF PLASTICITY INDEX (PI) DATA				
Sample Ref.	**Reported PI Value (%)**	**Portion <425µm (%)**	**Modified PI Value (%)**	**Volume Change Potential**
TP1, 0.70 – 0.80m (SILT)	Non-Plastic			
TP4, 1.00 – 1.10m (CLAY)	26	100	26	Medium
TP6, 1.00 – 1.10m (CLAY)	25	100	25	Medium
TP10, 0.70 – 0.80m (SILT)	Non-Plastic			
TP16, 0.80 – 0.90m (SILT)	Non-Plastic			
TP17, 2.50 – 2.60m (CLAY)	45	100	45	High
TP19, 1.10 – 1.20m (CLAY)	20	100	20	Medium
TP21, 0.80 – 0.90m (SILT)	Non-Plastic			
BH1, 7.50m (CLAY)	39	100	39	Medium
BH1, 17.00m (CLAY)	18	83	15	Low
BH2, 9.00m (CLAY)	40	100	40	High
BH2, 20.00m (CLAY)	18	80	14	Low

The testing has revealed that the near surface Silt soils analysed may be classified as non-plastic. The testing also revealed that the underlying Clay soils analysed, may be regarded as being of medium to high volume change potential. As stated in Section 5.2.3, from a visual perspective the excavated Silt soils appeared to be cohesive in composition and on this basis, soils of a high volume change potential should therefore be assumed for design purposes.

Remoulded Soaked California Bearing Ratio (CBR) Testing

Remoulded soaked California Bearing Ratio testing was undertaken on 5No. samples of shallow Natural Strata across the site. The results of the recompacted CBR testing are summarised in Table 11 below. CBR values for the top and bottom of the remoulded soaked sample are recorded. The approximate locations of the CBR samples are shown on the plan presented in Appendix XIII (Figure No. D41072/05).

TABLE 11 – SUMMARY OF LABORATORY CBR TEST RESULTS				
Sample Ref.	**Depth (m begl)**	**Initial Moisture Content (%)**	**CBR Value Sample Top (%)**	**CBR Value Sample Bottom (%)**
TP5 (SILT / CLAY)	0.35 – 0.85	55	0.5	0.4
TP7 (SILT)	0.30 - 0.80	24	0.4	0.6
TP12 (SILT)	0.40 – 0.90	29	2.8	3.2
TP15 (SILT)	0.40 – 0.90	26	2.0	4.6
TP25 (SILT)	0.30 – 0.80	27	0.3	0.7

6.3 Contamination Assessment Rationale

We understand that it is proposed to develop the site with low-rise residential properties incorporating private gardens.

6.3.1 Assessment Methodology

In order to undertake a Generic Quantitative Risk Assessment (GQRA) we have adopted the Suitable for Use Levels (S4ULs) published by LQM/CIEH in their publication referenced: Nathanail, C.P., McCaffrey, C. Gillett, A.G., Ogden, R.C. and Nathanail, J.F, 2015. '*The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. All rights reserved.*' In the absence of an S4UL screening value, we have made reference to the Category 4 Screening Levels (C4SLs) published by DEFRA.
In consideration of the available generic land uses utilised in the derivation of the adopted screening criteria, we have adopted a residential end-use with plant uptake scenario for the purposes of our assessments.

For assessment purposes, we have adopted a policy whereby determinands within the dataset are individually compared to the relevant screening value (i.e. individual S4ULs). Where determinands within the dataset are less than the appropriate screening value, the determinand is considered to be present at an acceptable concentration and no further assessment is required. Additional comment, statistical assessment or further Detailed Quantitative Risk Assessment (DQRA) may be provided where elevated values are revealed.

6.3.2 Selection of Soil Organic Matter (SOM) Content

The SOM content and soil type are used to provide an assessment of the applicability of the screening values adopted (the S4UL values are typically based upon SOM of 1%, 2.5% and 6%, as applicable, with all metals derived utilising 6% SOM as standard).

Where available at Tier 1 level, determinands have in the first instance been compared to screening values adopting a conservative SOM of 1%.

Where the determinand exceeds the relevant screening value at 1% SOM, a site-specific SOM may be adopted as appropriate to derive more site-specific screening values and the dataset reassessed.

6.4 Sampling Strategy

The sampling strategy for the site was primarily to retrieve visually representative soil samples from a selection of locations that provide an initial coverage across the site area (where access allowed). It should be noted that following completion of the exploratory investigation works, the site boundary was extended to the south. The additional site area comprised a continuation of the agricultural field which formed the western portion of the site.

The sampling strategy was based on a review of the historical, geological and environmental information obtained from the Desk Study enquiries and the current and proposed site setting together with and the ground conditions encountered during our Phase II exploratory works.

No specific areas of potential concern were identified at the site with respect to ground contamination, other than the potential application of pesticides and herbicides to the agricultural fields. Exploratory holes were therefore advanced to provide general site coverage (of the original site area), taking account the access restrictions and the presence of known buried services.

Table 12 summarises the reasoning behind the exploratory hole positions.

TABLE 12– REASONING FOR EXPLORATORY HOLE LOCATION	
Exploratory Hole Reference	**Reasoning Behind Location**
TP1 – TP25, BH1 & BH2	General site coverage avoiding known utilities.
BH1 & BH2, WS1 – WS5	General site coverage for the purposes of installing ground gas monitoring points.
Key TP – Trial Pit BH – Cable Percussive Borehole WS – Window Sampling Borehole	

The ground conditions encountered during our Phase II works revealed the presence of two distinct types of material, i) Topsoil and ii) the underlying Natural Strata.

Representative samples of these soil types were obtained during our Phase II works and subjected to chemical analysis for a suite of contaminants deemed appropriate based on the findings of the Desk Study and the ground conditions encountered during the intrusive investigation. It is noted that the suite of contaminants detailed in Section 4.6 were considered to remain applicable as an initial chemical screen of the encountered soils following completion of the site investigation works.

6.5 Contamination Analysis

Contamination tests were undertaken on visually representative samples of the natural Topsoil (6No.) and underlying Natural Strata (4No.) obtained from the site during our works.

In addition, four samples of the topsoil across the site were subjected to pesticide analysis.

For initial assessment purposes, we have collated the results into two datasets, for individual comparison of the reported determinand concentrations against appropriate Tier 1 GACs, namely topsoil and the underlying undisturbed Natural Strata.

Please note that screening values have only been used for determinands where they are present at concentrations in excess of the LOD on at least one occasion.

6.6 Contamination Soil Test Results

6.6.1 Topsoil

The contamination assessment for the natural Topsoil at the site is summarised in Table 13.

TABLE 13 – SUMMARY OF TIER 1 GAC ASSESSMENT (TOPSOIL – RESIDENTIAL WITH PLANT UPTAKE END-USE)				
Contaminants – Potentially Harmful to Human Health	**No. of Samples Tested**	**Concentration Range (mg/kg)**	**Tier 1 GAC (mg/kg)**	**Tier 1 GAC Exceeded (Yes/No)**
Metals				
Arsenic	6	<1 – 8	37 S4UL	No
Cadmium	6	<0.5 – 0.6	11 S4UL	No
Chromium III	6	13 – 19	910 S4UL	No
Copper	6	9 – 18	2400 S4UL	No
Lead	6	19 – 71	200 C4SL	No
Mercury	6	<0.17 – 0.37	40 C4SL	No
Nickel	6	9 – 14	130 S4UL	No
Zinc	6	30 – 58	3700 S4UL	No

TABLE 13 – SUMMARY OF TIER 1 GAC ASSESSMENT (TOPSOIL – RESIDENTIAL WITH PLANT UPTAKE END-USE)				
Contaminants – Potentially Harmful to Human Health	**No. of Samples Tested**	**Concentration Range (mg/kg)**	**Tier 1 GAC (mg/kg)**	**Tier 1 GAC Exceeded (Yes/No)**
PAHs				
Benzo(a)anthracene	6	<0.1 – 0.2	7.2 S4UL	No
Benzo(a)pyrene	6	<0.1 – 0.2	2.2 S4UL	No
Benzo(b)fluoranthene	6	<0.1 – 0.2	2.6 S4UL	No
Chrysene	6	<0.1 – 0.1	15 S4UL	No
Fluoranthene	6	<0.1 – 0.4	280 S4UL	No
Indeno(123-cd)pyrene	6	<0.1 – 0.1	27 S4UL	No
Phenanthrene	6	<0.1 – 0.2	95 S4UL	No
Pyrene	6	<0.1 – 0.4	620 S4UL	No
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3026. All rights reserved. C4SL – value for Lead taken from DEFRA publication SP1010 and based on a residential (with home-grown produce) end-use.				

All of the determinands assessed for the Topsoil were present at individual concentrations below the Limit of Detection of the method of analysis adopted by the laboratory or below the appropriate Tier 1 GAC based on a residential with plant uptake end-use.

6.6.3 Natural Strata

The contamination assessment for the Natural Strata at the site is summarised in Table 14.

TABLE 14 – SUMMARY OF TIER 1 GAC ASSESSMENT (NATURAL STRATA - RESIDENTIAL WITH PLANT UPTAKE END-USE)				
Contaminants – Potentially Harmful to Human Health	**No. of Samples Tested**	**Concentration Range (mg/kg)**	**Tier 1 GAC (mg/kg)**	**Tier 1 GAC Exceeded (Yes/No)**
Metals				
Arsenic	4	2 – 6	37 S4UL	No
Chromium III	4	11 – 18	910 S4UL	No
Copper	4	3 – 7	2400 S4UL	No
Lead	4	5 – 11	200 C4SL	No
Nickel	4	9 – 14	130 S4UL	No
Zinc	4	22 – 39	3700 S4UL	No
Key S4UL – CIEH/LQM Suitable 4 Use Levels (2015). Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3026. All rights reserved. C4SL – value for Lead taken from DEFRA publication SP1010 and based on a residential (with home-grown produce) end-use.				

All of the determinands assessed for Natural Strata were present at individual concentrations below the Limit of Detection of the method of analysis adopted by the laboratory or below the appropriate Tier 1 GAC based on a residential with plant uptake end-use.

6.7 Pesticides & Herbicides

Four samples of the Topsoil from across the site were tested for a suite of pesticides and herbicides. The results typically revealed all pesticide and herbicide concentrations were below the Limits of Detection of the method of analysis adopted by the laboratory (<0.01mg/kg, <0.10mg/kg or <0.50mg/kg).

6.8 Contamination Assessment Summary

Human Health

Contamination testing was carried out on selected samples of the Topsoil and the underlying Natural Strata. On the basis of the chemical contamination assessment undertaken, the soils may be considered to be uncontaminated for the proposed residential with plant uptake end-use (i.e. in relation to human health).

We would additionally note that no visual or olfactory evidence of significant contamination was identified during the course of the exploratory investigation works.

Controlled Waters

Given the low contaminant concentrations revealed by the testing, together with the generally low groundwater sensitivity of the area, there are considered to be no specific risks posed to Controlled Waters by the findings of the laboratory analysis undertaken.

7.0 GROUND GAS & WATER LEVEL MONITORING RESULTS

7.1 Introduction

Based on the potential presence of on and off-site sources of potentially harmful ground gas, monitoring points were installed in selected completed boreholes to facilitate an initial programme of monitoring (i.e. for methane and carbon dioxide).

7.2 Monitoring Installations

Five window sampling boreholes (WS1 to WS5) were installed with combined ground gas and water monitoring standpipes to a depth of 5.00m begl to facilitate an initial programme of monitoring. In addition, both of the cable percussion boreholes (BH1 and BH2) were installed within gas and water monitoring standpipes to a depth of 14.00m begl.

The ground gas and water monitoring data obtained from the site is presented in Appendix XIV of this report.

7.3 Results of the Ground Gas Monitoring

An initial six ground gas and water monitoring visits have been undertaken at the site over three calendar months (i.e. May, June and July 2021), as summarised below:

- 10th, 19th and 25th May 2021.
- 3rd and 16th June 2021.
- 6th July 2021.

The ground gas monitoring results are summarised in Table 15.

TABLE 15 – SUMMARY OF GROUND GAS MONITORING DATA

Parameter	Minimum	Maximum
Methane (v/v)	0.0	32.1
Carbon Dioxide (v/v)	0.0	5.6
Oxygen (v/v)	13.0	21.4
Carbon Monoxide (ppm)	0	80
Hydrogen Sulfide (ppm)	0	4
Peak Flow (L/h)	0.0	1.2
Steady Flow (L/h)	0.0	0.0

KEY
v/v - % by volume
L/h – litres/hour

In general, no flow rates were recorded in the majority of the monitoring standpipes installed at the site on most of the monitoring visits. However, peak positive flow rates were recorded in WS3 on three of the monitoring visits, namely on 25th May, 3rd June and 6th July 2021.

The maximum peak positive flow rate of 1.2 litres / hour was detected within WS3 on 3rd June 2021 which reduced to a steady flow rate of 0.0 litres / hour (after approximately 20 seconds). Further peak positive flow rates of 0.6 litres / hour and 0.3 litres / hour were detected within WS3 on 25th May and 6th July 2021 respectively which soon reduced to a steady flow rate of 0.0 litres / hour.

In view of the above, a review of the groundwater levels recorded within WS3 has been carried out. Groundwater was recorded at depths ranging between 0.92m and 1.23m begl within WS3 and the flow rates were all recorded when the groundwater was recorded at its shallowest levels, i.e. between 0.92m and 1.09m begl. The groundwater levels recorded are considered to be above or very close to the interface between the solid and slotted sections of the standpipe.

As stated in industry guidance, flow rates can be affected by changes in groundwater levels with artificial pressure building up in the monitoring standpipe headspace if water levels increase when the gas tap is closed. It can also occur where more permeable strata are confined by low permeability material such as Silt (or Clay) near surface. Given the presence of Silt and Clay above the shallow water levels within WS3 and the interface within the solid and slotted sections of the monitoring standpipe, it is considered that this scenario is therefore more susceptible to artificial flow rates caused by fluctuations in groundwater trapping the air / ground gas under pressure within the available headspace within the monitoring standpipe.

A further factor which appears to support the hypothesis that the fluctuating groundwater levels are causing the most notable flow rates in WS3 are the observations made in WS3 inclusive in terms of gas concentrations recorded. For example, when the maximum peak positive flow rate of 1.2 litres / hour was recorded, only low concentrations of methane (0.1% by volume) and carbon dioxide (1.1 % by volume) were recorded during the monitoring carried out on this visit. It is therefore considered that the flow rate recorded in WS3 is not attributable to ground gas emissions and therefore caused by the air being trapped under pressure in the headspace of the monitoring standpipe by potential groundwater fluctuations.

In addition to the above, consideration has also been given to the potentially effect of atmospheric pressure trends on ground gas emissions and flow rates. Periods of rapidly falling atmospheric pressure are considered to be the optimum barometric conditions for gas emissions from the ground. The initial four gas monitoring visits were all carried out during periods of rising atmospheric pressure. In view of this, the remaining two gas monitoring visits (on 16th June and 6th July 2021) were targeted to periods of falling atmospheric pressure. Both of these monitoring visits were undertaken following periods of relatively rapidly falling pressure (i.e. falls of 12mb and 11mb respectively over the previous 24 hours), with one of these visits (6th July 2021) carried out when the atmospheric pressure had fallen below 1,000mb during the 24 hour period prior to monitoring.

The atmospheric pressure trends are summarised below:

- 10th May – Rise of 1mb.
- 19th May – Rise of 5mb.
- 25th May – Rise of 12mb.
- 3rd June – Rise of 5mb.
- 16th June – Fall of 12mb.
- 6th July – Fall of 11mb.

The highest peak flow rates recorded at the site (in WS3) occurred after the atmospheric pressure rose by 5mb in the 24 hour period prior to monitoring on 3rd June 2021.

No flow rates were recorded during the monitoring visit carried out following the greatest fall in atmospheric pressure of 12mb in the 24 hours prior to monitoring on 16th June 2021. It is considered by GeoDyne that this supports the hypothesis that groundwater fluctuations are likely to have caused the localised flow rates recorded in WS3 at the site.

It should be noted that the highest recorded methane and carbon dioxide concentrations of 32.1% and 5.6% by volume respectively were detected during the monitoring carried out after the atmospheric pressure had fallen in the 24 hours prior to monitoring (by 11mb) on 6th July 2021. The monitoring visit carried out following the greatest fall of atmospheric pressure (of 12mb on 16th June 2021) recorded maximum methane and carbon dioxide concentrations of 1.5% and 3.5% by volume respectively after the atmospheric pressure had fallen by 12mb in the 24 hours prior to monitoring.

Water was recorded during the course of the monitoring programme, at depths ranging between 0.92m and 3.45m begl.

7.4 Appropriate Guidance

7.4.1 British Standard & CIRIA

The results of the gas monitoring have been reviewed with reference to the following documentation:

- British Standard BS 8485 '*Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings*' (2019).
- CIRIA Report C665 '*Assessing risks posed by hazardous ground gases to buildings*' (2007).
- CIRIA Report C735 '*Good practice on the testing and verification of protection systems for buildings against hazardous ground gases*' (2014).

7.4.2 Gas Screening Value Calculation

8485:2015+A1:2019 and CIRIA Report C665 recommend a risk-based methodology to ground gas assessment, the first step of which includes the calculation of a site-specific Gas Screening Value (GSV). The GSV of a particular ground gas regime equates to:

- GSV (l/h) = maximum borehole flow rate (l/h) x (maximum gas concentration/100).

The GSV should be calculated for both Methane and Carbon Dioxide (where appropriate) to determine a site-specific Characteristic Situation for each gas. The higher the calculated GSV, the greater the risk posed by the presence of ground gas. The CIRIA guidance document notes that '*…the GSV is a guideline value and not an absolute threshold*'.

7.4.3 Site Classification

The next step in the assessment process is determining the sites classification. Table 2 of 8485:2015+A1:2019+A1:2019 (reproduced below) presents six Characteristic Situations (CS) to assist in the classification of the site, based on the calculated GSV for Methane and Carbon Dioxide.

Table 2 — *CS by site characteristic GSV*

CS	Hazard potential	Site characteristic GSV [A)] L/h	Additional factors
CS1	Very low	<0.07	Typically <1% methane concentration and <5% carbon dioxide concentration (otherwise consider an increase to CS2)
CS2	Low	0.07 to <0.7	Typical measured flow rate <70 L/h (otherwise consider an increase to CS3)
CS3	Moderate	0.7 to <3.5	–
CS4	Moderate to high	3.5 to <15	–
CS5	High	15 to <70	–
CS6	Very high	>70	–

A) The figures used in this column are empirical.

NOTE The CS is equivalent to the characteristic GSV in CIRIA C665 [6].

7.4.4 Proposed Building Type

In accordance with 8485:2015+A1:2019+A1:2019, the CS classification for the site should be considered in conjunction with the proposed Building Type to determine the appropriate level of ground gas protection measures that should be installed to mitigate the risk posed by ground gases.

8485:2015+A1:2019+A1:2019 notes '*The Building Type is determined based the proposed construction and use of the building, together with the control of future structural changes to the building and its maintenance (the building's management) should be assessed, since potential risks posed by ground gases are strongly influenced by these factors*'.

Subject to the development proposals, each building may be categorised as a whole, or for each different part of the building.

The Building Types presented in Table 3 of 8485:2015+A1:2019+A1:2019, are reproduced below.

Table 3 — *Building types*

	Type A	Type B	Type C	Type D
Ownership	Private	Private or commercial/ public, possible multiple	Commercial/ public	Commercial/ industrial
Control (change of use, structural alterations, ventilation)	None	Some but not all	Full	Full
Room sizes	Small	Small/ medium	Small to large	Large industrial/ retail park style

- **Type A building**: private ownership with no building management controls on alterations to the internal structure, the use of rooms, the ventilation of rooms or the structural fabric of the building. Some small rooms present. Probably conventional building construction (rather than civil engineering). Examples include private housing and some retail premises.
- **Type B building**: private or commercial property with central building management control of any alterations to the building or its uses but limited or no central building management control of the maintenance of the building, including the gas protection measures. Multiple occupancy. Small to medium size rooms with passive ventilation of rooms and other internal spaces throughout ground floor and basement areas. May be conventional building or civil engineering construction. Examples include managed apartments, multiple occupancy offices, some retail premises and parts of some public buildings (such as schools, hospitals, leisure centres) and parts of hotels.
- **Type C building**: commercial building with central building management control of any alterations to the building or its uses and central building management control of the maintenance of the building, including the gas protection measures. Single occupancy of ground floor and basement areas. Small to large size rooms with active ventilation or good passive ventilation of all rooms and other internal spaces throughout ground floor and basement areas. Probably civil engineering construction. Examples include offices, some retail premises, and parts of some public buildings (such as schools, hospitals, leisure centres and parts of hotels).
- **Type D building**: industrial style building having large volume internal space(s) that are well ventilated. Corporate ownership with building management controls on alterations to the ground floor and basement areas of the building and on maintenance of ground gas protective measures. Probably civil engineering construction. Examples are retail park sales buildings, factory shop floor areas, warehouses. (Small rooms within these style buildings should be separately categorized as Type B or Type C).

NOTE 2 Type A buildings are those where the risk of failure of the gas protection measures is likely to be most significant to the safety of the occupants and Type D buildings are those where this same risk is likely to be least significant.

7.4.5 Gas Protection Score (Number of Points to be Achieved)

Table 4 of 8485:2015+A1:2019+A1:2019, reproduced below, should be used to derive the minimum level of gas protection applicable to the Building Type, based on the CS determined from the calculated GSV. The Gas protection Score in Table 4 below is used to determine the level and type of protection measures used.

Table 4 — *Gas protection score by CS and type of building*

CS	Minimum gas protection score (points)			
	High risk		Medium risk	Low risk
	Type A building	Type B building	Type C building	Type D building
1	0	0	0	0
2	3.5	3.5	2.5	1.5
3	4.5	4	3	2.5
4	6.5 [A)]	5.5 [A)]	4.5	3.5
5	— [B)]	[A1] 6 [A1] [A)]	5.5	4.5
6	— [B)]	— [B)]	[A1] — [B)] [A1]	[A1] 6 [A1]

[A)] Residential buildings should not be built on CS4 or higher sites unless the type of construction or site circumstances allow additional levels of protection to be incorporated, e.g. high-performance ventilation or pathway intervention measures, and an associated sustainable system of management of maintenance of the gas control system, e.g. in institutional and/or fully serviced contractual situations.

[B)] The gas hazard is too high for this empirical method to be used to define the gas protection measures.

7.4.6 Methods of Achieving Gas Protection Scores

The appropriate level of precautions, to be designed in accordance with the point scoring system of 8485:2015+A1:2019, should therefore be determined for the specific type of developments based on the GSV and CS of the site. These may include a combination of two or more of the following three types of protection measures, which could be used to achieve the required score:

- The structural barrier of the floor slab, or of the basement slab and walls if a basement is present;
- Ventilation measures; and
- Gas resistant membrane which may include an element of verification and potentially integrity testing.

Verification and integrity testing should be undertaken in accordance with CIRIA report C735 '*Good practice on the testing and verification of protection systems for buildings against hazardous ground gases*' (2014) and would be detailed in a Remediation Method Statement report in advance of construction which should be agreed with the Local Planning Authority.

The points achieved for each element of the ground gas precautions are summarised in Tables 5, 6 and 7 of the British Standard. These tables are reproduced below.

Table 5 — *Gas protection scores for the structural barrier*

Floor and substructure design (see Annex A)	Score [A]
Precast suspended segmental subfloor (i.e. beam and block)	0
Cast in situ ground-bearing floor slab (with only nominal mesh reinforcement)	0.5
Cast in situ monolithic reinforced ground bearing raft or reinforced cast in situ suspended floor slab with minimal penetrations	1 or 1.5 [B]
Basement floor and walls conforming to BS 8102:2009, Grade 2 waterproofing [C] [D]	2
Basement floor and walls conforming to BS 8102:2009, Grade 3 waterproofing [C] [D]	2.5

[A] The scores are conditional on breaches of floor slabs, etc., being effectively sealed.

[B] To achieve a score of 1.5 the raft or suspended slab should be well reinforced to control cracking and have minimal penetrations cast in (see **A.2.2.2**).

[C] The score is conditional on the waterproofing being provided by a suitable structural barrier with the design and detailing of the walls and floor meeting the requirements for Type B protection. The score cannot be assigned for Type A (waterproof membrane) or Type C (drained cavity wall).

[D] If a membrane is installed beneath and around the basement to provide Type A waterproofing (BS 8102:2009), it can be assigned a gas protection score in accordance with Table 7, if it meets all the criteria for a gas resistant membrane in that table.

Table 6 — *Gas protection scores for ventilation protection measures*

Protection element/system	Score	Comments
(a) Pressure relief pathway (usually formed of low fines gravel or with a thin geocomposite blanket or strips terminating in a gravel trench external to the building)	0.5	Whenever possible a pressure relief pathway (as a minimum) should be installed in all gas protection measures systems. If the layer has a low permeability and/or is not terminated in a venting trench (or similar), then the score is zero.

Table 6 *(continued)*

Protection element/system	Score	Comments
(b) Passive sub floor dispersal layer:	2.5	Performance criteria for methane and carbon dioxide are shown in Figure B.6 and Figure B.7, respectively.
Very good performance:	1.5	
Good performance:		
Media used to provide the dispersal layer are: • Clear void • Polystyrene void former blanket • Geocomposite void former blanket • No-fines gravel layer with gas drains • No-fines gravel layer		The ventilation effectiveness of different media depends on a number of different factors including the transmissivity of the medium, the width of the building, the side ventilation spacing and type and the thickness of the layer. The selected score should be assigned taking into account the recommendations in Annex B. Passive ventilation should be designed to meet at least "good performance", see Annex B.
(c) Active dispersal layer, usually comprising fans with active abstraction (suction) from a subfloor dilution layer, with roof level vents. The dilution layer may comprise a clear void or be formed of geocomposite or polystyrene void formers	1.5 to 2.5	This system relies on continued serviceability of the pumps, therefore alarm and response systems should be in place. There should be robust management systems in place to ensure the continued maintenance of the system, including pumps and vents. Active ventilation should always be designed to meet at least "good performance", as described in Annex B.
(d) Active positive pressurization by the creation of a blanket of external fresh air beneath the building floor slab by pumps supplying air to points across the central footprint of the building into a permeable layer, usually formed of a thin geocomposite blanket	1.5 to 2.5	This system relies on continued operation of the pumps, therefore alarm and response systems should be in place. The score assigned should be based on the efficient "coverage" of the building footprint and the redundancy of the system. Active ventilation should always be designed to meet at least "good performance".
(e) Ventilated car park (floor slab of occupied part of the building under consideration is underlain by a basement or undercroft car park)	4	Assumes that the car park is vented to deal with car exhaust fumes, designed to *Buildings Regulations 2000, Approved Document F* [9].

Table 7 — *Gas protection score for the gas resistant membrane*

Protection element/system	Score	Comments
Gas resistant membrane meeting all of the following criteria: • sufficiently impervious [A1] , both in the sheet material [A)] and in the sealing of sheets and sealing around sheet penetrations, to prevent any significant passage of methane and/or carbon dioxide through the membrane; [A1] • sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • [A1] *Text deleted* [A1] • sufficiently strong [A1] [B)] [A1] to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc); [A1] and to withstand in-service stresses (e.g. settlement if placed below a floor slab); [A1] • capable, after installation, of providing a complete barrier to the entry of the relevant gas; and • verified in accordance with CIRIA C735 [N1].	2	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. [A1] *Text deleted* [A1] If a membrane is installed that does not meet all the criteria in column 1 then the score is zero.

[A)] [A1] A membrane with a methane gas transmission rate <40.0 ml/day/m²/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1:2007 manometric method) is regarded as sufficiently impervious.

[B)] For example, reinforced LDPE (virgin polymer) membranes having a minimum mass per unit area of 370 g/m² and not significantly less than 0.4 mm thickness between the reinforcement scrim (tested in accordance with Procedure D (2 mm diameter tip) of BS EN ISO 9863-1:2016) installed above floor slabs are considered sufficiently strong to meet the performance criteria (see also **C.3**). Thicker and more robust membranes or an additional membrane protection layer should be installed directly beneath cast-in-situ floor slabs. [A1]

7.5 Ground Gas Analysis

7.5.1 Gas Screening Value & Site Classification

The ground gas monitoring undertaken at the site has identified a maximum methane concentration of 32.1% by volume and a maximum carbon dioxide concentration of 5.6% by volume. With regard to flow rates, for the purposes of the ground gas risk assessment BS8576:2013 states that *"steady state flow rates, rather than brief peak values on opening, should be used in screening risk assessments, if these are considered to be representative of the conceptual site model"*. In view of this and given that the maximum positive peak flow rates are considered to be artificially high due to groundwater level changes (in WS3) it is considered that the unusually high peak flow rates should be discounted and the maximum steady state flow rate utilised within the ground gas risk assessment. Measurable steady flow rates were not recorded during the monitoring visits. In the absence of a measurable steady flow rate, the limit of detection of the gas monitoring instrument (0.1 l/h) should be utilised.

The GSV for methane at the site may be calculated as follows:

- 0.1 x (32.1 / 100) = 0.0321 l/h

The GSV for carbon dioxide at the site may be calculated as follows:

- 0.1 x (5.6 / 100) = 0.0056 l/h

Therefore, with a maximum GSV of 0.0321 l/h, a methane concentration of 32.1%, a maximum carbon dioxide concentration of 5.6% by volume and no measurable steady flow rates, the site may be classified as 'CS1' in accordance with Table 2 of BS 8485 and based on the visits undertaken. However, where methane concentrations exceed 1% by volume and carbon dioxide concentrations exceed 5% by volume, the British Standard recommends that consideration should be given to increasing the ground gas regime from CS1 to CS2. Based on the monitoring results obtained at the site, methane concentrations of 1% by volume or greater were recorded within up to three of the monitoring points on three occasions at the site. Carbon dioxide concentrations of greater than 5% by volume were recorded within two of the monitoring points on one occasion at the site. In view of the recorded methane and carbon dioxide concentrations, it is recommended that the site is uplifted to 'CS2'.

In addition to the above, the following assessment has been made in relation to the carbon monoxide and hydrocarbon sulphide concentrations recorded at the site. As far as we are aware, there is presently no UK published guidance on maximum permissible concentrations of carbon monoxide or hydrogen sulphide originating from ground investigation well installations (either as a maximum concentration or gas screening value). BS 8576:2013 *'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs)'* (Table D.1 'Effects of carbon monoxide') provides thresholds for CO concentrations beyond which health effects may occur. These include headache and dizziness within six to eight hours of constant exposure above 35ppm and a slight headache in two to three hours for exposures above 100ppm. The Long-Term Exposure Limit (LTEL) for an eight-hour period is listed within BS8576:2013 as 30ppm (based on The Health and Safety Executive guidance EH40:2005) and the Short-Term Exposure Limit (STEL) over a fifteen-minute period is listed as 200ppm. The guidance notes that the UK National Air Quality Objective is 8.6ppm as a maximum daily running eight-hour mean.

It is noted that the HSE EH40/2005 *'Workplace exposure limits'* document was updated in 2018 (August) as a Third Edition, which also identified the use of Biological Monitoring Guidance Values (BMGVs) which are based either on biological concentrations and health effects, between biological concentrations and exposure at the level of the Workplace Exposure Limit (WEL), or on data collected from a representative sample of workplaces correctly applying the principles of good occupational hygiene practices. The BMGV value of carbon monoxide is stated as 20ppm, albeit the EH40 publication notes that *'BMGVs are nonstatutory…[and] where a BMGV is exceeded, it does not necessarily mean that any corresponding airborne standard has been exceeded or that ill health will occur.'*

For the purposes of our assessment, we have utilised a carbon monoxide screening value of 30ppm. The gas monitoring carried out on one occasion (10th May 2021) revealed carbon monoxide concentrations within three of the monitored wells (WS2, WS3 and WS5) were above the 30ppm 8-hour Long-Term Exposure Limit (LTEL) adopted for assessment purposes.

With regard to hydrogen sulphide, BS 8576:2013 Section D.2.4 states that the Air Quality Guidelines for Europe indicates that 10 – 20ppm is the threshold for eye irritation; and 50 – 100ppm can result in serious eye damage; along with other effects within increased concentrations. The Long-Term Exposure Limit (LTEL) for an eight-hour period is listed within BS8576:2013 as 5ppm (based on The Health and Safety Executive guidance EH40:2005) and the Short-Term Exposure Limit (STEL) over a fifteen-minute period is listed as 10ppm.

For the purposes of our assessment, we have utilised a hydrogen sulphide screening value of 5ppm. None of the hydrogen sulphide concentrations recorded during the programme of monitoring exceeded 5ppm, with a maximum of 4ppm recorded.

7.5.2 Building Type

We understand that it is proposed to construct low-rise residential properties at the site. In accordance with Table 3 of BS 8485, **Building Type A** is considered to be the most appropriate classification.

7.5.3 Gas Protection Score

On the basis of Characteristic Situation (CS2) and the development proposals with structures that may be designated as Building Type A and in accordance with Table 4 of BS 8485:2015+A1:2019, the minimum gas protection score for the site is 3.5 points.

7.5.4 Comments

In summary, notable concentrations of methane and carbon dioxide have been detected at the site, but no significant flow rates have been recorded during the programme of gas monitoring undertaken. It is considered that the methane and carbon dioxide concentrations are likely to be attributable to the peat inclusions and pockets / horizons within the Tidal Flat Deposits.

The results of the gas monitoring indicate that **CS2** ground gas precautions will be required within the proposed plots based on a gas protection score of 3.5 points and in accordance with BS 8485 (2015+A1:2019). Further comments are contained within Section 9.5 of this report. It is considered that the recommended ground gas precautions should also be protective against the carbon monoxide and hydrogen sulphide concentrations recorded.

8.0 REVISED CONCEPTUAL SITE MODEL

8.1 Introduction

In accordance with the approach detailed within Section 4.0, the Conceptual Site Model (CSM) for the site should be refined following acquisition and collection of additional data following completion of the site investigation works.

Our revised assessment following the acquisition and collection of information from the site investigation works is provided in Table 16.

In preparing this CSM, it has been assumed that construction personnel involved with the development of the site (typically short term (acute) exposure) will adopt all necessary personal protective equipment (PPE and RPE etc.) and conform to health and safety requirements of their site-specific Risk Assessments and Method Statements (RAMS). Site workers have therefore not been included within the following table, as the adoption of these appropriate mitigation measures will result in an overall low risk of exposure to the C-P-R linkages identified.

TABLE 16 – REVISED RISK ASSESSMENT SUMMARY TABLE PHASE II EXPLORATORY INVESTIGATION							
Potential Contaminant Source [C]	**Potential Pathway(s) [P]**	**Potential Receptor [R]**	**Probability of CPR Linkage**	**Consequence of CPR Linkage**	**Risk Level**	**Comments / Justification**	**Residual Risk After Remedial / Mitigation Measures**
Near Surface Soils	Direct contact, ingestion or inhalation of fugitive dust	End users	Unlikely	Medium	Low	Made Ground was not encountered at the site. The soils may be regarded as uncontaminated, based on a residential with plant uptake end-use and the testing undertaken.	Low – as per 'Risk Level'
	Plant uptake	End users	Unlikely	Medium	Low	Made Ground was not encountered at the site. The soils may be regarded as uncontaminated, based on a residential with plant uptake end-use and the testing undertaken.	Low – as per 'Risk Level'
	Vertical and lateral migration	Neighbouring properties	Unlikely	Mild	Negligible	Made Ground was not encountered at the site. The soils may be regarded as uncontaminated, based on a residential with plant uptake end-use and the testing undertaken. No sources of potential mobile hydrocarbon contamination have been identified and there was no obvious visual or olfactory evidence of any significant contamination (e.g. hydrocarbon impacted soils).	Negligible – as per 'Risk Level'
	Leaching of Contaminants through unsaturated zone and/or vertical and lateral migration	Controlled Waters	Unlikely	Mild	Negligible	Made Ground was not encountered at the site. The soils may be regarded as uncontaminated, based on a residential with plant uptake end-use and the testing undertaken. No sources of potential mobile hydrocarbon contamination have been identified and there was no obvious visual or olfactory evidence of any significant contamination (e.g. hydrocarbon impacted soils).	Negligible – as per 'Risk Level'
	Direct contact or contact with vapours	Plastic buildings products (i.e. water supply pipes) and buried concrete	Unlikely	Mild	Negligible	Made Ground was not encountered at the site. No sources of potentially mobile hydrocarbon contamination have been identified and there was no obvious visual or olfactory evidence of any significant contamination (e.g. hydrocarbon impacted soils). Contamination testing has not revealed concentrations of contaminants which may pose a risk to buried services. Design Class DS-1/ACEC Class AC-1. (BRE Spec. Digest 1:2005).	Negligible – as per 'Risk Level'
	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Low Likelihood	Severe	Moderate	Based on the ground gas monitoring undertaken, the site may be classified as Characteristic Situation 'CS2' in accordance with BS8485:2015+A1:2019. **Gas protection measures required at the site.**	Low
Off-Site Infilled Features	Vertical and lateral migration of ground gases to indoor air	End users of new buildings (asphyxiation) or new buildings (damage via explosion)	Low Likelihood	Severe	Moderate	Based on the ground gas monitoring undertaken, the site may be classified as Characteristic Situation 'CS2' in accordance with BS8485:2015+A1:2019. However, it is considered that the ground gas concentrations recorded during the programme of monitoring are associated with on-site sources (i.e. peat deposits) rather than an off-site source. **Gas protection measures required at the site.**	Low

9.0 CONCLUSIONS & RECOMMENDATIONS

9.1 Site Summary

At the time of our works (April 2021), the site essentially comprised a field separated into a deer paddock and an agricultural field. Based on the reviewed historical information, the site has comprised fields since the earliest available historical maps of the 1880s.

The site is indicated to be underlain by superficial drift comprising Tidal Flat Deposits. The underlying bedrock is indicated to comprise the Oxford Clay Formation.

9.2 Geotechnical Information

9.2.1 Ground Conditions

Made Ground was not encountered in any of the exploratory holes at the site.

Topsoil was encountered at the surface in all of the exploratory holes to depths of between 0.30m and 0.45m.

Beneath the Topsoil, the Natural Strata typically comprised firm sandy SILT underlain by firm silty sandy CLAY, which became softer with depth.

Peat was encountered at approximately 12.50m begl in the deeper boreholes up to a thickness of 0.90m, underlain by silty slightly gravelly SAND to 17.00m begl.

The silt, clay, peat and sand deposits are considered to be typically representative of Tidal Flat Deposits. Underlying the Tidal Flat Deposits was a very stiff gravelly CLAY considered to be representative of the Oxford Clay Formation.

9.2.2 Foundation Design

Foundations for the proposed development are likely to comprise Structural Engineer designed strip or raft foundations (to suit the loading characteristics of the proposed structures and incorporate mesh reinforcement, if considered appropriate).

The natural soils underlying the site at shallow depth, appear suitable to support a nett allowable ground bearing pressure of up to 75kN/m^2. This bearing pressure is considered appropriate due to the presence of underlying Tidal Flat Deposits, which have the potential to alter rapidly in character and geotechnical properties both laterally and vertically over relatively short distances and contain variable groundwater conditions/levels.

Based on laboratory test results, the soils may be considered to be of high volume change potential for design purposes. Therefore, in all circumstances, foundations should be advanced to a minimum depth of 1.00m below existing or proposed ground level (whichever being the deeper) and founded within undisturbed suitably competent natural soils.

Should any potential localised Made Ground, disturbed ground or soft spots be encountered at founding depth, foundations will require further deepening to encounter underlying undisturbed suitably competent natural soils.

The use of a deeper founding solution (i.e. piles, for example) may need to be considered if there is a need to raise site levels and/or where excessive loads from buildings are present and shallow foundations are not deemed appropriate, subject to advice from a Structural Engineer.

We would note that the natural soils become soft and gradually damp with depth (i.e. at depths generally in excess of approximately 1.90m begl). It is important to ensure that all foundation excavations are kept as shallow as possible to avoid potential decreased in soil strength from affecting foundation integrity.

The use of piles at the site would be subject to advice from a specialist piling contractor to confirm the depths of the piles and the most feasible and cost-efficient type of pile to be used at the site. It should be noted that the deep cable percussion boreholes advanced as part of the Phase II works should assist with any potential pile design.

A further consideration as an alternative to strips / rafts may be the use of ground improvement by vibro stone columns. However, the soft nature and the depth of the soft soils (typically encountered at depths in excess of 1.90m begl), along with the high volume change potential of the Natural soils, may preclude the use of this technique. Advice from a specialist contractor should be sought to confirm the feasibility of ground improvement at the site, if necessary.

9.2.3 Floor Slab Design & Ground Gases

Based on the results of the ground gas monitoring undertaken at the site, it is considered that gas protection measures should be afforded to the proposed development at the site. Based on the information obtained from the site, it is recommended that gas protection measures corresponding to Characteristic Situation CS2 (in accordance with Table 4 of 8485: 2015+A1:2019) should be appropriate. The minimum gas protection score for CS2 is 3.5 points.

Typically, the following mitigation measures are considered appropriate to achieve the required level of protection to dwellings:

- Suspended floors (i.e. beam and block / beam and thermal insulation infill) – 0 Points.
- Provision of a clear ventilated void and periscopic air-brick ventilation and sub-floor cross ventilation – 1.5 Points (Good Performance Clear Void Dispersal Layer).
- To achieve a Very Good Performance Clear Void Dispersal Layer (2.5 points) in accordance with BS8485, the number of side vents (i.e. air-bricks) for a small to medium width buildings (up to 15m) should be 1500mm^2/m run of wall on at least two sides, or 500mm^2 per square metre of floor area, whichever gives the greater area of opening. The minimum clear void space should be 100mm and there should be four or five times the area of the side vents provided to the internal obstructions (i.e. beams) to provide sub-floor cross ventilation.
- Provision of a well installed and verified low permeability proprietary gas resistant membrane (2 Points).
- The membrane should have proven resistance to the ground gases of concern, including methane (as well as carbon monoxide). The membrane should be suitably lapped and sealed and should be extended across wall cavities and lapped with cavity trays to effectively exclude ground gases from the footprint of the proposed buildings. The membrane should be inspected by a third party in accordance with the requirements of CIRIA C735.
- The membrane must be suitably robust to withstand the construction process and should be suitably protected following installation and inspection to minimise damage during construction.
- Service penetrations through the membrane should be kept to a minimum and should be suitably sealed to the membrane. Where the service penetrations (typically 150mm pipes) are to be used as ducting for smaller service pipes (e.g. water, electricity or gas supply etc.) an appropriate method of sealing the smaller pipes within the ducting should be adopted (such as closed cell expanding foam), to minimise the risk of the ducting acting as a conduit for ground gases to enter the dwellings.

The foregoing precautions would score 3.5 Points (based on a Good Performance Clear Void Dispersal Layer) in accordance with BS8485 (2015+A1:2019) and are therefore considered appropriate for the plots.

Alternative floor slab and ground gas protection measures that give a minimum protection score of 3.5 Points may be adopted at the site, to suit the requirements of the Client and subject to Local Authority approval. However, the above recommendations are based on the understanding from the Client that a shallow foundation solution is to be adopted at the site (i.e. Structural Engineer designed strip or raft foundations). If this is not the case, then the conceptual site model (in relation to the ground gas regime) and the recommended gas protection measures may require revision and amendment.

In order to accord with Table 7 of BS8485 where a gas resistant membrane is proposed as part of gas protection measures, the membrane should be installed, inspected and validated by a third party in accordance with the requirements of CIRIA C735 *'Good practice on the testing and verification of protection systems for buildings against hazardous ground gas'* (2014), for the gas protection points associated with installation of a gas resistant membrane to apply.

We would recommend that the membrane specified for the proposed buildings is installed by a suitably qualified specialist contractor in a quality controlled / quality assured (QA/QC) manner.

Verification of the membrane should include a third party visual inspection of the installed membrane, as a minimum, and may require integrity testing such as air lancing of the joints, dependent on the qualifications of the installer and the characteristic situation of the site. Otherwise a score of zero is awarded for the membrane and therefore the installed solution would fail to comply with BS 8485.

Once the design of ground gas precautions for the site have been finalised, we would recommend that a site specific Verification Plan is prepared in accordance with CIRIA guidance, to assist with verification of the gas protection measures.

Where the proposed dwellings are to benefit from a Buildmark warranty (i.e. NHBC, or similar) we would recommend liaison with the warranty provider with respect to the floor slab design and ground gas protection measures to ensure that the proposals fully satisfy their requirements.

9.2.4 Radon

No radon precautions are required at the site.

9.2.5 Building Near Trees

Foundation designs (including floor slabs) will need to be adjusted where building near existing, proposed or recently removed trees and hedgerows, in accordance with NHBC Standards Chapter 4.2 *'Building near trees'*. The geotechnical laboratory test results have revealed the cohesive soils to be of low to high volume change potential. Therefore it is recommended that soils of high volume change potential should be assumed for design purposes.

We would recommend that an arborist survey is undertaken to identify the species and heights of the existing trees within influencing distance of the site to enable a foundation schedule to be produced, where necessary.

9.2.6 Water

On the basis of the water level information obtained during the advancement of exploratory holes and the subsequent monitoring, water is likely to be encountered within excavations for construction purposes at the site and dewatering of excavations may be necessary.

Dewatering of excavations is considered more likely at the site if excavations are left open for a period of time (i.e. prior to the pouring of concrete and / or laying of drainage materials, for example) as water (held within the surrounding low permeability soils) will gradually seep / ingress into open excavations after relatively short periods. The low permeability soils at the site are also susceptible to standing water following periods of wet weather, which will increase the likelihood of needing to dewater.

The site is underlain by Tidal Flat Deposits and these deposits extend across much of South Lincolnshire and into Cambridgeshire. We have many years of experience of undertaking ground investigations on sites underlain by Tidal Flat Deposits in these regions. These soils are typically cohesive in nature and of generally low permeability. The soils encountered in trial pits advanced within these deposits generally become damper / water bearing with depth. Whilst there may be no initial evidence of water seepage/ingress within trial pits immediately upon completion of excavation, water eventually finds its way into the pits if they are left open for several minutes. This is supported by the water levels encountered within monitoring wells, which often record shallow water within the Tidal Flat Deposits during periods of monitoring.

9.2.7 Excavations / Stability

The trial pits were generally stable during excavation and for the short period of time they were left open after completion of excavation. The assessment of excavations and provision of support will be the responsibility of the contractor on site.

The natural soils may be subject to deterioration and softening if excavations are left open and exposed to wet weather. Any softened soils should be removed from excavations prior to the pouring of concrete.

9.2.8 Sulphate Classification

In accordance with BRE Special Digest 1 (2005), the site falls into Design Sulphate Class DS-1 and an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-1.

Therefore, an appropriate concrete mix should be adopted in accordance with BRE Special Digest 1 for all buried concrete in contact with the ground.

9.2.9 Coal Mining

No coal mining precautions or associated investigation works are required at the site.

9.2.10 California Bearing Ratios (CBRs)

The remoulded soaked CBR testing has revealed CBR values for the Natural Strata between 0.3% and 4.6%. No frost susceptible material should be within 450mm of the ground surface in road construction.

9.2.11 Surface Water Drainage

Based on the limited preliminary testing undertaken, the use of traditional soakaways are considered not likely to be a feasible means of surface water drainage at the site.

Given the infiltration test results in the near surface soils, it is considered appropriate that the Client's drainage Engineer should consider the results in relation to the potential suitability for a permeable paving design.

9.3 Environmental Considerations

9.3.1 Soil Contamination Assessment

Contamination testing was carried out on selected samples of the surface Topsoil and the underlying Natural Strata.

Human Health

On the basis of the chemical contamination assessment undertaken, the soils may be considered to be uncontaminated in the context of the proposed end-use (i.e. in relation to human health).

We would note that no obvious visual or olfactory evidence of significant soil contamination was identified during the course of the site works.

Controlled Waters

Given the low contaminant concentrations revealed by the testing, there are considered to be no specific risks posed to Controlled Waters by the findings of the laboratory analysis undertaken.

9.3.2 Remediation Proposals / Re-Use of Soils

No specific remediation works will be required other than the provision of existing topsoil in proposed gardens and any other areas of soft landscape to provide a suitable growing media for plants. It may be necessary to increase the thickness of topsoil around the root balls of trees to suit the proposed planting regime.

9.3.3 Gardens & Areas of Soft Landscape

The existing topsoil at the site is considered chemically suitable for re-use within the proposed development (based on laboratory testing). The physical suitability of these soils should be assessed and determined on site by the developer.

Should there be a requirement to import topsoil to the site (although unlikely), it will be necessary to test the topsoil at source to ensure it is suitably clean (prior to importation) in accordance with CLEA/generic guidance. The topsoil should also conform to BS3882: 2015 '*Specification for topsoil*', with respect to the presence of foreign objects, and ideally nutrient levels etc. The results of the chemical analysis on topsoil proposed for importation should be forwarded to the Local Authority (Environmental Health Officer) for approval (prior to importation).

9.3.4 Re-use of Existing Natural Strata

The Natural Strata may be regarded as suitable for re-use within proposed gardens or areas of soft landscape as subsoil (to raise levels, as appropriate) or for landscaping/capping on alternative developments (subject to regulatory approval and the production of any necessary plans or permits) where surplus arisings are generated from the site.

9.3.5 Off Site Disposal & Waste Acceptance Criteria Testing

Excess uncontaminated soils (for example underlying Natural Strata) should be regarded as a potential asset and we would recommend that the re-use of excess uncontaminated soils on site or off-site is investigated in the first instance (subject to appropriate permits, plans and registrations etc).

If off-site disposal is required the chemical testing regime can be different to the chemical testing required to assess the suitability of the soils for retention on site and the risks to human health. Therefore, a separate contamination assessment may be required to include bespoke leachate analysis (i.e. Waste Acceptance Criteria [WAC] testing) to classify the soils for off-site disposal with testing criteria to assess whether the soil is hazardous, non-hazardous or inert waste. However, the existing chemical test data will assist this process.

If disposal is necessary then the environmental laboratory test results (included within Appendix XII) should be provided to several landfill operators for consideration and cost provision in the first instance, prior to the material being removed from the site.

9.4 General Considerations

9.4.1 Construction Workers

No contamination has been identified that requires specific PPE. However, it is recommended that construction personnel involved with direct contact with the soils at the site use appropriate PPE equipment (i.e. boots, gloves and overalls) together with hygiene facilities in accordance with general health and safety guidelines.

A copy of this report should be included in the site health and safety file, and site workers should be made fully aware of the sites setting.

9.4.2 Utilities

Prior to development of the site, we would recommend that a copy of this report is supplied to utility companies, and that their recommendations relating to appropriate supply pipes are adhered to.

With regard to water supply pipes, based on conversations with Anglian Water (regarding other sites being developed by Ashwood Homes), it is anticipated that this site would be classified as ‘Greenfield’ by Anglian Water and standard water supply pipework would be suitable. It is recommended that confirmation of this should be obtained from Anglian Water.

9.4.3 Unforeseen Circumstances

Should any areas of potentially contaminated soil be encountered during site construction works we would recommend consultation with GeoDyne to ensure that our recommendations continue to apply. Any potentially contaminated soils should be left in-situ and subjected to further assessment, to potentially include further chemical testing and risk assessment.

The following procedure should be adhered to if any areas of previously unidentified suspected contamination are encountered during the development of the site:

i. Suspected contaminated material will remain in-situ.
ii. GeoDyne to be notified. We will then undertake a visual assessment of the possible contamination, followed by appropriate sampling/testing (as necessary).

iii. If necessary, contamination will then be treated or removed from site. All necessary remediation works should be validated by testing in accordance with an approved strategy, with the relevant Regulators informed accordingly.

9.4.4 Flood Risk

The desk study information has revealed the site to lie within an area identified as being at risk of flooding. It is recommended that advice be sought from a Drainage Consultant with respect to this matter.

9.4.5 Licenses, Permits, Registrations, Plans and Approvals

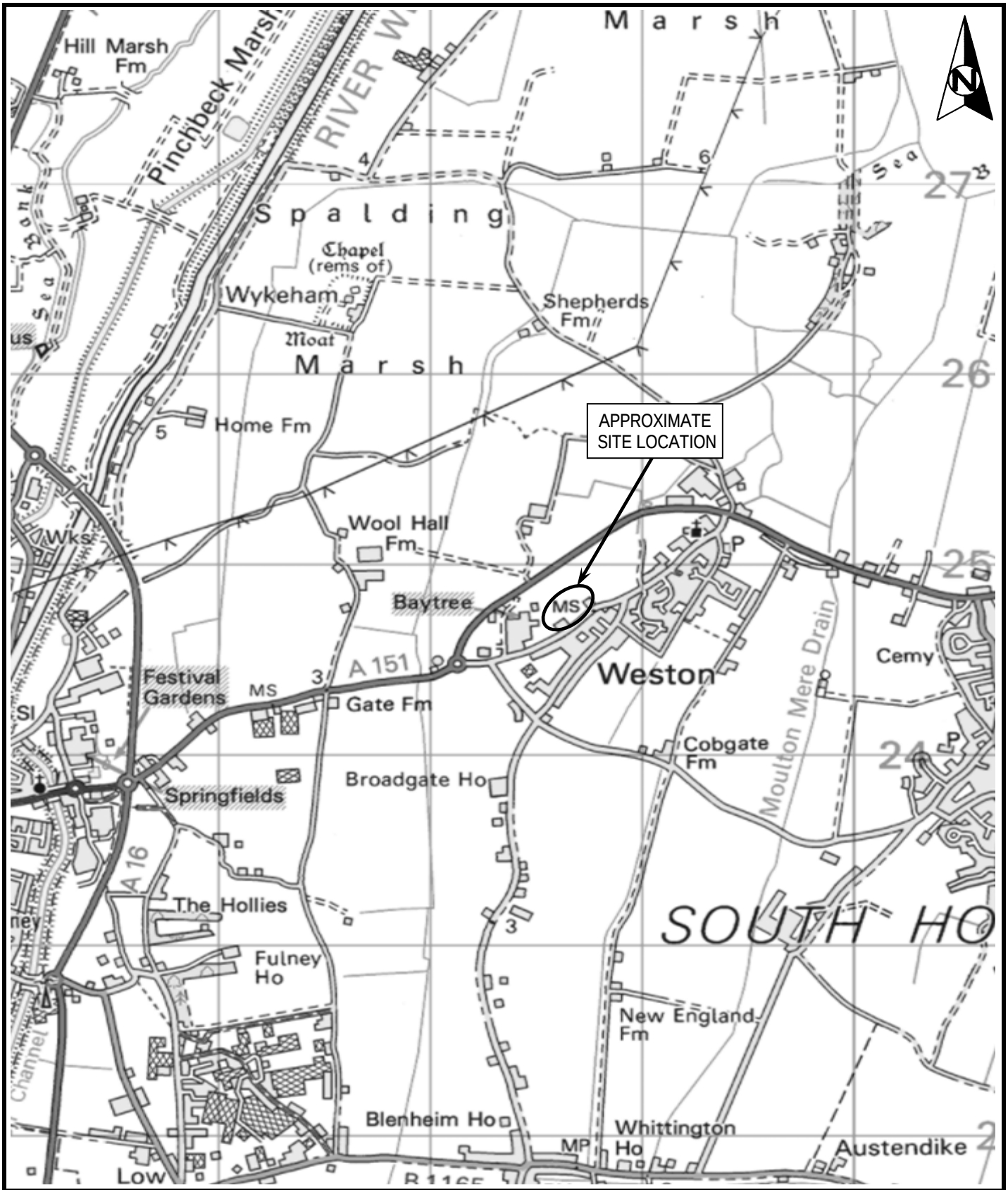
The Contractor/Developer is responsible for, and must ensure that, all necessary licenses, permits, plans, registrations and approvals are in place prior to commencing with the construction works at the site. These may include any Materials Management Plans (MMPs), Site Waste Management Plans (SWMPs) and/or Environmental Permits/Exemptions as necessary to enable the completion of the proposed works. Any MMP should be accompanied by a Qualified Person Declaration (QPD) and will require verification in due course.

9.4.6 Statutory Consultation

In accordance with normal planning requirements, we would recommend that a copy of our report is issued by the Client to the Local Authority (and NHBC or other Warranty Provider, if necessary) for review/comment and approval prior to commencing with the development of the site.

APPENDIX I

Site Location Plan
(Figure No. D41072/01)



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Project No.	D41072	Drawn	SJ
Client	Ashwood Homes	Checked	GH
Project	High Road Weston	Approved	DB
		Scale	NTS
		Date Drawn	07/06/2021
Title	Site Location Plan	Rev.	
		Figure No.	D41072/01

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APPENDIX II

Preliminary Development Layout

528500E

528800E

Ditch

ATTENUATION AREA

DRAINAGE EASEMENT

DRAINAGE EASEMENT

Ditch

Ditch

Ditch

Ditch

Bridle

Wall

Footway

Kerb

Kerb

High Road

Footway

Kerb

Road

MS

163

178

178a

4

183

184

186

KEY:

SITE BOUNDARY:

1800mm Facing Brick wall: (brick to match adjacent property)

Bin Collection Areas: Refuse/recycling Collection areas

Front boundaries to High Rd: 900mm Post and rail fence.

Rear boundary wall 1800mm Facing brick to match adjacent property:

Frontage walls to High Road: 900mm facing brick:

Affordable Housing
Affordable Rent: *

Shared Ownership: *

SCHEDULE:

Unit	Beds	Storey	SqFt	Parking	No
Market					
Dee	2	2	732	ps	8
Clyde	3	2	783	sg	2
Aire	3	2	870	sg	2
Avon	3	2	910	sg	4
Nene	3	2	1,077	sg	4
Mere	3	2	1,079	sg	7
Lock	3	2	1,079	sg	12
Ribble	4	2	1,283	dg	2
Severn	4	2	1,339	sig	2
Stamford	4	2	1,546	dg	2
Tay	4	2	1,770	dg	4
Ouse	4	2	1,814	dg	2
			Sub-Total		**51**
Affordable Housing 25%					
A516	1	2	516	ps	4
A732	2	2	732	ps	10
A902	3	2	902	ps	3
			Sub-Total		**17**
				Total	**68**

REVISIONS:

Rev A: Survey data added, easement lines adjusted. 11.5.21
Rev B: Affordable provision adjusted, frontage plots added. 19.7.21

NKW DESIGN
45 York Road
Wallaston
Northamptonshire
NN29 7SG
T: 01933 666130
M: 07957 837164
E: nick@nkwdesign.co.uk

PROJECT: HIGH ROAD, WESTON, SPALDING

TITLE: PRELIMINARY PLANNING LAYOUT

CLIENT: ASHWOOD HOMES
1 GOLDSON ROAD, LINCS GATEWAY BUSINESS PARK
SPALDING, LINCOLNSHIRE
PE12 6 FY 01406 490590

PRELIMINARY

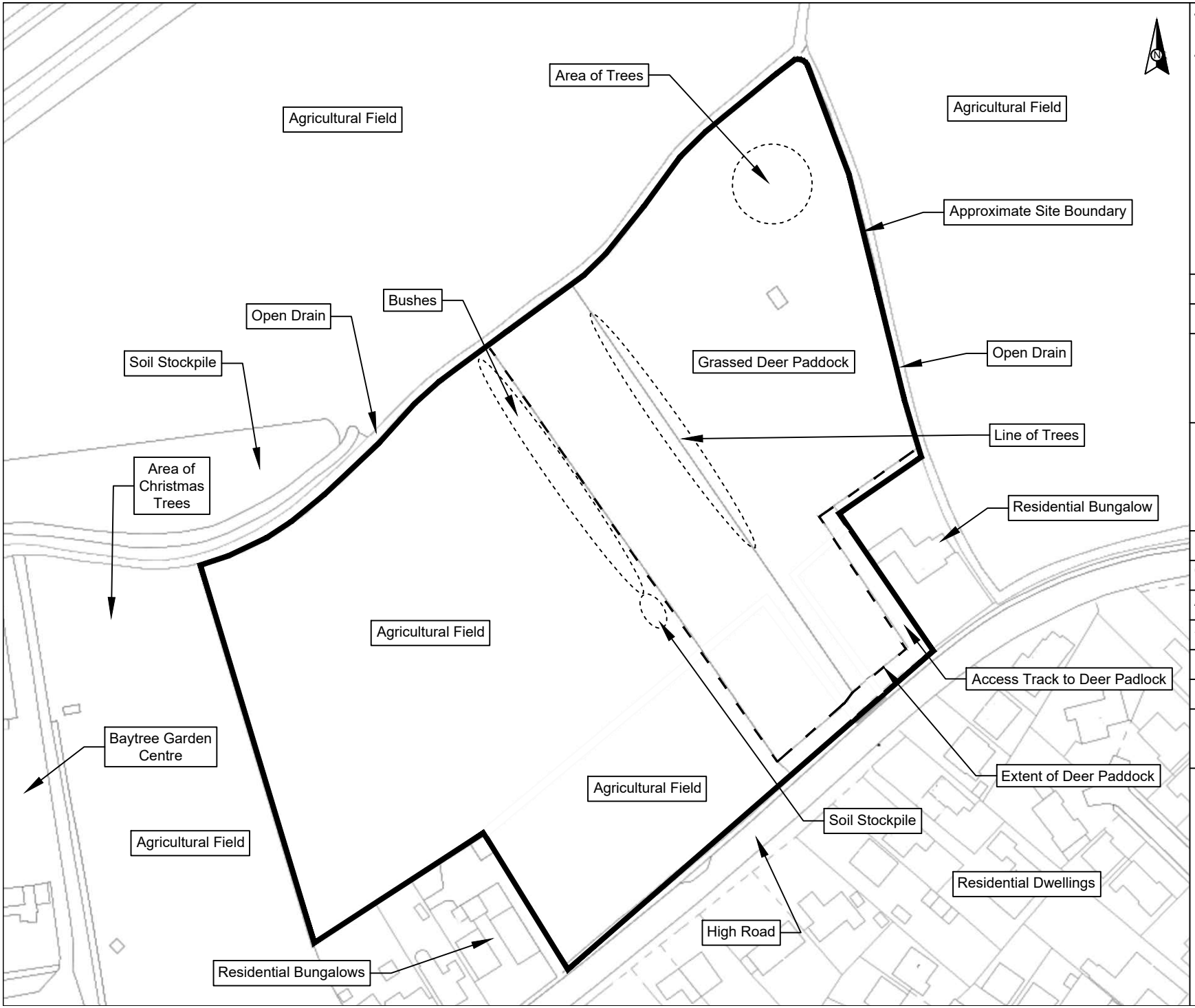
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1:500 @ A1	APRIL 2021	NKW

DRAWING NUMBER: 1253-003

REVISION: B

APPENDIX III

Annotated Site Plan
(Figure No. D41072/02)



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Project No.	D41072
Client	Ashwood Homes
Project	High Road Weston
Title	Annotated Site Plan
Drawn By	SJ
Checked By	GH
Approved By	DB
Scale	NTS
Date Drawn	30/07/2021
Revision	A
Figure No.	D41072/02

GeoDyne

Nottingham 0115 962 0001
Derby 01332 290 798

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APPENDIX IV

Site Plan Showing General Site Views
(Figure No. D41072/03)





















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Project No.	D41072
Client	Ashwood Homes
Project	High Road Weston
Title	Site Plan Showing General Site Views
Drawn By	SJ
Checked By	GH
Approved By	DB
Scale	NTS
Date Drawn	30/07/2021
Revision	A
Figure No.	D41072/03

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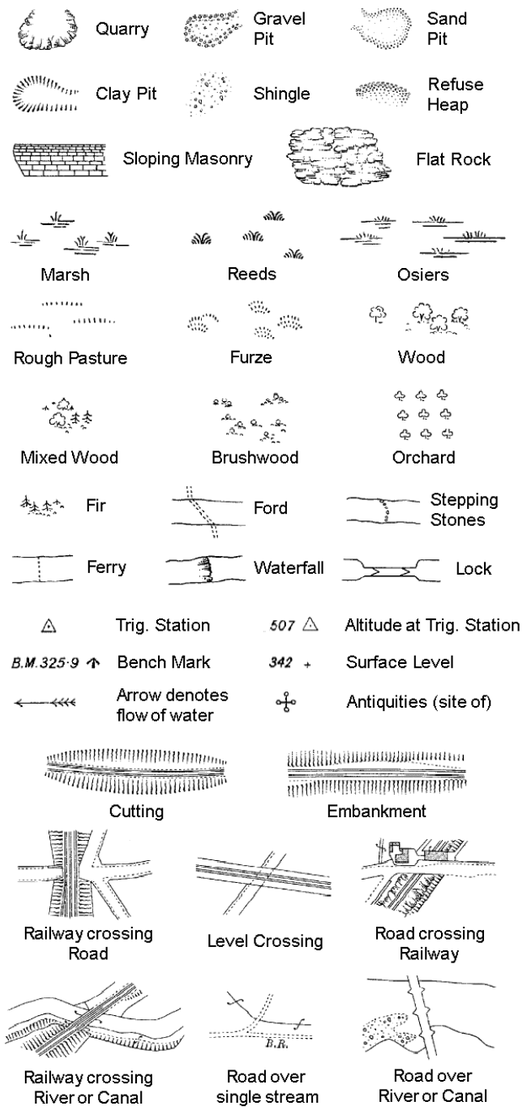
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APPENDIX V

Historical Plans

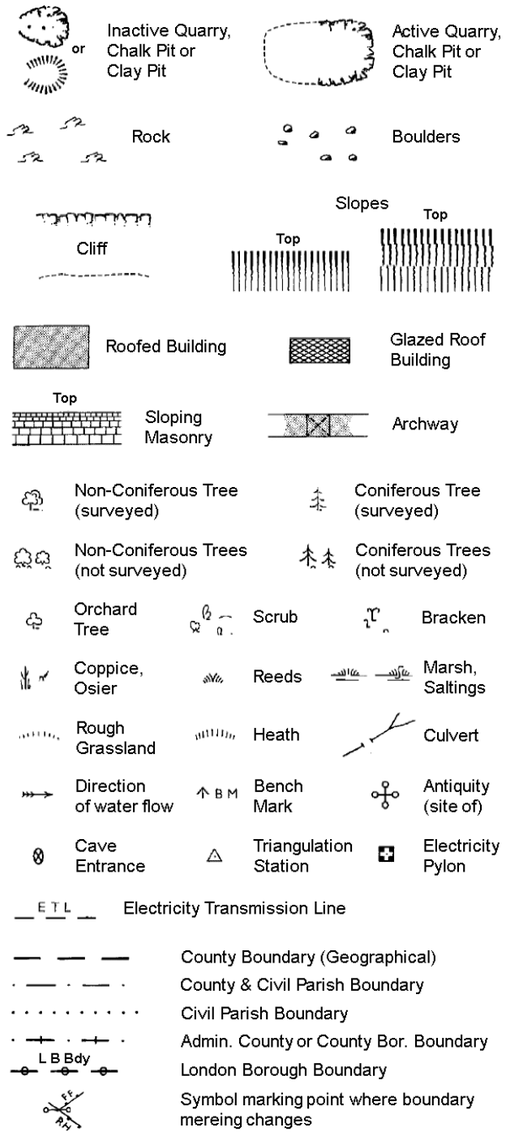
Historical Mapping Legends

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



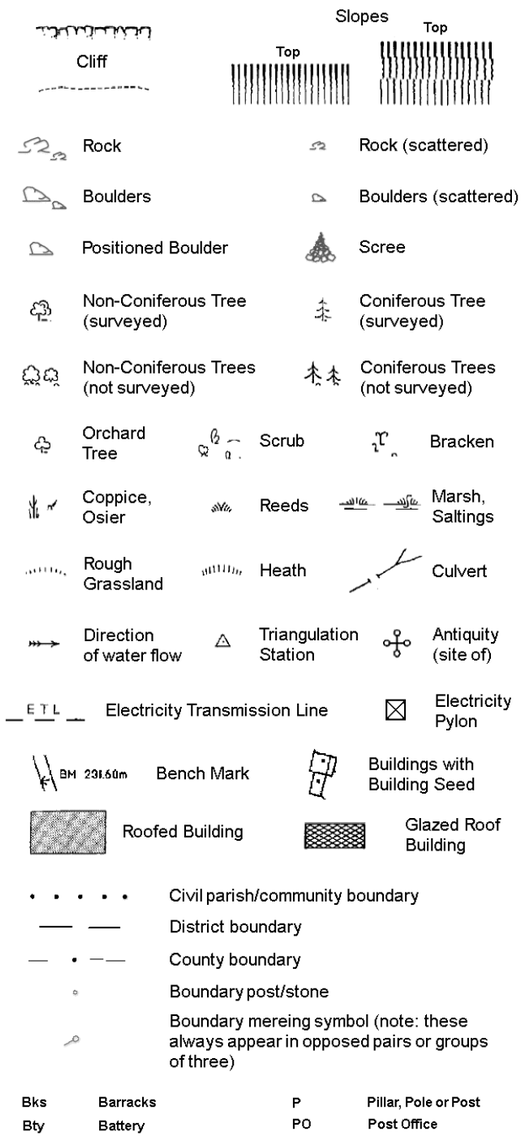
B P B S	Boundary Post or Stone	P.C.B	Police Call Box
B.R.	Bridle Road	P	Pump
E.P	Electricity Pylon	S.P	Signal Post
F.B.	Foot Bridge	St.	Sluice
F.P.	Foot Path	Sp.	Spring
G.P	Guide Post or Board	T.C.B	Telephone Call Box
M.S	Mile Stone	Tr.	Trough
M.P M.R	Mooring Post or Ring	W	Well

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



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

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



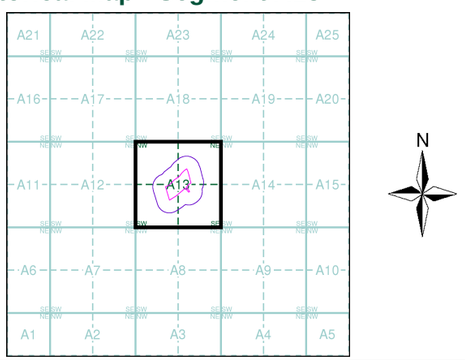
Bks	Barracks	P	Pillar, Pole or Post
Bty	Battery	PO	Post Office
Cemy	Cemetery	PC	Public Convenience
Chy	Chimney	Pp	Pump
Cis	Cistern	Ppg Sta	Pumping Station
Dismtd Rly	Dismantled Railway	PW	Place of Worship
El Gen Sta	Electricity Generating Station	Sewage Ppg Sta	Sewage Pumping Station
El P	Electricity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

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Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lincolnshire	1:2,500	1888	2
Lincolnshire	1:2,500	1904	3
Lincolnshire	1:2,500	1932	4
Ordnance Survey Plan	1:2,500	1968	5
Additional SIMs	1:2,500	1987	6
Large-Scale National Grid Data	1:2,500	1995	7
Historical Aerial Photography	1:2,500	1999	8

Historical Map - Segment A13



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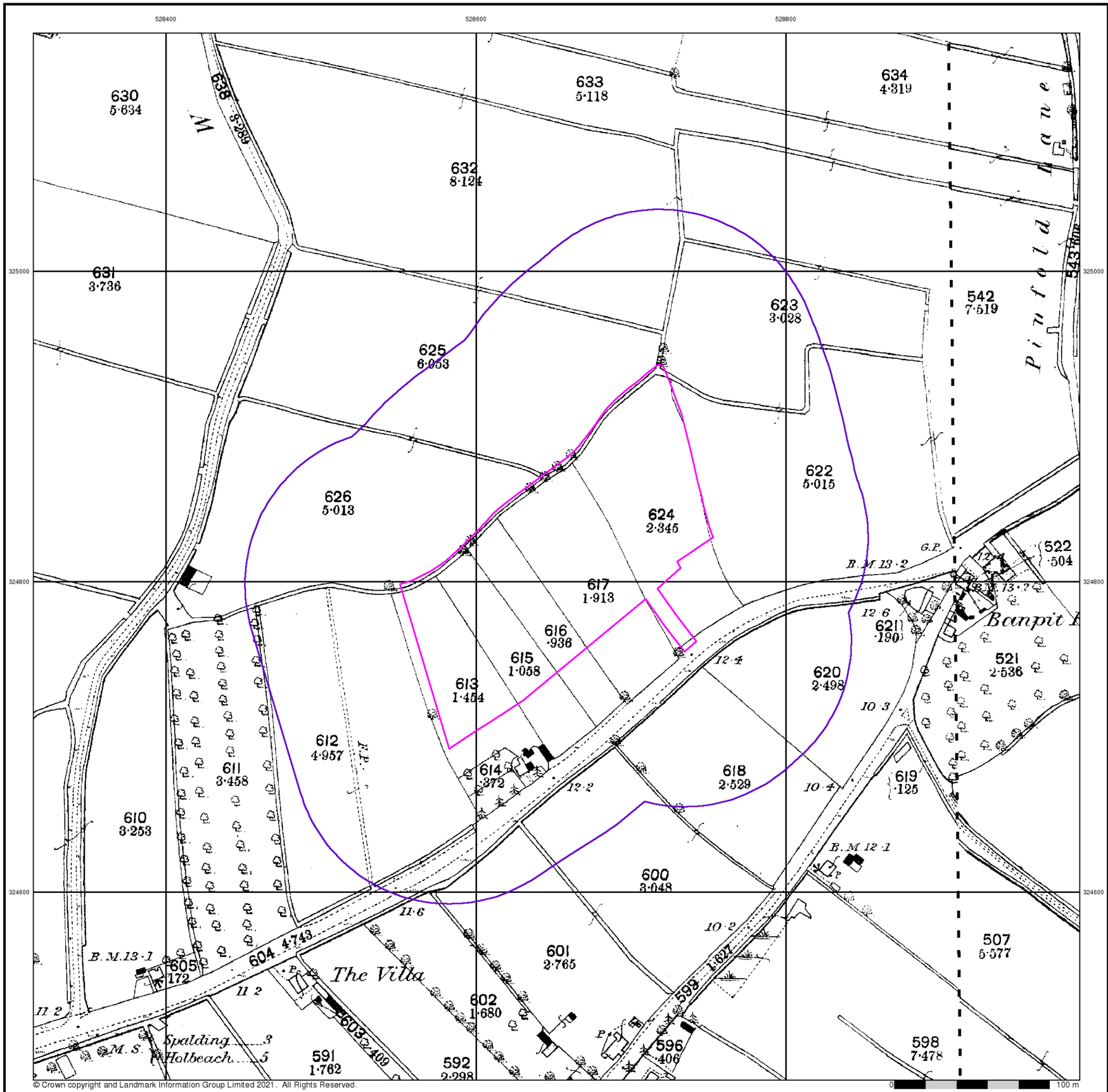
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Site Area (Ha):	2.35
Search Buffer (m):	100

Site Details

High Road, Weston

Landmark INFORMATION GROUP

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



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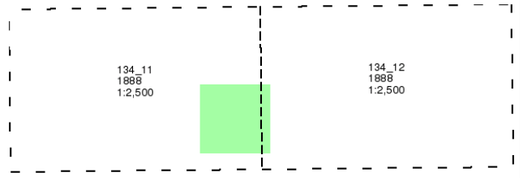
Lincolnshire

Published 1888

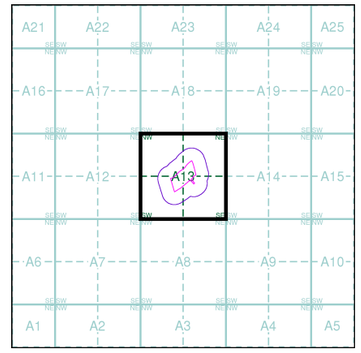
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



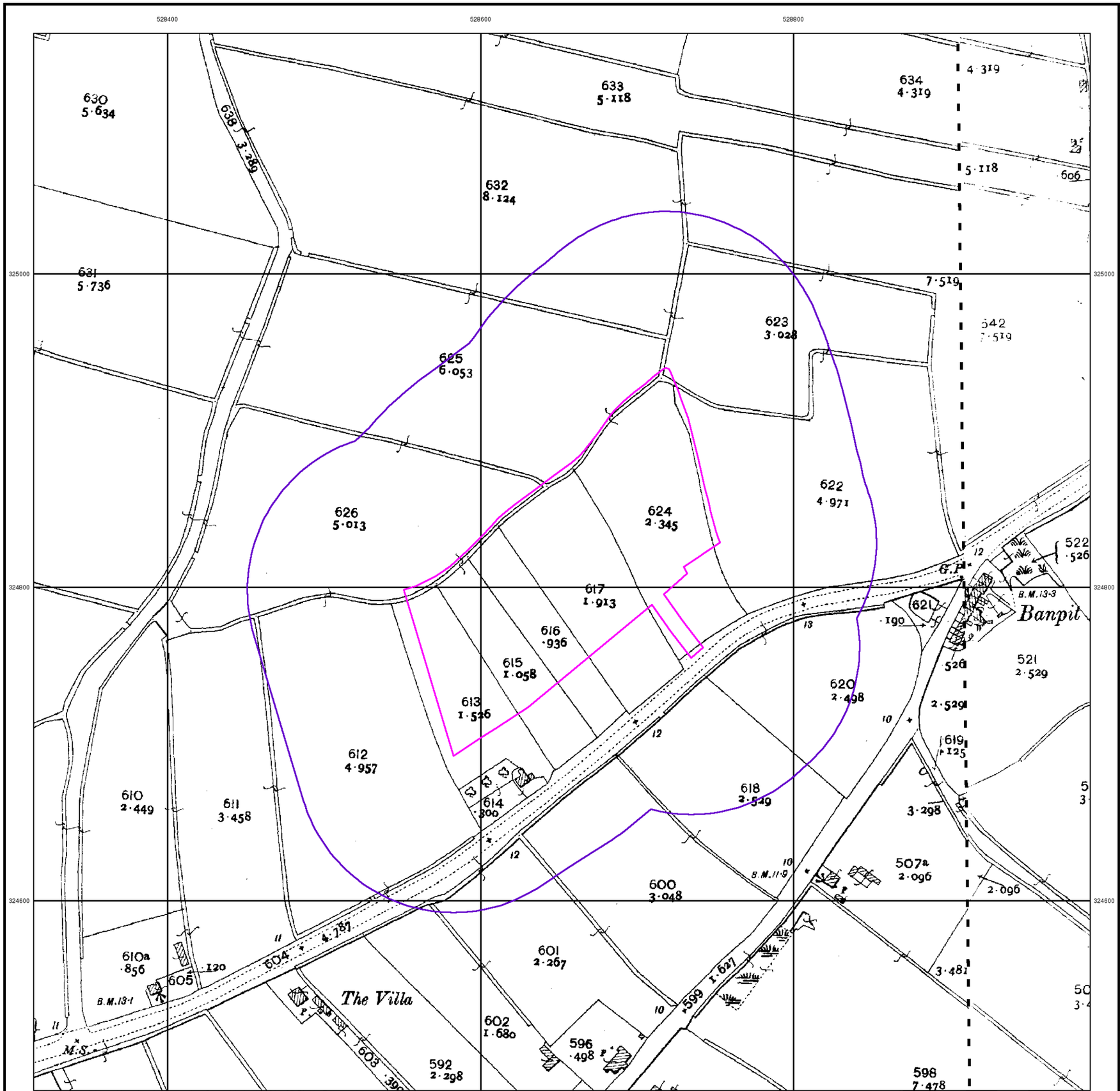
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Site Area (Ha):	2.35
Search Buffer (m):	100

Site Details

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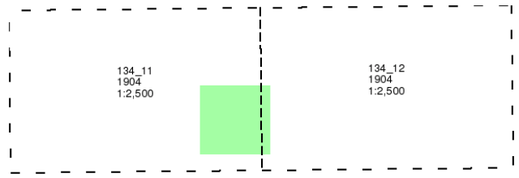
Lincolnshire

Published 1904

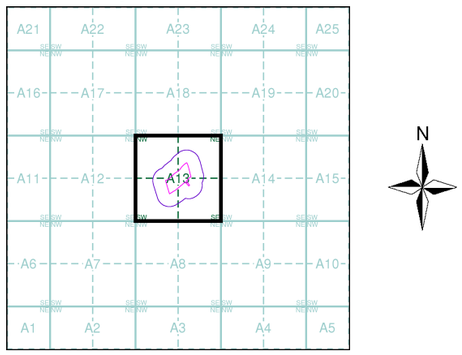
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Map Name(s) and Date(s)



Historical Map - Segment A13



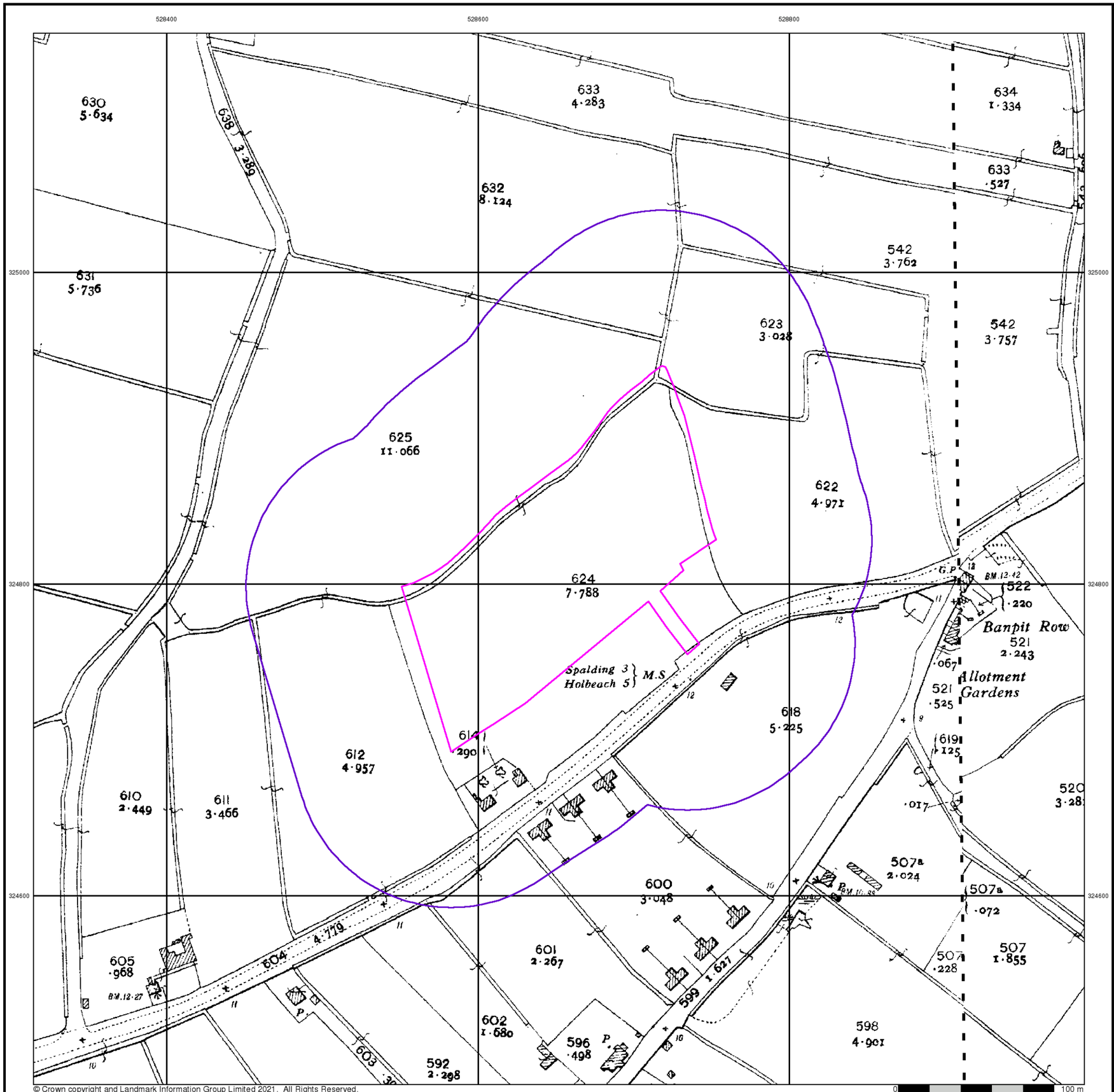
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National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	100

Site Details

High Road, Weston

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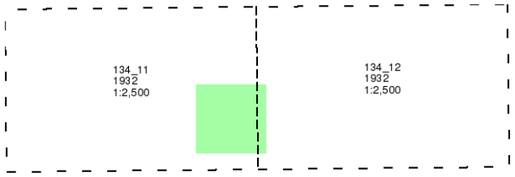
Lincolnshire

Published 1932

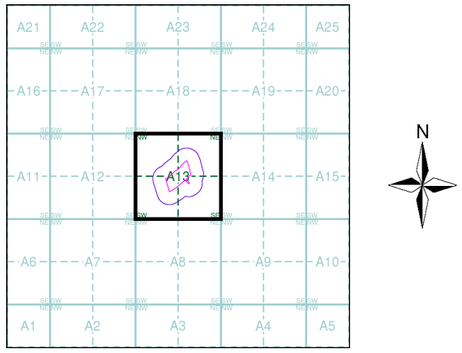
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



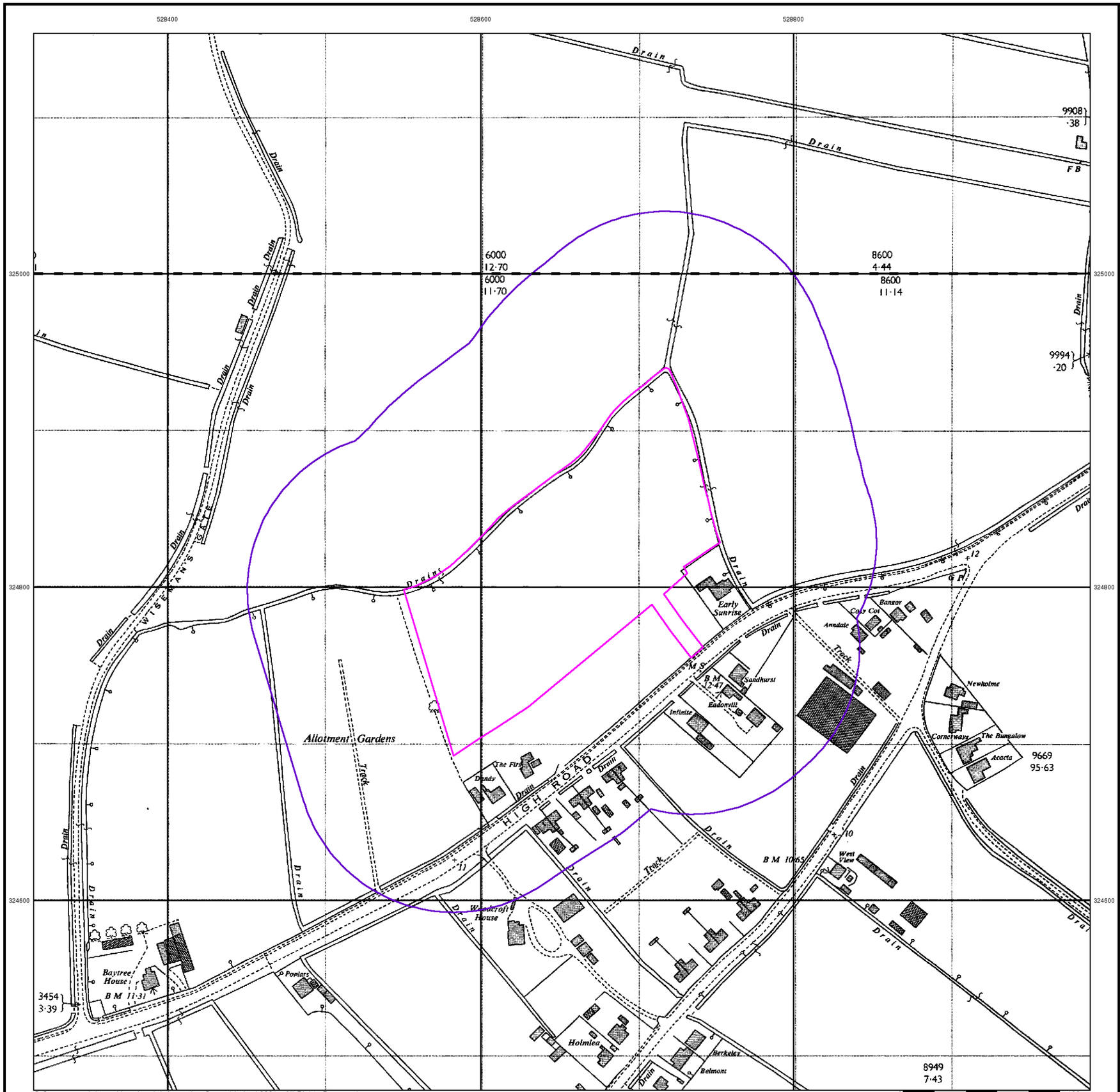
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Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	100

Site Details

High Road, Weston

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



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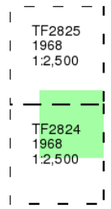
Ordnance Survey Plan

Published 1968

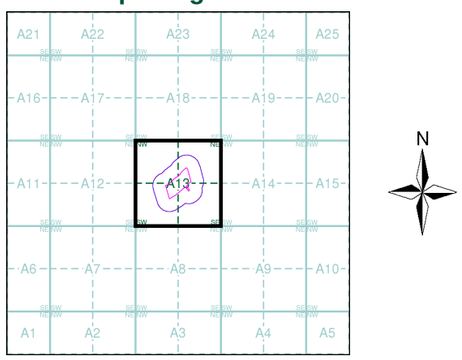
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



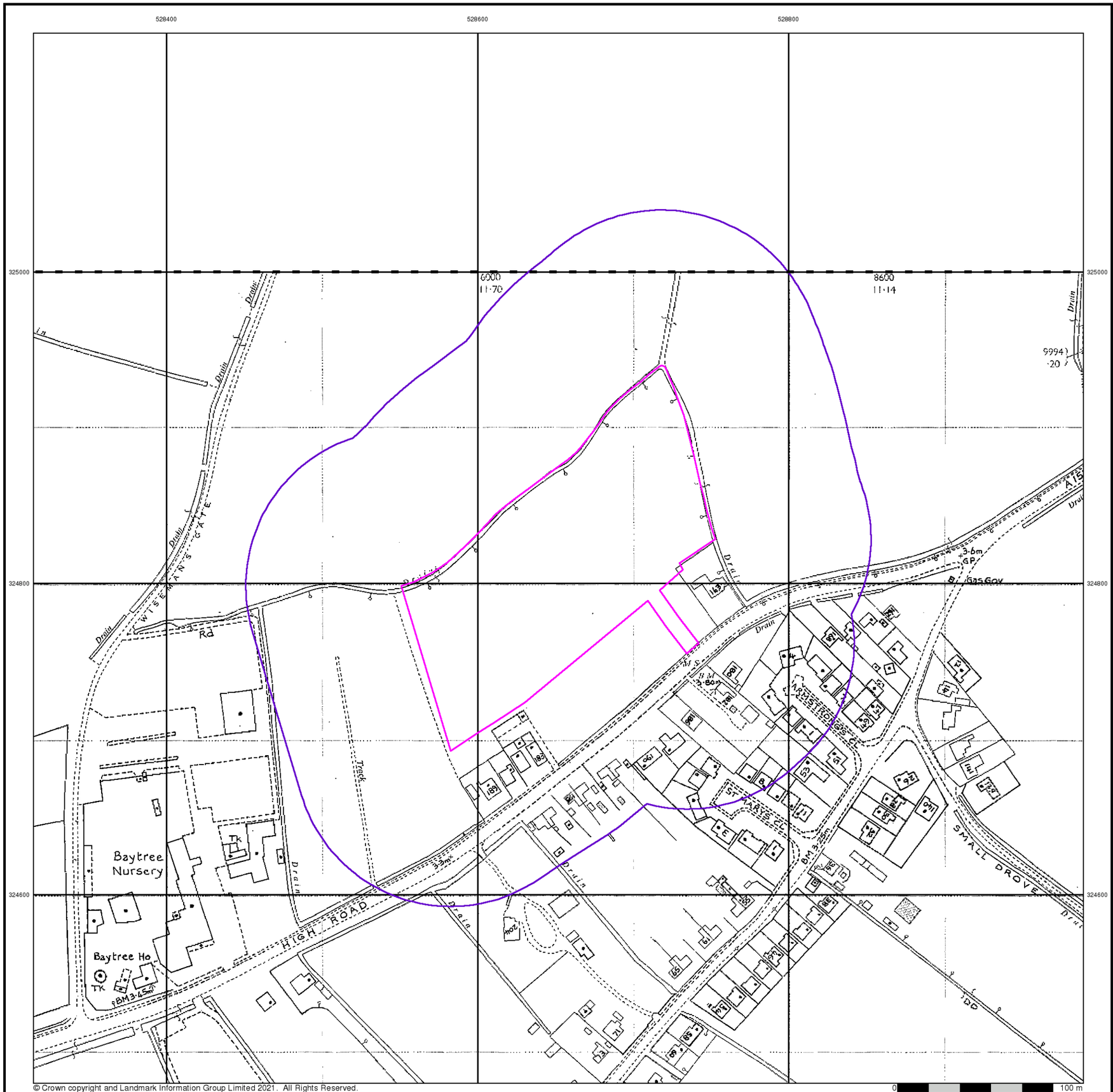
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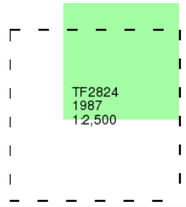
Additional SIMs

Published 1987

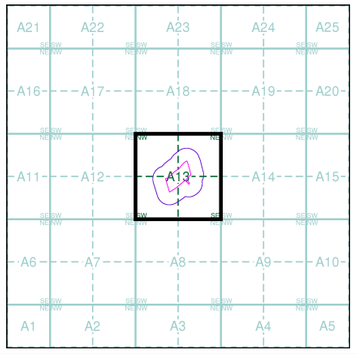
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



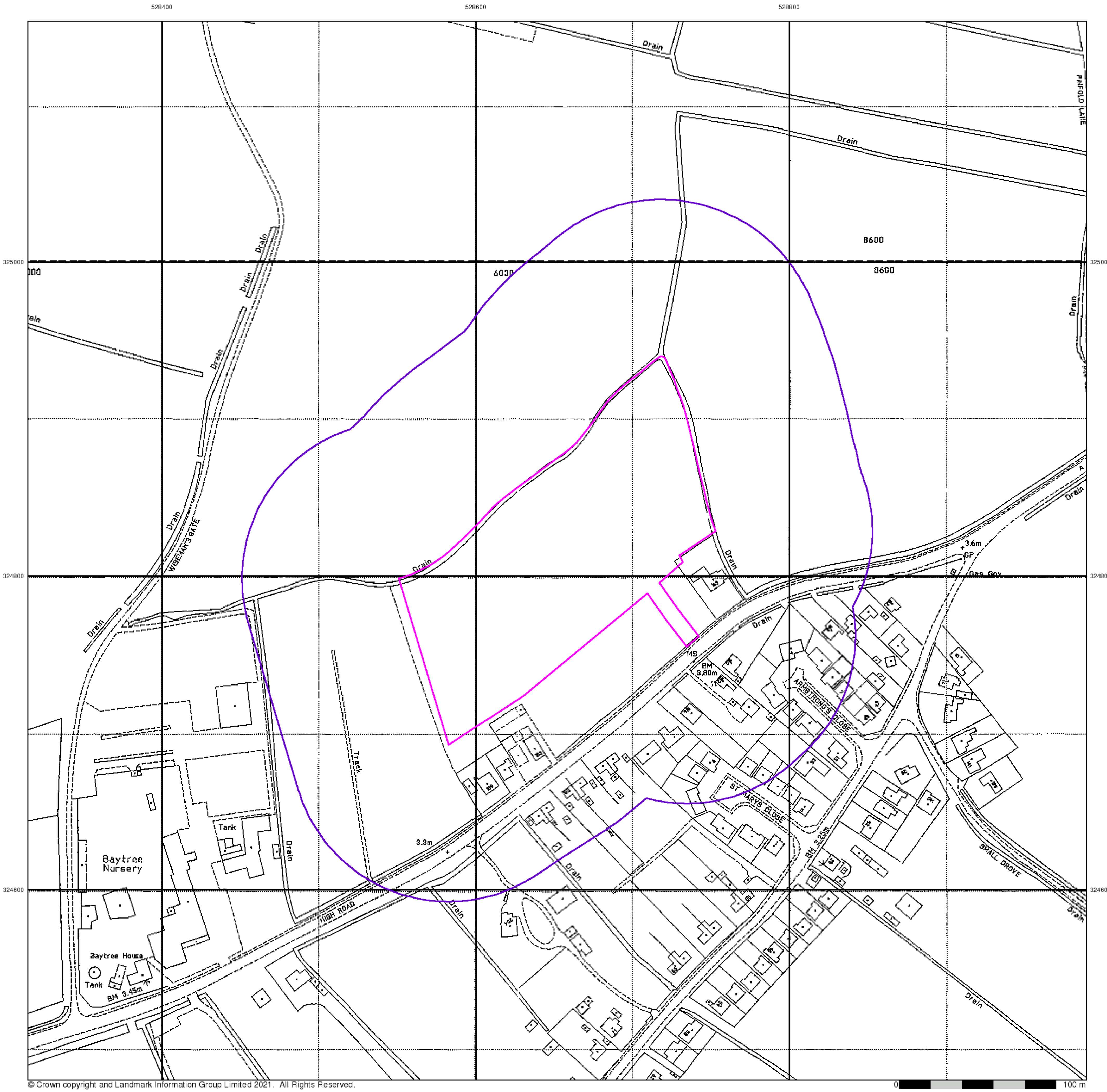
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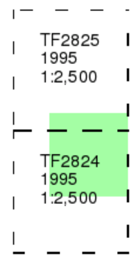
Large-Scale National Grid Data

Published 1995

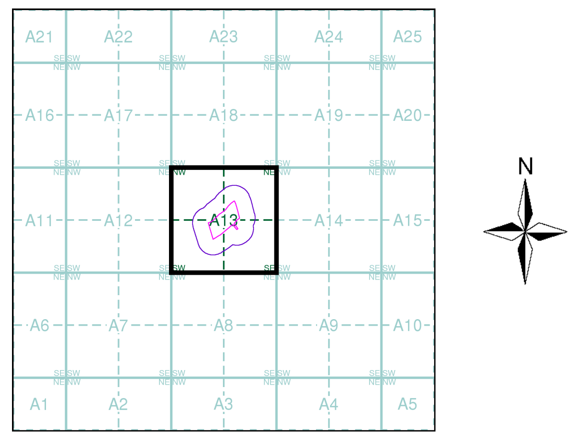
Source map scale - 1:2,500

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

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

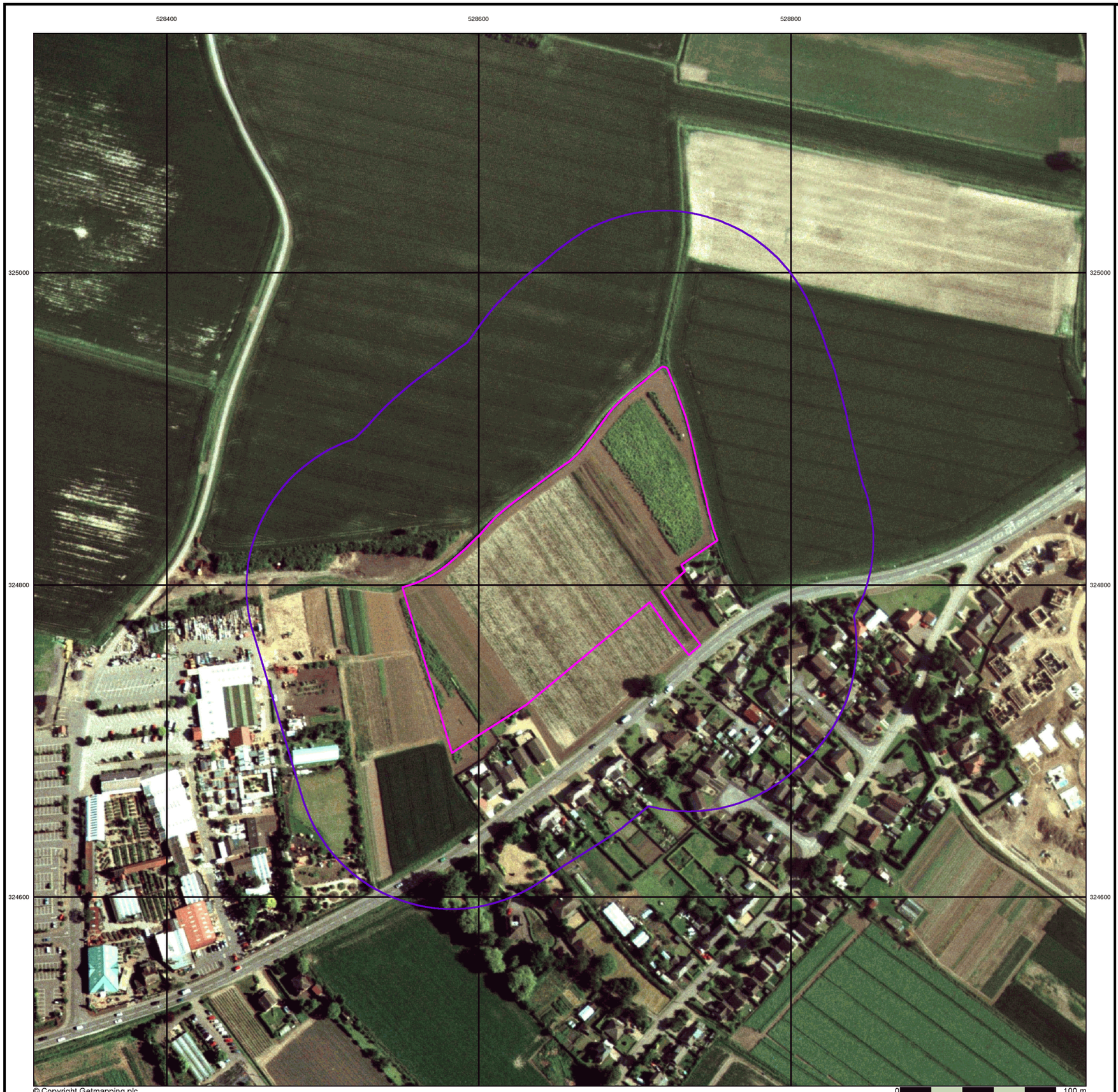
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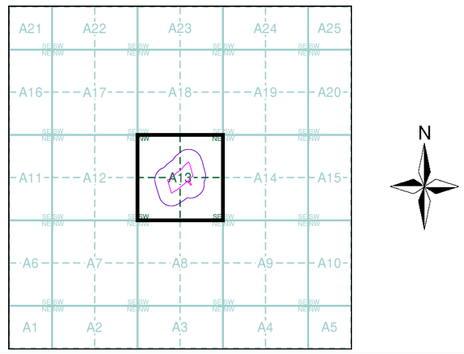
GeoDyne

Historical Aerial Photography

Published 1999

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

Historical Aerial Photography - Segment A13



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Search Buffer (m):	100

Site Details

High Road, Weston

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

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

Ordnance Survey Plan 1:10,000

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

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

1:10,000 Raster Mapping

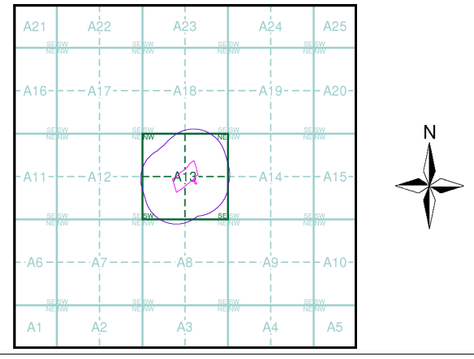
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community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

GeoDyne

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Lincolnshire	1:10,560	1887	2
Lincolnshire	1:10,560	1906	3
Lincolnshire	1:10,560	1906	4
Lincolnshire	1:10,560	1906	5
Lincolnshire	1:10,560	1932	6
Lincolnshire	1:10,560	1932	7
Lincolnshire	1:10,560	1932	8
Lincolnshire	1:10,560	1938 - 1951	9
Lincolnshire	1:10,560	1951	10
Ordnance Survey Plan	1:10,000	1956 - 1958	11
Ordnance Survey Plan	1:10,000	1968	12
Ordnance Survey Plan	1:10,000	1971 - 1977	13
Ordnance Survey Plan	1:10,000	1989	14
Ordnance Survey Plan	1:10,000	1990 - 1992	15
10K Raster Mapping	1:10,000	2000	16
10K Raster Mapping	1:10,000	2006	17
VectorMap Local	1:10,000	2021	18

Historical Map - Slice A



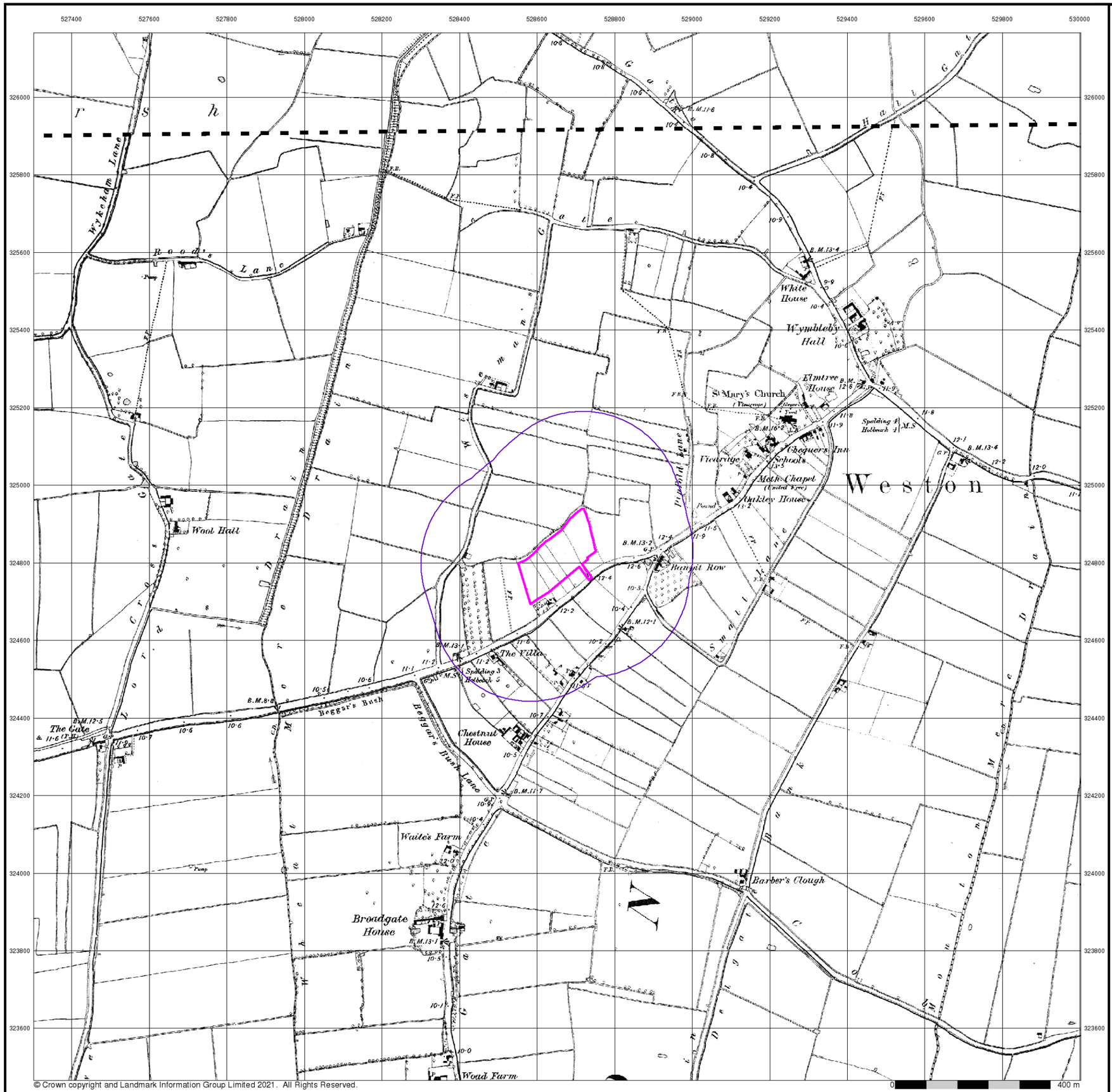
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Order Number: 275840152_1_1
Customer Ref: D41072
National Grid Reference: 528660, 324810
Slice: A
Site Area (Ha): 2.35
Search Buffer (m): 250

Site Details

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GeoDyne

Lincolnshire

Published 1887

Source map scale - 1:10,560

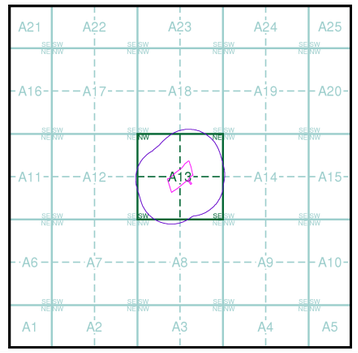
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some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

Map Name(s) and Date(s)

134NE
1887
1:10,560

134SE
1887
1:10,560

Historical Map - Slice A



Order Details

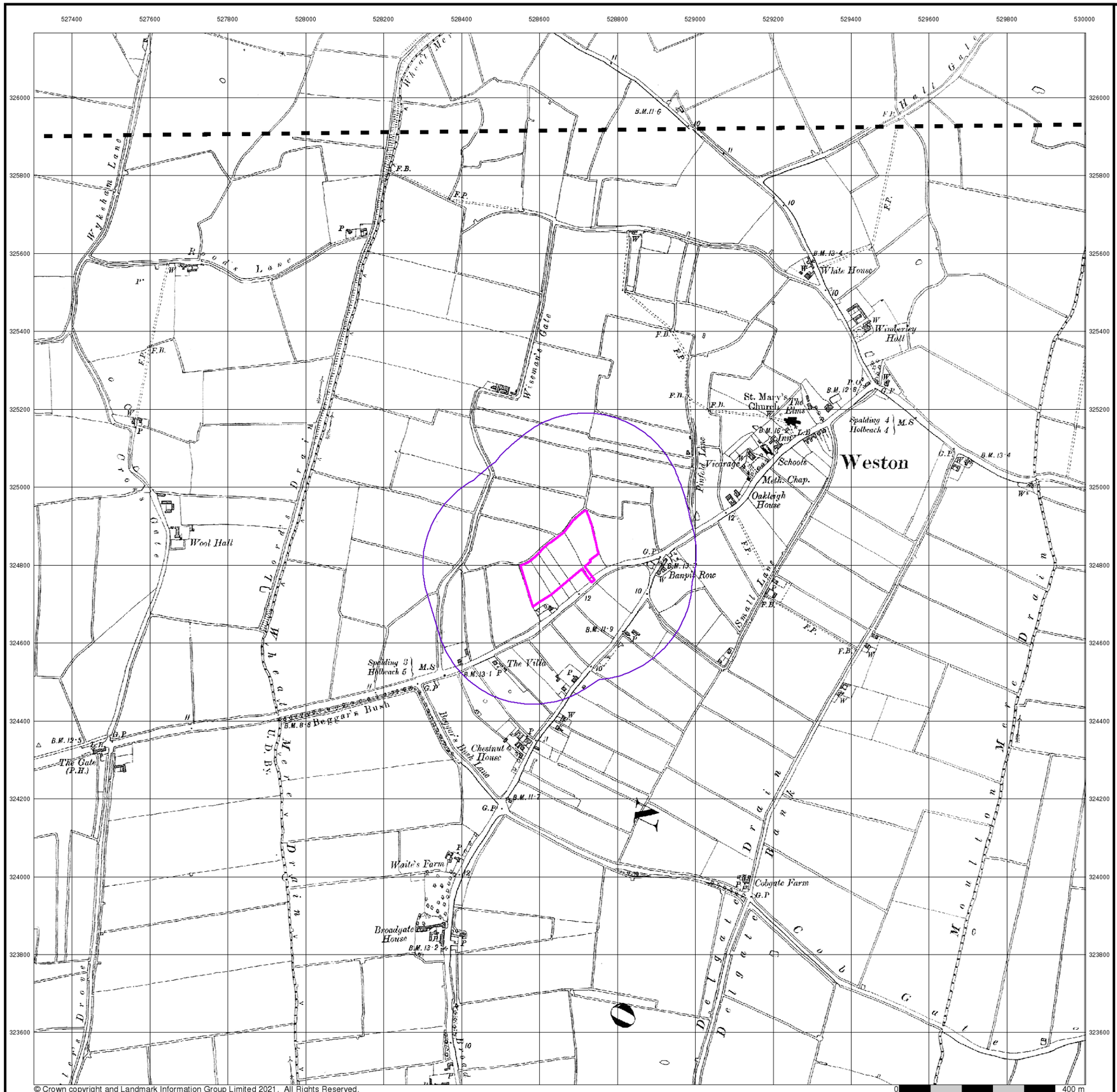
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0 400 m

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Lincolnshire

Published 1906

Source map scale - 1:10,560

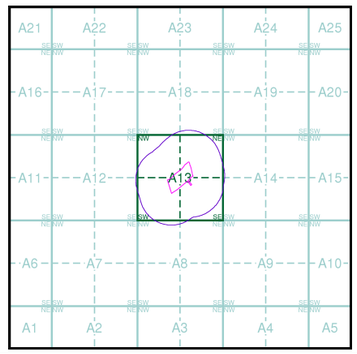
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Map Name(s) and Date(s)

134NE
1906
1:10,560

134SE
1906
1:10,560

Historical Map - Slice A



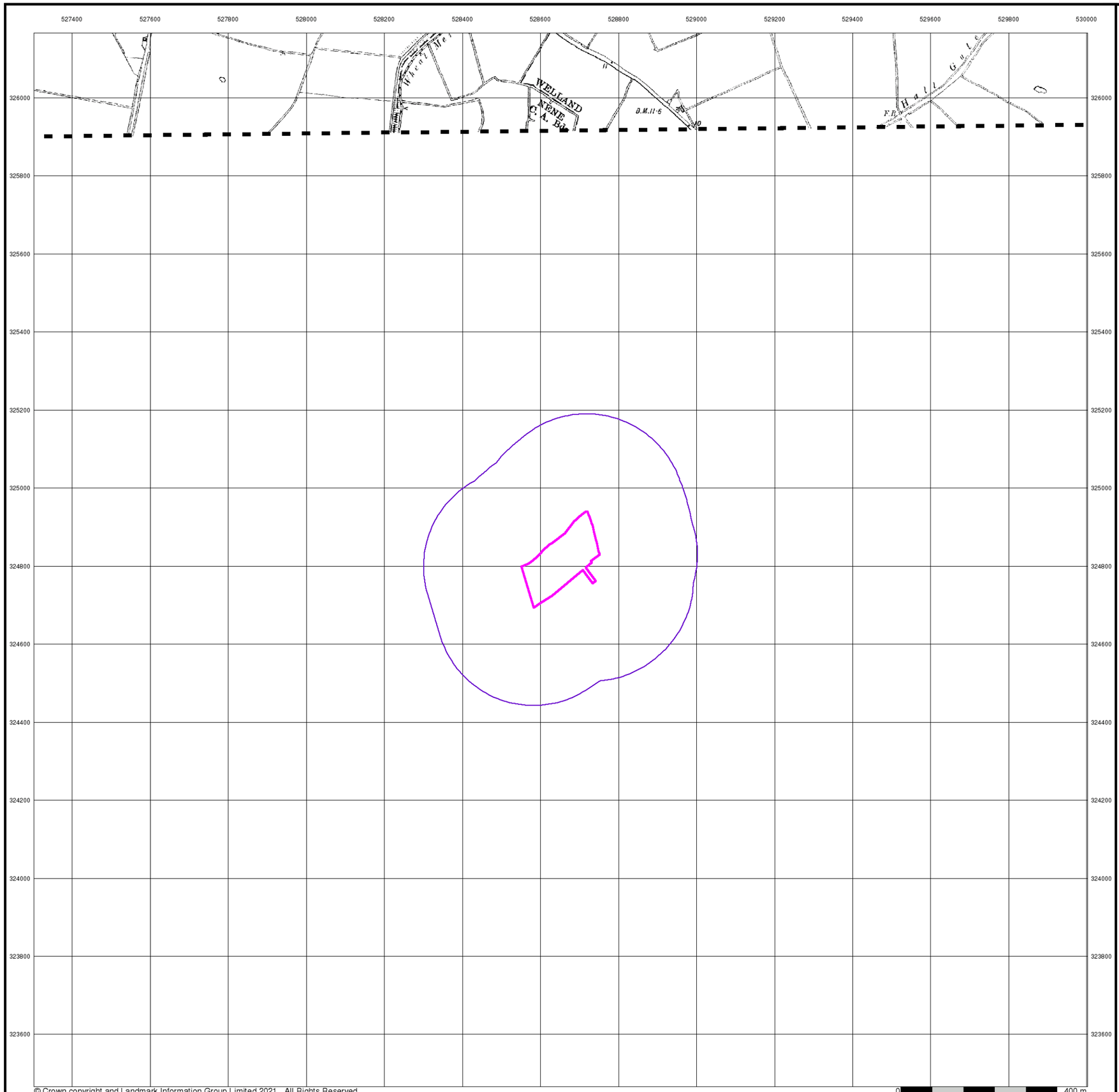
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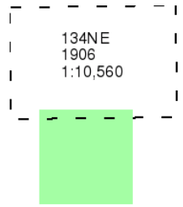
Lincolnshire

Published 1906

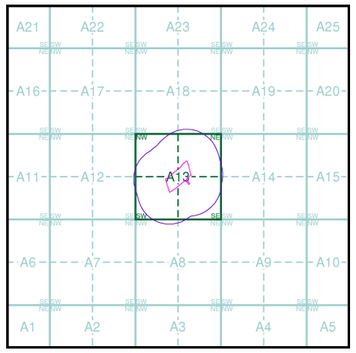
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

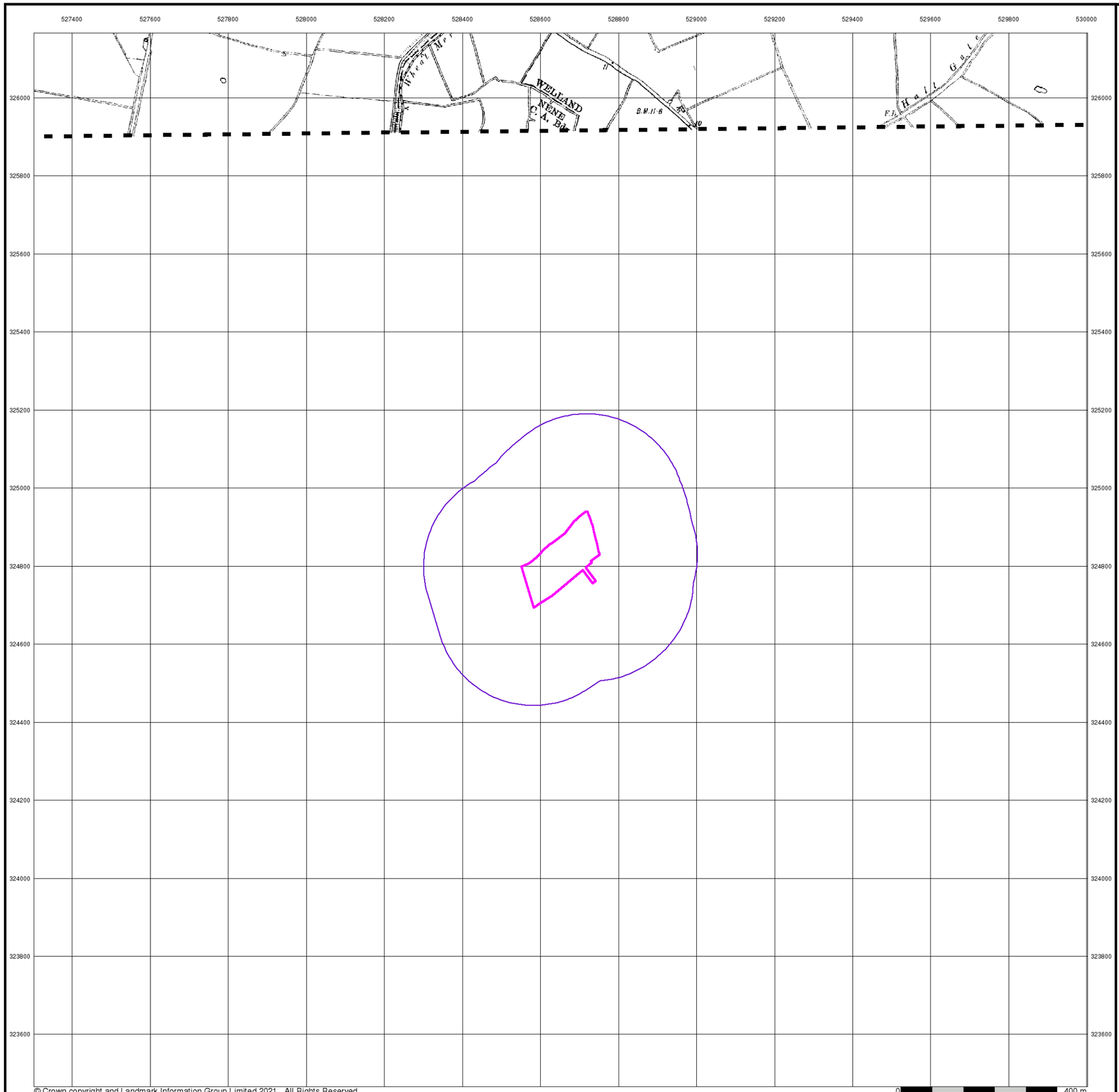
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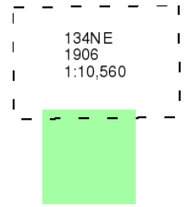
Lincolnshire

Published 1906

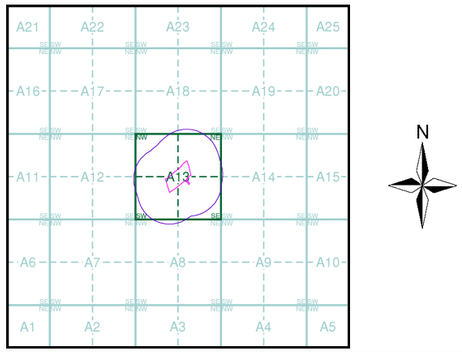
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

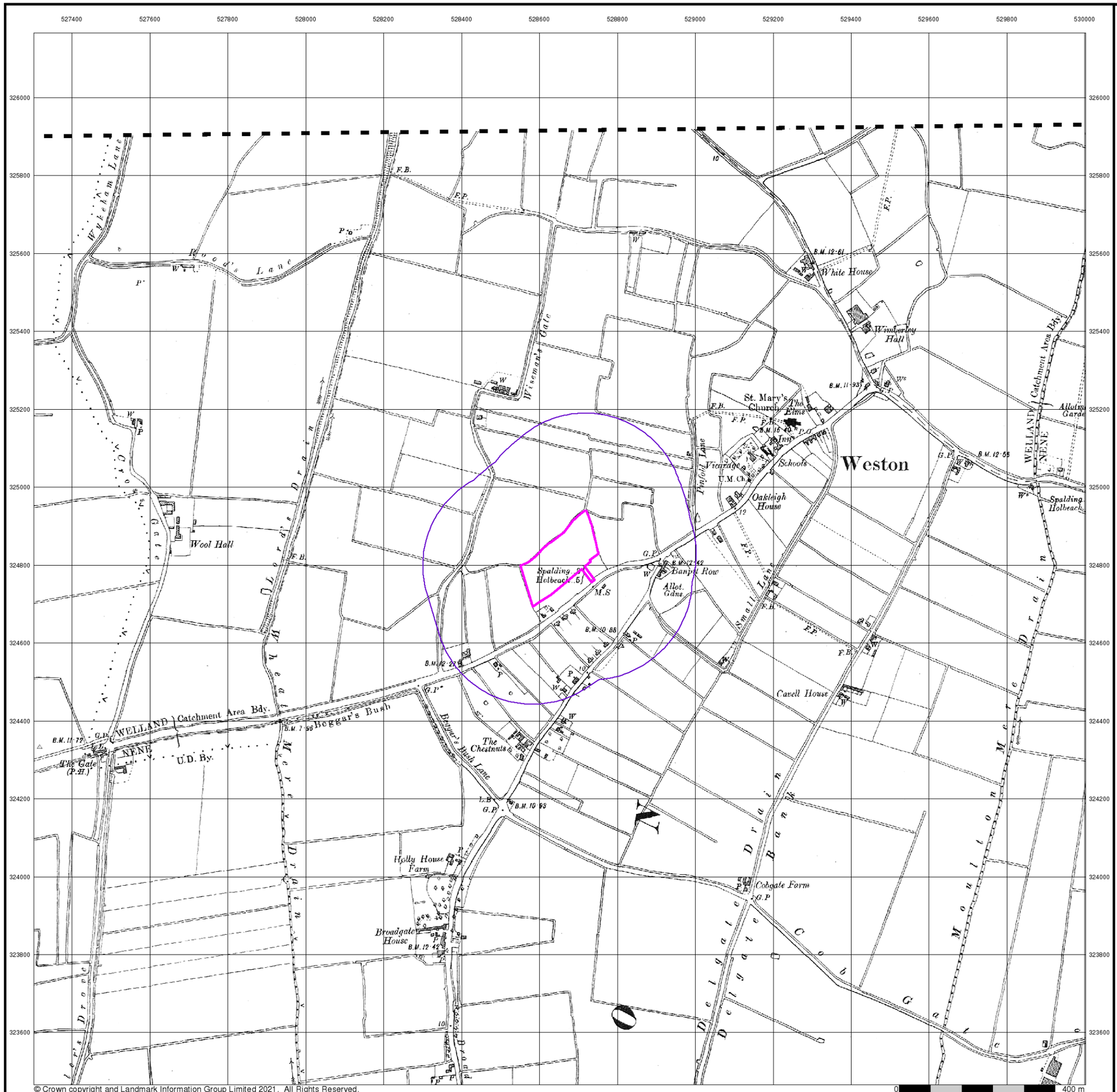
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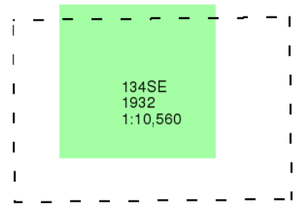
Lincolnshire

Published 1932

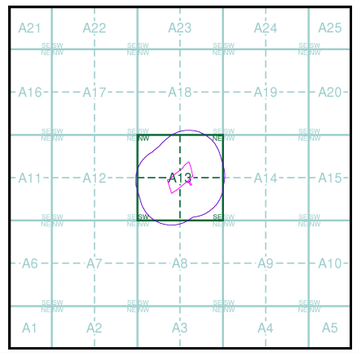
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



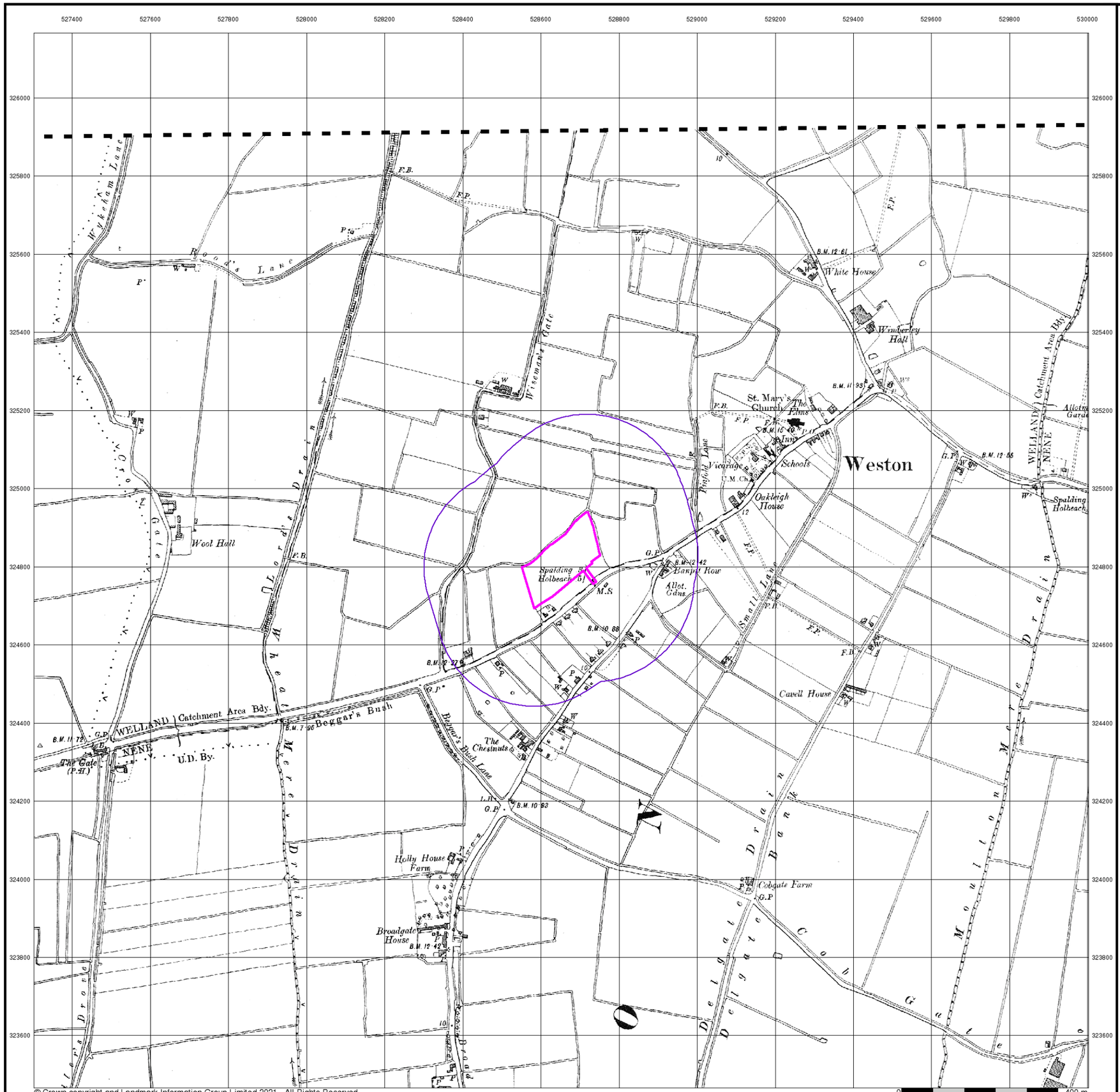
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GeoDyne

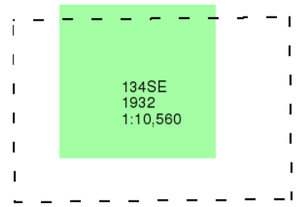
Lincolnshire

Published 1932

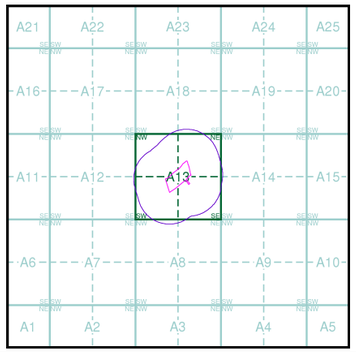
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



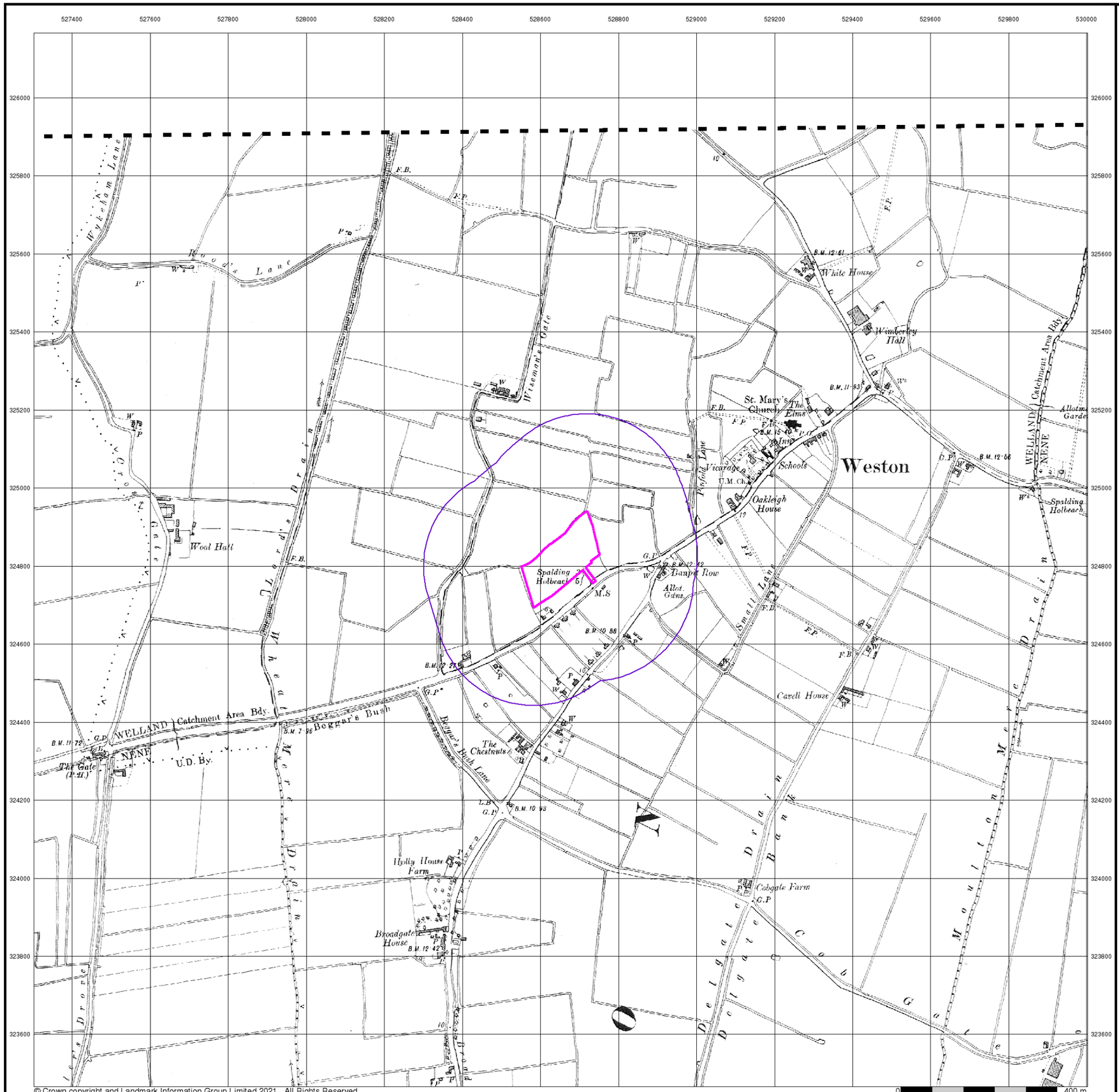
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Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston

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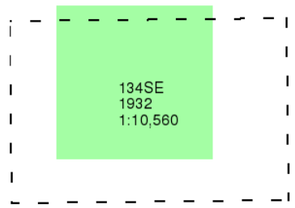
Lincolnshire

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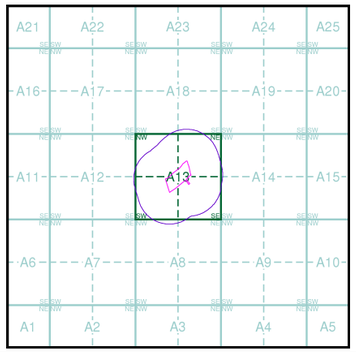
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Map Name(s) and Date(s)



Historical Map - Slice A



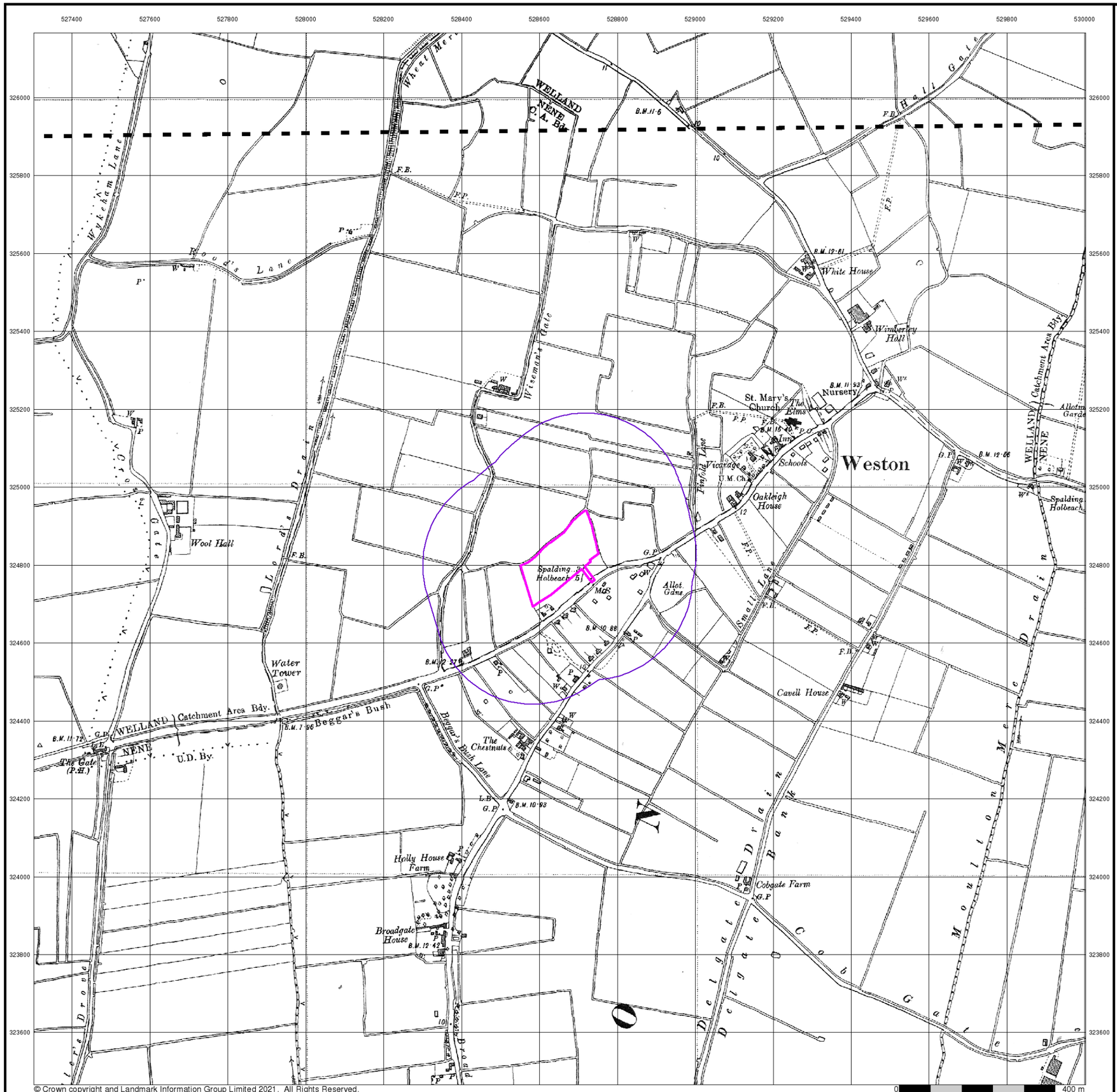
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Lincolnshire

Published 1938 - 1951

Source map scale - 1:10,560

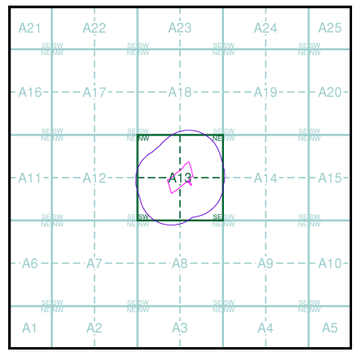
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some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

Map Name(s) and Date(s)

134NE
1951
1:10,560

134SE
1938
1:10,560

Historical Map - Slice A



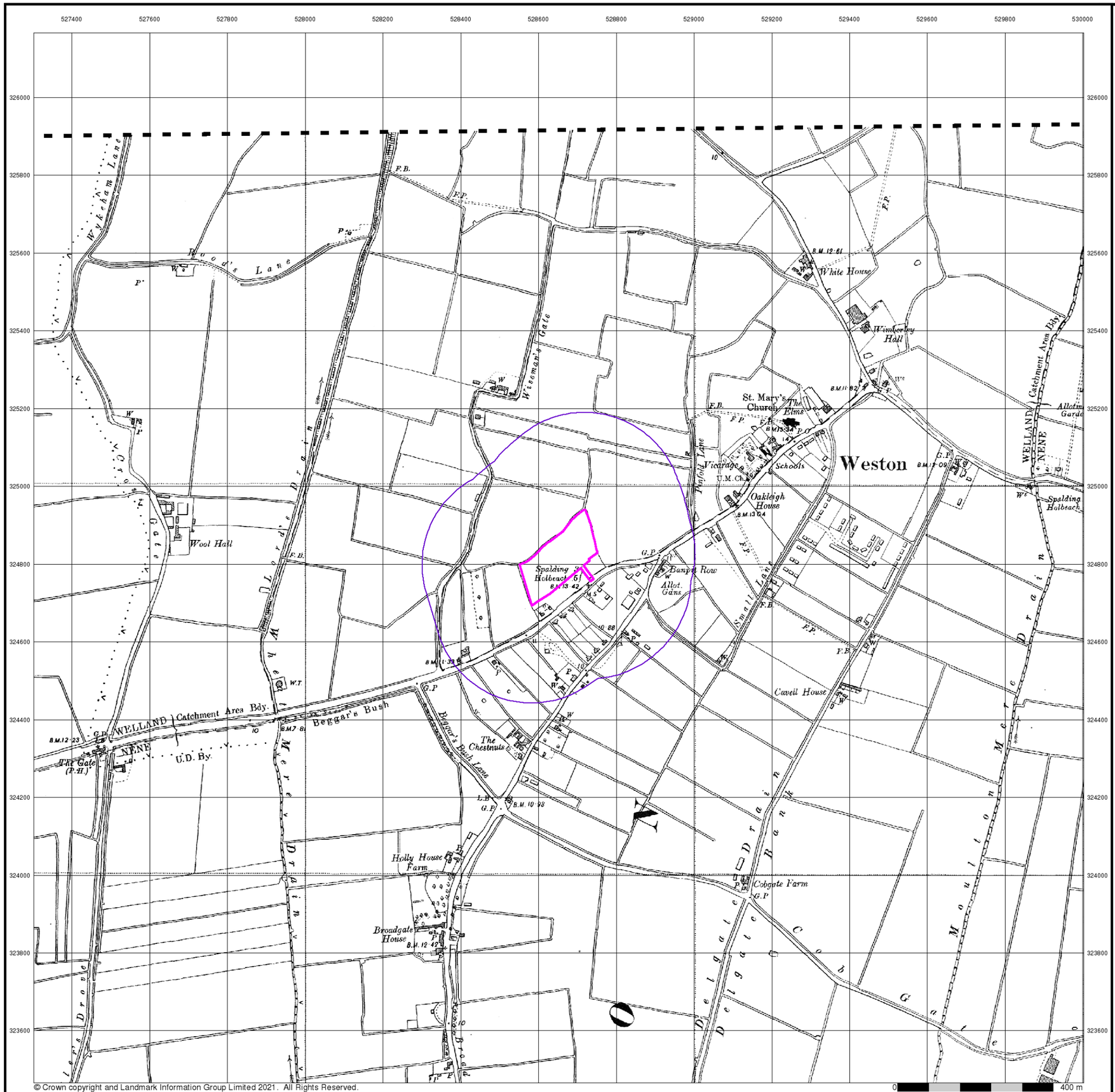
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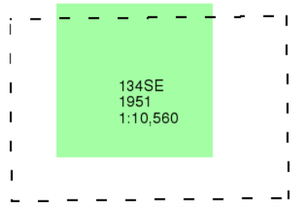
Lincolnshire

Published 1951

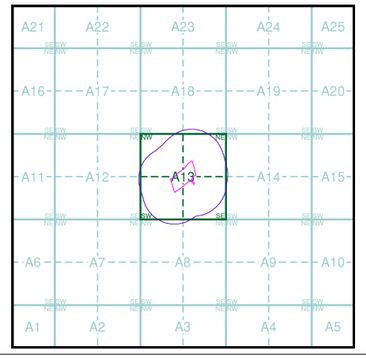
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Map Name(s) and Date(s)



Historical Map - Slice A



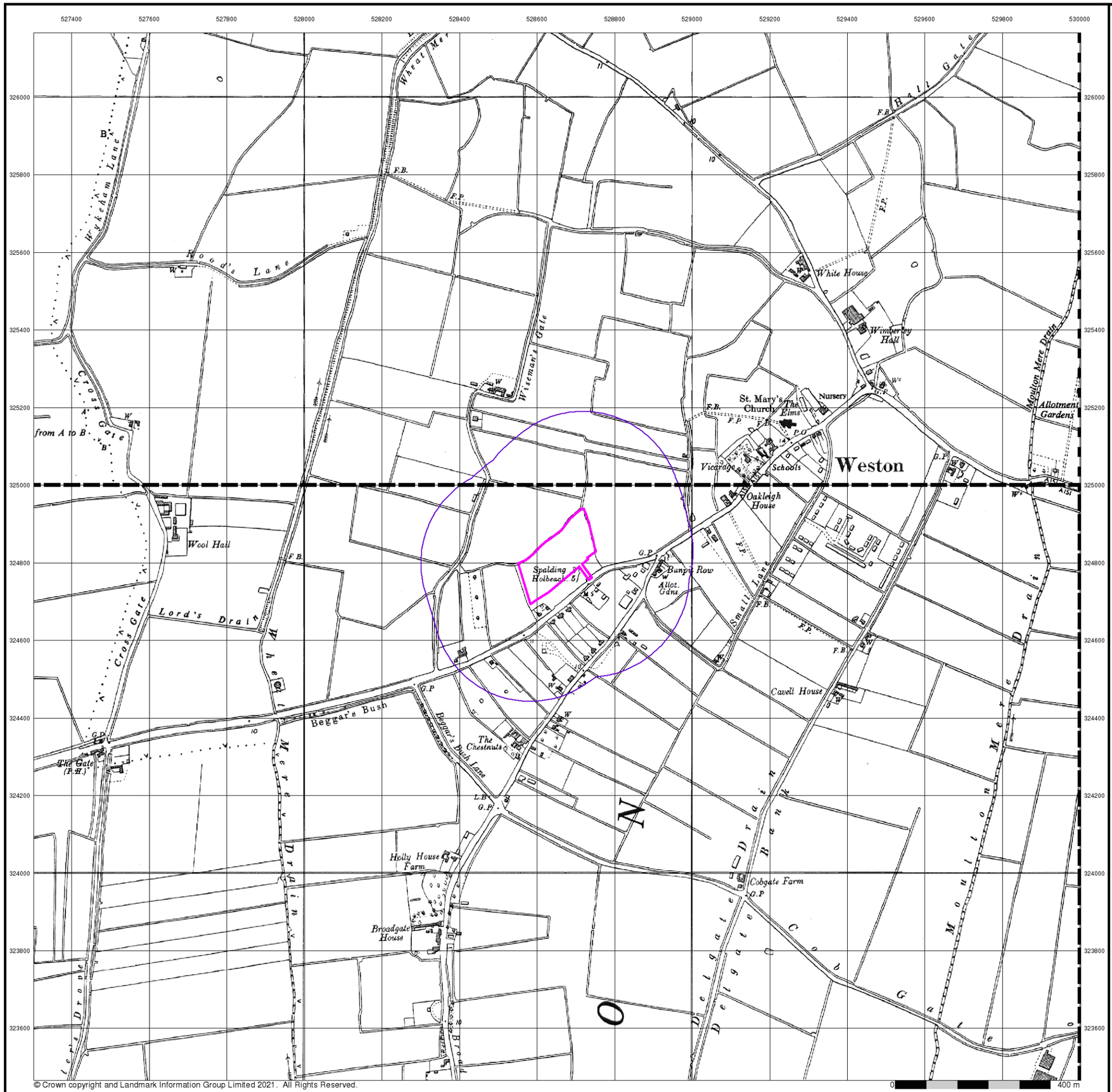
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Ordnance Survey Plan

Published 1956 - 1958

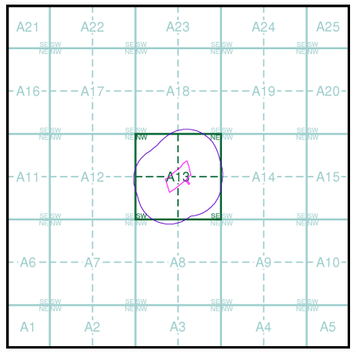
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Map Name(s) and Date(s)

TF22NE 1956 1:10,560	TF32NW 1956 1:10,560
TF22SE 1958 1:10,560	TF32SW 1958 1:10,560

Historical Map - Slice A



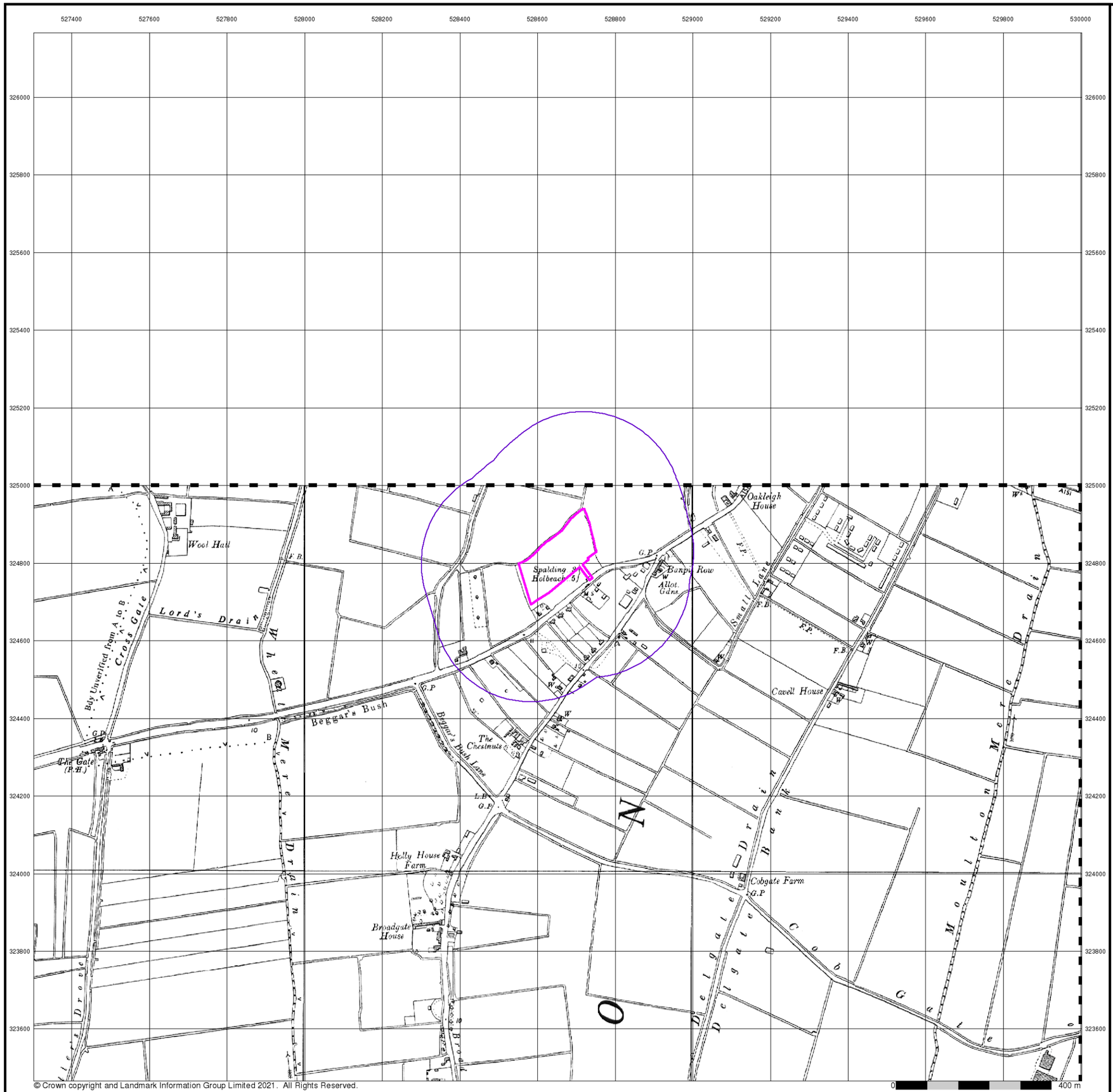
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Customer Ref:	D41072
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Site Area (Ha):	2.35
Search Buffer (m):	250

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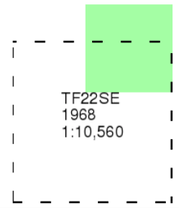
Ordnance Survey Plan

Published 1968

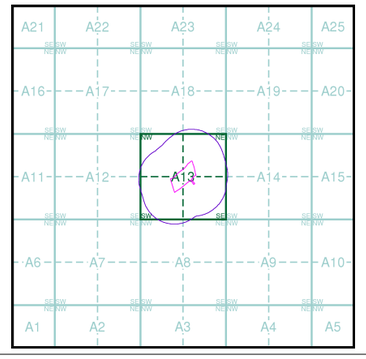
Source map scale - 1:10,000

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Map Name(s) and Date(s)



Historical Map - Slice A



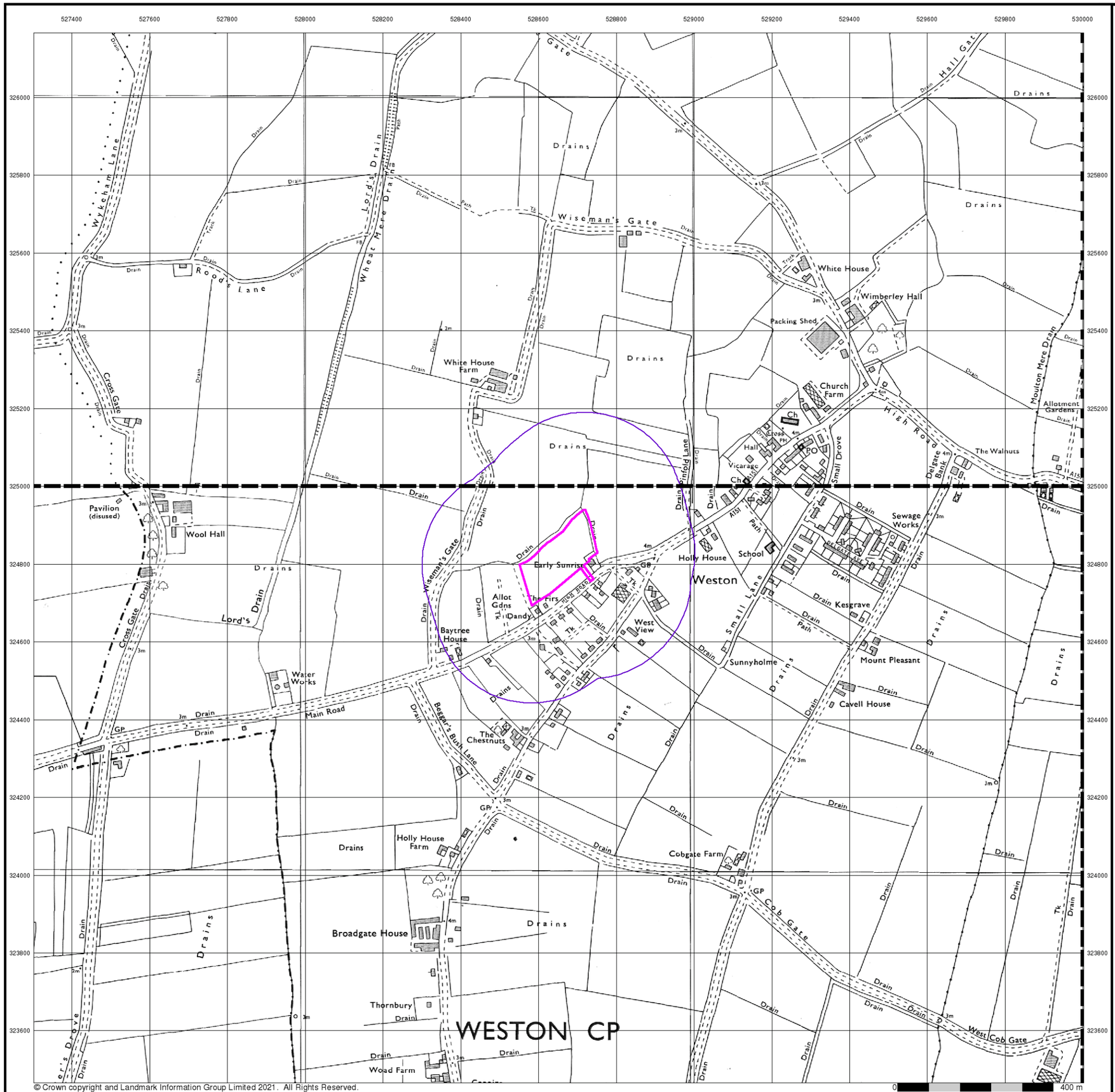
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Ordnance Survey Plan

Published 1971 - 1977

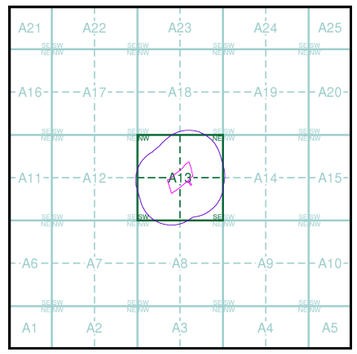
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Map Name(s) and Date(s)

TF22NE 1975 1:10,000	TF32NW 1977 1:10,000
TF22SE 1971 1:10,000	TF32SW 1971 1:10,000

Historical Map - Slice A



Order Details

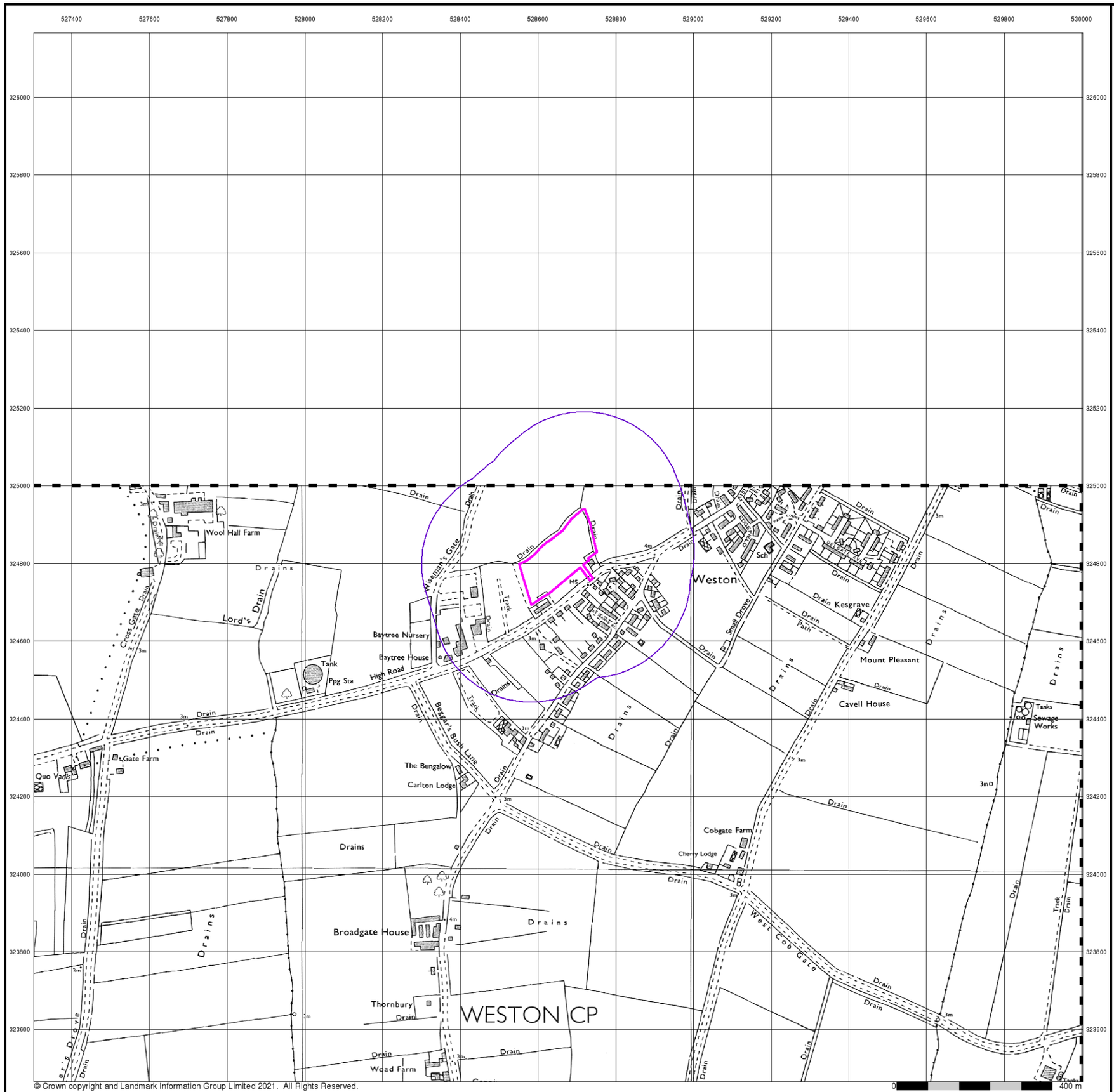
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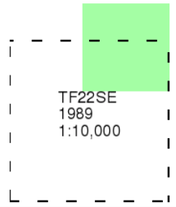
Ordnance Survey Plan

Published 1989

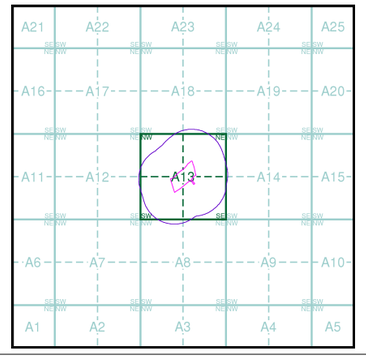
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Map Name(s) and Date(s)



Historical Map - Slice A



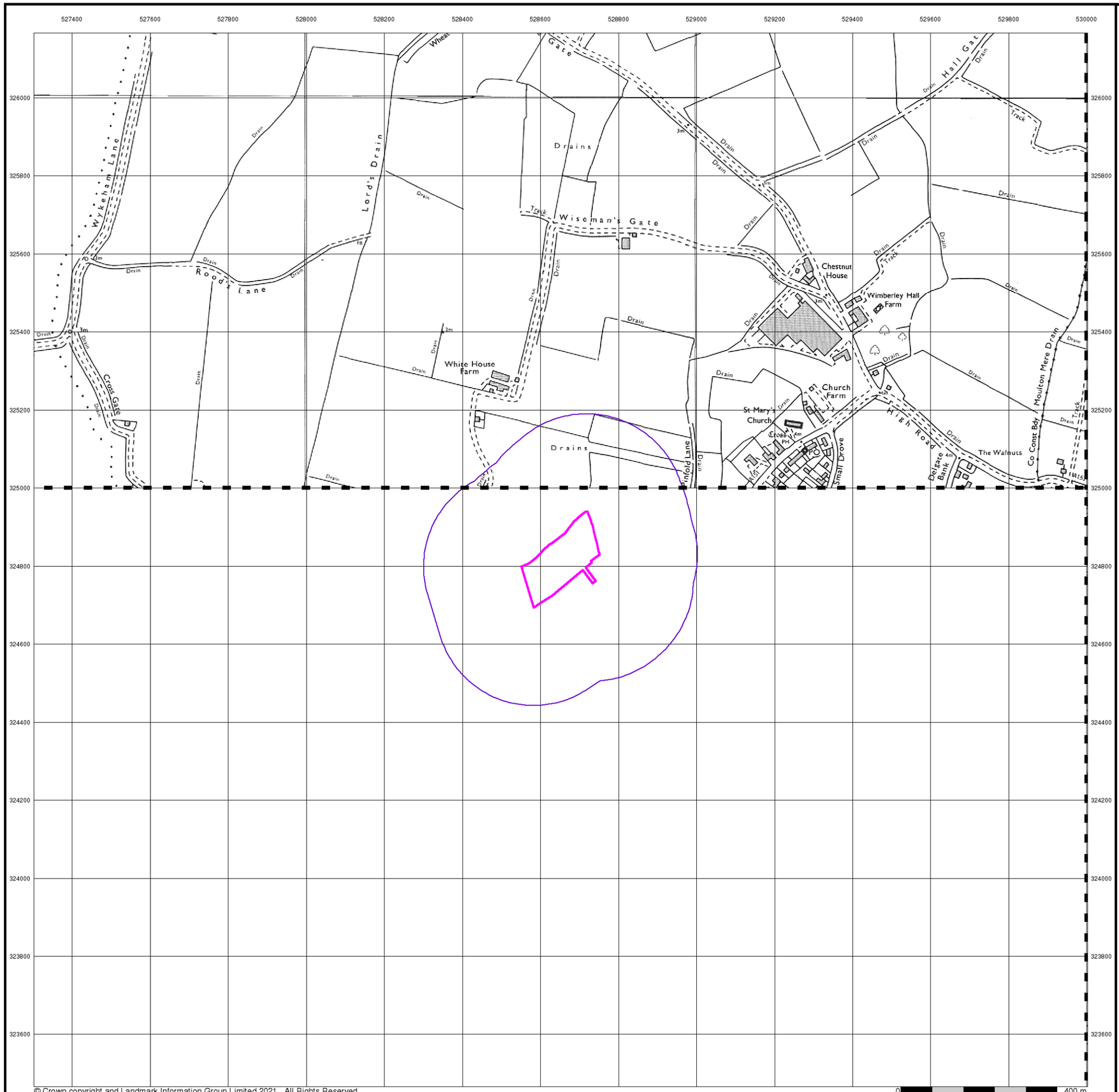
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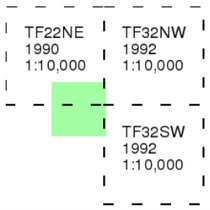
Ordnance Survey Plan

Published 1990 - 1992

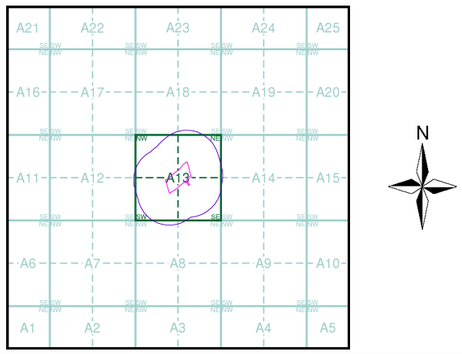
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Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

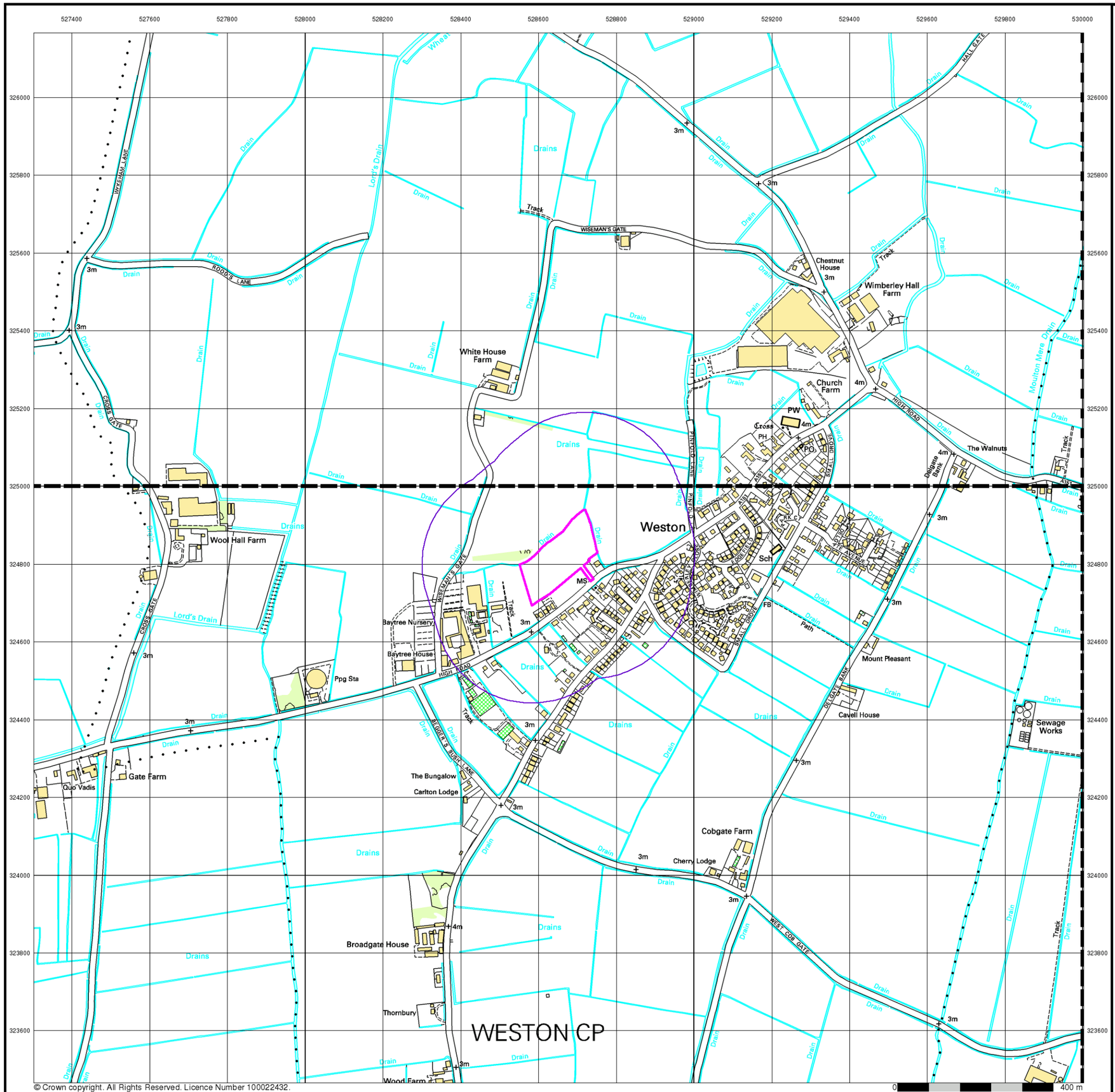
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10k Raster Mapping

Published 2000

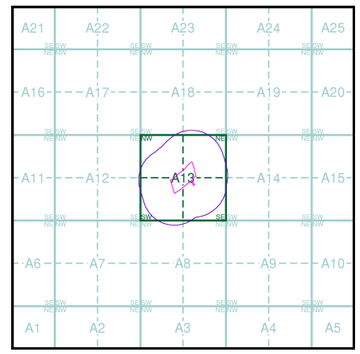
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

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TF22SE 2000 1:10,000	TF32SW 2000 1:10,000

Historical Map - Slice A



Order Details

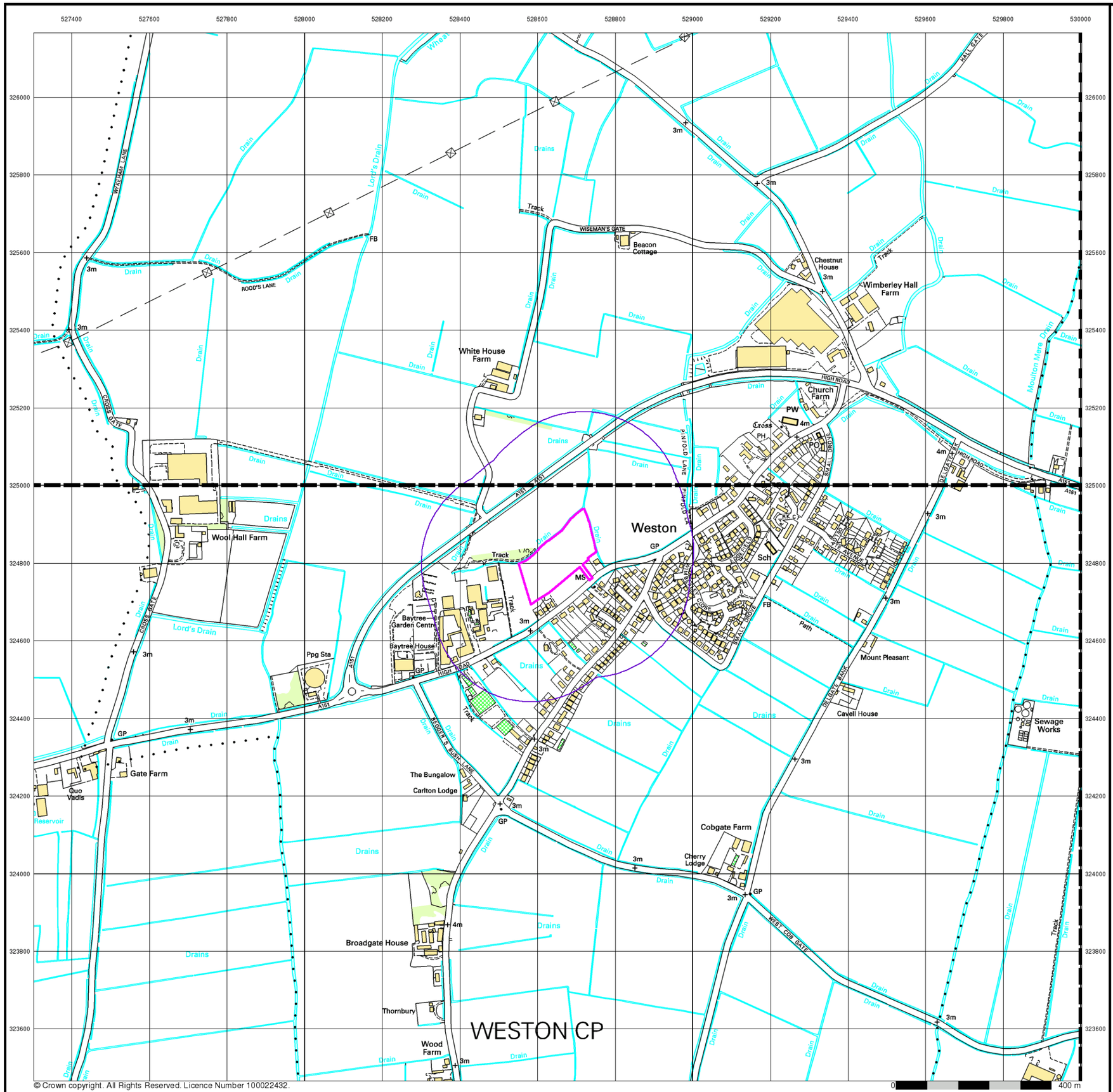
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GeoDyne

10k Raster Mapping

Published 2006

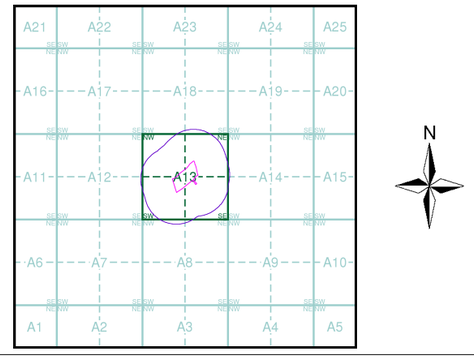
Source map scale - 1:10,000

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Map Name(s) and Date(s)

TF22NE 2006 1:10,000	TF32NW 2006 1:10,000
TF22SE 2006 1:10,000	TF32SW 2006 1:10,000

Historical Map - Slice A



Order Details

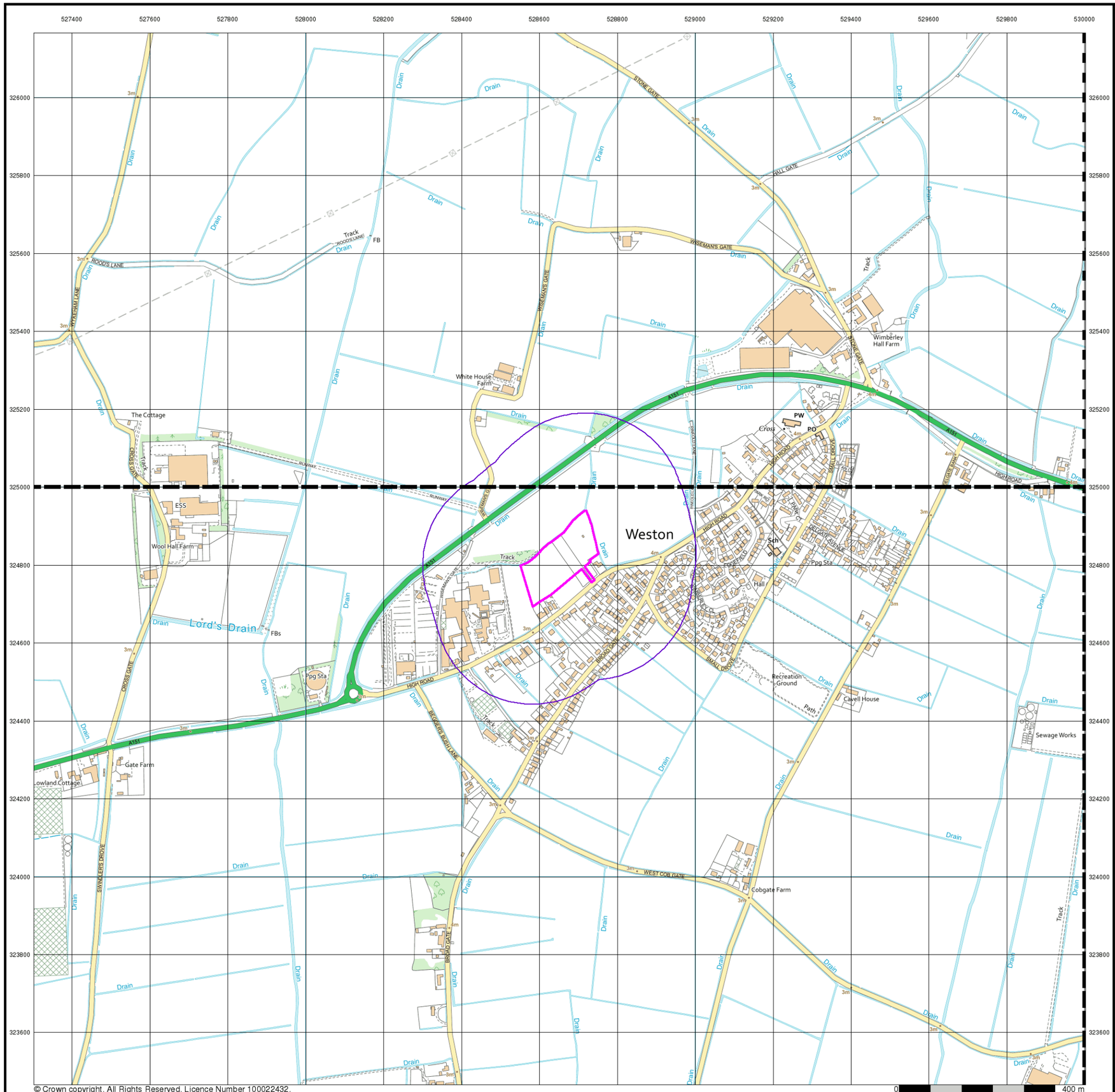
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GeoDyne

VectorMap Local

Published 2021

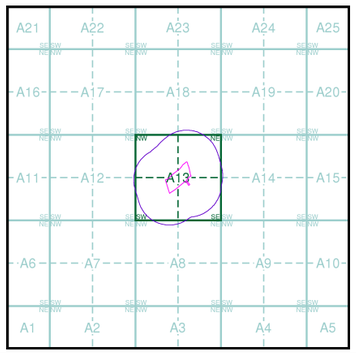
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

TF22NE 2021 Variable	TF32NW 2021 Variable
TF22SE 2021 Variable	TF32SW 2021 Variable

Historical Map - Slice A



Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston

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

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APPENDIX VI

Landmark Geological Maps

Geology 1:50,000 Maps Legends

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	TFD	Tidal Flat Deposits	Clay and Silt	Not Supplied - Holocene

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WWB	West Walton Formation	Mudstone and Siltstone	Not Supplied - Oxfordian
	OXC	Oxford Clay Formation	Mudstone	Not Supplied - Callovian

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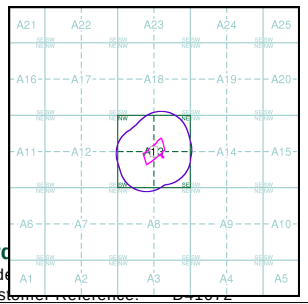
Geology 1:50,000 Maps

This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.
The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	**1**
Map Sheet No:	**144**
Map Name:	**Spalding**
Map Date:	**1992**
Bedrock Geology:	**Available**
Superficial Geology:	**Available**
Artificial Geology:	**Available**
Faults:	**Not Supplied**
Landslip:	**Not Available**
Rock Segments:	**Not Supplied**

Geology 1:50,000 Maps - Slice A



Orc

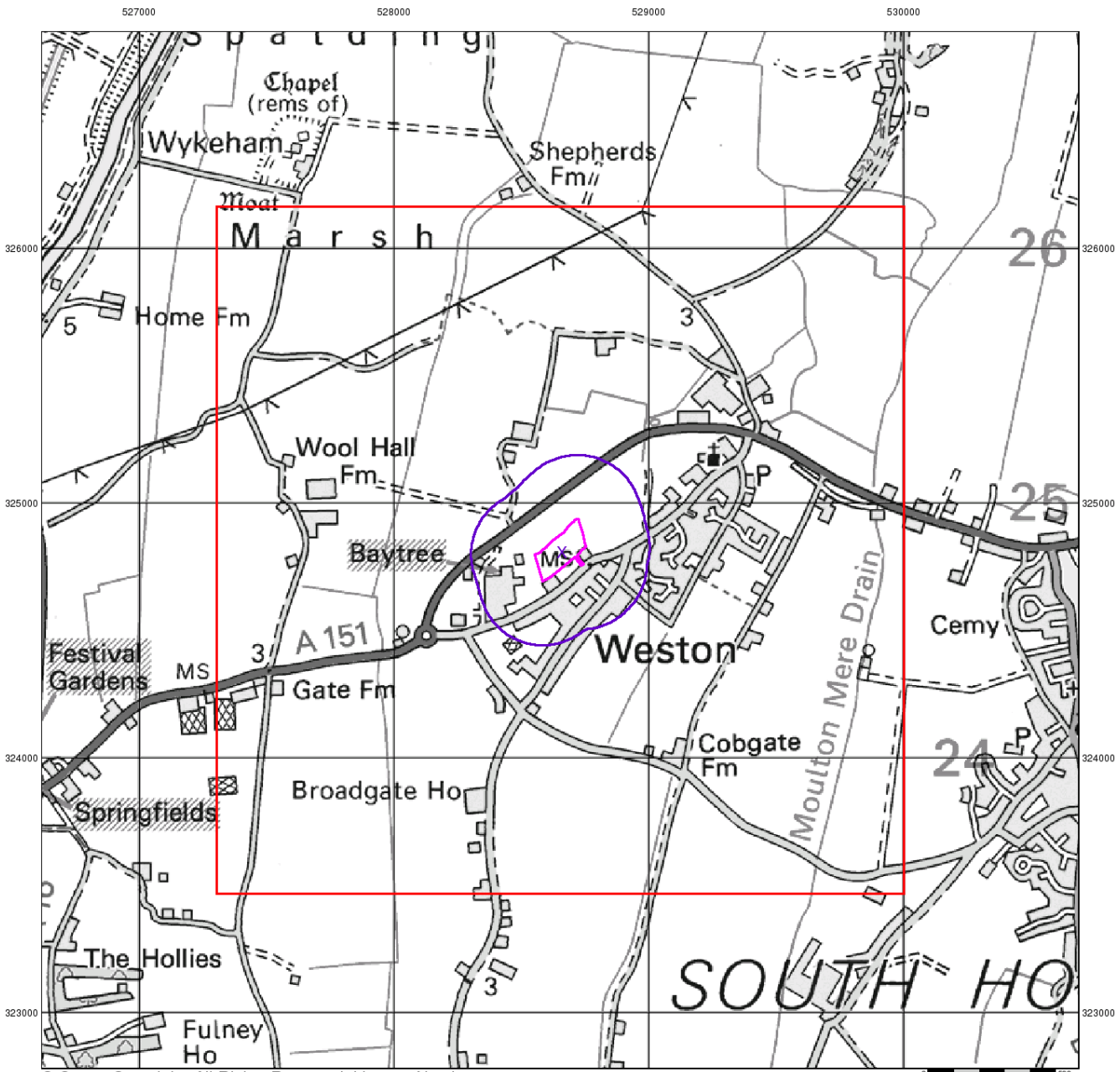
Orde
Customer Reference: B41071

National Grid Reference: 528660, 324810
Slice: A
Site Area (Ha): 2.35
Search Buffer (m): 250

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Artificial Ground and Landslip

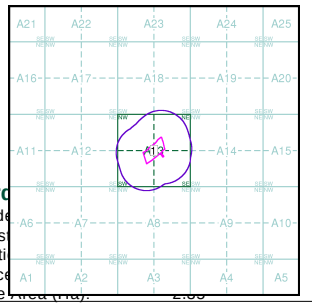
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



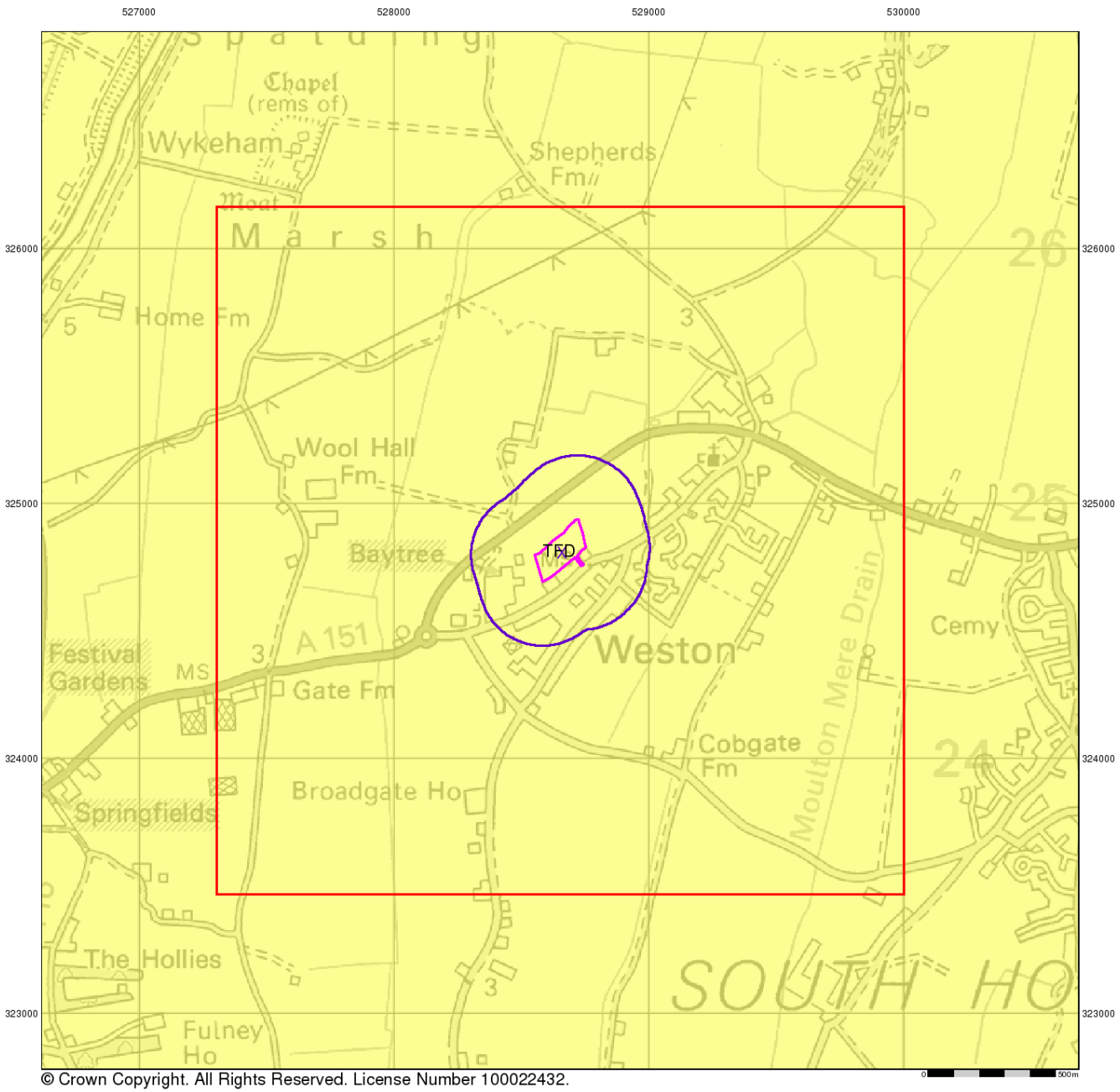


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Slice
Site Area (Ha): 2.03
Search Buffer (m): 250

Site Details:

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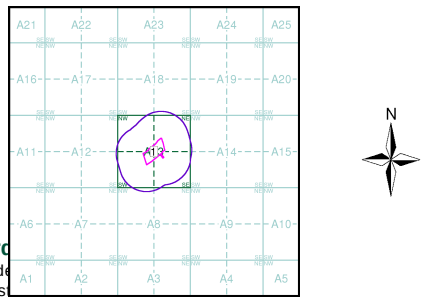
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



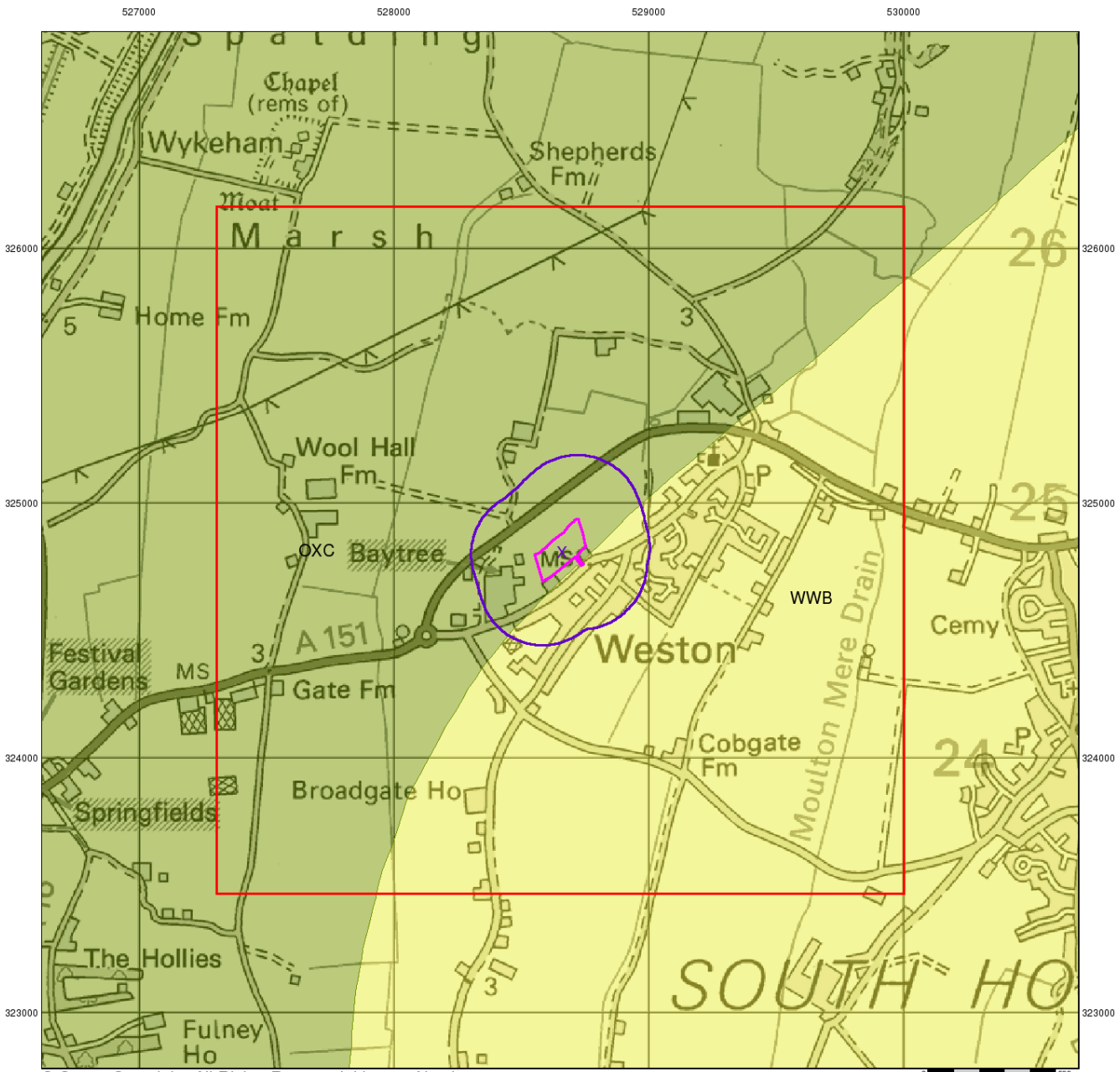
Orc
Orde
Cust

National Grid Reference: 528660, 324810
Slice: A
Site Area (Ha): 2.35
Search Buffer (m): 250

Site Details:

High Road, Weston

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Bedrock and Faults

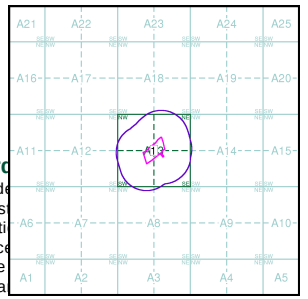
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A

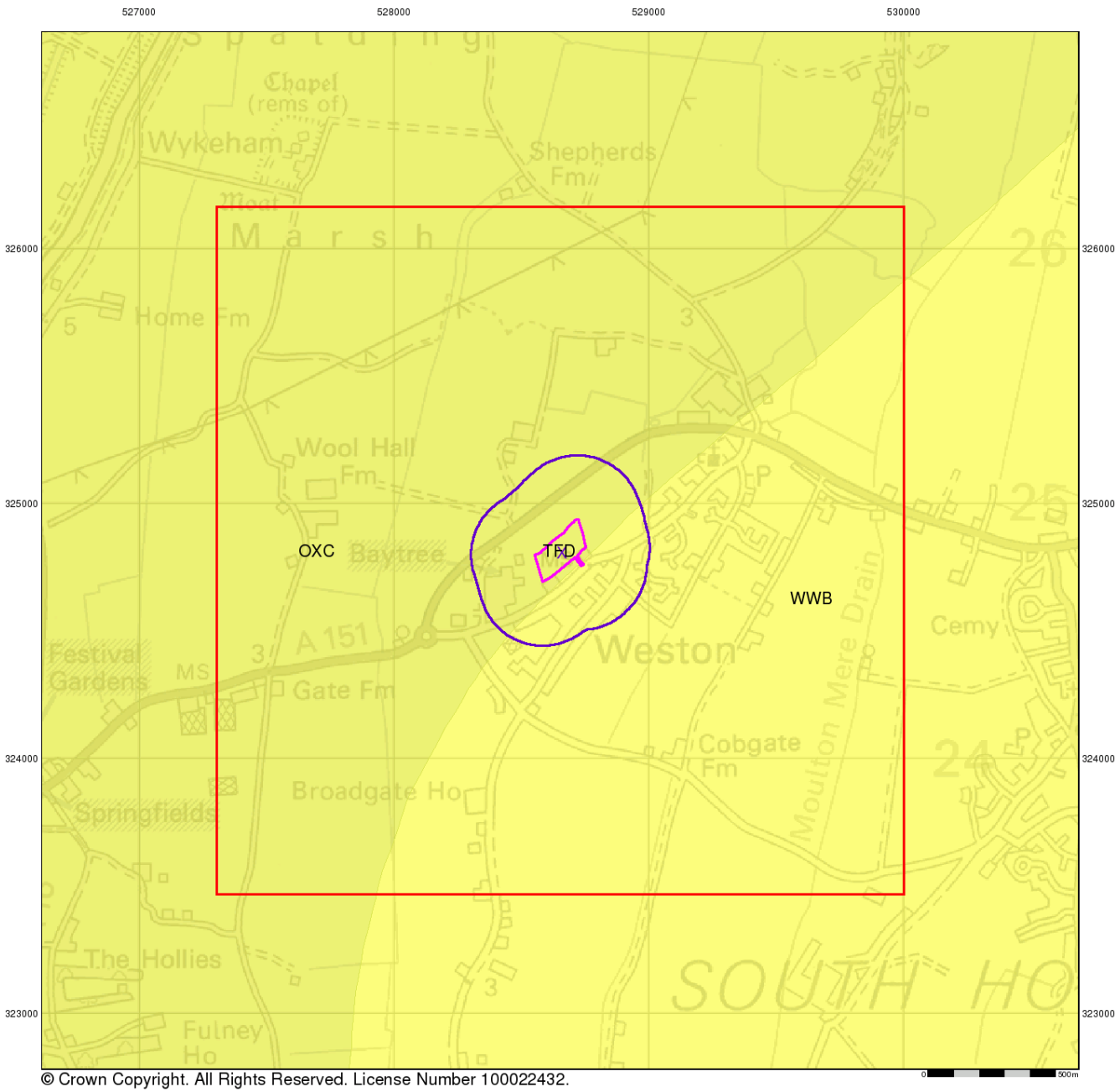


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Sea

Site Details:

High Road, Weston

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

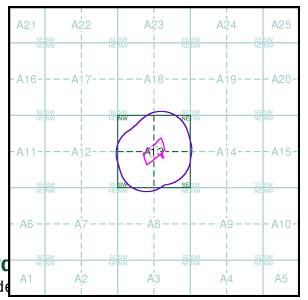
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Orc

Orde

Customer Reference:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details:

High Road, Weston

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APPENDIX VII

Landmark Envirocheck Report

GeoDyne

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
275840152_1_1

Customer Reference:
D41072

National Grid Reference:
528660, 324810

Slice:
A

Site Area (Ha):
2.35

Search Buffer (m):
250

Site Details:

High Road
Weston

Client Details:

Mr J Hollands
GeoDyne Ltd
Clarendon House
Clarendon Business Park
Clumber Avenue
Nottingham
NG5 1AH

GeoDyne

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	10
Hazardous Substances	-
Geological	11
Industrial Land Use	13
Sensitive Land Use	-
Data Currency	14
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.
In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

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

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Summary

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Waste			
BGS Recorded Landfill Sites			
Historical Landfill Sites			
Integrated Pollution Control Registered Waste Sites			
Licensed Waste Management Facilities (Landfill Boundaries)			
Licensed Waste Management Facilities (Locations)			
Local Authority Landfill Coverage	pg 10	2	n/a
Local Authority Recorded Landfill Sites			
Potentially Infilled Land (Non-Water)			
Potentially Infilled Land (Water)	pg 10		2
Registered Landfill Sites			
Registered Waste Transfer Sites			
Registered Waste Treatment or Disposal Sites			
Hazardous Substances			
Control of Major Accident Hazards Sites (COMAH)			
Explosive Sites			
Notification of Installations Handling Hazardous Substances (NIHHS)			
Planning Hazardous Substance Consents			
Planning Hazardous Substance Enforcements			

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Summary

Data Type	Page Number	On Site	0 to 250m (*up to 500m)
Geological			
BGS 1:625,000 Solid Geology	pg 11	Yes	n/a
BGS Estimated Soil Chemistry	pg 11	Yes	Yes
BGS Recorded Mineral Sites			
BGS Urban Soil Chemistry			
BGS Urban Soil Chemistry Averages			
CBSCB Compensation District			n/a
Coal Mining Affected Areas			n/a
Mining Instability			n/a
Man-Made Mining Cavities			
Natural Cavities			
Non Coal Mining Areas of Great Britain			
Potential for Collapsible Ground Stability Hazards			
Potential for Compressible Ground Stability Hazards	pg 11	Yes	Yes
Potential for Ground Dissolution Stability Hazards			
Potential for Landslide Ground Stability Hazards	pg 11	Yes	Yes
Potential for Running Sand Ground Stability Hazards	pg 11	Yes	Yes
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 12	Yes	Yes
Radon Potential - Radon Affected Areas			n/a
Radon Potential - Radon Protection Measures			n/a
Industrial Land Use			
Contemporary Trade Directory Entries	pg 13		3
Fuel Station Entries			
Points of Interest - Commercial Services			
Points of Interest - Education and Health			
Points of Interest - Manufacturing and Production	pg 13		1
Points of Interest - Public Infrastructure			
Points of Interest - Recreational and Environmental			
Gas Pipelines			
Underground Electrical Cables			

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

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Mr.M.K. Bowers Property Type: Domestic Property (Single) Location: Melandi High Road, Weston, Spalding, Lincs, Pe12 6ju Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr5lf3766 Permit Version: 1 Effective Date: 11th March 1981 Issued Date: 11th March 1981 Revocation Date: 8th September 1997 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	210	1	528500 324500
	Nearest Surface Water Feature	A13NW (NW)	0	-	528626 324856
	Groundwater Vulnerability Map Combined Classification: Unproductive Aquifer (may have productive aquifer beneath) Combined Vulnerability: Unproductive Combined Aquifer: Unproductive Bedrock Aquifer, Unproductive Superficial Aquifer Pollutant Speed: High Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial Patchiness: >90% Superficial Thickness: >10m Superficial Recharge: Low	A13SE (NE)	0	2	528659 324810
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (NE)	0	2	528659 324810
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A13SE (NE)	0	2	528659 324810
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13SE (NE)	0	1	528659 324810
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528700 324835
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528695 324850
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528700 324900
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528720 324911
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528696 324850
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528690 324854

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528719 324910
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528738 324904
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	21	1	528751 324800
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (E)	64	1	528805 324756
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	70	1	528798 324931
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	87	1	528816 324933
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	92	1	528818 324711
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SW (SW)	110	1	528500 324620
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	121	1	528870 324800
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (E)	130	1	528879 324800
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	158	1	528910 324835
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	158	1	528910 324835
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (E)	163	1	528915 324836
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (S)	177	1	528710 324565
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SW (SW)	195	1	528440 324560
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (E)	203	1	528955 324840

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	222	1	528949 324955
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	223	1	528950 324955
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A14NW (E)	238	1	528991 324830
	Extreme Flooding from Rivers or Sea without Defences Type: Extent of Extreme Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A14SW (E)	248	1	529000 324810
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13SE (NE)	0	1	528659 324810
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SW (SW)	0	1	528615 324765
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (E)	0	1	528695 324810
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (E)	0	1	528685 324815
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528690 324865
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (N)	0	1	528695 324901
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	0	1	528693 324811
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528690 324865
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (N)	0	1	528693 324895
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	0	1	528723 324925
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	22	1	528753 324785
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (E)	26	1	528760 324781

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	34	1	528770 324780
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (E)	36	1	528775 324776
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (E)	38	1	528777 324775
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	55	1	528795 324751
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (SE)	81	1	528813 324725
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (SE)	84	1	528815 324721
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (S)	151	1	528695 324585
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13SE (S)	171	1	528660 324540
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13SE (S)	172	1	528663 324541
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial/Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	201	1	528903 325021
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	202	1	528903 325024
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A18SE (N)	216	1	528695 325155
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	221	1	528937 324991
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Tidal Models Boundary Accuracy: As Supplied	A13NE (NE)	222	1	528933 325002
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	225	1	528930 325020
	Flooding from Rivers or Sea without Defences Type: Extent of Flooding from Rivers or Sea without Defences Flood Plain Type: Fluvial Models Boundary Accuracy: As Supplied	A13NE (NE)	249	1	528975 324970
	Areas Benefiting from Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Water Storage Areas None				
	Flood Defences None				
2	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 308.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	1	3	528624 324856
3	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 407.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (E)	1	3	528751 324838
4	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 466.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (NE)	3	3	528719 324942
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SE (SE)	13	3	528738 324743
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SE (SE)	16	3	528727 324732
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 81.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (S)	49	3	528606 324650
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (S)	63	3	528630 324648
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SE (E)	85	3	528830 324792

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 132.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	88	3	528572 324605
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 85.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (W)	89	3	528462 324793
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	97	3	528559 324599
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13SW (SW)	98	3	528534 324607
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	103	3	528551 324595
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	110	3	528542 324591
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	117	3	528534 324587
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	118	3	528532 324586
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	125	3	528524 324582

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 40.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	135	3	528470 324906
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 327.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	138	3	528536 324977
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 586.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (W)	142	3	528422 324865
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	147	3	528501 324570
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 172.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	155	3	528493 324566
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 240.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	157	3	528757 325091
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SE (SE)	158	3	528814 324619
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 587.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (W)	161	3	528419 324891
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 440.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	175	3	528435 324930

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 255.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	182	3	528768 325114
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 78.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	191	3	528741 325129
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 224.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	195	3	528773 325127
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 423.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	195	3	528438 324957
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 418.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NE (N)	196	3	528727 325135
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 291.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SE (SE)	197	3	528907 324655
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Welland Primacy: 2	A13NW (NW)	206	3	528458 324981
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 192.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	221	3	528427 324536
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SW (SW)	230	3	528419 324531

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 261.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Nene Primacy: 2	A13SE (S)	243	3	528756 324513

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: South Holland District Council - Has no landfill data to supply		0	5	528659 324810
	Local Authority Landfill Coverage Name: Lincolnshire County Council - Had landfill data but passed it to the relevant environment agency		0	4	528659 324810
38	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1958	A13SW (W)	150	-	528404 324775
39	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1958	A13SE (SE)	222	-	528867 324577

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Kellaways Formation And Oxford Clay Formation (Undifferentiated)	A13SE (NE)	0	6	528659 324810
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (NE)	0	6	528659 324810
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (N)	61	6	528659 325000
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain No Hazard				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	6	528659 325000
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	6	528659 325000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	6	528659 325000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	6	528659 325000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	6	528659 325000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	6	528659 325000
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	6	528659 324810

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	**Contemporary Trade Directory Entries** Name: The Mower Centre Ltd Location: High Road, Weston, Spalding, Lincolnshire, PE12 6JU Classification: Lawnmowers & Garden Machinery - Sales & Service **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A13SE (S)	66	-	528667 324669
41	**Contemporary Trade Directory Entries** Name: Baytree Mower Centre Location: Bay-Tree House, High Road, Weston, Spalding, Lincolnshire, PE12 6JU Classification: Lawnmowers & Garden Machinery - Sales & Service **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13SW (SW)	244	-	528388 324547
41	**Contemporary Trade Directory Entries** Name: Flamecraft Location: Bay-Tree House, High Road, Weston, Spalding, Lincolnshire, PE12 6JU Classification: Fireplaces & Mantelpieces **Status: Active** Positional Accuracy: Manually positioned to the address or location	A13SW (SW)	244	-	528388 324547
42	**Points of Interest - Manufacturing and Production** Name: Tank Location: PE12 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13SW (SW)	162	7	528431 324637

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Environment Agency - Head Office South Holland District Council - Environmental Services	 June 2020 October 2013	 Annually Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region	 January 2021	 Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region	 March 2013	 Annual Rolling Update
Integrated Pollution Controls Environment Agency - Anglian Region	 October 2008	 Variable
Integrated Pollution Prevention And Control Environment Agency - Anglian Region	 January 2021	 Quarterly
Local Authority Integrated Pollution Prevention And Control South Holland District Council - Environmental Services	 October 2014	 Variable
Local Authority Pollution Prevention and Controls South Holland District Council - Environmental Services	 October 2014	 Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements South Holland District Council - Environmental Services	 October 2014	 Variable
Nearest Surface Water Feature Ordnance Survey	 January 2021	
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region	 September 1999	 Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region	 March 2013	 Annual Rolling Update
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region	 March 2013	 Annual Rolling Update
Registered Radioactive Substances Environment Agency - Anglian Region	 June 2016	
River Quality Environment Agency - Head Office	 November 2001	 Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	 July 2012	 Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	 July 2012	 Annually
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Northern Area	 January 2021	 Quarterly
Water Abstractions Environment Agency - Anglian Region	 January 2021	 Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region	 October 2017	 Quarterly
Groundwater Vulnerability Map Environment Agency - Head Office	 June 2018	 As notified
Bedrock Aquifer Designations Environment Agency - Head Office	 January 2018	 Annually
Superficial Aquifer Designations Environment Agency - Head Office	 January 2018	 Annually
Source Protection Zones Environment Agency - Head Office	 October 2019	 Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	 September 2020	 Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	 September 2020	 Quarterly

Agency & Hydrological	Version	Update Cycle
Areas Benefiting from Flood Defences Environment Agency - Head Office	September 2020	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	September 2020	Quarterly
Flood Defences Environment Agency - Head Office	September 2020	Quarterly
OS Water Network Lines Ordnance Survey	September 2020	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water Suitability Environment Agency - Head Office	October 2013	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency - Head Office	October 2019	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Anglian Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Anglian Region - Northern Area	January 2021	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Anglian Region - Northern Area	January 2021	Quarterly
Local Authority Landfill Coverage Lincolnshire County Council South Holland District Council - Environmental Services	May 2000 May 2000	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Lincolnshire County Council South Holland District Council - Environmental Services	May 2000 May 2000	Not Applicable Not Applicable
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable
Registered Waste Transfer Sites Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - Anglian Region - Northern Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements South Holland District Council Lincolnshire County Council - Highways and Planning Department	January 2016 June 2010	Variable Variable
Planning Hazardous Substance Consents Lincolnshire County Council - Highways and Planning Department South Holland District Council	August 2007 January 2016	Variable Variable
Geological	**Version**	**Update Cycle**
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2020	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	January 2021	Quarterly
Fuel Station Entries Catalist Ltd - Experian	February 2021	Quarterly
Gas Pipelines National Grid	January 2021	
Points of Interest - Commercial Services PointX	March 2021	Quarterly
Points of Interest - Education and Health PointX	March 2021	Quarterly
Points of Interest - Manufacturing and Production PointX	March 2021	Quarterly
Points of Interest - Public Infrastructure PointX	March 2021	Quarterly
Points of Interest - Recreational and Environmental PointX	March 2021	Quarterly
Underground Electrical Cables National Grid	December 2020	

Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt South Holland District Council	June 2020	As notified
Areas of Unadopted Green Belt South Holland District Council	June 2020	As notified
Areas of Outstanding Natural Beauty Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2021	Bi-Annually
Marine Nature Reserves Natural England	July 2019	Bi-Annually
National Nature Reserves Natural England	January 2021	Bi-Annually
National Parks Natural England	April 2017	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones Environment Agency - Head Office Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2017 October 2015	Bi-Annually
Ramsar Sites Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2021	Bi-Annually
Special Areas of Conservation Natural England	July 2020	Bi-Annually
Special Protection Areas Natural England	February 2021	Bi-Annually

Data Suppliers

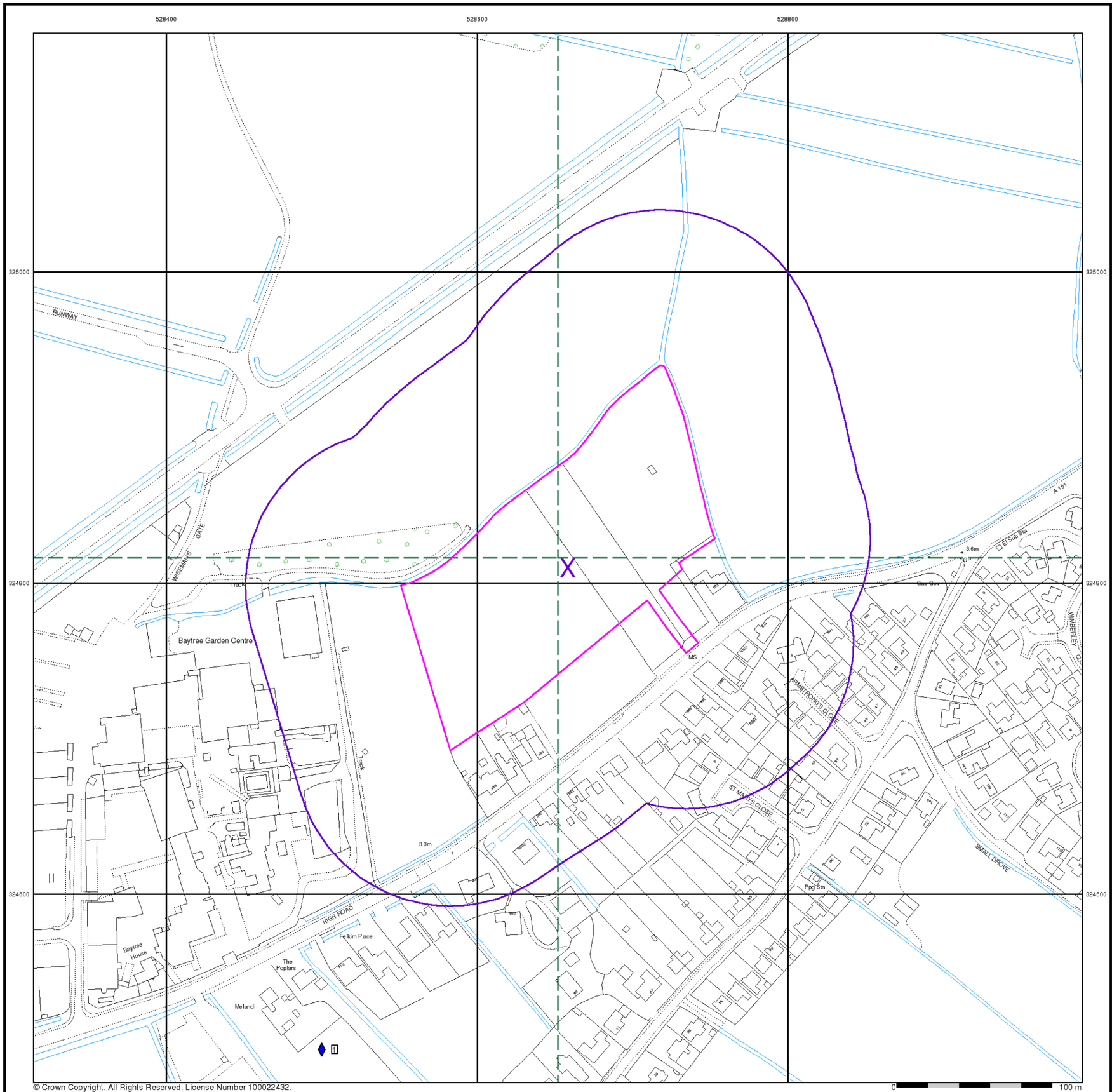
A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
Environment Agency	Environment Agency
Scottish Environment Protection Agency	SEPA Scottish Environment Protection Agency
The Coal Authority	The Coal Authority
British Geological Survey	British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	Cyfoeth Naturiol Cymru Natural Resources Wales
Scottish Natural Heritage	SCOTTISH NATURAL HERITAGE
Natural England	NATURAL ENGLAND
Public Health England	Public Health England
Ove Arup	ARUP
Stantec UK Ltd	Stantec

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
2	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
3	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
4	**Lincolnshire County Council** 4th Floor, City Hall, Lincoln, Lincolnshire, LN1 1DN	Telephone: 01522 552222 Fax: 01522 552288 Email: PublicRelations@lincolnshire.gov.uk Website: www.lincolnshire.gov.uk
5	**South Holland District Council - Environmental Services** Council Offices, Priory Road, Spalding, Lincolnshire, PE11 2XE	Website: www.sholland.gov.uk
6	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
7	**PointX** 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
-	**Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

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



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GeoDyne

General

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

Agency and Hydrological

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

Hazardous Substances

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

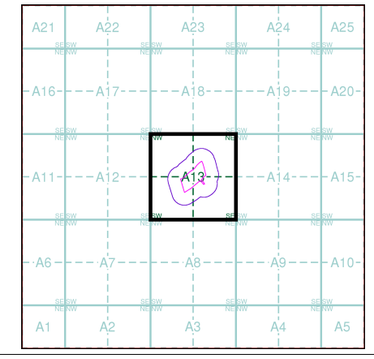
Geological

- BGS Recorded Mineral Site

Waste

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

Site Sensitivity Map - Segment A13



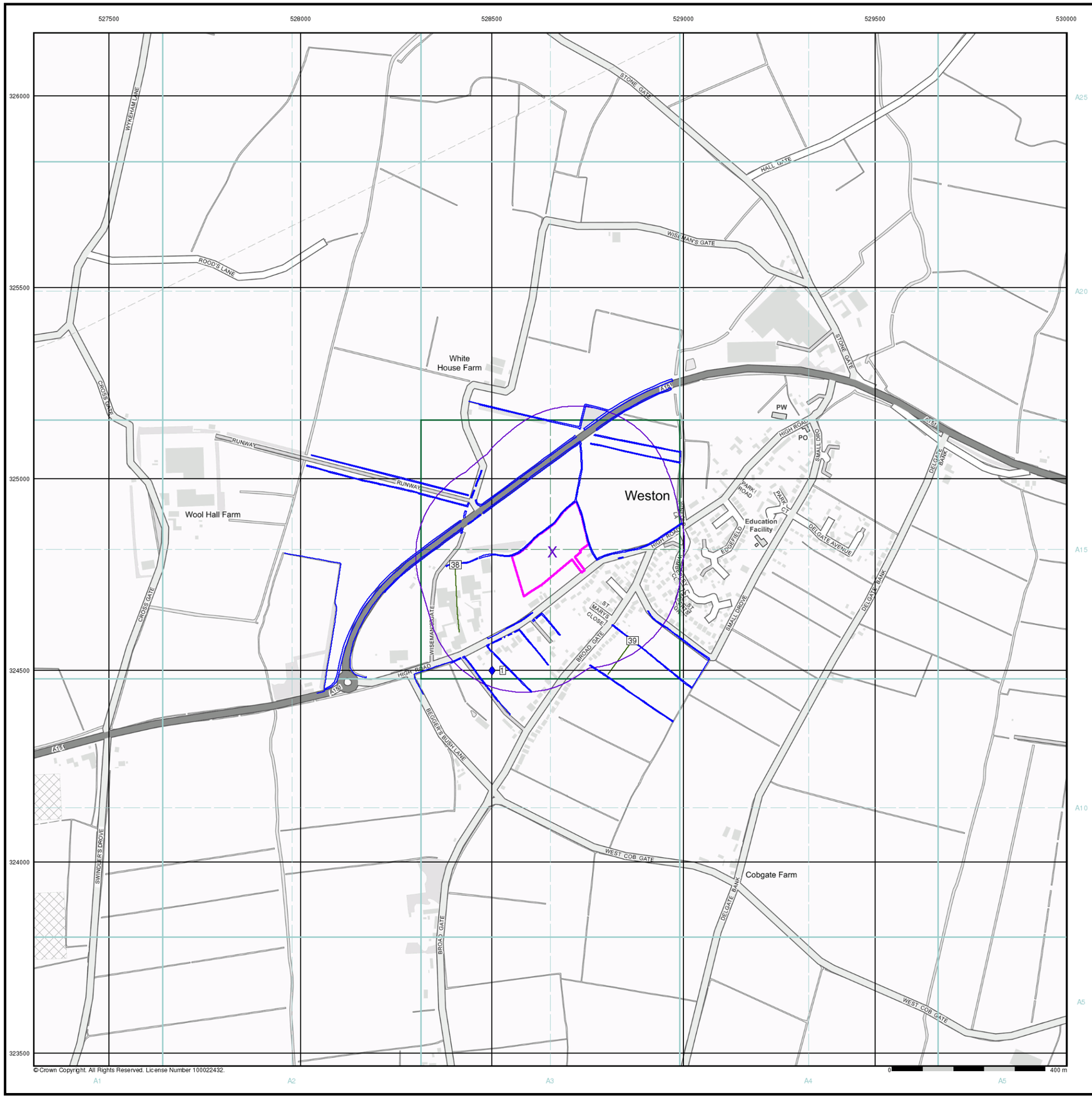
Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Plot Buffer (m):	100

Site Details

High Road, Weston

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



GeoDyne

General

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

Agency and Hydrological

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

Hazardous Substances

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

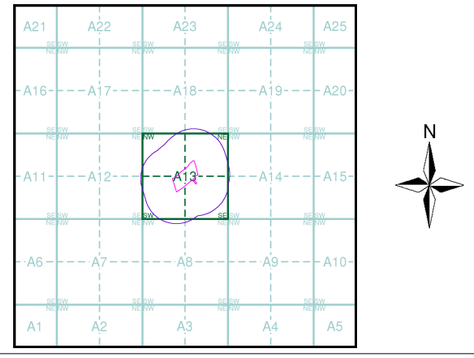
Geological

BGS Recorded Mineral Site

Waste

BGS Recorded Landfill Site (Location)
BGS Recorded Landfill Site
EA Historic Landfill (Buffered Point)
EA Historic Landfill (Polygon)
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Potentially Infilled Land (Non-water)
Potentially Infilled Land (Non-water)
Potentially Infilled Land (Water)
Potentially Infilled Land (Water)
Potentially Infilled Land (Water)
Registered Landfill Site
Registered Landfill Site (Location)
Registered Landfill Site (Point Buffered to 100m)
Registered Landfill Site (Point Buffered to 250m)
Registered Waste Transfer Site (Location)
Registered Waste Transfer Site
Registered Waste Treatment or Disposal Site (Location)
Registered Waste Treatment or Disposal Site

Site Sensitivity Map - Slice A



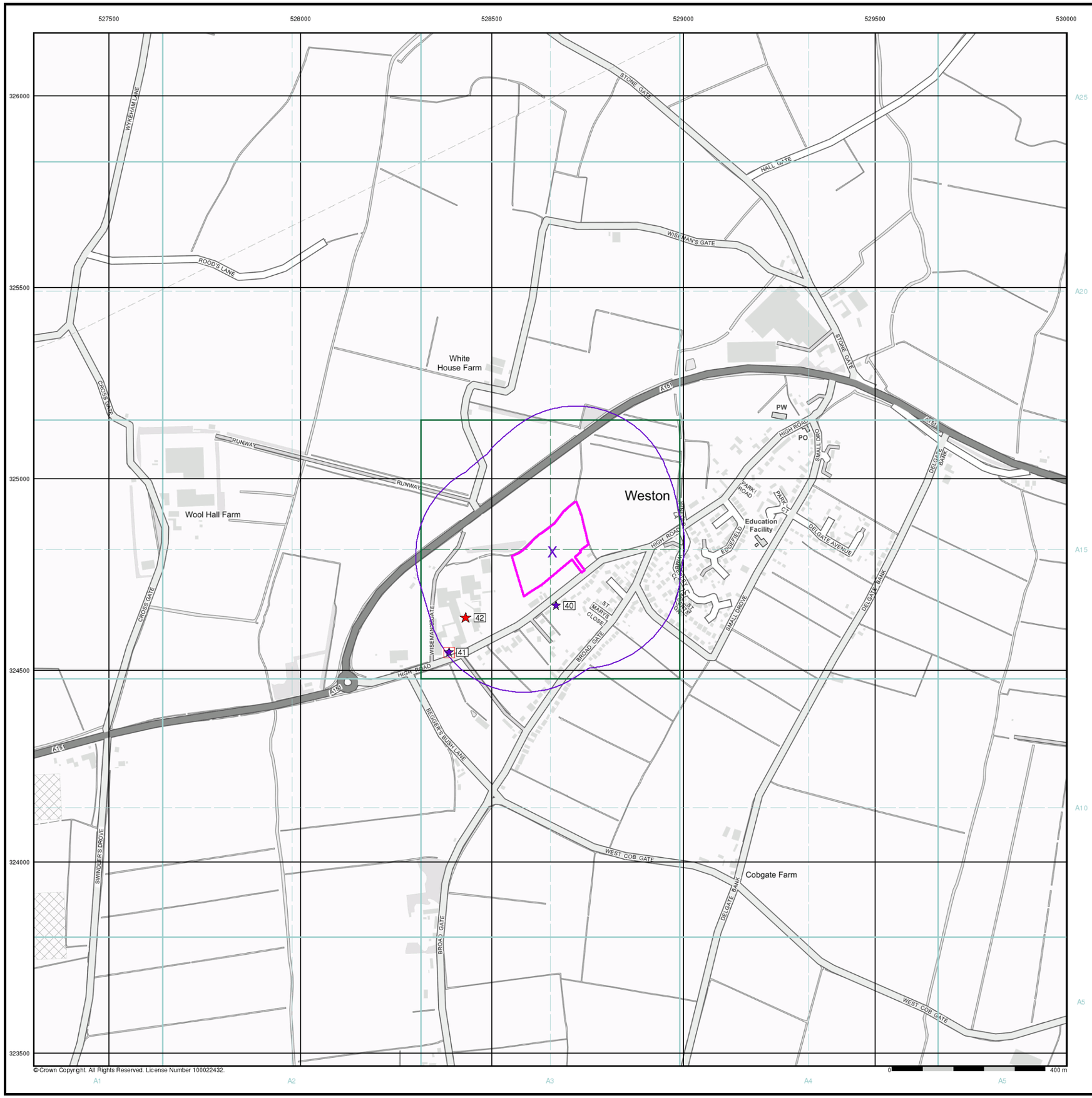
Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

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Industrial Land Use Map

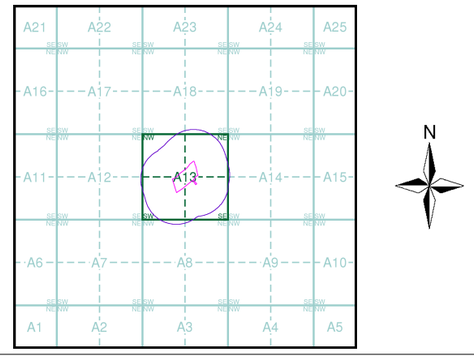
General

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

Industrial Land Use

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

Industrial Land Use Map - Slice A



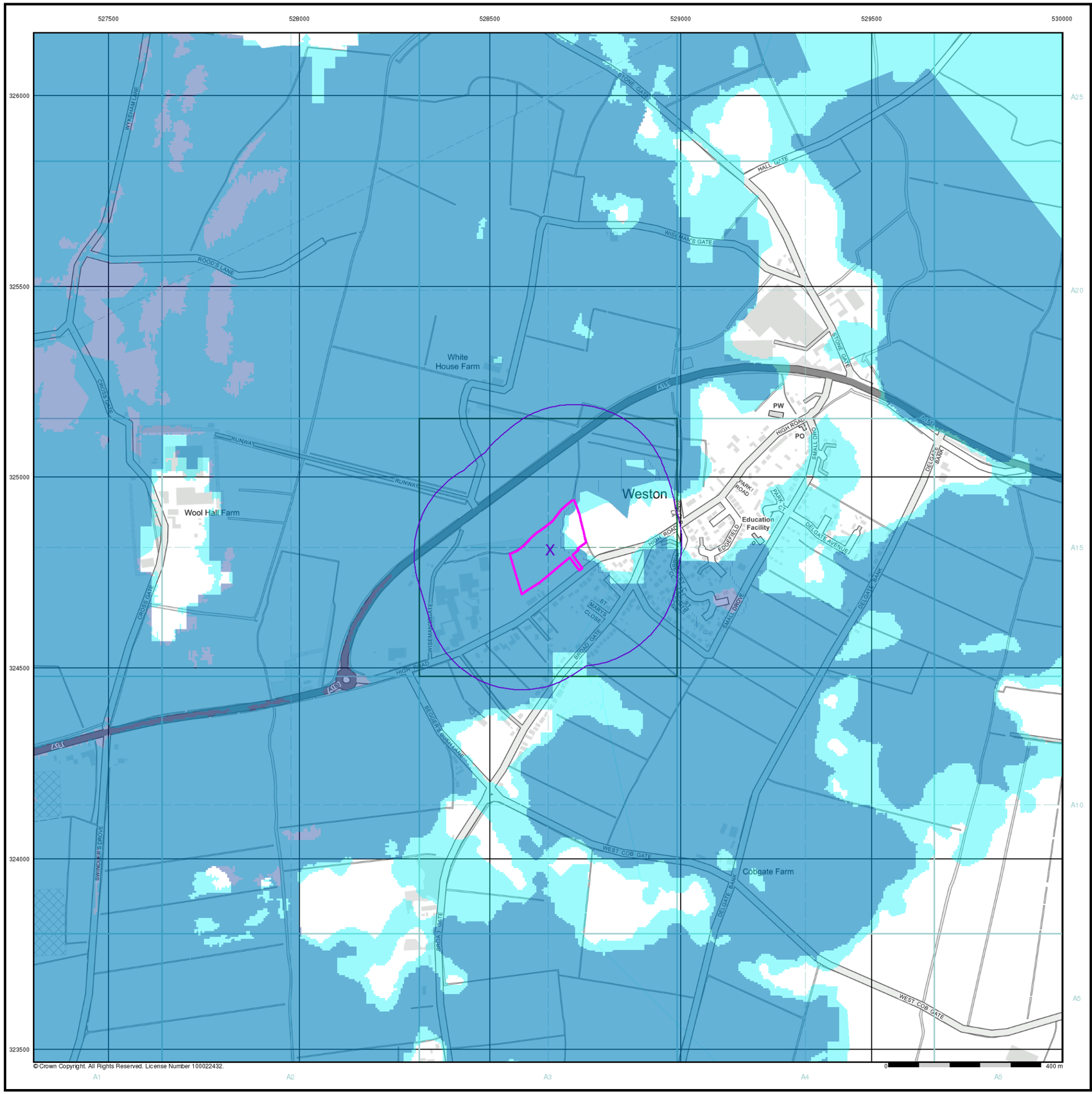
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Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

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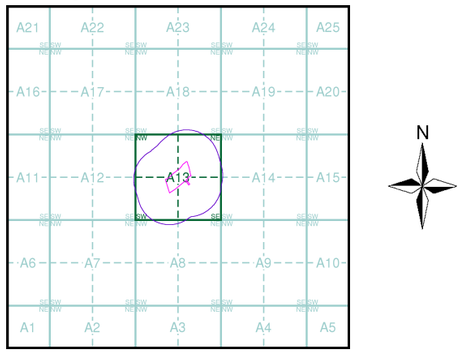
General

- Specified Site
- Specified Buffer(s)
- X 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



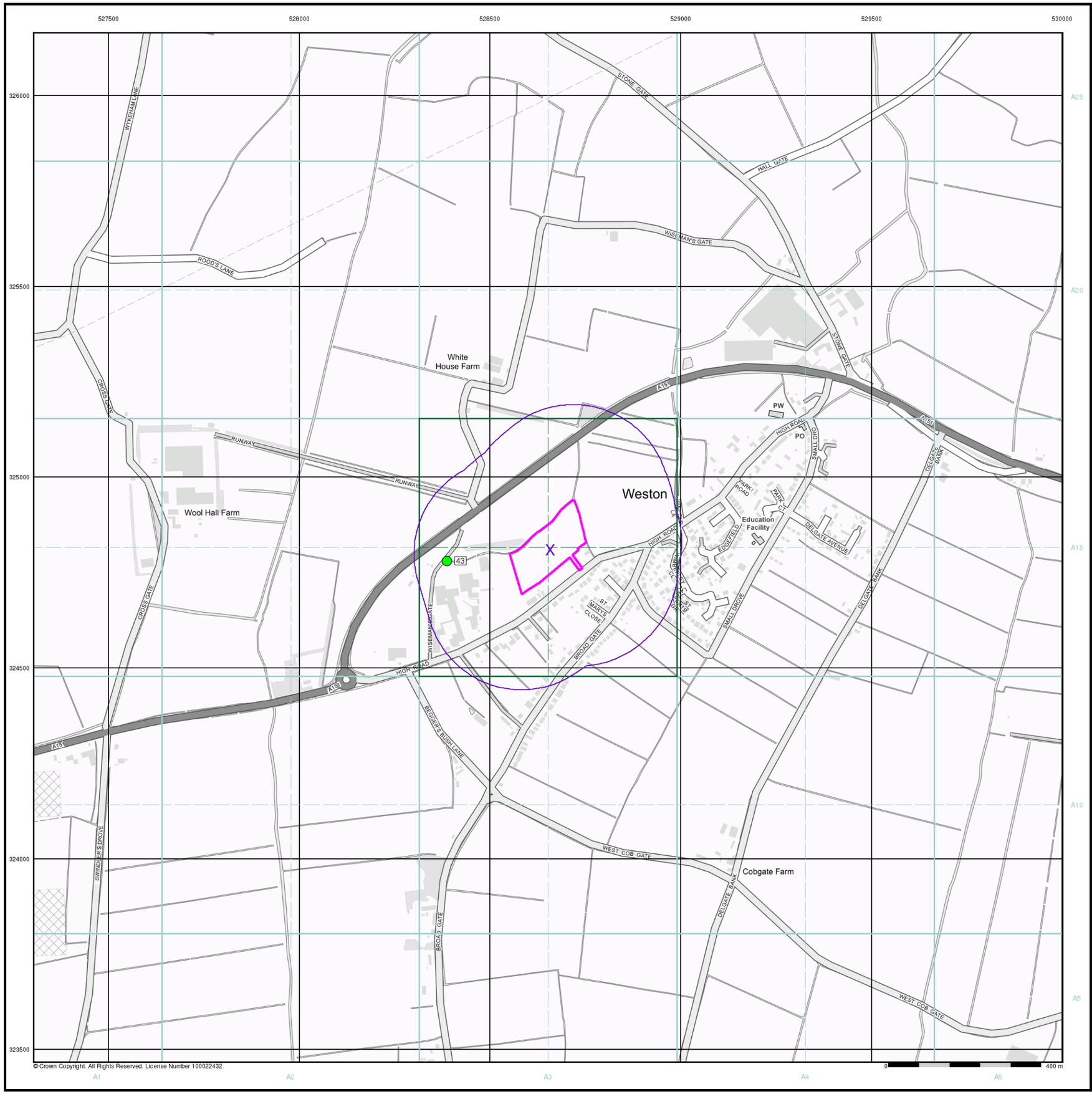
Order Details

Order Number:	275840152_1_1
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Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

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GeoDyne

General

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

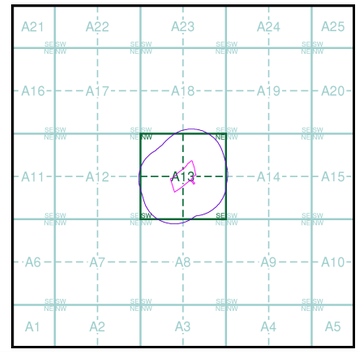
Agency and Hydrological (Boreholes)

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

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

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

Borehole Map - Slice A

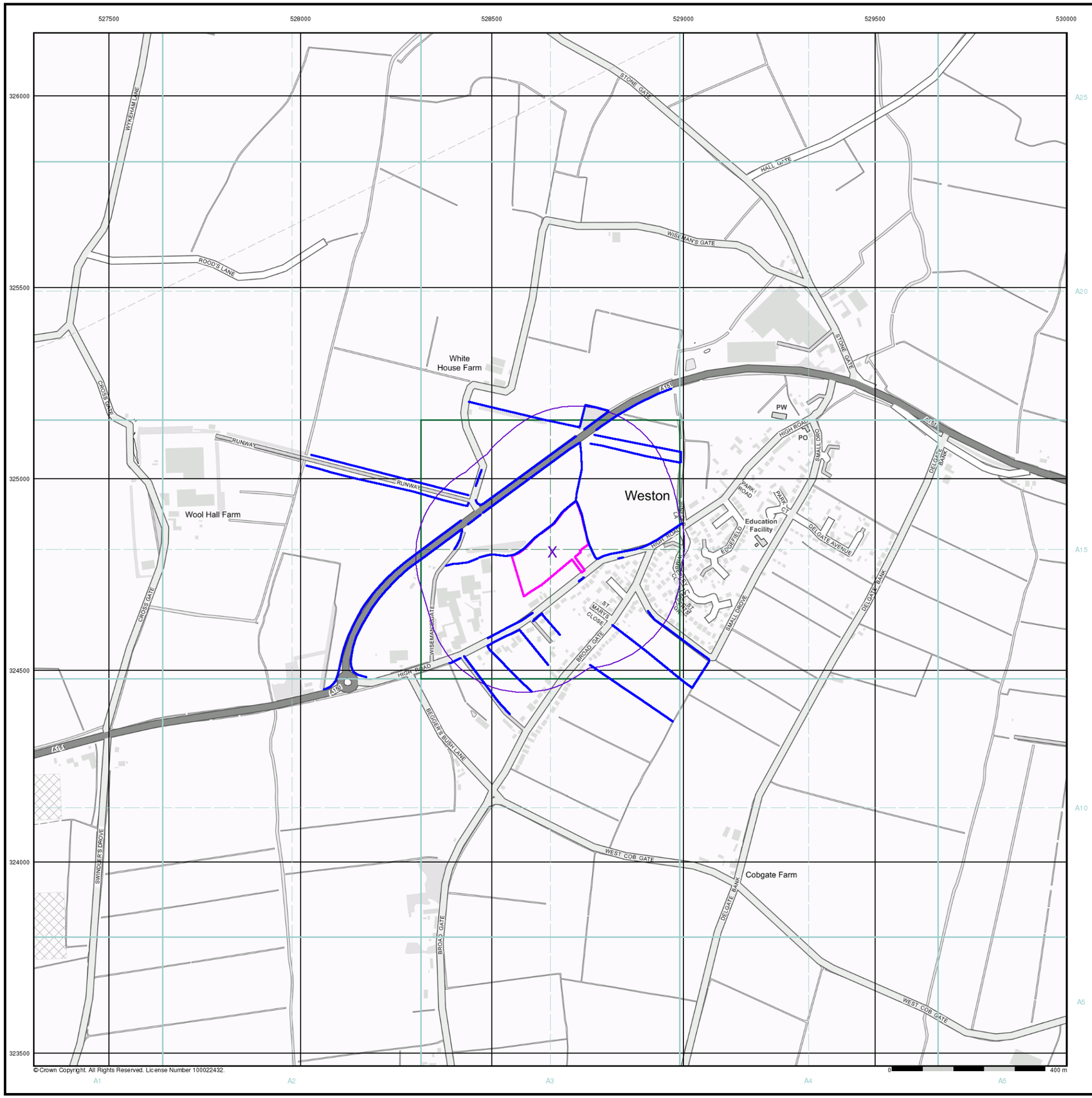


Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston



GeoDyne

General

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

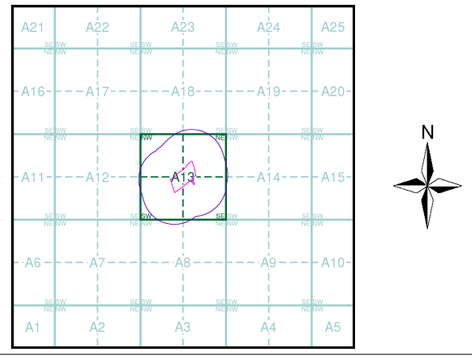
OS Water Network Data

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

Contours (height in meters)

- Standard Contour (105, 100, 95)
- Master Contour
- Spot Height 167.3
- MLW Mean Low Water
- MHW Mean High Water

OS Water Network Map - Slice A



Order Details

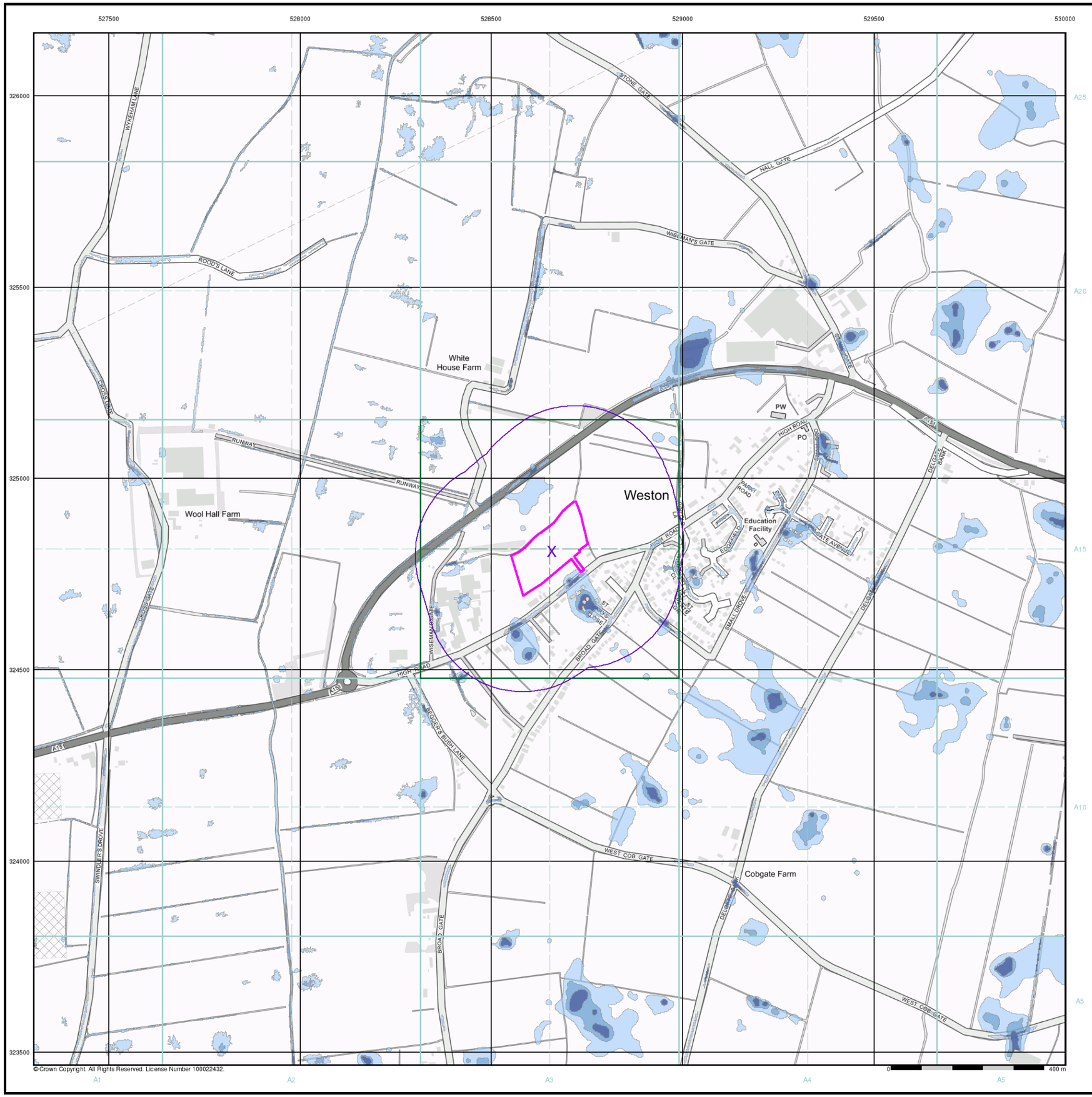
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Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston

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GeoDyne

General

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

Risk of Flooding from Surface Water

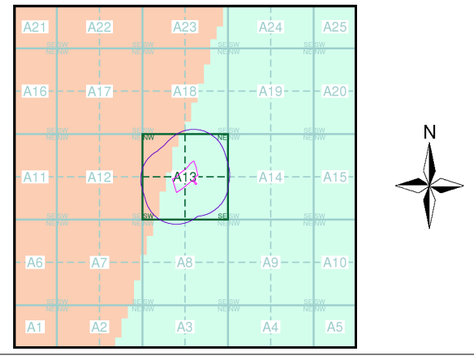
- High - 30 Year Return
- Medium - 100 Year Return
- Low - 1000 Year Return

Suitability

See the suitability map below

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

EA/NRW Suitability Map - Slice A

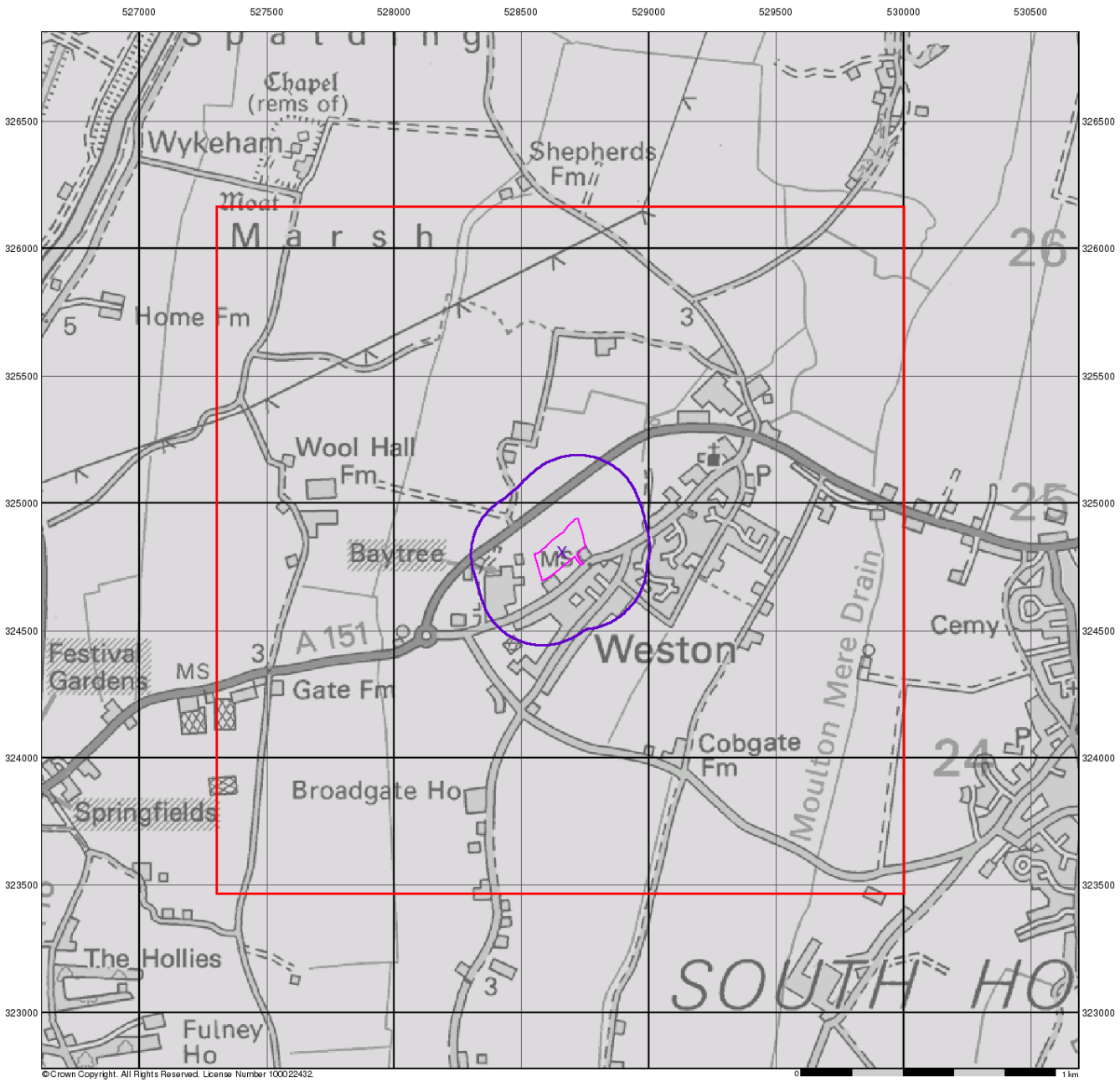


Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston



GeoDyne

Groundwater Vulnerability

General

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

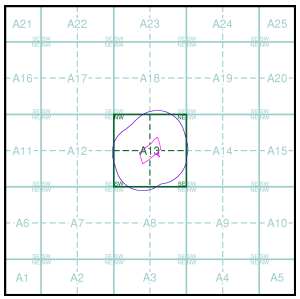
Agency and Hydrological

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

Unproductive Aquifer

Soluble Rock

Site Sensitivity Context Map - Slice A



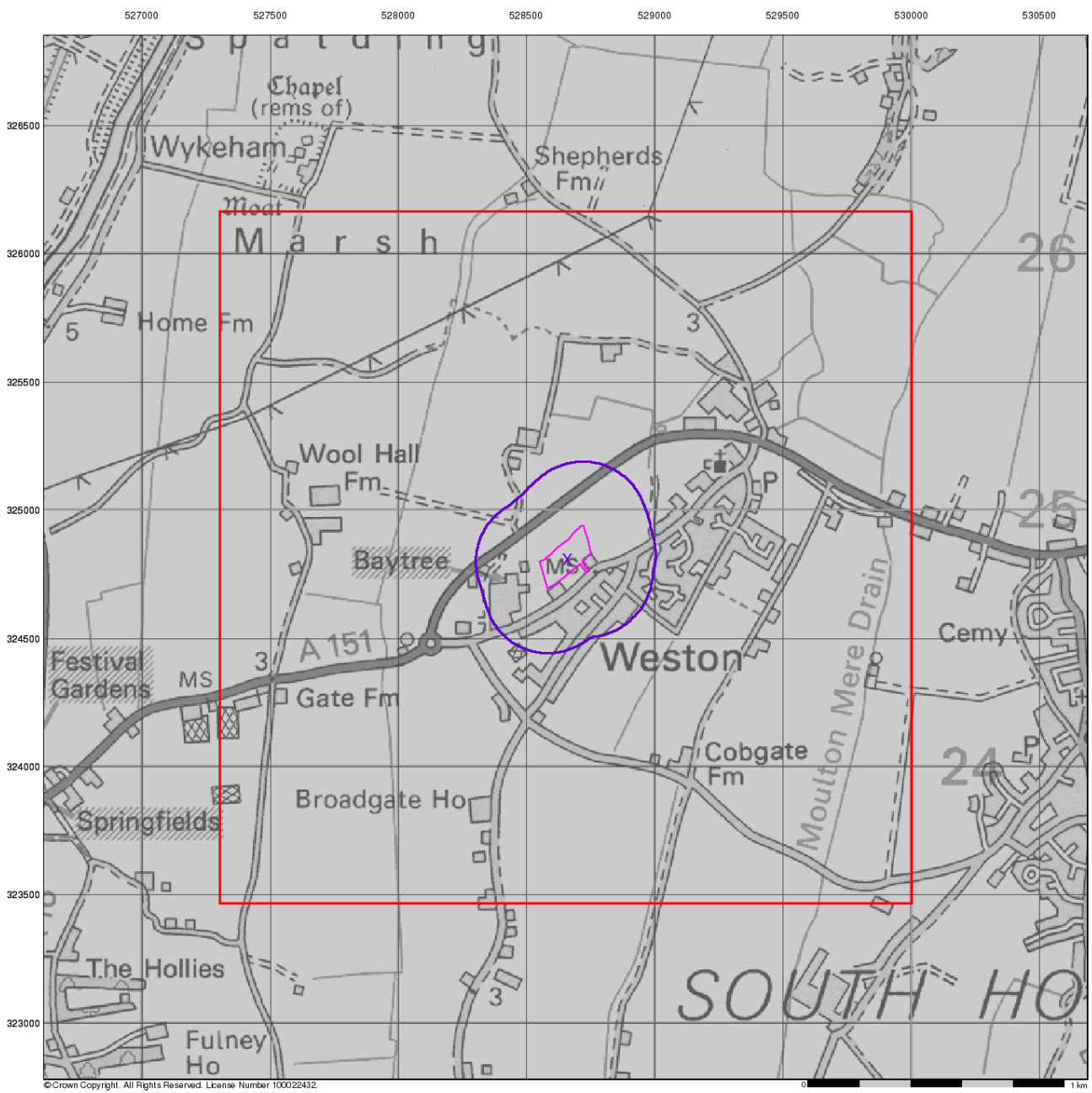
Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

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Web: www.envirocheck.co.uk



GeoDyne

Bedrock Aquifer Designation

General

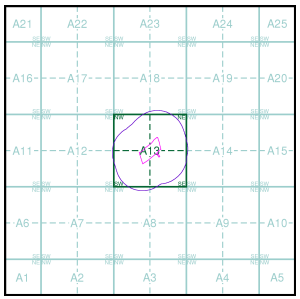
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



Order Details

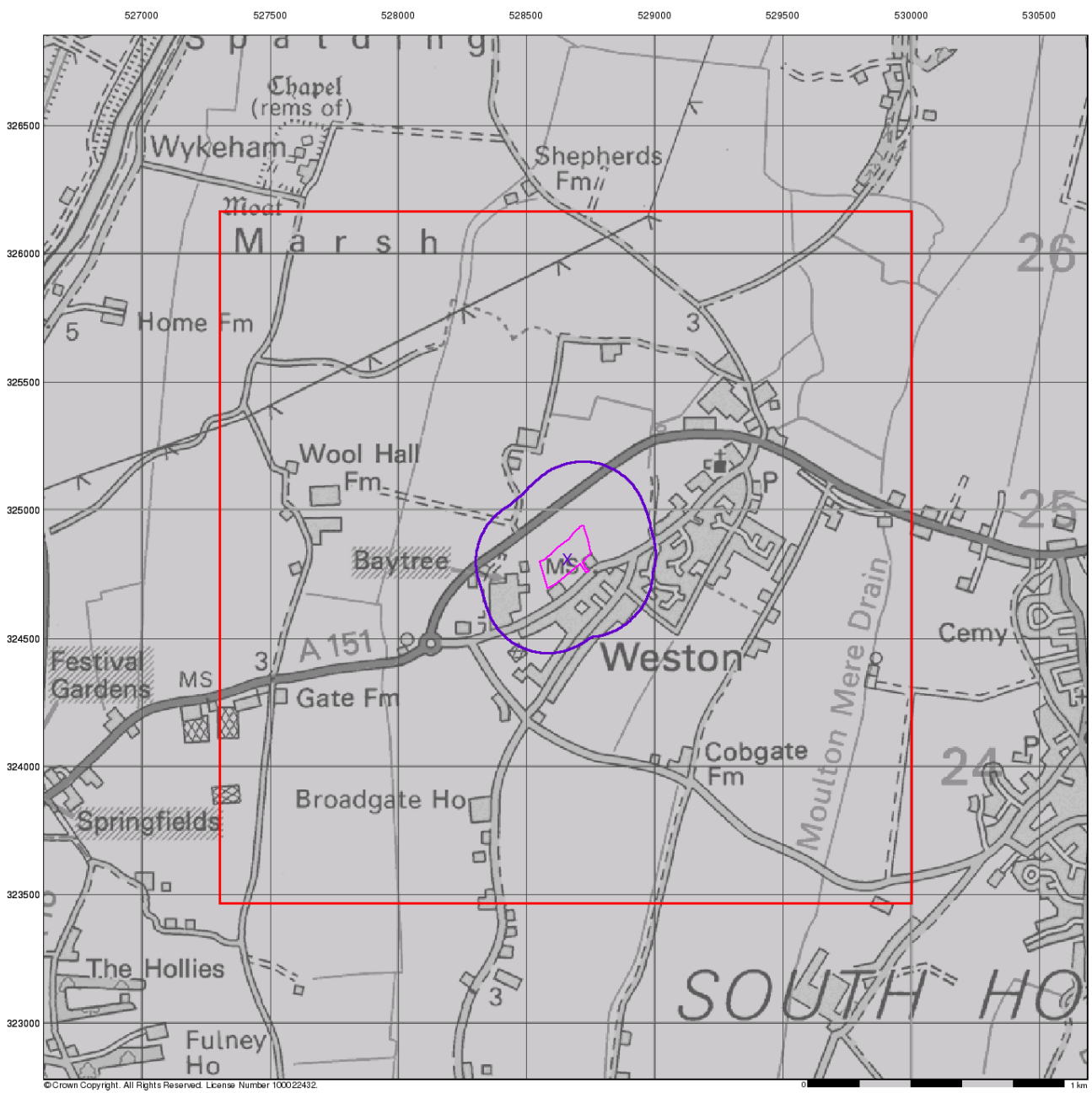
Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston

Landmark INFORMATION GROUP

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



GeoDyne

Superficial Aquifer Designation

General

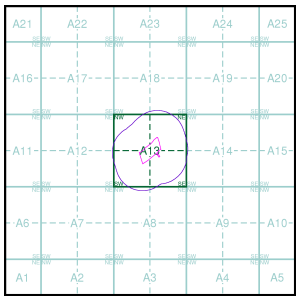
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



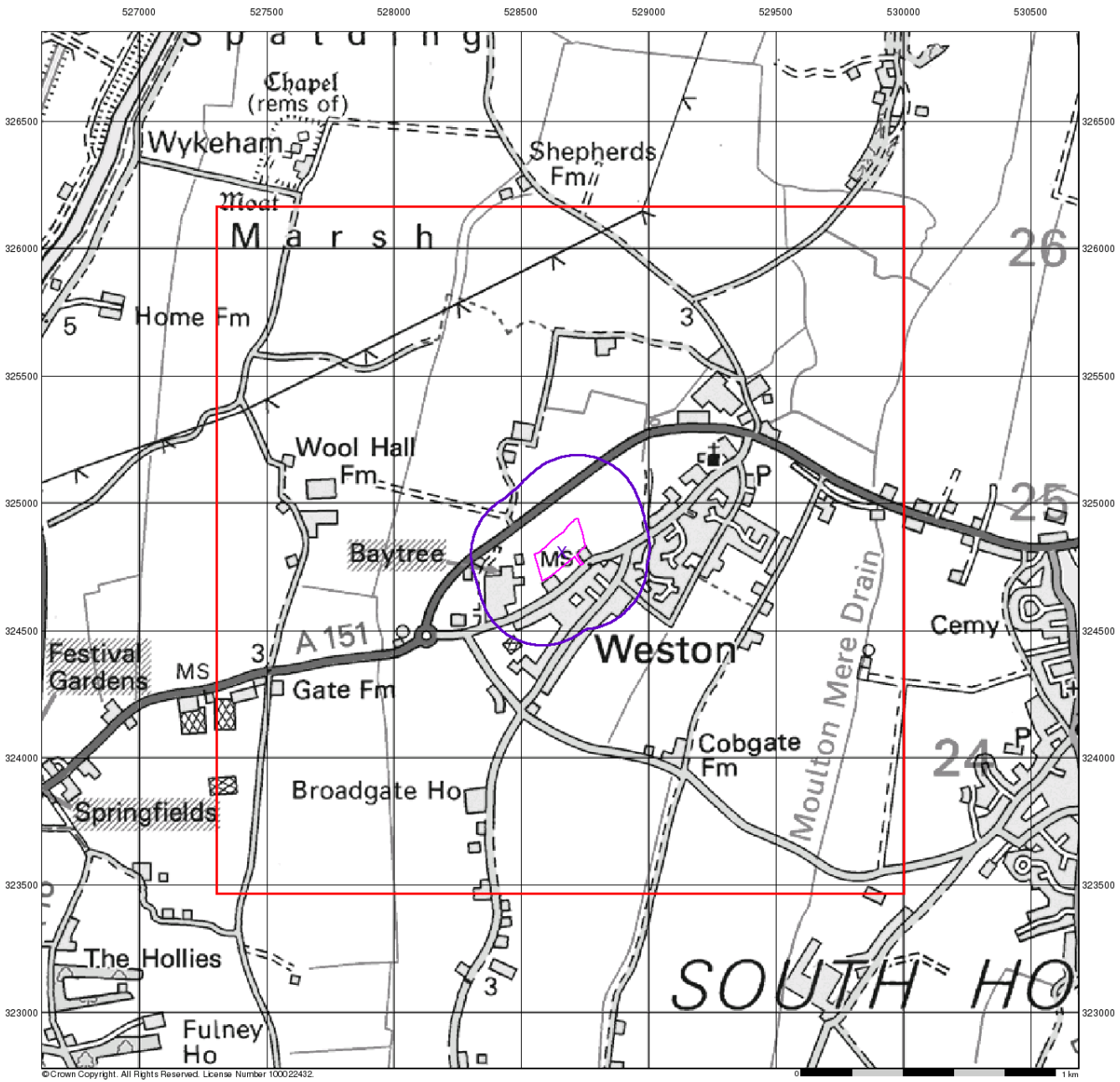
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GeoDyne

Source Protection Zones

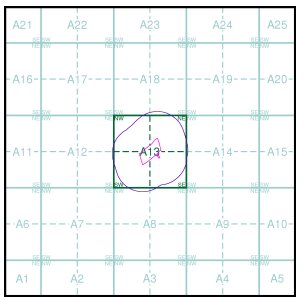
General

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

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



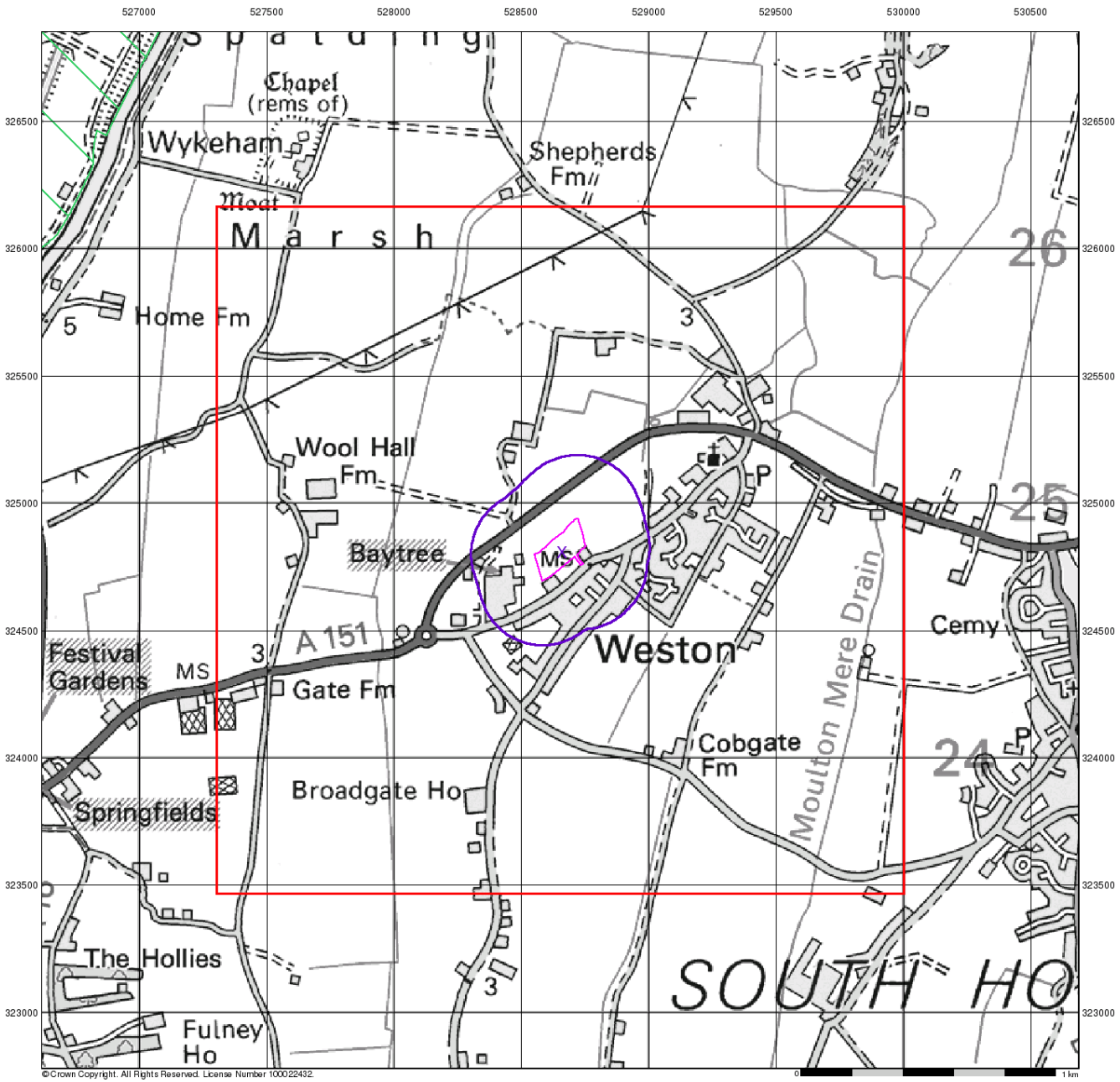
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GeoDyne

Sensitive Land Uses

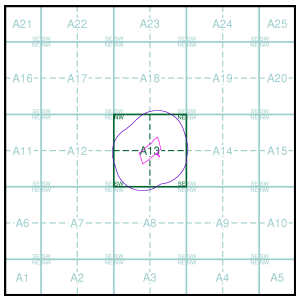
General

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

Sensitive Land Uses

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

Site Sensitivity Context Map - Slice A



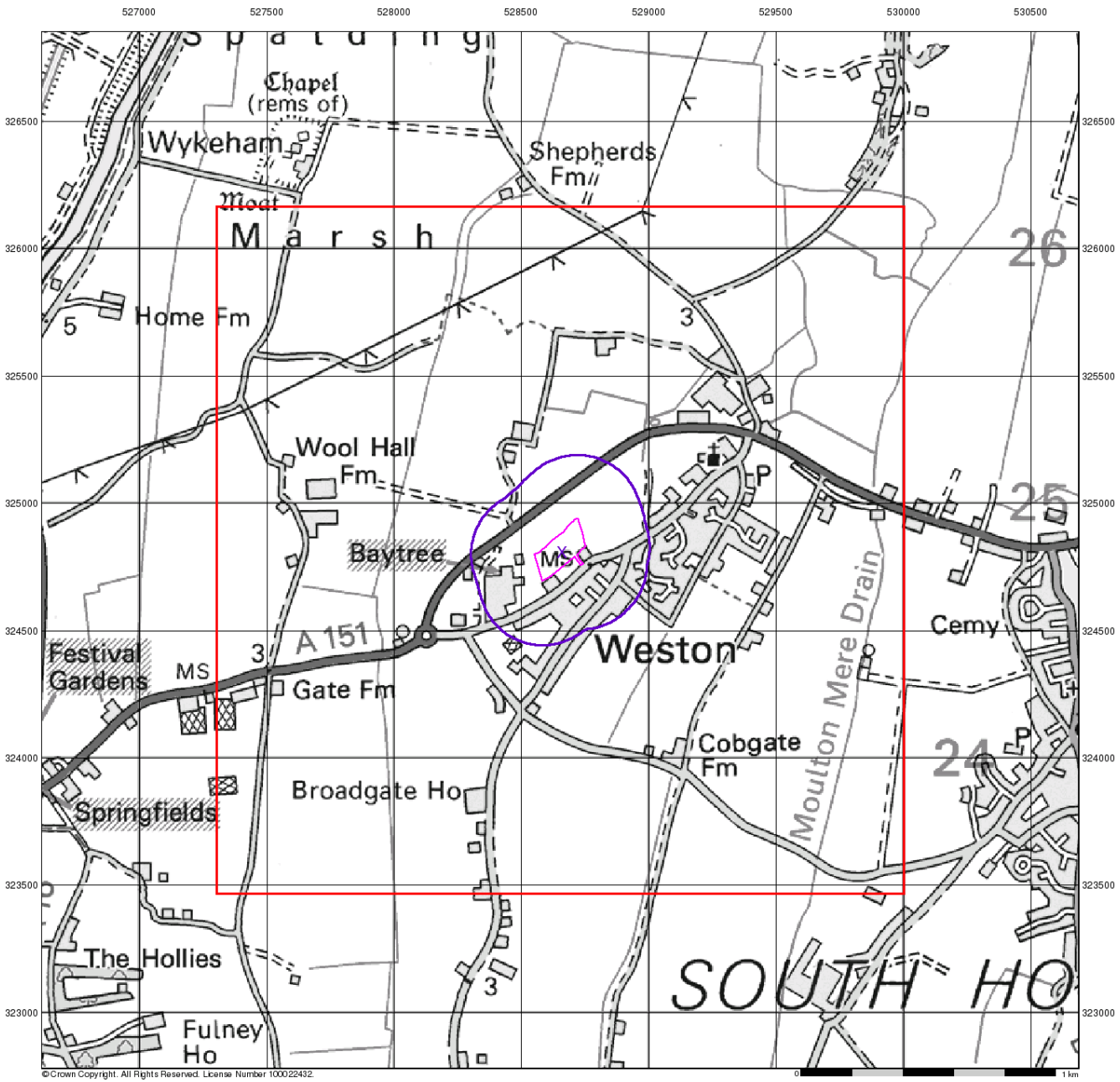
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BGS Flood GFS Data

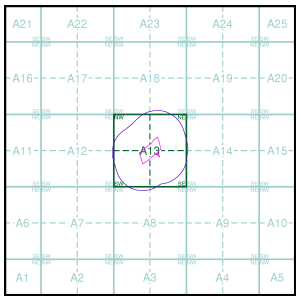
General

Specified Site
Specified Buffer(s)
Bearing Reference Point
Slice

Agency and Hydrological (Flood)

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

Site Sensitivity Context Map - Slice A





Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston

Landmark INFORMATION GROUP
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Fax: 0844 844 9951
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General

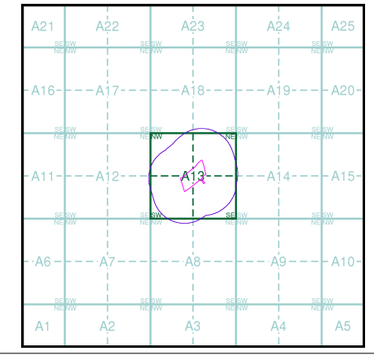
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg

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

Estimated Soil Chemistry Arsenic - Slice A



Order Details

Order Details:	275840152_1_1
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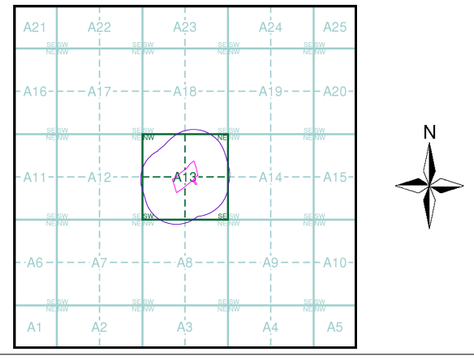
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg

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

Estimated Soil Chemistry Cadmium - Slice A



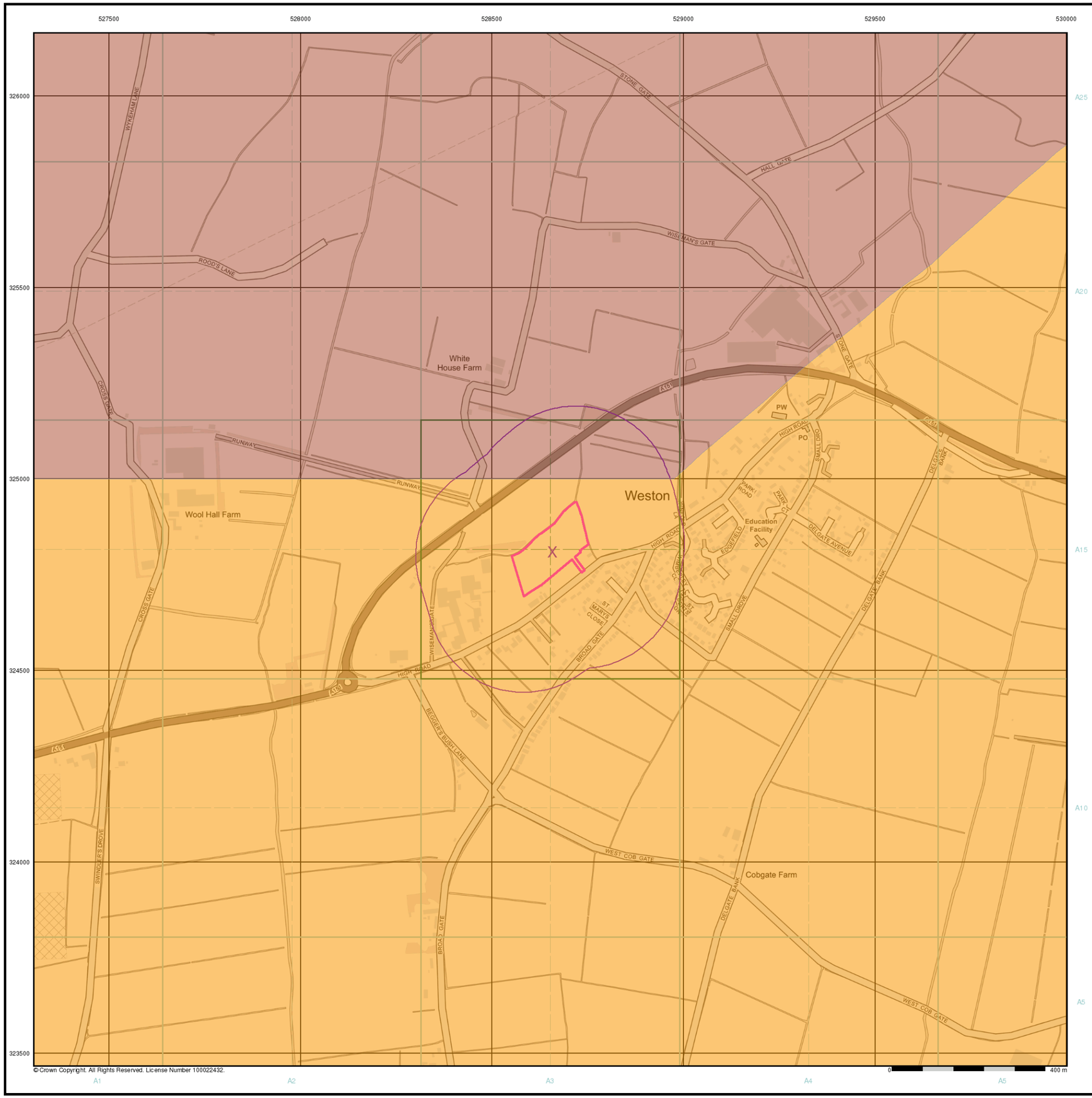
Order Details

Order Details:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
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Search Buffer (m):	250

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General

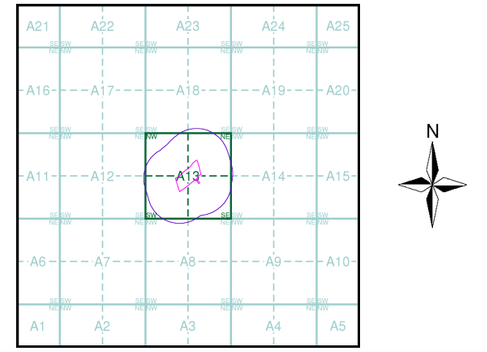
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg

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

Estimated Soil Chemistry Chromium - Slice A



Order Details

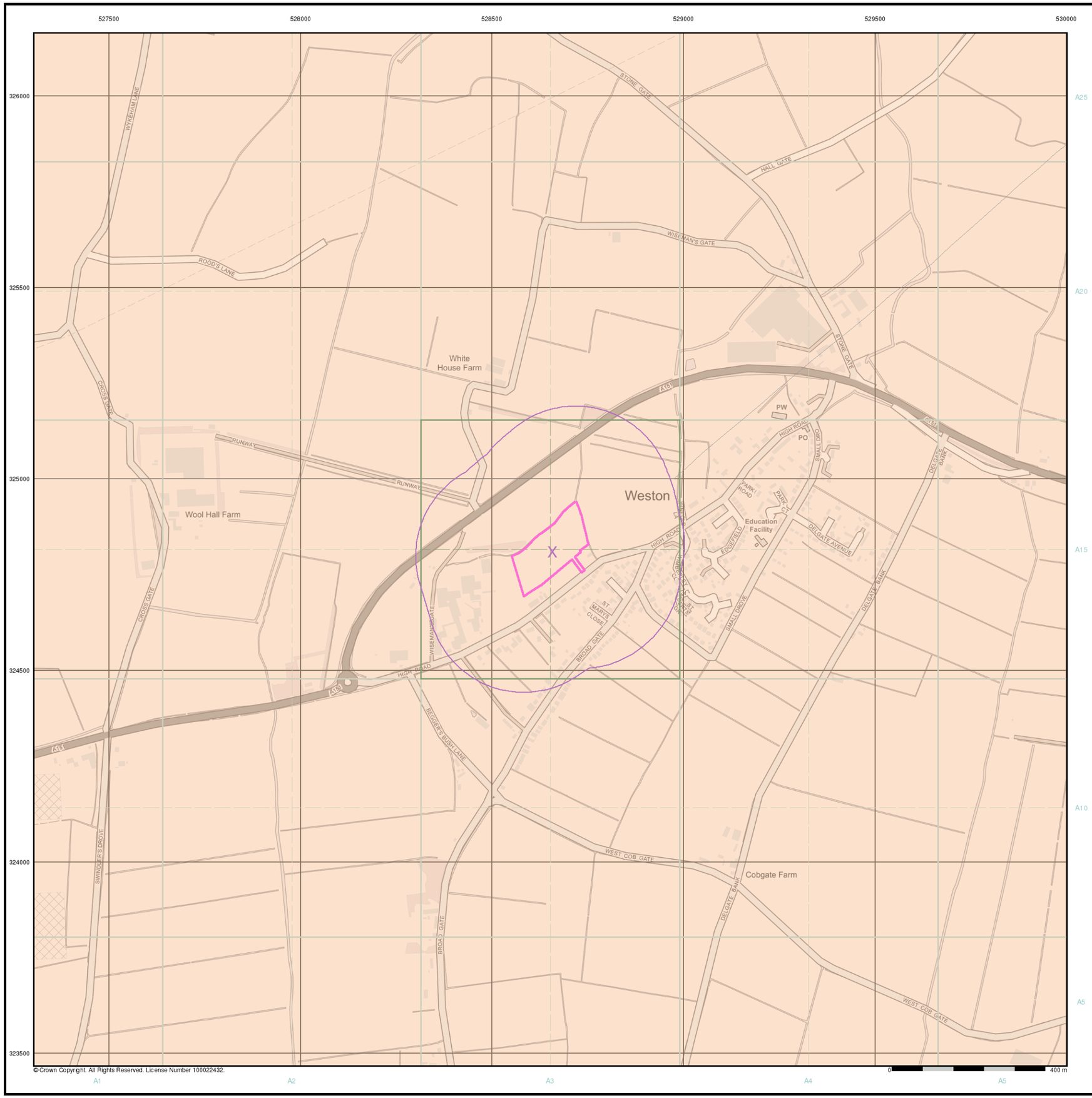
Order Details:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

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General

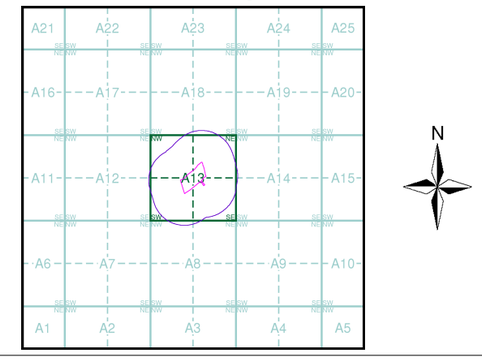
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg

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

Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details:	275840152_1_1
Customer Ref:	D41072
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General

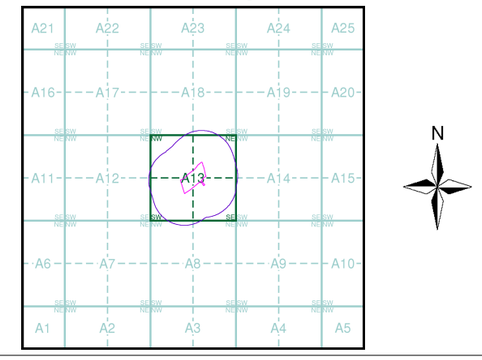
Specified Site | Specified Buffer(s) | X Bearing Reference Point

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg

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

Estimated Soil Chemistry Nickel - Slice A



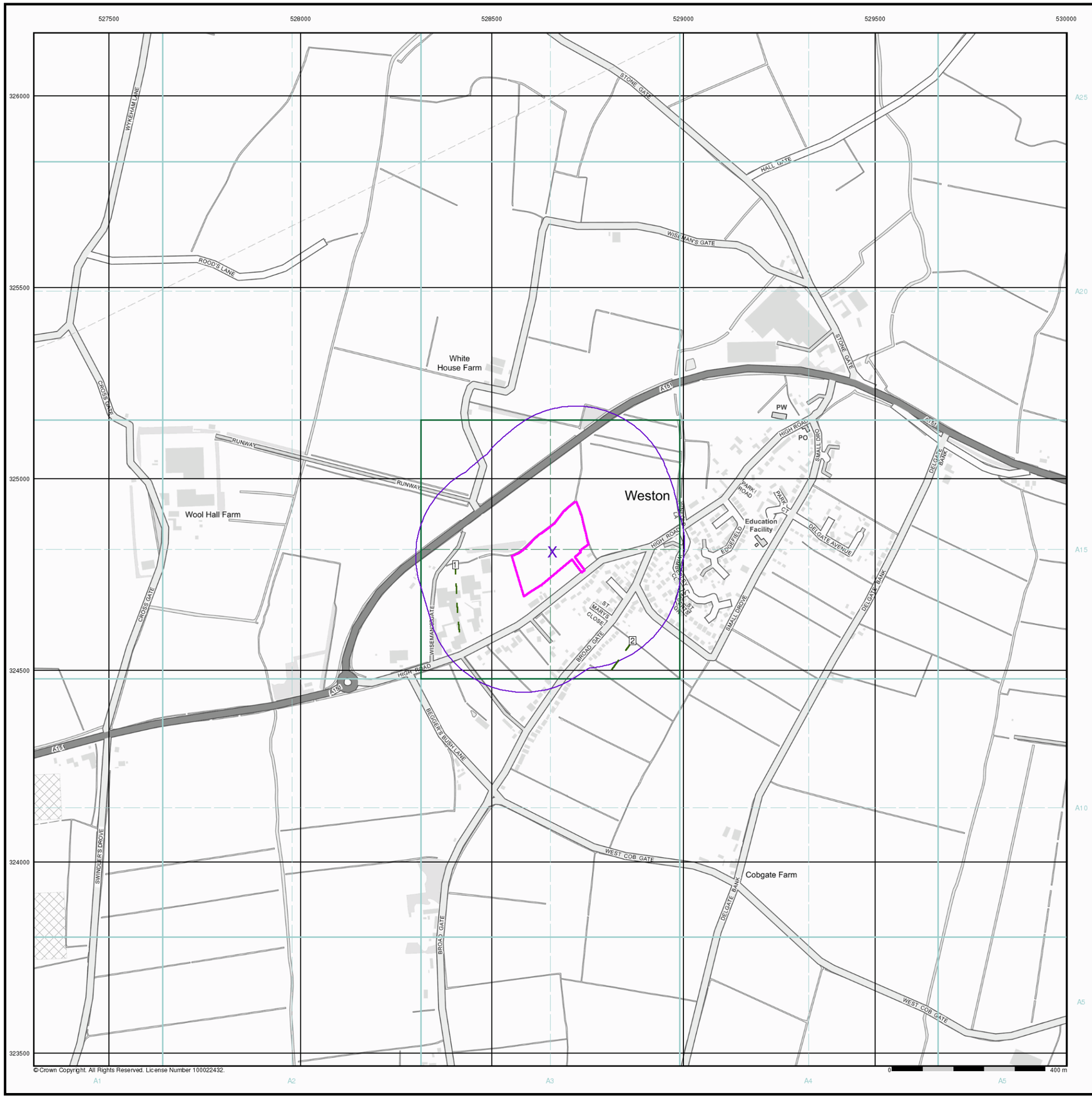
Order Details

Order Details:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
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Site Details

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Historical Land Use Information (1:10,000)

General

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

Several of Type at Location

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Air Shafts	◆		
Disturbed Ground	◆		
General Quarrying	◆		
Heap, unknown constituents	◆		
Mineral Railway	◆		
Mining and Quarrying General	◆		
Mining of Coal & Lignite	◆		
Quarrying of Sand and Clay, Operation of Sand and Gravel Pits	◆		

Historical Land Use

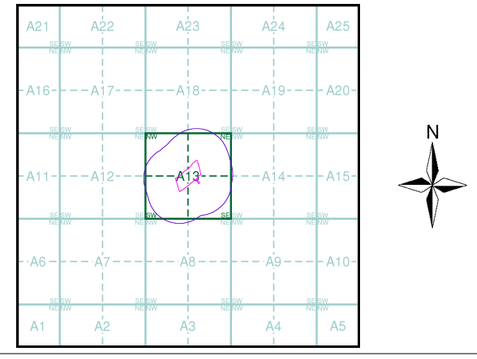
	Point	Line	Polygon
Potentially Infilled Land (Non-Water)	●		
Potentially Infilled Land (Water)	●		
Former Marsh	✠		

Mining Data

Potential Mining Area

BGS Recorded Mineral Site

Mining and Ground Stability - Slice A



Order Details

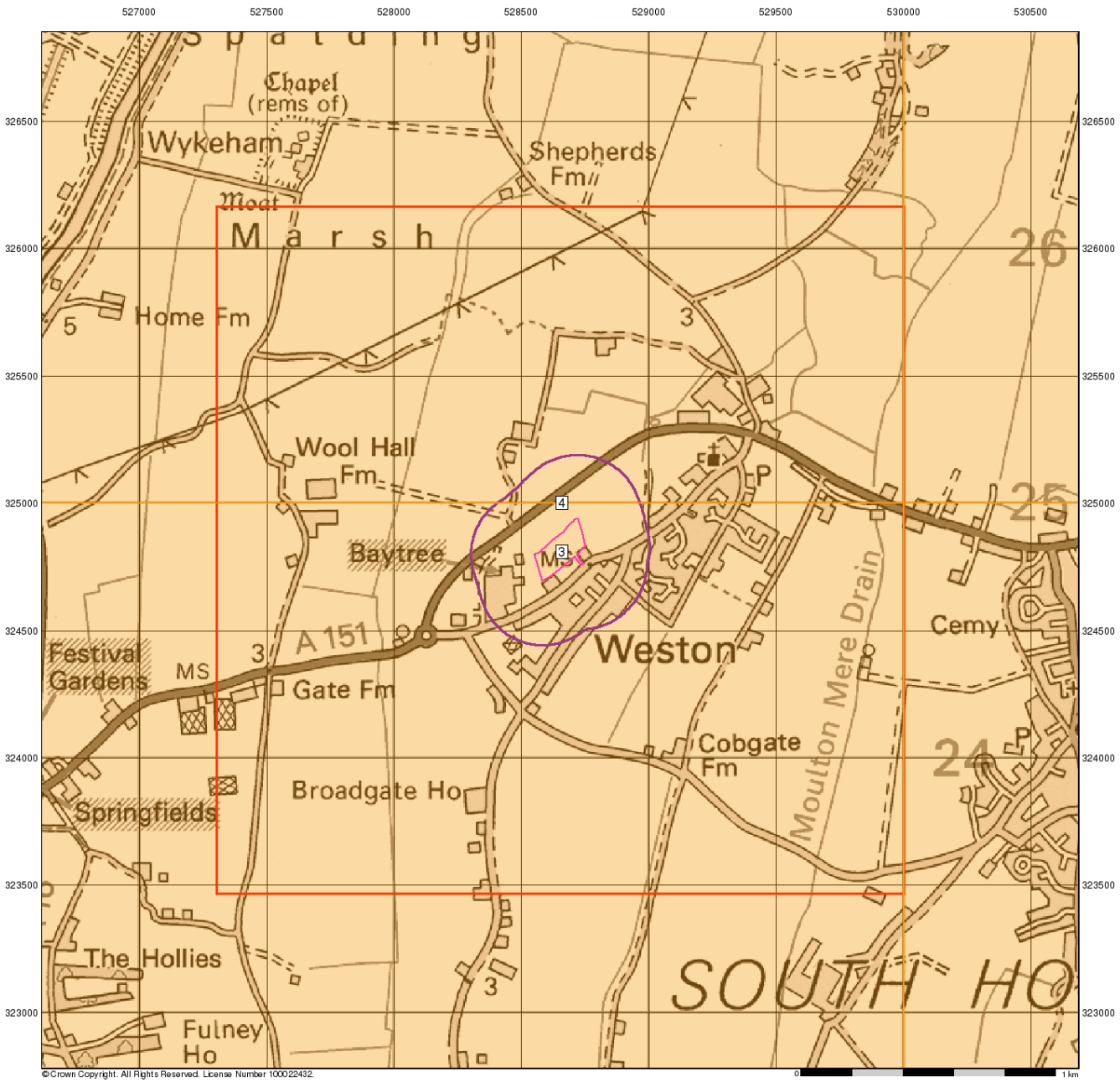
Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

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Ground Stability Data (1:50,000)

General

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

Potential for Compressible Ground Stability Hazards

High | Low | Moderate | Very Low

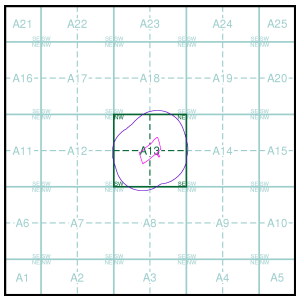
Potential for Collapsible Ground Stability Hazards

High | Low | Moderate | Very Low

Brine Pumping and Salt Mining

	Point	Polygon
Brine Pumping Related Feature	▲	▨
Salt Mining Related Feature	▲	▨

Mining and Ground Stability - Slice A



Order Details

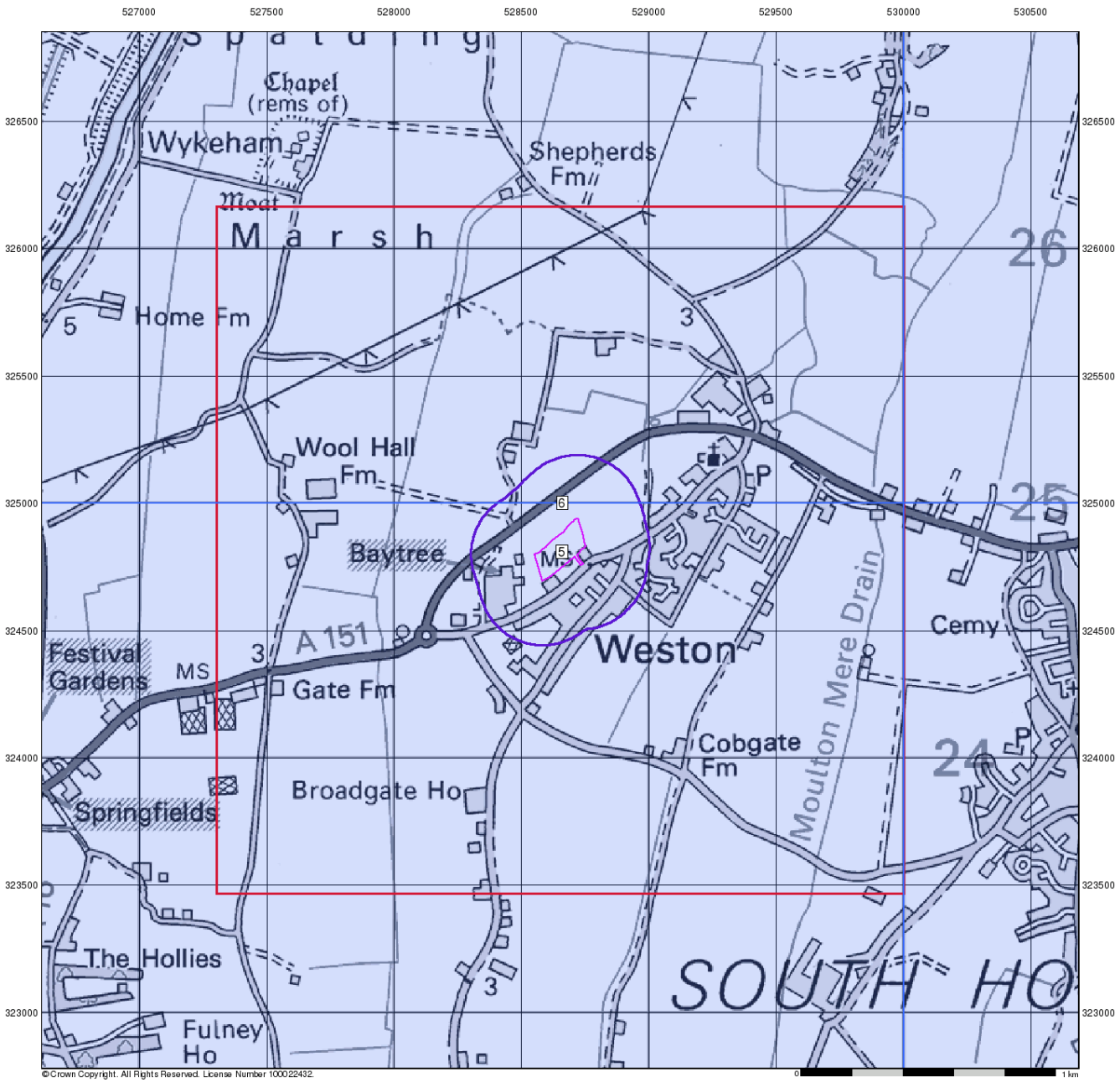
Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

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Ground Stability Data (1:50,000)

General

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

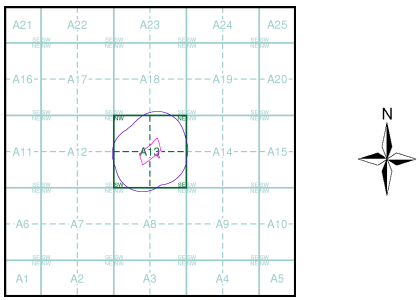
Potential for Landslide Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Ground Dissolution Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



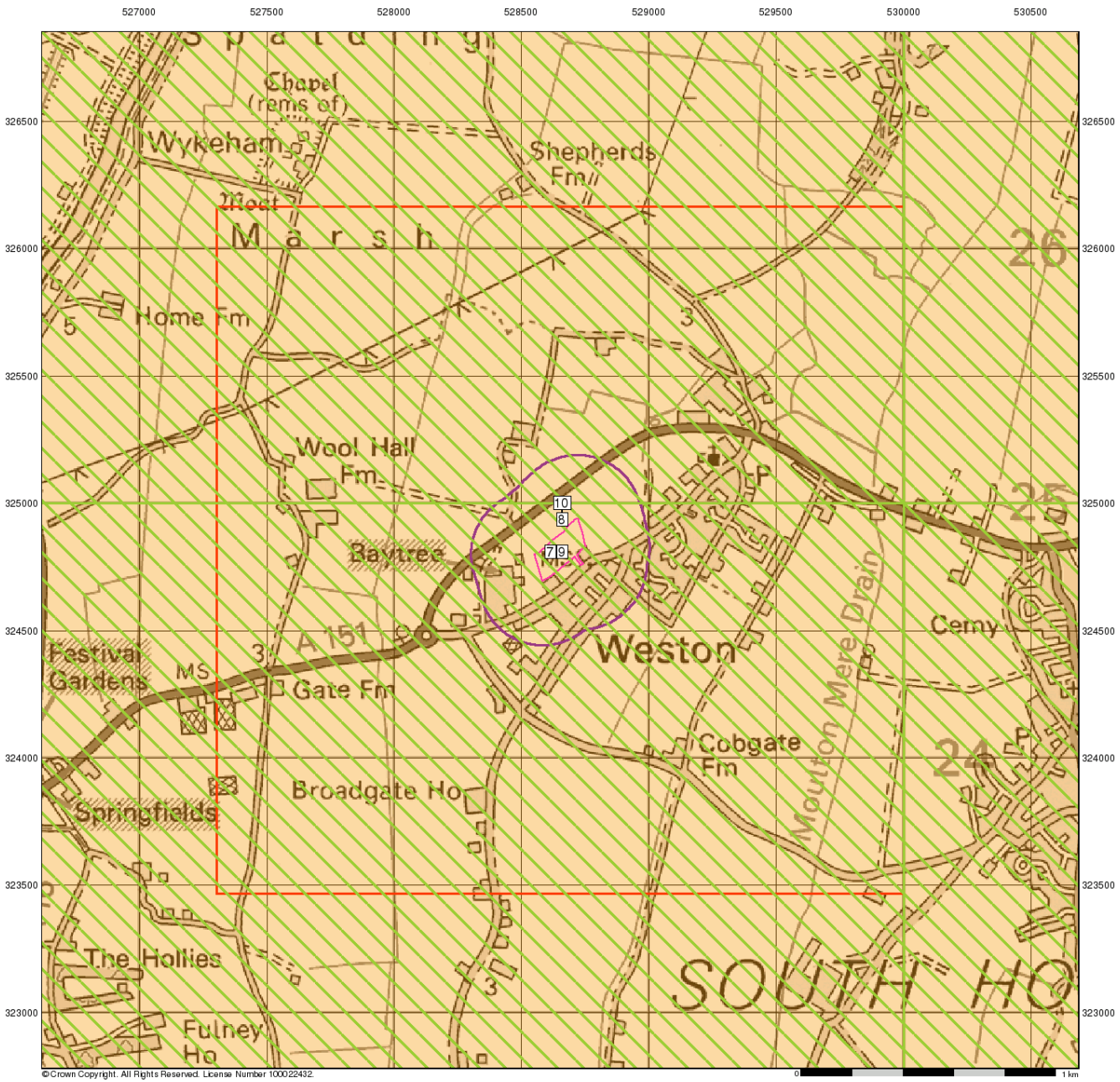
Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
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Slice:	A
Site Area (Ha):	2.35
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Ground Stability Data (1:50,000)

General

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

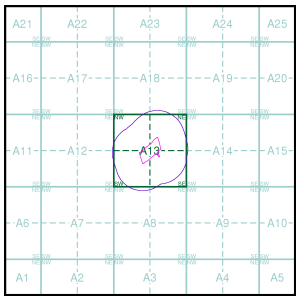
Potential for Running Sand Ground Stability Hazards

High | Low | Moderate | Very Low

Potential for Shrinking or Swelling Clay Ground Stability Hazards

High | Low | Moderate | Very Low

Mining and Ground Stability - Slice A



Order Details

Order Number:	275840152_1_1
Customer Ref:	D41072
National Grid Reference:	528660, 324810
Slice:	A
Site Area (Ha):	2.35
Search Buffer (m):	250

Site Details

High Road, Weston

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Envirocheck® Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:
275840152_1_1

Customer Reference:
D41072

National Grid Reference:
528660, 324810

Slice:
A

Site Area (Ha):
2.35

Search Buffer (m):
250

Site Details:

High Road
Weston

Client Details:

Mr J Hollands
GeoDyne Ltd
Clarendon House
Clarendon Business Park
Clumber Avenue
Nottingham
NG5 1AH

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Contents

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer selected. For ease of reference, the report is broken down into 4 sections of data; Mining and Natural Cavities Data, Historical Land Use Information (1:2,500), Historical Land Use Information (1:10,000) and Ground Stability Data (1:50,000).	
Mining and Natural Cavities Data	-
The Mining and Natural Cavities Data section features data sets related to the existence of mining areas and their potential hazards; and details of naturally formed cavities. Data sets within this section are not plotted, with the exception of BGS Recorded Mineral Sites and Potential Mining Areas which feature on the Historical Land Use Information (1:10,000) map.	
Historical Land Use Information (1:2,500)	-
The Historical Land Use Information (1:2,500) section contains data captured from analysis carried out by Landmark of 1:1,250 and 1:2,500 scale historical Ordnance Survey mapping, identifying areas where, historically, the land uses were potentially contaminative. For the purpose of this Envirocheck module, only historical data relating to mining and ground stability has been included and plotted on the corresponding Historical Land Use Information (1:2,500) map. This section also includes the Subterranean Features data set, which details various man-made and man-used underground spaces obtained from the Subterranea Britannica society.	
Historical Land Use Information (1:10,000)	1
The Historical Land Use (1:10,000) section covers data captured from the systematic analysis carried out by Landmark of 1:10, 560 and 1:10,000 scale historical Ordnance Survey mapping dating back to the mid-19th century, identifying potentially contaminative past industrial land uses. For the purpose of this Envirocheck module, only data relating to mining and ground stability has been included and plotted on the accompanying Historical Land Use Information (1:10,000) map.	
Ground Stability Data (1:50,000)	2
The Ground Stability (1:50,000) section includes the BGS Geosure data suite, reporting features to 250m and plotted onto 3 separate maps. Also reported is brine subsidence, brine mining and salt mining data sets, of which Brine Pumping and Salt Mining Related Features are plotted, and subsidence insurance claims and insurance investigations data, which is not plotted.	
Historical Map List	3
The Historical Map List section details the historical mapping that has been analysed for your site, in relation to the Historical Land Use Information sections.	
Data Currency	4
Data Suppliers	5
Useful Contacts	6

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The brine subsidence data relating to the Driotwich area as provided in this report is derived from JPB studies and physical monitoring undertaken annually over more than 35 years. For more detailed interpretation contact enquiries@jpb.co.uk. JPB retain the copyright and intellectual rights to this data and accept no liability for any loss or damage, including in direct or consequential loss, arising from the use of this data.

The Mining Instability data was obtained on licence from Ove Arup & Partners Limited (for further information, contact mining.review@arup.com). No reproduction or further use of such Data is to be made without the prior written consent of Ove Arup & Partners Limited. The supplied Mining Instability data is derived from publicly available records and other third party sources and neither Ove Arup & Partners nor Landmark warrant the accuracy or completeness of such information or data.

Report Version v53.0

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Summary

Data Type	Page Number	On Site	0 to 250m
Mining and Natural Cavities Data			
BGS Recorded Mineral Sites			
Coal Mining Affected Areas			n/a
Man Made Mining Cavities			
Mining Instability			n/a
Natural Cavities			
Non Coal Mining Areas of Great Britain			
Potential Mining Areas			
Historical Land Use Information (1:2,500)			
Extractive Industries or Potential Excavations from 1855-1909 (100m)			
Extractive Industries or Potential Excavations from 1893-1915 (100m)			
Extractive Industries or Potential Excavations from 1906-1937 (100m)			
Extractive Industries or Potential Excavations from 1924-1949 (100m)			
Extractive Industries or Potential Excavations from 1950-1980 (100m)			
Subterranean Features (100m)			
Historical Land Use Information (1:10,000)			
Air Shafts			
Disturbed Ground			
General Quarrying			
Heap, unknown constituents			
Mineral Railway			
Mining & quarrying general			
Mining of coal & lignite			
Quarrying of sand & clay, operation of sand & gravel pits			
Former Marshes			
Potentially Infilled Land (Non-Water)			
Potentially Infilled Land (Water)	pg 1		2
Ground Stability Data (1:50,000)			
CBSCB Compensation District			n/a
Brine Pumping Related Features			
Brine Subsidence Solution Area			
Potential for Collapsible Ground Stability Hazards	pg 2	Yes	Yes
Potential for Compressible Ground Stability Hazards	pg 2	Yes	Yes
Potential for Ground Dissolution Stability Hazards	pg 2	Yes	Yes
Potential for Landslide Ground Stability Hazards	pg 2	Yes	Yes
Potential for Running Sand Ground Stability Hazards	pg 2	Yes	Yes
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 2	Yes	Yes
Salt Mining Related Features			

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Summary

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Historical Land Use Information (1:10,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1958	A13SW (W)	150	-	528404 324775
2	**Potentially Infilled Land (Water)** Use: Unknown Filled Ground (Pond, marsh, river, stream, dock etc) Date of Mapping: 1958	A13SE (SE)	222	-	528867 324577

Ground Stability Data (1:50,000)

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBSCB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	528659 324810
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	1	528659 325000
3	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	528659 324810
4	**Potential for Compressible Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	1	528659 325000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	528659 324810
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	1	528659 325000
5	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	528659 324810
6	**Potential for Landslide Ground Stability Hazards** Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	1	528659 325000
7	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	528659 324810
8	**Potential for Running Sand Ground Stability Hazards** Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	1	528659 325000
9	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (NE)	0	1	528659 324810
10	**Potential for Shrinking or Swelling Clay Ground Stability Hazards** Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (N)	61	1	528659 325000

Historical Map List

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	TF2824	1968
Ordnance Survey Plan	TF2825	1968

The following mapping has been analysed for Historical Land Use Information (1:10,000):

1:10,560	Mapsheet	Published Date
Lincolnshire	134_SE	1889
Lincolnshire	134_NE	1891
Lincolnshire	134_NE	1906
Lincolnshire	134_SE	1906
Lincolnshire	134_SE	1932
Lincolnshire	134_NE	1951
Lincolnshire	134_SE	1951
Ordnance Survey Plan	TF22NE	1956
Ordnance Survey Plan	TF32NW	1956
Ordnance Survey Plan	TF22SE	1958
Ordnance Survey Plan	TF32SW	1958
1:10,000	**Mapsheet**	**Published Date**
Ordnance Survey Plan	TF22SE	1989
Ordnance Survey Plan	TF22NE	1990
Ordnance Survey Plan	TF32NW	1992
Ordnance Survey Plan	TF32SW	1992

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2020	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	November 2020	Bi-Annually
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural Cavities Stantec UK Ltd	November 2020	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Historical Land Use Information (1:2,500)	**Version**	**Update Cycle**
Subterranean Features Landmark Information Group Limited	February 2020	Bi-Annually
Ground Stability Data (1:50,000)	**Version**	**Update Cycle**
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Brine Subsidence Solution Area Johnson Poole & Bloomer	December 2020	Annual Rolling Update

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	Map data
British Geological Survey	British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
The Coal Authority	The Coal Authority
Ove Arup	ARUP
Stantec UK Ltd	Stantec
Wardell Armstrong	wardell armstrong your earth our world
Johnson Poole & Bloomer	JPB

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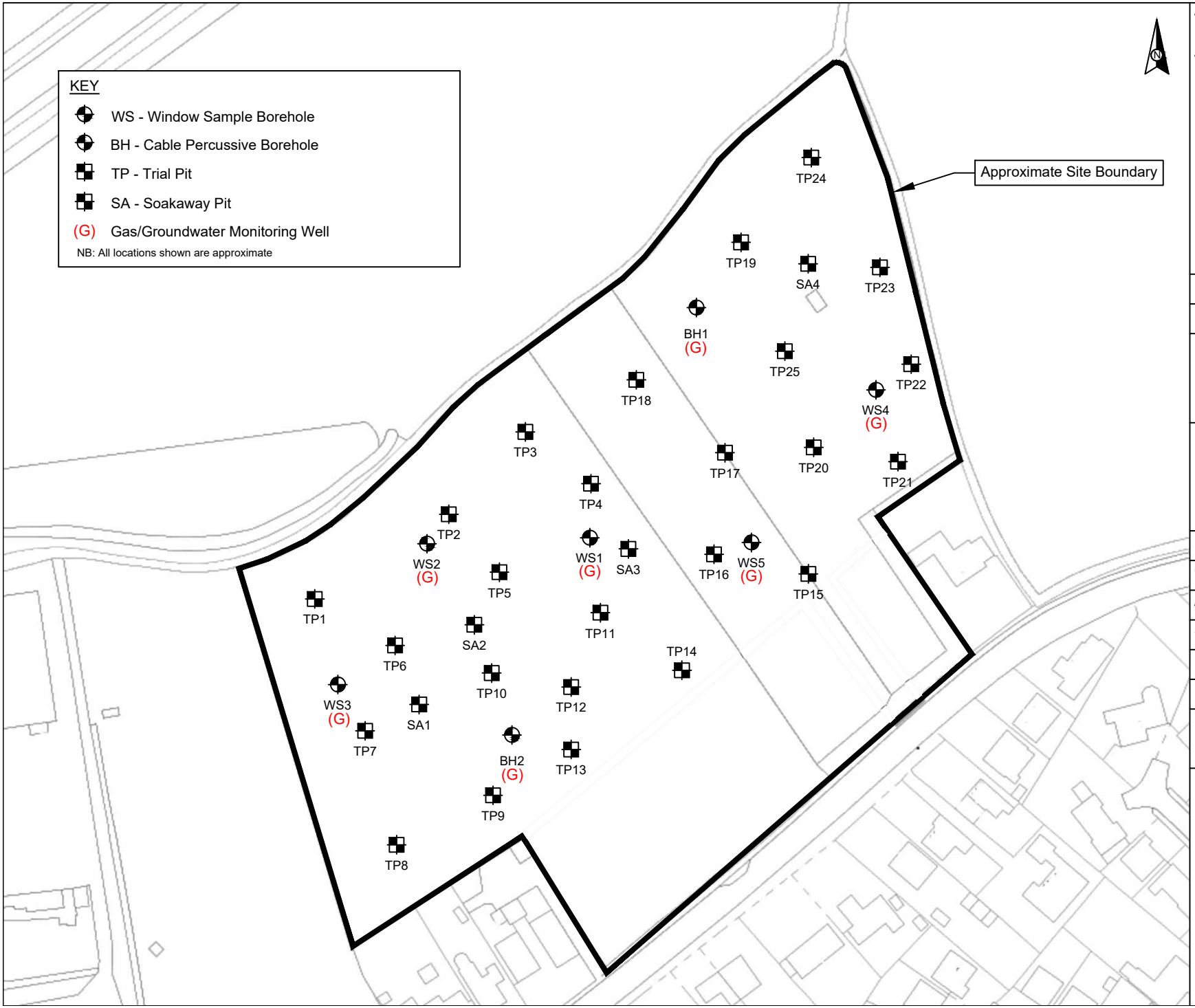
Useful Contacts

Contact	Name and Address	Contact Details
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APPENDIX VIII

Exploratory Hole Location Plan
(Figure No. D41072/04)



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Project No.	D41072
Client	Ashwood Homes
Project	High Road Weston
Title	Exploratory Hole Location Plan
Drawn By	SJ
Checked By	GH
Approved By	DB
Scale	NTS
Date Drawn	30/07/2021
Revision	A
Figure No.	D41072/04

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APPENDIX IX

Exploratory Hole Logs
(TP1 to TP25, WS1 to WS5, BH1 & BH2, SA1 to SA4)

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TP1

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.10 - 0.20	T	D			
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.60			In-Situ SV	70	
		0.70 - 0.80	B	B		70	
						75	
		0.90					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00			In-Situ SV	40	
						50	
...becoming brown below 1.20m						50	
		1.50			Ex-Situ SV	55	
						60	
						60	
...slight water ingress at 1.80m							▽
...becoming soft and with black organic smears below 2.80m							
End of Trial Pit at 3.00m		3.00					

Remarks:
1.Sides generally stable.
2.Slight water ingress at 1.80m.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP1
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP2

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	50 60 60	
		1.00 - 1.10	T	D			
		1.10			In-Situ SV	30 30 40	
Firm brown very silty CLAY (TIDAL FLAT DEPOSITS)		1.60 - 1.70 1.60	B	B	Ex-Situ SV	35 50 50	
...becoming soft and damp with black organic smears below 2.20m							
End of Trial Pit at 2.70m		2.70					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP2
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP3

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	60 60 70	
...becoming more clayey with depth		1.00			In-Situ SV	65 65 70	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.60 - 1.70 1.60	T	D	Ex-Situ SV	40 50 50	
...becoming soft and damp with black organic smears below 2.00m		2.40 - 2.50	T	D			
End of Trial Pit at 2.80m		2.80					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP3
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP4

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.10 - 0.20	T	D			
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.70			In-Situ SV	60 60 60	
		1.00 - 1.10	B	B	In-Situ SV	50 50 50	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00					
		1.50			Ex-Situ SV	35 35 35	
...becoming soft and damp with black organic smears below 2.40m		2.50			Ex-Situ SV	20 20 25	
End of Trial Pit at 2.90m		2.90					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP4
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP5

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.35 - 0.85	LB	LB			
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.35					
		0.65			In-Situ SV	60	
Firm grey brown silty CLAY with a slight organic odour (TIDAL FLAT DEPOSITS)		0.70				65	
						70	
		1.10			In-Situ SV	55	
						65	
						65	
...becoming soft and damp with black organic smears below 2.30m							
End of Trial Pit at 2.90m		2.90					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP5
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP6

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.60 - 0.90	T	D			
		0.80					
Firm locally stiff brown silty slightly sandy CLAY (TIDAL FLAT DEPOSITS)		0.85			In-Situ SV	70 70	
		1.00 - 1.10	B	B		75	
		1.30			Ex-Situ SV	60 60 65	
...becoming soft and damp with black organic smears below 2.10m		2.10			Ex-Situ SV	20 20 20	
End of Trial Pit at 2.80m		2.80					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP6
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP7

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.30 - 0.80	LB	LB			
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.30					
		0.60			In-Situ SV	50 60 60	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		0.80					
		1.00			In-Situ SV	60 70 70	
		1.60			Ex-Situ SV	30 40 40	
...becoming soft and damp below 2.00m							
End of Trial Pit at 2.70m		2.70					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project:			**Client:**	
High Road, Weston			**Ashwood Homes**	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP7
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP8

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.50 - 0.60	T	D			
		0.60			In-Situ SV	65 70 70	
...becoming soft below 0.90m		0.90 - 1.00	B	B			
		1.00			In-Situ SV	25 30 30	
		1.30					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)							
		1.50			Ex-Situ SV	40 40 60	
...becoming damp below 1.70m							
...becoming soft with black organic smears below 2.30m							
		2.50			Ex-Situ SV	20 25 25	
End of Trial Pit at 2.80m		2.80					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP8
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP9

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.10 - 0.20	T	D			
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	50 55 60	
		0.80 - 0.90	T	D			
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		0.80			In-Situ SV	70 70 70	
		0.90					
		1.40			Ex-Situ SV	65 70 70	
		2.00			Ex-Situ SV	40 40 50	
End of Trial Pit at 2.70m		2.70					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP9
Date: 19/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP10

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.60			In-Situ SV	45	
		0.70 - 0.80	B	B		50	
						55	
		0.90			In-Situ SV	45	
		1.00 - 1.10	T	D		50	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00				50	
		1.20			Ex-Situ SV	50	
						50	
						55	
		1.50			Ex-Situ SV	40	
						40	
						50	
...becoming damp below 1.90m							
...becoming soft with black organic smears below 2.30m							
		2.90					
End of Trial Pit at 2.90m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP10
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP11

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.60			In-Situ SV	50	
		0.70 - 0.80	T	D		50	
						60	
		0.90					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00 - 1.10	B	B	In-Situ SV	45	
		1.00				45	
						50	
		1.50			Ex-Situ SV	40	
						40	
						40	
...becoming dark grey with black organic smears below 2.10m							
...damp below 2.40m							
End of Trial Pit at 3.00m		3.00					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project:			**Client:**	
High Road, Weston			**Ashwood Homes**	
Logged: GH	**Checked:** DB	**Field Book Ref:**	**Plant:** TRACKED EXCAVATOR	**Drawing No.**
Date: 20/04/2021	**Approved:** DB	GH21/01	**Scale:** 1:25	TP11

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TP12

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.40 - 0.90	LB	LB			
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.40					
		0.60			In-Situ SV	60 60 60	
		1.00			In-Situ SV	40 45	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.10 1.20			Ex-Situ SV	50 30 40 40	
...becoming dark grey/black with organic smears below 1.80m		1.80			Ex-Situ SV	40 40 50	
...becoming damp below 2.60m							
End of Trial Pit at 2.80m		2.80					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP12
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP13

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.10 - 0.20	T	D			
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.70			In-Situ SV	50 50 55	
		1.00			In-Situ SV	40 40 50	
		1.20					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)							
		1.40			Ex-Situ SV	40 40 40	
		1.90 - 2.00	B	B			
...becoming dark grey/black below 2.10m		2.10			Ex-Situ SV	40 50 50	
...becoming damp below 2.40m							
		2.90					
End of Trial Pit at 2.90m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP13
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP14

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	40 45 45	
		1.00			In-Situ SV	50 50 50	
		1.10					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.30			Ex-Situ SV	45 50 50	
		1.80			Ex-Situ SV	30 30 30	
...becoming soft and grey with black organic smears below 1.90m		2.50 - 2.60	T	D			
		2.80					
End of Trial Pit at 2.80m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP14
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP15

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass over brown sandy silty TOPSOIL with frequent rootlets (TOPSOIL)							
		0.40 - 0.90	LB	LB			
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.40					
		0.70			In-Situ SV	45 50 50	
...land drain encountered at 0.80m							
		0.95					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.10			In-Situ SV	50 50 55	
		1.50			Ex-Situ SV	35 35 40	
...becoming damp below 2.00m							
...becoming grey with black organic smears below 2.20m							
		2.50			Ex-Situ SV	30 40 40	
		2.90					▽
End of Trial Pit at 2.90m							

Remarks:
1.Sides generally stable.
2.Slight water ingress encountered at base.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP15
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP16

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass over brown sandy silty TOPSOIL with frequent rootlets (TOPSOIL)							
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.65			In-Situ SV	50	
						50	
		0.80 - 0.90	B	B		60	
		1.00			In-Situ SV	40	
		1.10				45	
Firm grey brown silty CLAY with rare shell fragments (TIDAL FLAT DEPOSITS)						50	
		1.50 - 1.60	T	D	Ex-Situ	30	
		1.50			SV	40	
...becoming damp below 1.70						40	
		1.90			Ex-Situ	30	
					SV	30	
...becoming dark grey with black organic smears below 2.10m						30	
		2.90					
End of Trial Pit at 2.90m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP16
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP17

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.10 - 0.20	T	D			
		0.35					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	40 45 45	
		0.90					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.10			In-Situ SV	50 50 55	
...becoming damp and grey with black organic smears below 2.00m		2.50 - 2.60	B	B			
...becoming soft below 2.60m		2.70			Ex-Situ SV	25 25 30	
End of Trial Pit at 2.90m		2.90					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP17
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP18

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.35					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.40 - 0.50	T	D			
		0.65			In-Situ SV	60 60 60	
		0.90					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00 - 1.10	T	D	In-Situ SV	70 70 70	
		1.00					
		1.50			Ex-Situ SV	45 50 55	
...becoming soft, damp and grey with black organic smears below 1.90m							
		2.20			Ex-Situ SV	15 25 25	
End of Trial Pit at 2.60m		2.60					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP18
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP19

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.60			In-Situ SV	45 50 50	
		1.00					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS) ...shell fragments between 1.10m and 1.40m		1.10 - 1.20 1.10	B	B	In-Situ SV	50 50 55	
...becoming soft, damp and grey with black organic smears below 2.20m		2.40			Ex-Situ SV	25 25 30	
End of Trial Pit at 2.80m		2.80					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP19
Date: 20/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP20

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Grass over brown sandy silty TOPSOIL with frequent rootlets (TOPSOIL)		0.10 - 0.20	T	D			
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.70 - 0.80	T	D	In-Situ SV	40	
		0.70				50	
						50	
		1.10			In-Situ SV	30	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.20			Ex-Situ SV	30	
						30	
						40	
						50	
						50	
...grey with black organic smears with a slight organic odour below 1.90m							
		2.20			Ex-Situ SV	50	
						50	
						55	
End of Trial Pit at 2.70m		2.70					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP20
Date: 21/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP21

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.50			In-Situ SV	45 45 50	
		0.80 - 0.90	B	B			
		0.90			In-Situ SV	40 40 40	
		1.30					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.40			Ex-Situ SV	30 40 40	
...becoming dark grey with black organic smears below 2.00m							
		2.20			Ex-Situ SV	30 40 40	
...becoming soft below 2.40m							
		2.50			Ex-Situ SV	20 25 25	
		2.60 - 2.70	T	D			
		2.80					
End of Trial Pit at 2.80m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP21
Date: 21/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP22

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.65			In-Situ SV	50 60 60	
		1.10			In-Situ SV	30 40 40	
		1.30					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)							
		1.50			Ex-Situ SV	30 30 40	
...becoming grey below 1.80m		1.80 - 1.90	B	B			
...becoming soft below 2.00m							
		2.30			Ex-Situ SV	20 20 25	
End of Trial Pit at 2.90m		2.90					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP22
Date: 21/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP23

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.10 - 0.20	T	D			
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.35					
		0.60			In-Situ SV	45	
		0.70 - 0.80	T	D		50	
		0.80				50	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)							
		1.00			In-Situ SV	40	
...band of shells between 1.10m and 1.20m						50	
						50	
		1.40			Ex-Situ SV	40	
						40	
						45	
...becoming soft and grey with black organic smears below 2.10m							
		2.40			Ex-Situ SV	30	
		2.50				30	
End of Trial Pit at 2.50m						35	

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP23
Date: 21/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP24

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.60			In-Situ SV	40 50 55	
		0.90					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00 - 1.10	B	B	In-Situ SV	55 55 60	
		1.00					
...becoming soft, grey and damp below 1.90m		2.00			Ex-Situ SV	30 30 35	
		2.50					
End of Trial Pit at 2.50m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP24
Date: 21/04/2021	**Approved:** DB		**Scale:** 1:25	

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TP25

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.30 - 0.80	LB	LB			
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS) ...land drain encountered at 0.40m		0.30					
		0.80			In-Situ SV	40 45 50	
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.00					
		1.20			Ex-Situ SV	40 40 45	
...becoming dark grey with black organic smears below 2.10m							
End of Trial Pit at 2.90m		2.90					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** TP25
Date: 21/04/2021	**Approved:** DB		**Scale:** 1:25	

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WS1

Project No. D41072

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		(0.40)			
				Firm orange brown sandy SILT (TIDAL FLAT DEPOSITS)		0.40 (0.70)			
				Firm brown slightly sandy silty CLAY (TIDAL FLAT DEPOSITS)		1.10			
				...becoming wet and grey with organic smears below 2.40m		(3.90)	3.00		
				...becoming soft with frequent black smearing below 3.20m					
				...with small peat inclusions below 4.60m					
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 3.00m as a precautionary measure.
2.No water encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
= Water Strike (m)
= Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	07/05/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS1

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WS2

Project No. D41072

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		(0.40) 0.40			
				Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		(0.45) 0.85			
				Initially stiff becoming firm brown mottled grey slightly sandy silty CLAY (TIDAL FLAT DEPOSITS)					
				...becoming soft, damp and grey with black smears below 2.50m		(4.15)			
				...with peat inclusions below 3.90m			4.00		
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 4.00m as a precautionary measure.
2.No water encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample
S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
= Water Strike (m)
= Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	07/05/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS2

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WS3

Project No. D41072

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		(0.30) 0.30			
				Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		(0.50) 0.80			
				Stiff brown CLAY (TIDAL FLAT DEPOSITS)		(0.85) 1.65			
				Firm very silty sandy CLAY (TIDAL FLAT DEPOSITS)					
				...becoming soft below 2.00m					
				...becoming very soft and grey below 2.80m					
				...wet below 3.00m		(3.35)		▽	
				...with black organic staining below 3.80m					
				...becoming more sandy below 4.00m			4.00		
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 4.00m as a precautionary measure.
2.Water encountered at 3.00m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
▽ = Water Strike (m)
▼ = Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	07/05/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS3

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WS4

Project No. D41072

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Grass over brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		(0.45)			
						0.45			
				Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		(1.05)			
						1.50			
				Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)					
				...becoming grey below 2.10m					
				...becoming soft below 2.50m					
				...with rare peat inclusions below 2.80m		(3.50)			
							4.00		
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 4.00m as a precautionary measure.
2.No water encountered.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
= Water Strike (m)
= Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	07/05/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS4

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WS5

Project No. D41072

Sheet 1 of 1

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		(0.40)			
						0.40			
				Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		(0.70)			
				...wet between 1.00m to 1.20m				▽	
				Firm brown silty sandy CLAY (TIDAL FLAT DEPOSITS)		1.10			
				...becoming grey below 1.90m					
				...becoming soft, damp and very silty with black organic smears below 2.60m		(3.90)			
				...becoming very soft below 3.50m					
				...with rare peaty pockets below 4.00m			4.00		
				End of Borehole at 5.00m		5.00			

Remarks

1.Borehole cased to 4.00m as a precautionary measure.
2.Slight water ingress encountered between 1.00m and 1.20m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 5.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
▽ = Water Strike (m)
▼ = Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Competitor Rig	**Drawing Ref:**
Date:	07/05/2021	**Approved:**	DB	GH21/01	**Scale:**	1:25	WS5

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BH1

Project No. D41072

Sheet 1 of 2

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Grass over dark brown sandy clayey silty TOPSOIL (TOPSOIL)		(0.40) 0.40			
				Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)					
1.20 1.20 - 1.65	SD S	SD1	2			(1.70)			
						2.10			
2.20 2.20 - 2.65	SD S	SD2	0	Soft grey silty CLAY (TIDAL FLAT DEPOSITS)					
3.20 3.20 - 3.65	SD S	SD3	0						
4.50 4.50 - 4.95	SD S	SD4	2						
						(6.20)			
6.00 6.00 - 6.45	SD S	SD5	0						
				...becoming dark grey below 6.30m					
7.50 7.50 - 7.95	SD S	SD6	0	...with peaty pockets below 7.30m				▽	
				Very soft brown very silty sandy CLAY (TIDAL FLAT DEPOSITS)		8.30			
9.00 9.00 - 9.45	SD S	SD7	0			(1.10)			
				Very loose brown slightly clayey silty SAND (TIDAL FLAT DEPOSITS)		9.40			
						(1.20)			
				Soft grey very silty CLAY with peat inclusions (TIDAL FLAT DEPOSITS)		10.60			
11.00	SD	SD8							

Remarks

1.Borehole cased to 17.00m.
2.Water encountered at 7.50m and 14.00m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 14.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
▽ = Water Strike (m)
▼ = Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Dando 150	**Drawing Ref:**
Date:	29/04/2021	**Approved:**	DB	GH21/01	**Scale:**	1:55	BH1

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BH1

Project No. D41072

Sheet 2 of 2

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
11.00 - 11.45	S		0	Soft grey very silty CLAY with peat inclusions (TIDAL FLAT DEPOSITS)		(1.90)			
12.50	SD	SD9				12.50			
12.50 - 12.95	S		5	Firm brown and black fibrous PEAT (TIDAL FLAT DEPOSITS)		(0.70)			
				Soft grey brown very silty CLAY (TIDAL FLAT DEPOSITS)		13.20 (0.80)			
14.00	SD	SD10				14.00		▽	
14.00 - 14.45	S		9	Loose becoming medium dense wet grey brown slightly gravelly silty SAND. Gravel is fine subangular flint (TIDAL FLAT DEPOSITS)					
15.50 - 15.95	C		18			(2.60)			
				Very stiff grey gravelly CLAY. Gravel is fine to medium subrounded to subangular chalk (OXFORD CLAY)		16.60			
17.00	SD	SD11					17.00		
17.00 - 17.45	S		50/240mm						
18.50	SD	SD12				(3.83)			
18.50 - 18.95	S		50/265mm						
20.00	SD	SD13							
20.00 - 20.45	S		50/285mm						
				End of Borehole at 20.43m		20.43			

Remarks

1.Borehole cased to 17.00m.
2.Water encountered at 7.50m and 14.00m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 14.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
▽ = Water Strike (m)
▼ = Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Dando 150	**Drawing Ref:**
Date:	29/04/2021	**Approved:**	DB	GH21/01	**Scale:**	1:55	BH1

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BH2

Project No. D41072

Sheet 1 of 2

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
				Brown slightly clayey slightly gravelly silty TOPSOIL (TIDAL FLAT DEPOSITS)		(0.40)			
						0.40			
				Initially firm becoming soft orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		(0.60)			
						1.00			
1.20 - 1.65	S		0	Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)					
2.20	SD	SD1							
2.20 - 2.65	S		0						
3.30	SD	SD2							
3.30 - 3.75	S		2						
				...becoming dark grey below 4.00m					
4.50	SD	SD3							
4.50 - 4.95	S		0						
						(8.40)			
				...with small peat pockets below 5.60m					
6.00	SD	SD4							
6.00 - 6.45	S		2						
7.50	SD	SD5							
7.50 - 7.95	S		0						
9.00	SD	SD6							
9.00 - 9.45	S		3						
				Loose grey very silty SAND (TIDAL FLAT DEPOSITS)		9.40			
						(2.50)			
11.00	SD	SD7							

Remarks

1.Borehole cased to 17.00m.
2.Water encountered at 14.00m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 14.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
= Water Strike (m)
= Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Dando 150	**Drawing Ref:**
Date:	29/04/2021	**Approved:**	DB	GH21/01	**Scale:**	1:55	BH2

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BH2

Project No. D41072

Sheet 2 of 2

Samples and Tests				Description of Strata	Legend	Depth & (Thickness) (m)	Casing (m)	Ground-water	Installation
Depth (m)	Type	Sample Ref	SPT "N" Value						
11.00 - 11.45	S		0	Loose grey very silty SAND (TIDAL FLAT DEPOSITS)					
						11.90			
				Very soft grey very silty CLAY with rare peat pockets (TIDAL FLAT DEPOSITS)		(0.90)			
12.50	SD	SD8							
12.50 - 12.95	S		8			12.80			
				Firm brown and black fibrous PEAT (TIDAL FLAT DEPOSITS)		(1.10)			
14.00 - 14.45	C		14	Medium dense becoming loose wet grey brown slightly gravelly silty SAND. Gravel is fine subangular flint (TIDAL FLAT DEPOSITS)		13.90		▽	
						(2.50)			
15.50 - 15.95	C		8						
				Very stiff grey gravelly CLAY. Gravel is fine to medium subrounded to subangular chalk (OXFORD CLAY)		16.40			
17.00	SD	SD9					17.00		
17.00 - 17.45	S		50/295mm						
18.50 - 18.95	S		50/275mm			(3.99)			
20.00	SD	SD10							
20.00 - 20.45	S		50/245mm						
				End of Borehole at 20.39m		20.39			

Remarks

1.Borehole cased to 17.00m.
2.Water encountered at 14.00m.
3.Plain pipe installed from ground level to 1.00m in a bentonite surround. Slotted pipe installed from 1.00m to 14.00m in a gravel surround.
4.Bung, valve and lockable cover installed.

Key

D = Disturbed Sample
U = Undisturbed Sample
B = Bulk Sample
J = Jar Sample
V = Vial Sample
W = Water Sample

S = Standard Penetration Test (Split Spoon)
C = Standard Penetration Test (Cone)
▽ = Water Strike (m)
▼ = Steady Water Level (m)

Project:	High Road, Weston			**Client:**	Ashwood Homes		
Logged:	GH	**Checked:**	DB	**Field Book Ref:**	**Plant:**	Dando 150	**Drawing Ref:**
Date:	29/04/2021	**Approved:**	DB	GH21/01	**Scale:**	1:55	BH2

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SA1

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
End of Trial Pit at 0.85m		0.85					

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project:			**Client:**	
High Road, Weston			**Ashwood Homes**	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** SA1
Date: 26/04/2021	**Approved:** DB		**Scale:** 1:10	

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SA2

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.85					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.40					
End of Trial Pit at 1.40m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project:			**Client:**	
High Road, Weston			**Ashwood Homes**	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** SA2
Date: 26/04/2021	**Approved:** DB		**Scale:** 1:10	

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SA3

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)							
		0.40					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)							
		0.90					
End of Trial Pit at 0.90m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project: High Road, Weston			**Client:** Ashwood Homes	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** SA3
Date: 26/04/2021	**Approved:** DB		**Scale:** 1:10	

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SA4

Project No: D41072

Sheet 1 of 1

Description of Strata	Legend	Depth (m)	Sample Ref	Sample Type	Field Test Type	Field Test Result	Ground-water
Brown slightly clayey slightly gravelly silty TOPSOIL. Gravel is fine to medium subrounded flint with frequent plant remains (TOPSOIL)		0.30					
Firm orange brown slightly clayey sandy SILT (TIDAL FLAT DEPOSITS)		0.95					
Firm grey brown silty CLAY (TIDAL FLAT DEPOSITS)		1.30					
End of Trial Pit at 1.30m							

Remarks:
1.Sides generally stable.
2.No water encountered.

Key: B = Bulk Sample D = Disturbed Sample W = Water Sample SV = Shear Vane (kN/m2) P = Penetrometer (kN/m2)
J = Jar Sample V = Vial Sample ▽ = Water Strike (m) ▼ = Steady Water Level (m)

Project:			**Client:**	
High Road, Weston			**Ashwood Homes**	
Logged: GH	**Checked:** DB	**Field Book Ref:** GH21/01	**Plant:** TRACKED EXCAVATOR	**Drawing No.** SA4
Date: 26/04/2021	**Approved:** DB		**Scale:** 1:10	

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APPENDIX X

Plates



Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP1 - Completed excavation	Rev.	
		Plate No.	1

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP3 - Completed excavation	Rev.	
		Plate No.	2

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
		Rev.	
Title	TP5 - Completed excavation	Plate No.	3

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP7 - Completed excavation	Rev.	
		Plate No.	4

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP9 - Completed excavation	Rev.	
		Plate No.	5

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP11 - Completed excavation	Rev.	
		Plate No.	6

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP13 - Completed excavation	Rev.	
		Plate No.	7

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP15 - Completed excavation	Rev.	
		Plate No.	8

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP17 - Completed excavation	Rev.	
		Plate No.	9

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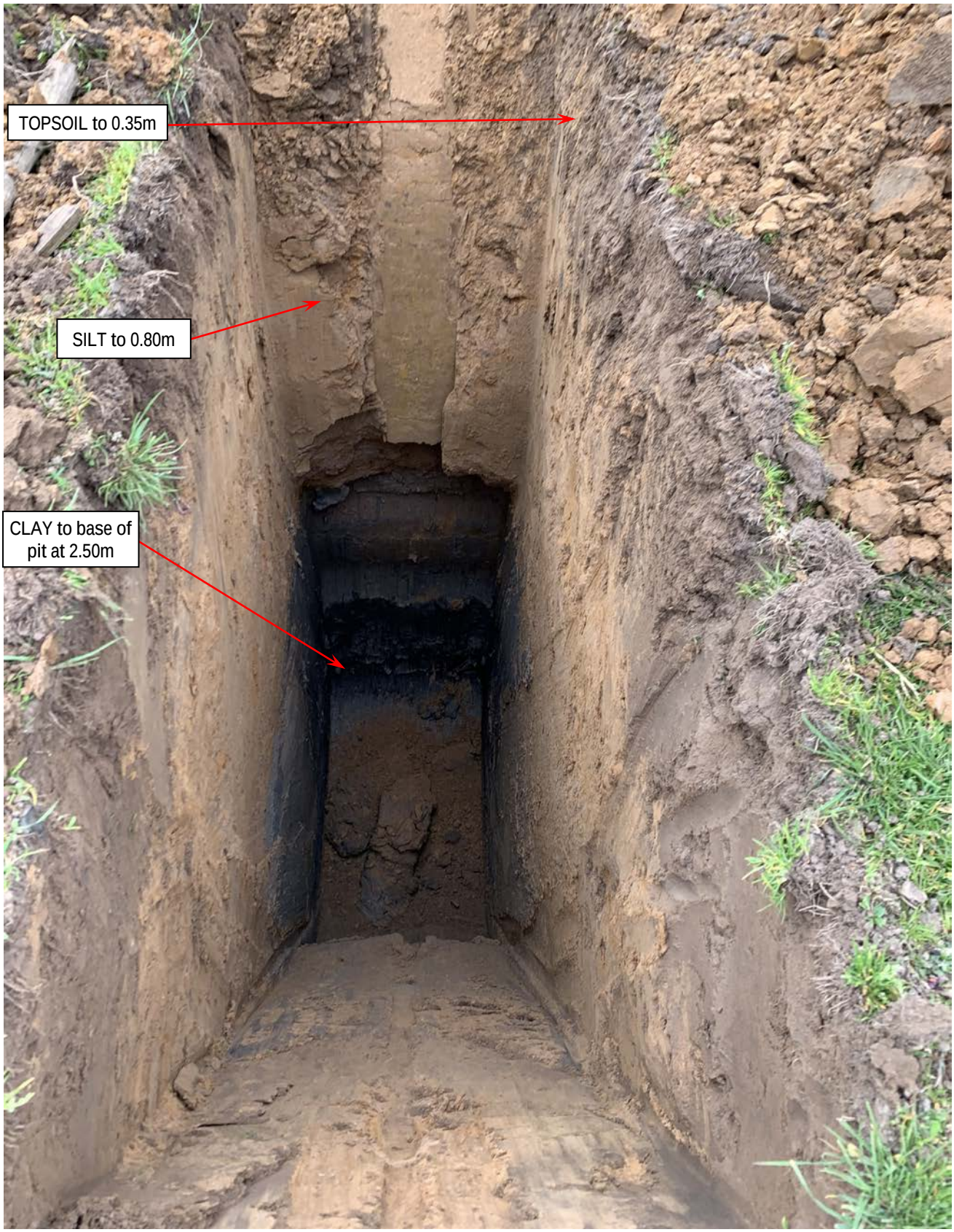
Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
		Rev.	
Title	TP19 - Completed excavation	Plate No.	10

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
		Rev.	
Title	TP21 - Completed excavation	Plate No.	11

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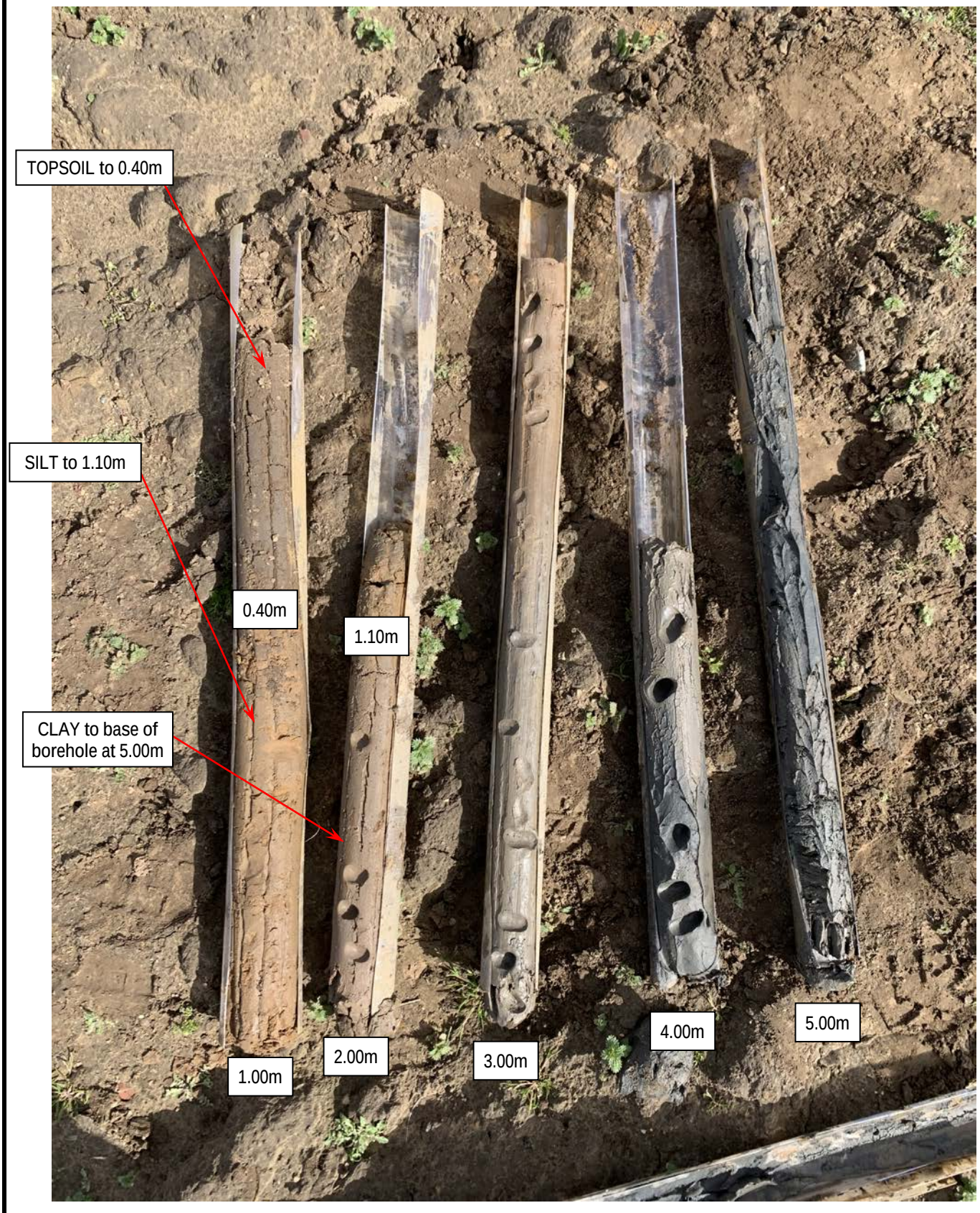
Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP23 - Completed excavation	Rev.	
		Plate No.	12

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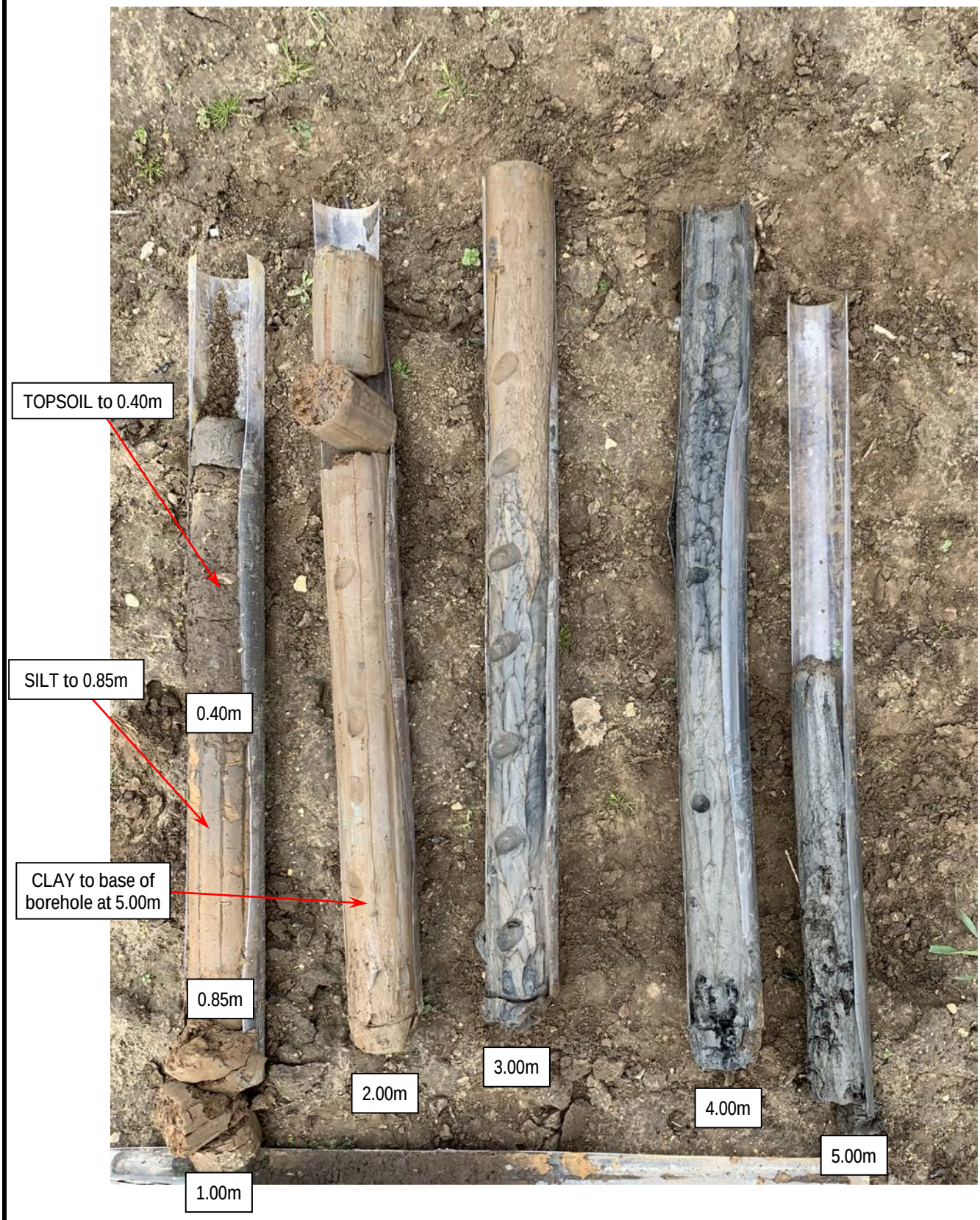
Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	TP25 - Completed excavation	Rev.	
		Plate No.	13

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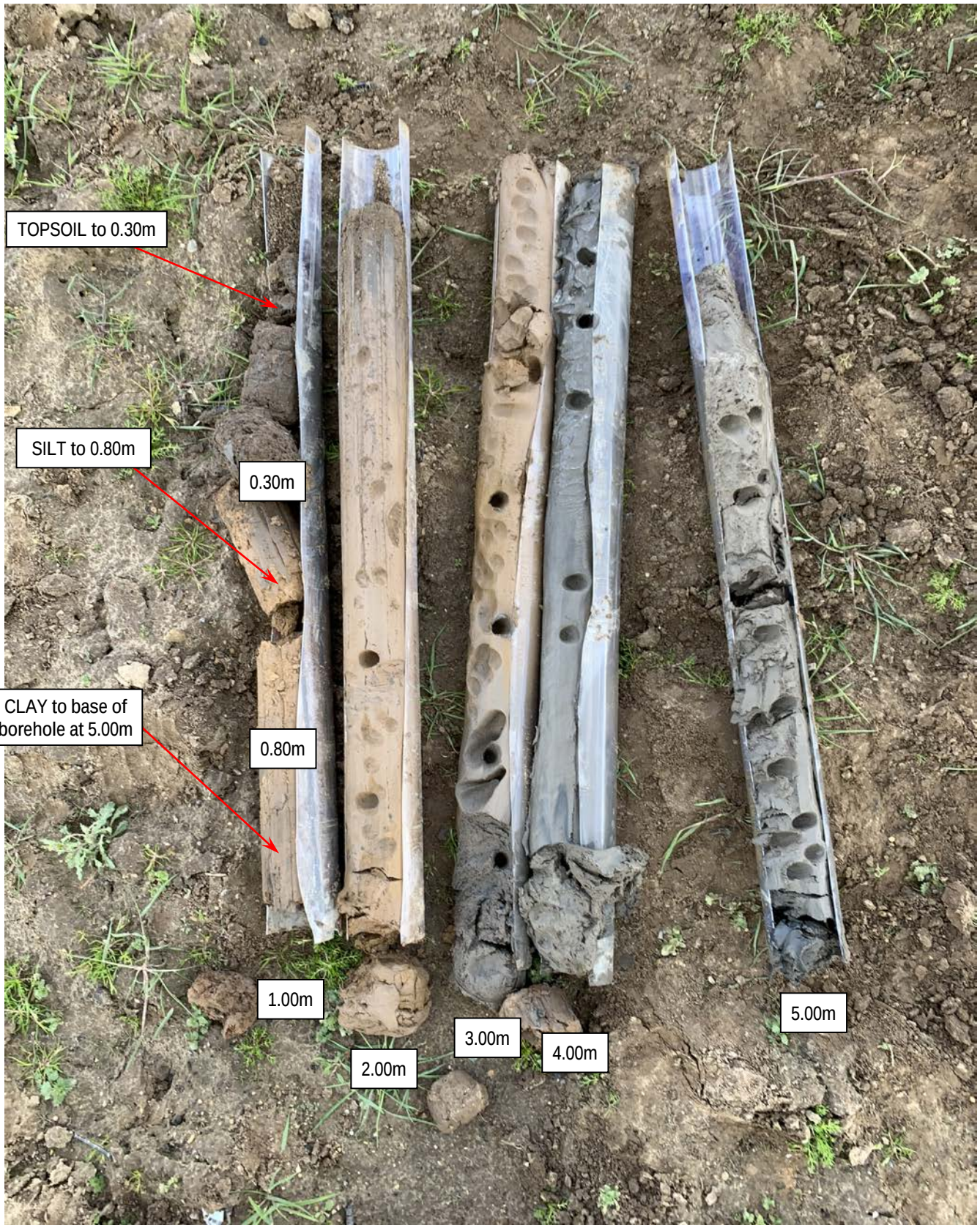
Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	WS1 completed cores	Rev.	
		Plate No.	14

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	WS2 completed cores	Rev.	
		Plate No.	15

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	WS3 completed cores	Rev.	
		Plate No.	16

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	WS4 completed cores	Rev.	
		Plate No.	17

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	WS5 completed cores	Rev.	
		Plate No.	18

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
Title	BH1 during drilling	Rev.	
		Plate No.	19

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Project No.	D41072	Drawn	GH
Client	Ashwood Homes Ltd	Checked	DB
		Approved	PK
Project	High Road Weston	Scale	NTS
		Date Drawn	02/06/2021
		Rev.	
Title	SA4 during soakway testing	Plate No.	20

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APPENDIX XI

Soil Infiltration Rate Calculations

SOIL INFILTRATION RATE CALCULATIONS

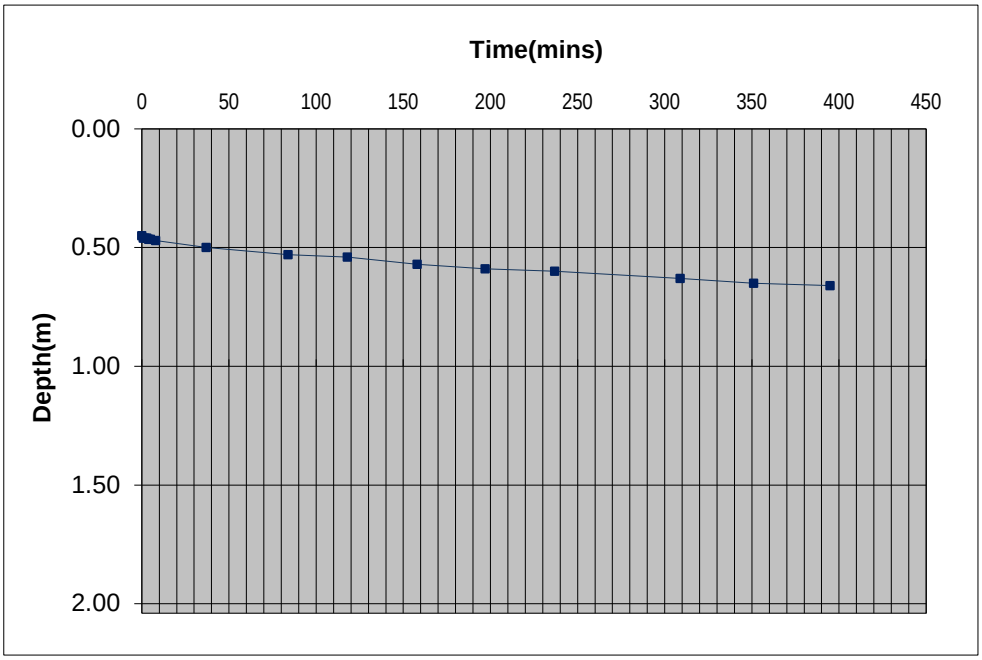
SA1 **Soakaway Test 1**

Time(mins)	Depth(m)
0	0.45
1	0.46
2	0.46
3	0.46
4	0.47
5	0.47
8	0.47
37	0.50
84	0.53
118	0.54
158	0.57
197	0.59
237	0.60
309	0.63
351	0.65
395	0.66

Client :	Ashwood Homes
Site :	High Road, Weston
Site ref :	D41072
Status:	**FINAL**

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	1.50	0.85

Depth from water level at start of test to bottom of pit =	0.40
Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)	1



75% effective depth(m)	=	0.50
25% effective depth(m)	=	0.61

Time at 75% effective depth(mins)	=	37
Time at 25% effective depth(mins)	=	261

Volume outflowing, V_{p75-25} = 0.0945

Area, a_{p50} = 1.74

Time, T_{75-25} = 224.0

Infiltration Rate, F = 4.04E-06 m/s

SOIL INFILTRATION RATE CALCULATIONS

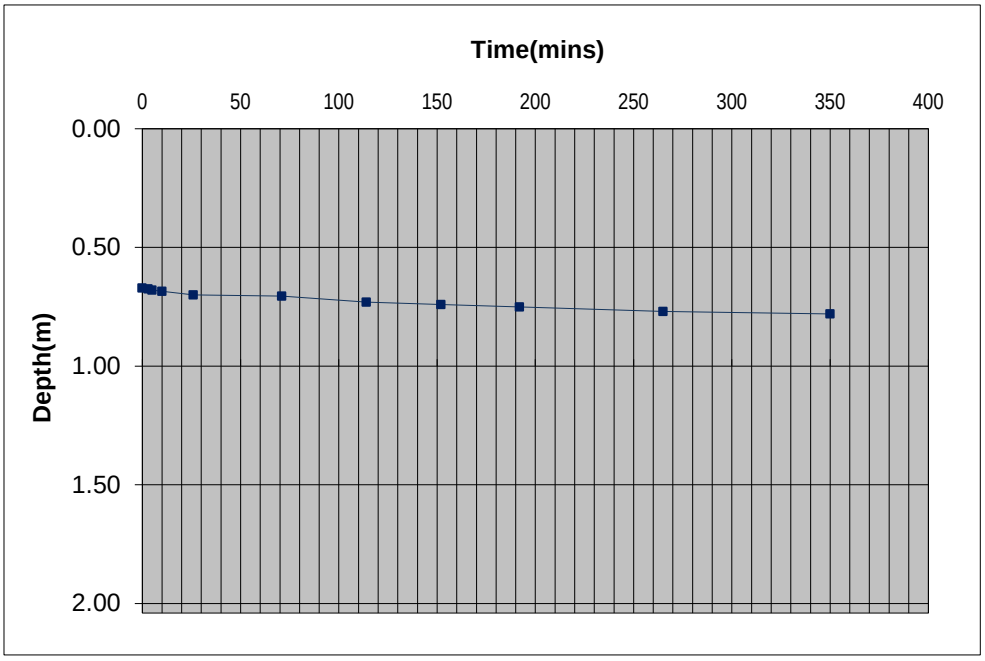
SA2 **Soakaway Test 1**

Time(mins)	Depth(m)
0	0.67
3	0.68
5	0.68
10	0.69
26	0.70
71	0.71
114	0.73
152	0.74
192	0.75
265	0.77
350	0.78

Client :	Ashwood Homes
Site :	High Road, Weston
Site ref :	D41072
Status:	**FINAL**

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	1.10	1.40

Depth from water level at start of test to bottom of pit =	0.73
Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)	1



75% effective depth(m)	=	0.70
25% effective depth(m)	=	0.75

Time at 75% effective depth(mins)	=	26
Time at 25% effective depth(mins)	=	192

Volume outflowing, V_{p75-25} = 0.0363

Area, a_{p50} = 1.901

Time, T_{75-25} = 166.0

Infiltration Rate, F = 1.92E-06 m/s

SOIL INFILTRATION RATE CALCULATIONS

SA3 **Soakaway Test 1**

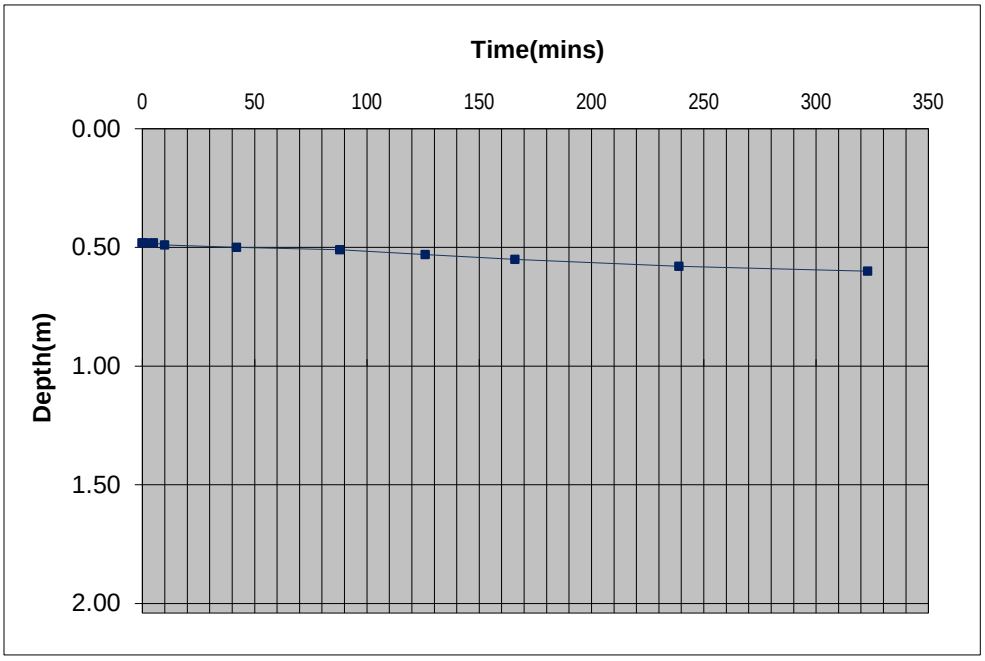
Time(mins)	Depth(m)
0	0.48
1	0.48
5	0.48
10	0.49
42	0.50
88	0.51
126	0.53
166	0.55
239	0.58
323	0.60

Client :	Ashwood Homes
Site :	High Road, Weston
Site ref :	D41072
Status:	**FINAL**

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	1.20	0.90

Depth from water level at start of test to bottom of pit =	0.42

Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)	1



75% effective depth(m)	=	0.51
25% effective depth(m)	=	0.57

Time at 75% effective depth(mins)	=	88
Time at 25% effective depth(mins)	=	215

Volume outflowing, V_{p75-25} = 0.0432

Area, a_{p50} = 1.476

Time, T_{75-25} = 127.0

Infiltration Rate, F = 3.84E-06 m/s

SOIL INFILTRATION RATE CALCULATIONS

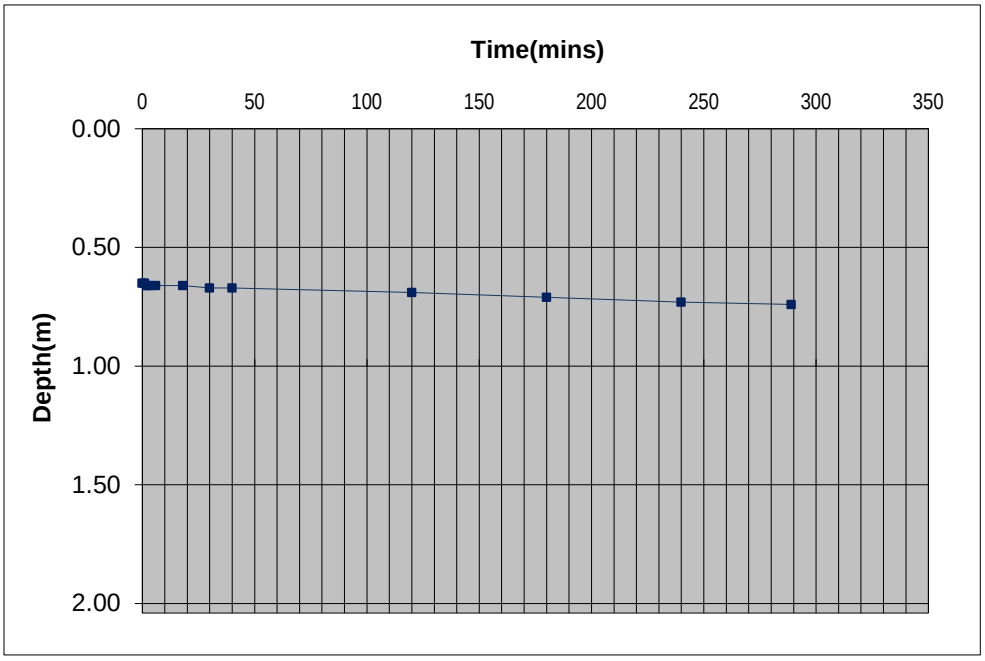
SA4 **Soakaway Test 1**

Time(mins)	Depth(m)
0	0.65
1	0.65
2	0.66
3	0.66
6	0.66
18	0.66
30	0.67
40	0.67
120	0.69
180	0.71
240	0.73
289	0.74

Client :	Ashwood Homes
Site :	High Road, Weston
Site ref :	D41072
Status:	**FINAL**

Trial pit dimensions		
Width(m)	Length(m)	Depth(m)
0.60	1.20	1.30

Depth from water level at start of test to bottom of pit =	0.65
Enter Assumed Void Ratio (fraction of 1, where 1 equates to open pit. 0.3 to stone fill and 0 equates to no voids)	1



75% effective depth(m)	=	0.67
25% effective depth(m)	=	0.72

Time at 75% effective depth(mins)	=	30
Time at 25% effective depth(mins)	=	210

Volume outflowing, V_{p75-25} = 0.0324

Area, a_{p50} = 1.89

Time, T_{75-25} = 180.0

Infiltration Rate, F = 1.59E-06 m/s

GeoDyne

APPENDIX XII

Laboratory Soil Test Results

LABORATORY REPORT

4043

Contract Number: PSL21/3690

Report Date: 14 June 2021

Client's Reference: D41072

Client Name: GeoDyne Derby
9 Brunel Parkway
Pride Park
Derby
DE24 8HR

For the attention of: Gavin Hallam

Contract Title: High Road, Weston

Date Received: 5/5/2021
Date Commenced: 5/5/2021
Date Completed: 14/6/2021

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
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rberriman@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP5			0.35		Brown very silty CLAY.
TP7			0.30		Brown very gravelly very sandy CLAY
TP12			0.40		Brown sandy clayey SILT.
TP15			0.40		Brown sandy clayey SILT.
TP25			0.30		Brown sandy clayey SILT.
TP1			0.70		Brown sandy SILT.
TP4			1.00		Brown sandy CLAY.
TP6			1.00		Brown sandy CLAY.
TP10			0.70		Brown sandy SILT.
TP16			0.80		Brown sandy SILT.
TP17			2.50		Brown CLAY.
TP19			1.10		Brown sandy CLAY
TP21			0.80		Brown sandy SILT.
BH1			7.50		Brown CLAY.
BH1			17.00		Brown gravelly sandy CLAY.
BH2			9.00		Brown CLAY.
BH2			20.00		Brown gravelly sandy CLAY.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP1			0.70		24				NP			
TP4			1.00		38			50	24	26	100	High Plasticity CH
TP6			1.00		28			49	24	25	100	Intermediate Plasticity CI
TP10			0.70		25				NP			
TP16			0.80		28				NP			
TP17			2.50		57			77	32	45	100	Very High Plasticity CV
TP19			1.10		28			41	21	20	100	Intermediate Plasticity CI
TP21			0.80		30				NP			
BH1			7.50		48			68	29	39	100	High Plasticity CH
BH1			17.00		15			36	18	18	83	Intermediate Plasticity CI
BH2			9.00		42			68	28	40	100	High Plasticity CH
BH2			20.00		16			35	17	18	80	Intermediate Plasticity CI

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

High Road, Weston

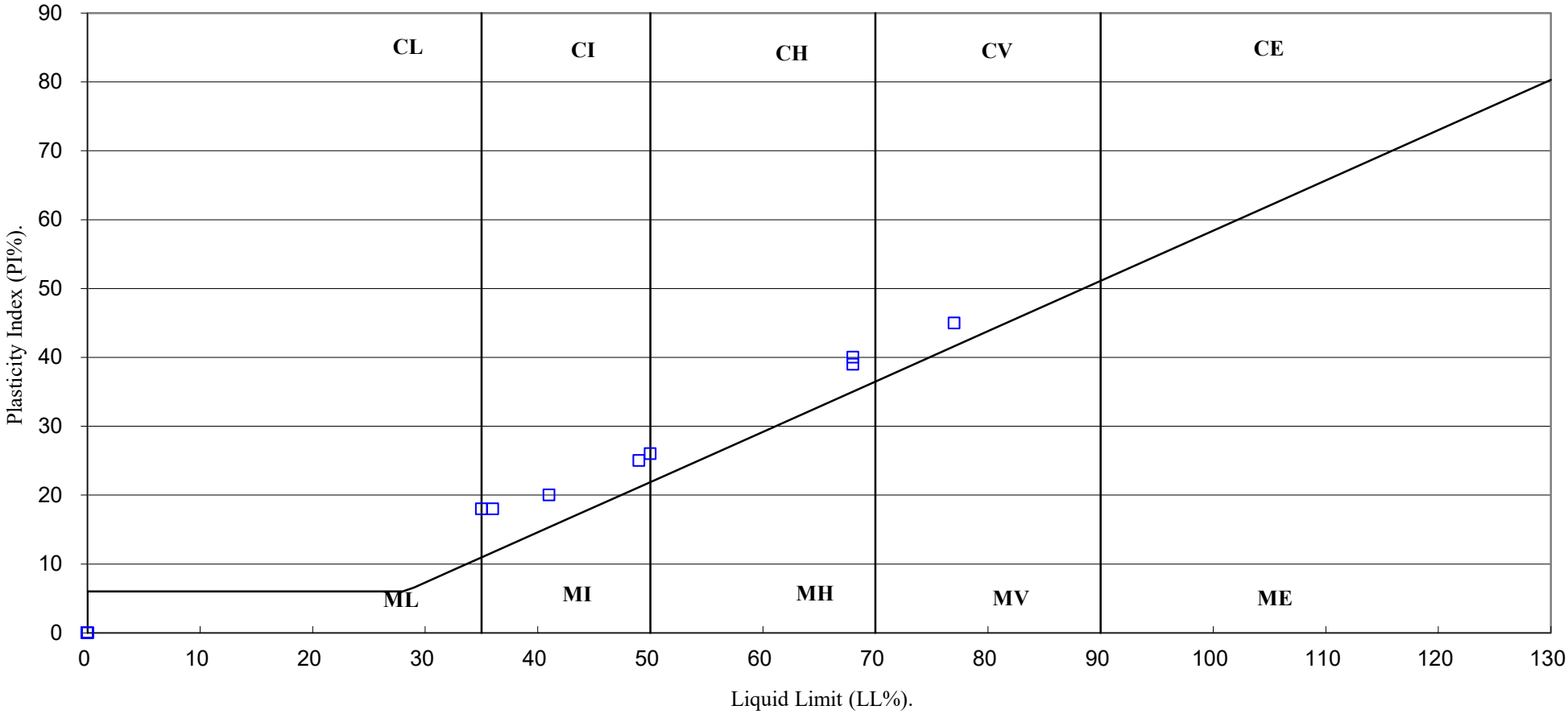
Contract No:

PSL21/3690

Client Ref:

D41072

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



UKAS TESTING 4043	PSL Professional Soils Laboratory	High Road, Weston	Contract No: PSL21/3690 Client Ref: D41072

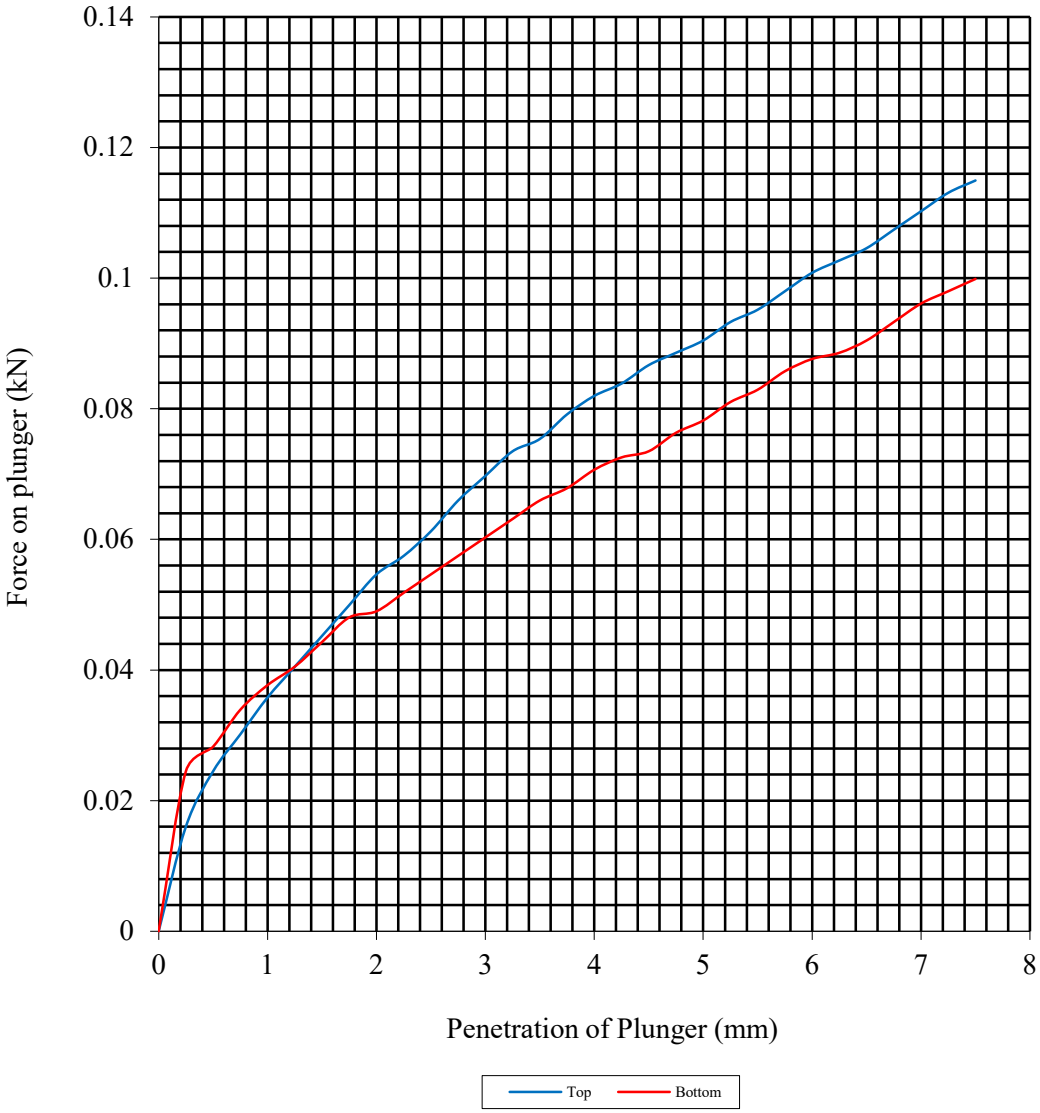
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP5 **Top Depth (m):** 0.35

Sample Number: **Base Depth (m):**

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	55	Surcharge Kg:	4.00	Sample Top	55	Sample Top	0.5
Bulk Density Mg/m3:	1.72	Soaking Time hrs	0	Sample Bottom	54	Sample Bottom	0.4
Dry Density Mg/m3:	1.11	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

TP5

Contract No: PSL21/3690

Client Ref: D41072

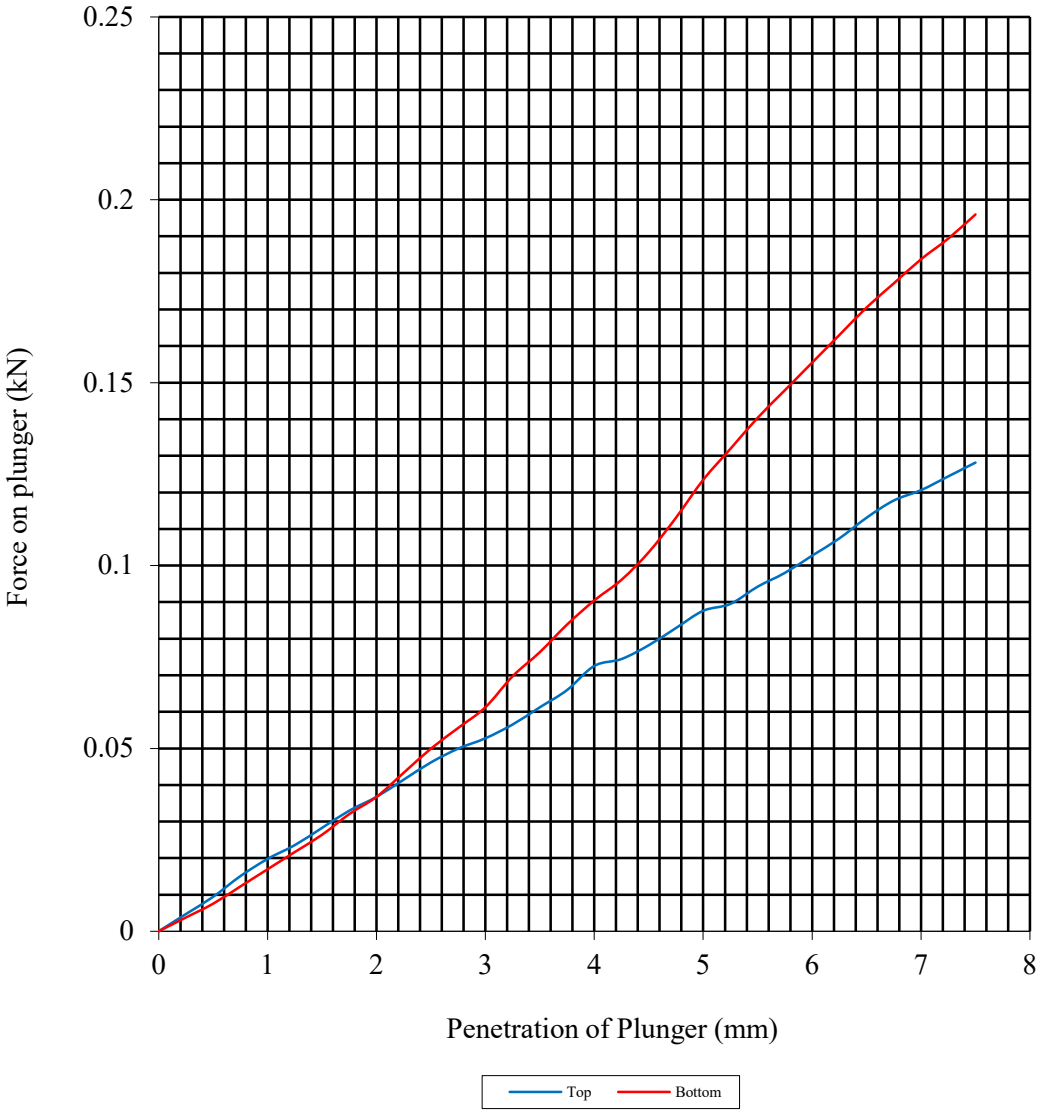
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP7 **Top Depth (m):** 0.30

Sample Number: **Base Depth (m):**

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	24	Surcharge Kg:	4.00	Sample Top	26	Sample Top	0.4
Bulk Density Mg/m3:	1.90	Soaking Time hrs	0	Sample Bottom	26	Sample Bottom	0.6
Dry Density Mg/m3:	1.53	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

TP5

Contract No: PSL21/3690

Client Ref: D41072

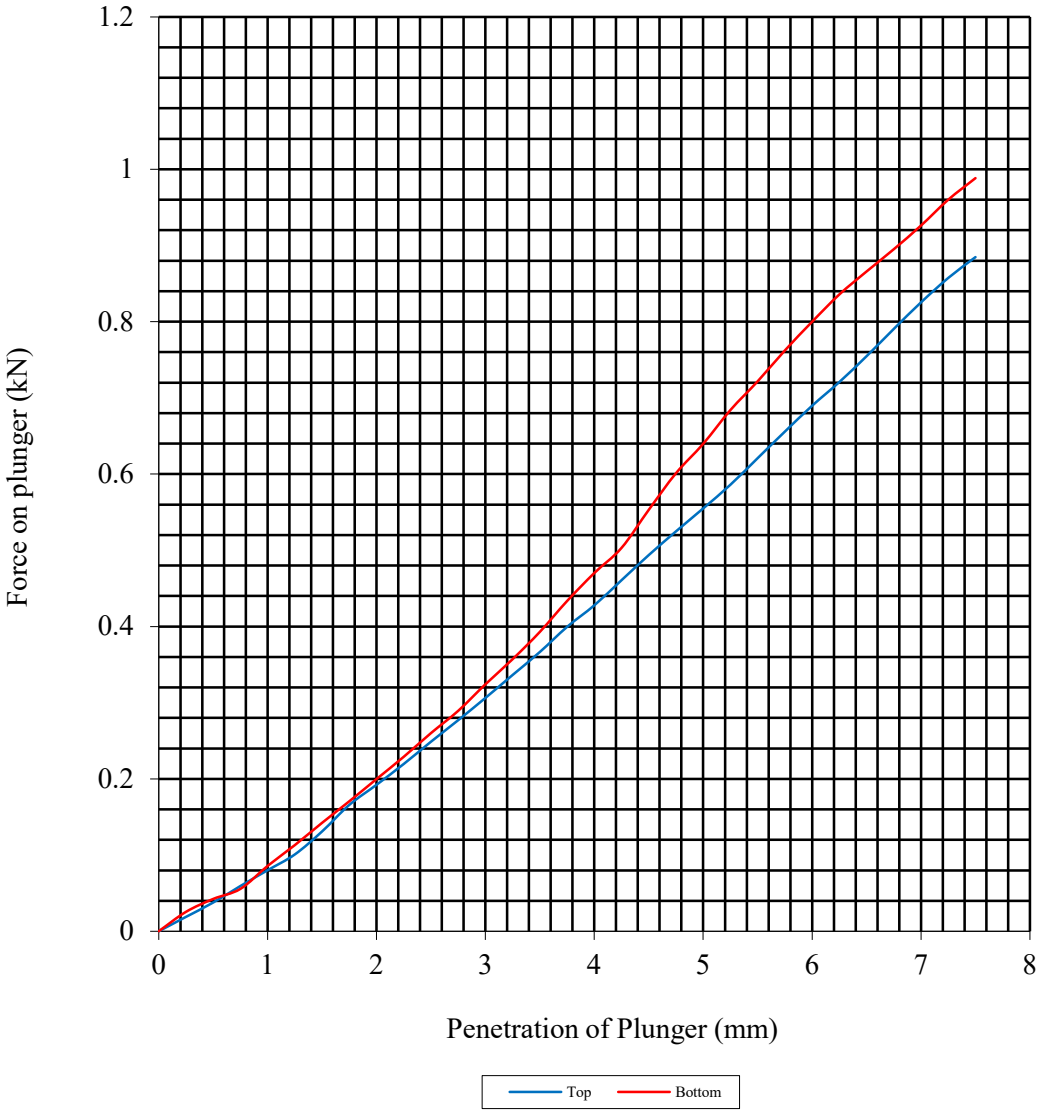
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP12 **Top Depth (m):** 0.40

Sample Number: **Base Depth (m):**

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	29	Surcharge Kg:	4.00	Sample Top	30	Sample Top	2.8
Bulk Density Mg/m3:	1.88	Soaking Time hrs	0	Sample Bottom	29	Sample Bottom	3.2
Dry Density Mg/m3:	1.46	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

TP5

Contract No: PSL21/3690

Client Ref: D41072

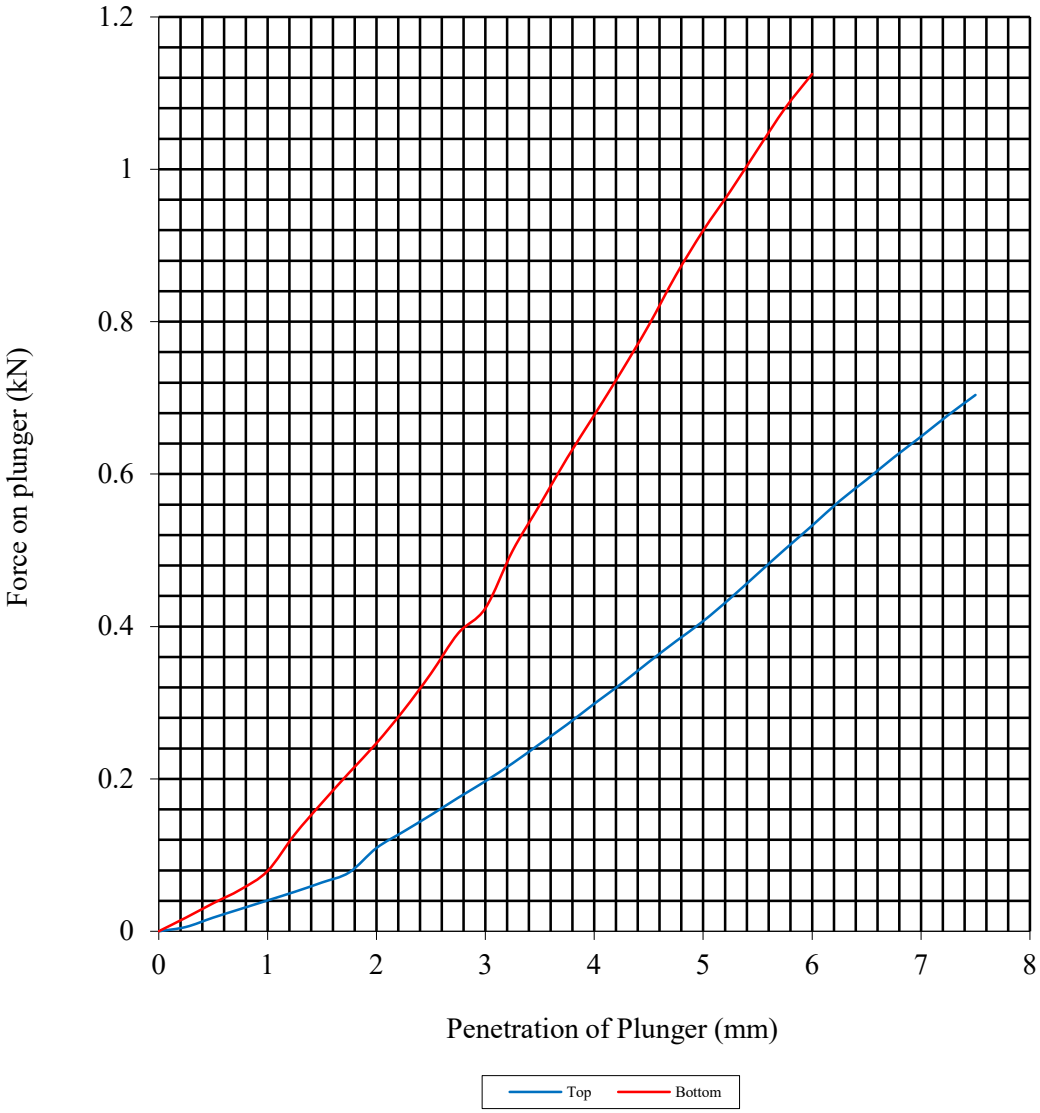
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP15 **Top Depth (m):** 0.40

Sample Number: **Base Depth (m):**

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	26	Surcharge Kg:	4.00	Sample Top	26	Sample Top	2.0
Bulk Density Mg/m3:	1.88	Soaking Time hrs	0	Sample Bottom	26	Sample Bottom	4.6
Dry Density Mg/m3:	1.49	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

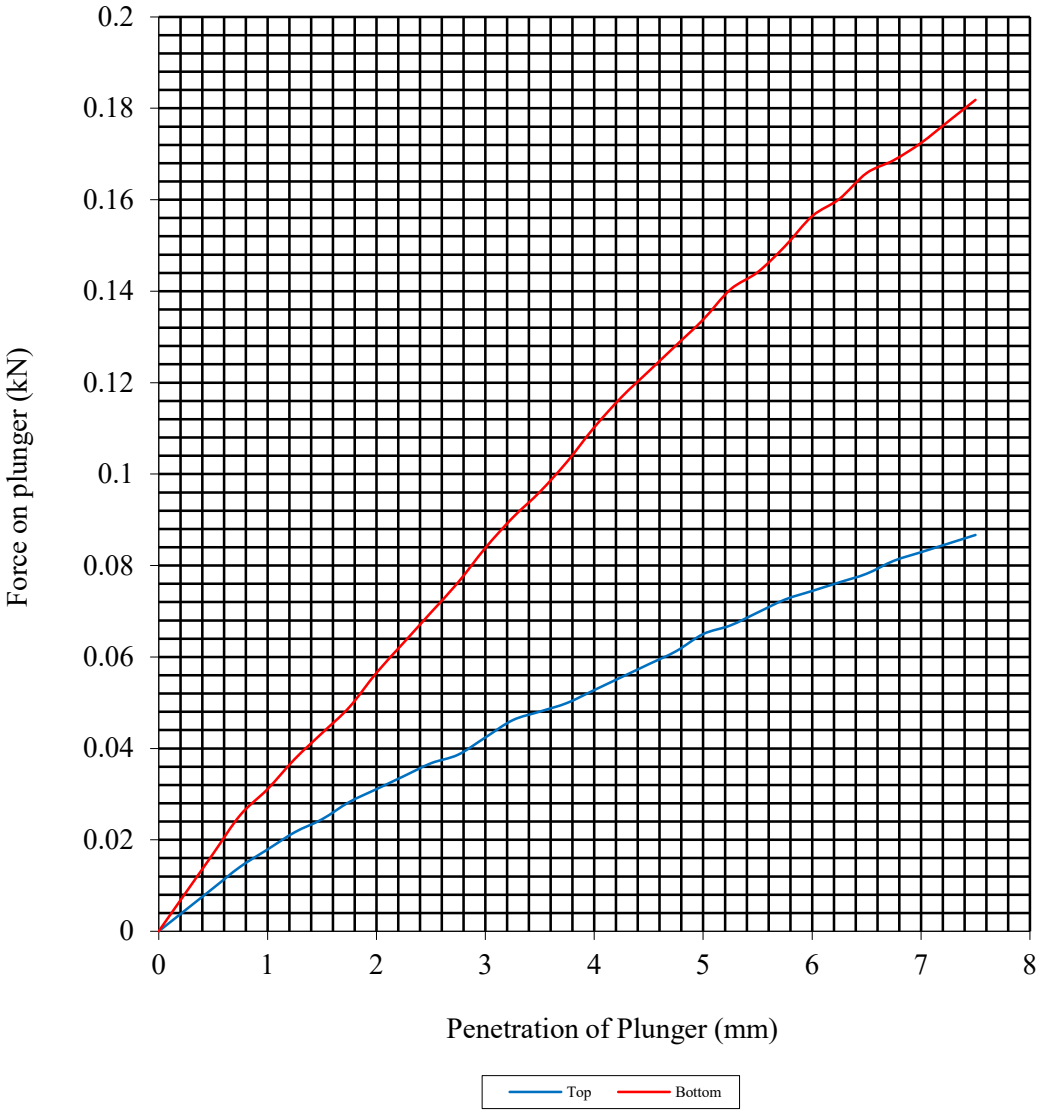
CALIFORNIA BEARING RATIO TEST

BS 1377 : Part 4 : 1990

Hole Number: TP25 **Top Depth (m):** 0.30

Sample Number: **Base Depth (m):**

Sample Type:



Initial Sample Conditions		Sample Preparation		Final Moisture Content %		C.B.R. Value %	
Moisture Content:	27	Surcharge Kg:	4.00	Sample Top	28	Sample Top	0.3
Bulk Density Mg/m3:	1.93	Soaking Time hrs	0	Sample Bottom	27	Sample Bottom	0.7
Dry Density Mg/m3:	1.52	Swelling mm:	0.00	Remarks : See Summary of Soil Descriptions.			
Percentage retained on 20mm BS test sieve:			0				
Compaction Conditions		2.5kg					

UKAS TESTING 4043

PSL Professional Soils Laboratory

TP5

Contract No: PSL21/3690

Client Ref: D41072

envirolab
Units 7 & 8 Sandpits Business Park
Mottram Road, Hyde, Cheshire, SK14 3AR

FINAL ANALYTICAL TEST REPORT

Envirolab Job Number: 21/04888
Issue Number: 1 **Date:** 13 May, 2021

Client:
GeoDyne (Derby)
9 Brunel Parkway
Pride Park
Derby
Derbyshire
UK
DE24 8HR

Project Manager: Gavin Hallam
Project Name: High Road, Weston
Project Ref: D41072
Order No: D41072/GH
Date Samples Received: 06/05/21
Date Instructions Received: 06/05/21
Date Analysis Completed: 13/05/21

Prepared by:

Melanie Marshall
Laboratory Coordinator

Approved by:

Sophie France
Client Service Manager

Envirolab Job Number: 21/04888

Client Project Name: High Road, Weston

Client Project Ref: D41072

Lab Sample ID	21/04888/1	21/04888/3	21/04888/5	21/04888/7	21/04888/9	21/04888/10	21/04888/12	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP3	TP4	TP6	TP8	TP9	TP10			
Depth to Top	0.10	1.60	0.10	0.60	0.50	0.10	1.00			
Depth To Bottom	0.20	1.70	0.20	0.70	0.60	0.20	1.10			
Date Sampled	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	20-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6E	3	6	6	4	6A	3			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	15.1	<0.1	% w/w	0.1	A-T-044
pH$_D^{M\#}$	7.60	-	7.70	8.05	-	7.79	-	pH	0.01	A-T-031s
pH BRE$_D^{M\#}$	-	8.05	-	-	8.29	-	8.02	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	-	65	-	<10	13	-	<10	mg/l	10	A-T-026s
Total Organic Carbon$_D^{M\#}$	2.49	-	1.18	0.55	-	1.00	-	% w/w	0.03	A-T-032s
Arsenic$_D^{M\#}$	7	-	5	6	-	6	-	mg/kg	1	A-T-024s
Cadmium$_D^{M\#}$	0.6	-	<0.5	<0.5	-	<0.5	-	mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	18	-	11	7	-	9	-	mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	19	-	13	18	-	13	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	-	<1	<1	-	<1	-	mg/kg	1	A-T-040s
Chromium (trivalent)	19	-	13	18	-	13	-	mg/kg	1	Calc
Lead$_D^{M\#}$	32	-	21	11	-	71	-	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	-	<0.17	<0.17	-	<0.17	-	mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	14	-	10	14	-	9	-	mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	-	<1	<1	-	<1	-	mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	58	-	42	39	-	39	-	mg/kg	5	A-T-024s
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Tecnazene$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Trifluralin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Simazine$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Atrazine$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Quintozene (PCNB)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorothalonil$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Triallate$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Heptachlor$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Aldrin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Triadimefon$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056

Lab Sample ID	21/04888/1	21/04888/3	21/04888/5	21/04888/7	21/04888/9	21/04888/10	21/04888/12	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP3	TP4	TP6	TP8	TP9	TP10			
Depth to Top	0.10	1.60	0.10	0.60	0.50	0.10	1.00			
Depth To Bottom	0.20	1.70	0.20	0.70	0.60	0.20	1.10			
Date Sampled	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	20-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6E	3	6	6	4	6A	3			
Telodrin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Isodrin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Pendimethalin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Heptachlor epoxide$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDE (2,4)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan I (Alpha)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDE (4,4)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Dieldrin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDD (2,4)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan II (Beta)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDD (4,4)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-DDT (2,4)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin Aldehyde$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Endrin Ketone$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Endosulphan Sulphate$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-DDT (4,4)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
o,p-Methoxychlor$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
p,p-Methoxychlor$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Permethrin I (cis)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Permethrin II (trans)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Dichlorvos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Mevinphos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Demeton-S$_A$	<0.50	-	<0.50	-	-	<0.50	-	mg/kg	0.5	A-T-056
Demeton-O$_A$	<0.50	-	<0.50	-	-	<0.50	-	mg/kg	0.5	A-T-056
Phorate$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Dimethoate$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Propetamphos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Diazinon (Dimpylate)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Disulfoton$_A$	<0.10	-	<0.10	-	-	<0.10	-	mg/kg	0.1	A-T-056
Etrimphos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorpyrifos-methyl$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 21/04888

Client Project Name: High Road, Weston

Client Project Ref: D41072

Lab Sample ID	21/04888/1	21/04888/3	21/04888/5	21/04888/7	21/04888/9	21/04888/10	21/04888/12	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP3	TP4	TP6	TP8	TP9	TP10			
Depth to Top	0.10	1.60	0.10	0.60	0.50	0.10	1.00			
Depth To Bottom	0.20	1.70	0.20	0.70	0.60	0.20	1.10			
Date Sampled	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	20-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6E	3	6	6	4	6A	3			
Parathion (Ethyl Parathion)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Methyl Parathion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Pirimiphos-methyl$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Fenitrothion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Fensulphothion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Fenthion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Malathion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorfenvinphos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Chlorpyrifos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Trichloronate$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion)$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Ethion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Triazophos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Carbophenothion$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Phosalone$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Azinphos-methyl$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Azinphos-ethyl$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056
Coumaphos$_A$	<0.01	-	<0.01	-	-	<0.01	-	mg/kg	0.01	A-T-056

Envirolab Job Number: 21/04888

Client Project Name: High Road, Weston

Client Project Ref: D41072

Lab Sample ID	21/04888/1	21/04888/3	21/04888/5	21/04888/7	21/04888/9	21/04888/10	21/04888/12	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP1	TP3	TP4	TP6	TP8	TP9	TP10			
Depth to Top	0.10	1.60	0.10	0.60	0.50	0.10	1.00			
Depth To Bottom	0.20	1.70	0.20	0.70	0.60	0.20	1.10			
Date Sampled	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	19-Apr-21	20-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	6E	3	6	6	4	6A	3			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	0.1	-	<0.1	<0.1	-	0.2	-	mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	0.3	-	<0.1	<0.1	-	0.3	-	mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	<0.1	-	mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	<0.1	-	<0.1	<0.1	-	0.2	-	mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	0.3	-	<0.1	<0.1	-	0.3	-	mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	1.0	-	<0.1	<0.1	-	1.0	-	mg/kg	0.1	A-T-019s

Envirolab Job Number: 21/04888

Client Project Name: High Road, Weston

Client Project Ref: D41072

Lab Sample ID	21/04888/13	21/04888/15	21/04888/16	21/04888/19	21/04888/20	21/04888/21	21/04888/22	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP11	TP13	TP14	TP17	TP18	TP18	TP20			
Depth to Top	0.70	0.10	2.50	0.10	0.40	1.00	0.10			
Depth To Bottom	0.80	0.20	2.60	0.20	0.50	1.10	0.20			
Date Sampled	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	21-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	4	4A	3	4A	5E	6	4A			
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	% w/w	0.1	A-T-044
pH$_D^{M\#}$	8.40	7.82	-	8.05	8.18	-	-	pH	0.01	A-T-031s
pH BRE$_D^{M\#}$	-	-	8.44	-	-	7.99	-	pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D^{M\#}$	-	-	164	-	-	34	-	mg/l	10	A-T-026s
Total Organic Carbon$_D^{M\#}$	0.26	1.23	-	1.00	0.44	-	-	% w/w	0.03	A-T-032s
Arsenic$_D^{M\#}$	2	8	-	6	4	-	-	mg/kg	1	A-T-024s
Cadmium$_D^{M\#}$	<0.5	<0.5	-	<0.5	<0.5	-	-	mg/kg	0.5	A-T-024s
Copper$_D^{M\#}$	4	12	-	11	5	-	-	mg/kg	1	A-T-024s
Chromium$_D^{M\#}$	11	13	-	15	15	-	-	mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	-	<1	<1	-	-	mg/kg	1	A-T-040s
Chromium (trivalent)	11	13	-	15	15	-	-	mg/kg	1	Calc
Lead$_D^{M\#}$	5	23	-	19	7	-	-	mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.37	-	<0.17	<0.17	-	-	mg/kg	0.17	A-T-024s
Nickel$_D^{M\#}$	9	10	-	11	12	-	-	mg/kg	1	A-T-024s
Selenium$_D^{M\#}$	<1	<1	-	<1	<1	-	-	mg/kg	1	A-T-024s
Zinc$_D^{M\#}$	22	45	-	42	31	-	-	mg/kg	5	A-T-024s
OCP+OPP Combined Pest Suite (incl. Atrazine and Simazine)										
Dichlobenil$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Tecnazene$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Trifluralin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
alpha-Hexachlorocyclohexane (HCH)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Hexachlorobenzene (HCB)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Simazine$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Atrazine$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
beta-Hexachlorocyclohexane (HCH)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Quintozene (PCNB)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorothalonil$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
delta-Hexachlorocyclohexane (HCH)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Triallate$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Heptachlor$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Aldrin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Triadimefon$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056

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Client Project Ref: D41072

Lab Sample ID	21/04888/13	21/04888/15	21/04888/16	21/04888/19	21/04888/20	21/04888/21	21/04888/22	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP11	TP13	TP14	TP17	TP18	TP18	TP20			
Depth to Top	0.70	0.10	2.50	0.10	0.40	1.00	0.10			
Depth To Bottom	0.80	0.20	2.60	0.20	0.50	1.10	0.20			
Date Sampled	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	21-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	4	4A	3	4A	5E	6	4A			
Telodrin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Isodrin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Pendimethalin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Heptachlor epoxide$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
trans-Chlordane (Gamma)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-DDE (2,4)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Endosulphan I (Alpha)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
cis-Chlordane (Alpha)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-DDE (4,4)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Dieldrin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-DDD (2,4)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Endrin$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Endosulphan II (Beta)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-DDD (4,4)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-DDT (2,4)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Endrin Aldehyde$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Endrin Ketone$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Endosulphan Sulphate$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-DDT (4,4)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
o,p-Methoxychlor$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
p,p-Methoxychlor$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Permethrin I (cis)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Permethrin II (trans)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Dichlorvos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Mevinphos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Demeton-S$_A$	-	-	-	-	-	-	<0.50	mg/kg	0.5	A-T-056
Demeton-O$_A$	-	-	-	-	-	-	<0.50	mg/kg	0.5	A-T-056
Phorate$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Dimethoate$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Propetamphos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Diazinon (Dimpylate)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Disulfoton$_A$	-	-	-	-	-	-	<0.10	mg/kg	0.1	A-T-056
Etrimphos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorpyrifos-methyl$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056

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Client Project Ref: D41072

Lab Sample ID	21/04888/13	21/04888/15	21/04888/16	21/04888/19	21/04888/20	21/04888/21	21/04888/22	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP11	TP13	TP14	TP17	TP18	TP18	TP20			
Depth to Top	0.70	0.10	2.50	0.10	0.40	1.00	0.10			
Depth To Bottom	0.80	0.20	2.60	0.20	0.50	1.10	0.20			
Date Sampled	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	21-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	4	4A	3	4A	5E	6	4A			
Parathion (Ethyl Parathion)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Methyl Parathion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Pirimiphos-methyl$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Fenitrothion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Fensulphothion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Fenthion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Malathion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorfenvinphos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Chlorpyrifos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Trichloronate$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Prothiofos (Tokuthion)$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Ethion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Triazophos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Carbophenothion$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Phosalone$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Azinphos-methyl$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Azinphos-ethyl$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056
Coumaphos$_A$	-	-	-	-	-	-	<0.01	mg/kg	0.01	A-T-056

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Client Project Name: High Road, Weston

Client Project Ref: D41072

Lab Sample ID	21/04888/13	21/04888/15	21/04888/16	21/04888/19	21/04888/20	21/04888/21	21/04888/22	Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP11	TP13	TP14	TP17	TP18	TP18	TP20			
Depth to Top	0.70	0.10	2.50	0.10	0.40	1.00	0.10			
Depth To Bottom	0.80	0.20	2.60	0.20	0.50	1.10	0.20			
Date Sampled	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	20-Apr-21	21-Apr-21			
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D			
Sample Matrix Code	4	4A	3	4A	5E	6	4A			
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.1	0.2	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.1	0.2	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.1	0.2	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	<0.1	0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	<0.1	0.4	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.1	0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	<0.1	<0.1	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	<0.1	0.2	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	<0.1	0.4	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.1	1.8	-	<0.1	<0.1	-	-	mg/kg	0.1	A-T-019s

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Lab Sample ID	21/04888/23	21/04888/25	21/04888/28	21/04888/29	21/04888/30	21/04888/31		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP20	TP23	BH1	BH1	BH2	BH2				
Depth to Top	0.70	0.10	9.00	18.50	6.00	12.50				
Depth To Bottom	0.80	0.20								
Date Sampled	21-Apr-21	21-Apr-21	26-Apr-21	28-Apr-21	29-Apr-21	29-Apr-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	4	4A	5	3A	6	6A				
% Stones >10mm$_A$	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		% w/w	0.1	A-T-044
pH$_D$$^{M\#}$	8.31	7.58	-	-	-	-		pH	0.01	A-T-031s
pH BRE$_D$$^{M\#}$	-	-	8.58	8.56	8.36	8.50		pH	0.01	A-T-031s
Sulphate BRE (water sol 2:1)$_D$$^{M\#}$	-	-	182	71	122	168		mg/l	10	A-T-026s
Total Organic Carbon$_D$$^{M\#}$	0.41	1.68	-	-	-	-		% w/w	0.03	A-T-032s
Arsenic$_D$$^{M\#}$	6	<1	-	-	-	-		mg/kg	1	A-T-024s
Cadmium$_D$$^{M\#}$	<0.5	<0.5	-	-	-	-		mg/kg	0.5	A-T-024s
Copper$_D$$^{M\#}$	3	9	-	-	-	-		mg/kg	1	A-T-024s
Chromium$_D$$^{M\#}$	11	13	-	-	-	-		mg/kg	1	A-T-024s
Chromium (hexavalent)$_D$	<1	<1	-	-	-	-		mg/kg	1	A-T-040s
Chromium (trivalent)	11	13	-	-	-	-		mg/kg	1	Calc
Lead$_D$$^{M\#}$	5	32	-	-	-	-		mg/kg	1	A-T-024s
Mercury$_D$	<0.17	0.31	-	-	-	-		mg/kg	0.17	A-T-024s
Nickel$_D$$^{M\#}$	9	10	-	-	-	-		mg/kg	1	A-T-024s
Selenium$_D$$^{M\#}$	<1	<1	-	-	-	-		mg/kg	1	A-T-024s
Zinc$_D$$^{M\#}$	23	30	-	-	-	-		mg/kg	5	A-T-024s

Envirolab Job Number: 21/04888

Client Project Name: High Road, Weston

Client Project Ref: D41072

Lab Sample ID	21/04888/23	21/04888/25	21/04888/28	21/04888/29	21/04888/30	21/04888/31		Units	Limit of Detection	Method ref
Client Sample No										
Client Sample ID	TP20	TP23	BH1	BH1	BH2	BH2				
Depth to Top	0.70	0.10	9.00	18.50	6.00	12.50				
Depth To Bottom	0.80	0.20								
Date Sampled	21-Apr-21	21-Apr-21	26-Apr-21	28-Apr-21	29-Apr-21	29-Apr-21				
Sample Type	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D	Soil - D				
Sample Matrix Code	4	4A	5	3A	6	6A				
PAH-16MS										
Acenaphthene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Acenaphthylene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Anthracene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Benzo(a)anthracene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Benzo(a)pyrene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Benzo(b)fluoranthene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Benzo(ghi)perylene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Benzo(k)fluoranthene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Chrysene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Dibenzo(ah)anthracene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Fluoranthene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Fluorene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Indeno(123-cd)pyrene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Naphthalene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Phenanthrene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Pyrene$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s
Total PAH-16MS$_A^{M\#}$	<0.1	<0.1	-	-	-	-		mg/kg	0.1	A-T-019s

REPORT NOTES

General
This report shall not be reproduced, except in full, without written approval from Envirolab.
The results reported herein relate only to the material supplied to the laboratory.
The residue of any samples contained within this report, and any received with the same delivery, will be disposed of six weeks after initial scheduling. For samples tested for Asbestos we will retain a portion of the dried sample for a minimum of six months after the initial Asbestos testing is completed.
Analytical results reflect the quality of the sample at the time of analysis only.
Opinions and interpretations expressed are outside the scope of our accreditation.
If results are in italic font they are associated with an AQC failure, these are not accredited and are unreliable.
A deviating samples report is appended and will indicate if samples or tests have been found to be deviating. Any test results affected may not be an accurate record of the concentration at the time of sampling and, as a result, may be invalid.
The Client Sample No, Client Sample ID, Depth to Top, Depth to Bottom and Date Sampled were all provided by the client.

Soil chemical analysis:
All results are reported as dry weight (<40°C).
For samples with Matrix Codes 1 - 6 natural stones, brick and concrete fragments >10mm and any extraneous material (visible glass, metal or twigs) are removed and excluded from the sample prior to analysis and reported results corrected to a whole sample basis. This is reported as '% stones >10mm'.
For samples with Matrix Code 7 the whole sample is dried and crushed prior to analysis and this supersedes any “A” subscripts
All analysis is performed on the sample as received for soil samples which are positive for asbestos or the client has informed asbestos may be present and/or if they are from outside the European Union and this supersedes any "D" subscripts.

TPH analysis of water by method A-T-007:
Free and visible oils are excluded from the sample used for analysis so that the reported result represents the dissolved phase only.

Electrical Conductivity of water by Method A-T-037:
Results greater than 12900µS/cm @ 25°C / 11550µS/cm @ 20°C fall outside the calibration range and as such are unaccredited.

Asbestos:
Asbestos in soil analysis is performed on a dried aliquot of the submitted sample and cannot guarantee to identify asbestos if only present in small numbers as discrete fibres/fragments in the original sample.
Stones etc. are not removed from the sample prior to analysis.
Quantification of asbestos is a 3 stage process including visual identification, hand picking and weighing and fibre counting by sedimentation/phase contrast optical microscopy if required. If asbestos is identified as being present but is not in a form that is suitable for analysis by hand picking and weighing (normally if the asbestos is present as free fibres) quantification by sedimentation is performed. Where ACMs are found a percentage asbestos is assigned to each with reference to 'HSG264, Asbestos: The survey guide' and the calculated asbestos content is expressed as a percentage of the dried soil sample aliquot used.

Predominant Matrix Codes:
1 = SAND, 2 = LOAM, 3 = CLAY, 4 = LOAM/SAND, 5 = SAND/CLAY, 6 = CLAY/LOAM, 7 = OTHER, 8 = Asbestos bulk ID sample.
Samples with Matrix Code 7 & 8 are not predominantly a SAND/LOAM/CLAY mix and are not covered by our BSEN 17025 or MCERTS accreditations, with the exception of bulk asbestos which are BSEN 17025 accredited.
Secondary Matrix Codes:
A = contains stones, B = contains construction rubble, C = contains visible hydrocarbons, D = contains glass/metal, E = contains roots/twigs.

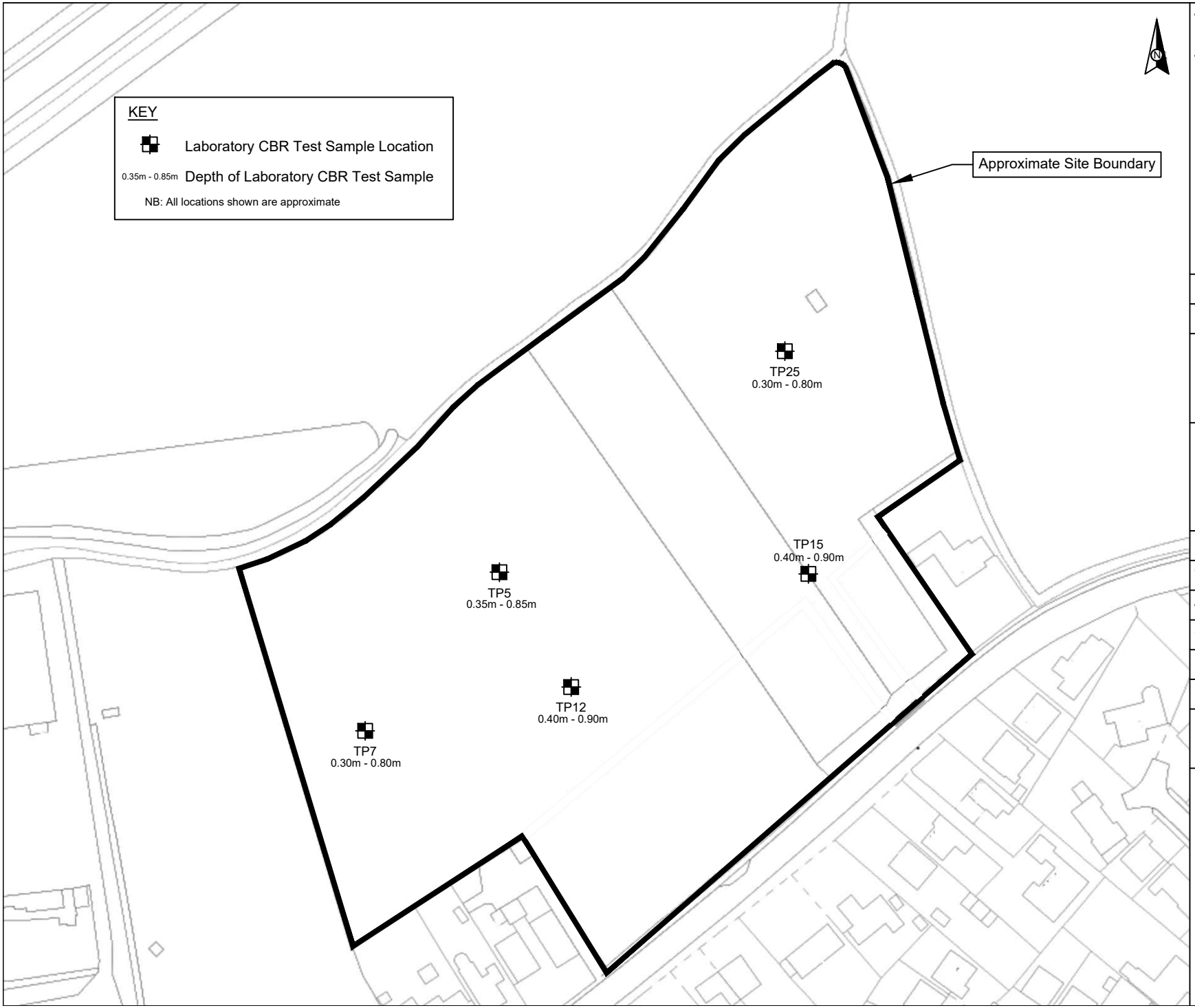
Key:
IS indicates Insufficient Sample for analysis.
US indicates Unsuitable Sample for analysis.
NDP indicates No Determination Possible.
NAD indicates No Asbestos Detected.
N/A indicates Not Applicable.
Superscript # indicates method accredited to ISO 17025.
Superscript "M" indicates method accredited to MCERTS.
Subscript "A" indicates analysis performed on the sample as received.
Subscript "D" indicates analysis performed on the dried sample, crushed to pass a 2mm sieve

Please contact us if you need any further information.

GeoDyne

APPENDIX XIII

Laboratory CBR Test Location Plan
(Figure No. D41072/05)



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Project No.	D41072
Client	Ashwood Homes
Project	High Road Weston
Title	Laboratory CBR Test Location Plan
Drawn By	SJ
Checked By	GH
Approved By	DB
Scale	NTS
Date Drawn	30/07/2021
Revision	A
Figure No.	D41072/05

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APPENDIX XIV

Ground Gas & Water Level Monitoring Results

Project No.	D41072
Client	Ashwood Homes
Site Location	High Road, Weston
Date	10/05/2021
Weather	Windy with showers
Atmospheric Pressure Trend	Rise of 1mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	GH

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015

Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	11:32	996	Peak	0.8	1.9	17.2	27	0	25	600	0.0	3.10	
			Steady	0.7	1.8	17.3	25	0			0.0		
WS2	11:45	996	Peak	1.4	1.6	17.6	62	0	40	600	0.0	3.45	
			Steady	1.2	1.3	18.0	54	0			0.0		
WS3	11:58	996	Peak	0.6	0.7	20.4	80	0	80	600	0.0	1.13	
			Steady	0.2	0.7	20.5	50	0			0.0		
WS4	12:51	996	Peak	1.0	2.8	18.3	1	0	30	600	0.0	1.42	
			Steady	1.0	2.8	18.3	0	0			0.0		
WS5	12:29	996	Peak	0.7	2.4	16.7	45	0	20	600	0.0	3.14	
			Steady	0.7	2.2	16.7	43	0			0.0		
BH1	12:38	996	Peak	0.5	1.0	20.9	0	0	20	600	0.0	1.42	
			Steady	0.5	1.0	20.9	0	0			0.0		
BH2	12:11	996	Peak	0.2	0.4	21.2	0	0	60	600	0.0	1.29	
			Steady	0.0	0.0	21.4	0	0			0.0		
Ambient				0.0	0.0	21.4	0	0					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Oxygen is below 16% (Coal Authority guidance)

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded

Project No.	D41072
Client	Ashwood Homes
Site Location	High Road, Weston
Date	19/05/2021
Weather	Showers with sunny intervals
Atmospheric Pressure Trend	Rise of 5mb in the 24 hours prior to monitoring
Equipment	GA5000 & Dipmeter
Operator	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	14:25	1016	Peak	0.6	1.3	17.5	2	0	60	600	0.0	1.81	
			Steady	0.3	0.8	18.7	1	0			0.0		
WS2	14:45	1016	Peak	0.0	2.1	16.7	1	0	60	600	0.0	2.21	
			Steady	0.0	1.7	16.7	1	0			0.0		
WS3	15:29	1016	Peak	0.0	0.9	19.5	6	0	540	600	0.0	1.09	
			Steady	0.0	0.7	20.4	2	0			0.0		
WS4	13:29	1016	Peak	0.0	0.5	20.6	1	0	30	600	0.0	1.37	
			Steady	0.0	0.5	20.7	0	0			0.0		
WS5	12:29	1016	Peak	0.0	3.1	16.4	2	0	570	600	0.1	1.75	
			Steady	0.0	2.6	17.3	1	0			0.0		
BH1	13:55	1016	Peak	0.0	0.1	20.6	1	0	30	600	0.0	1.44	
			Steady	0.0	0.1	20.4	0	0			0.0		
BH2	15:43	1016	Peak	0.0	0.1	21.0	1	0	60	600	0.0	1.22	
			Steady	0.0	0.0	21.2	1	0			0.0		
Ambient				0.0	0.0	20.7	0	0					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Oxygen is below 16% (Coal Authority guidance)

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded

Project No.	D41072
Client	Ashwood Homes
Site Location	High Road, Weston
Date	25/05/2021
Weather	Showers with sunny intervals
Atmospheric Pressure Trend	Rise of 12mb in the 24 hours prior to monitoring
Equipment	GA5000 & Dipmeter
Operator	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	12:45	1012	Peak	0.0	2.3	13.2	1	0	600	600	0.0	1.23	
			Steady	0.0	1.6	14.8	0	0			0.0		
WS2	13:00	1012	Peak	0.0	1.5	19.7	1	0	600	600	0.0	1.75	
			Steady	0.0	0.9	20.6	0	0			0.0		
WS3	13:16	1012	Peak	0.0	1.1	19.5	2	0	600	600	0.3	1.03	
			Steady	0.0	0.8	20.6	1	0			0.0		
WS4	11:30	1012	Peak	0.0	0.7	19.9	1	1	30	600	0.0	1.34	
			Steady	0.0	0.7	20.1	0	1			0.0		
WS5	11:57	1012	Peak	0.0	3.2	16.8	0	0	600	600	0.0	1.43	
			Steady	0.0	2.3	18.6	0	0			0.0		
BH1	11:05	1012	Peak	0.0	0.1	20.1	1	1	30	600	0.0	1.44	
			Steady	0.0	0.1	20.1	0	0			0.0		
BH2	13:35	1012	Peak	0.0	0.1	21.1	1	0	30	600	0.0	1.23	
			Steady	0.0	0.1	21.2	0	0			0.0		
Ambient				0.0	0.0	21.1	0	0					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Oxygen is below 16% (Coal Authority guidance)

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

NA - Not Applicable/ Not Available

BOH - Bottom of Hole

ND - Not Determined

NGW - No groundwater encountered

NR - None Recorded

Project No.	D41072
Client	Ashwood Homes
Site Location	High Road, Weston
Date	03/06/2021
Weather	Warm and cloudy
Atmospheric Pressure Trend	Rise of 5mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	DB

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	15:28	1017	Peak	0.0	2.4	15.0	0	0	30	300	0.0	1.20	
			Steady	0.0	2.4	15.0	0	0			0.0		
WS2	15:19	1017	Peak	0.0	1.5	19.4	0	0	200	300	0.0	1.40	
			Steady	0.0	1.5	19.4	0	0			0.0		
WS3	15:11	1017	Peak	0.1	1.1	18.6	0	0	240	300	1.2	1.09	Flow decreased over 20 seconds
			Steady	0.1	1.1	18.6	0	0			0.0		
WS4	14:11	1017	Peak	0.1	1.6	19.7	0	0	300	300	0.0	1.37	
			Steady	0.1	1.6	19.7	0	0			0.0		
WS5	14:37	1017	Peak	0.1	3.8	17.1	0	0	260	410	0.0	1.25	
			Steady	0.1	3.8	17.1	0	0			0.0		
BH1	14:23	1017	Peak	0.1	0.2	20.4	0	0	20	600	0.0	1.42	
			Steady	0.0	0.0	20.6	0	0			0.0		
BH2	14:56	1017	Peak	0.2	0.0	20.6	0	0	30	600	0.0	1.24	
			Steady	0.1	0.0	20.7	0	0			0.0		
Ambient				0.0	0.0	20.7	0	0					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Oxygen is below 16% (Coal Authority guidance)

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

NA - Not Applicable/ Not Available
BOH - Bottom of Hole
ND - Not Determined
NGW - No groundwater encountered
NR - None Recorded

Project No.	D41072
Client	Ashwood Homes
Site Location	High Road, Weston
Date	16/06/2021
Weather	Warm and sunny
Atmospheric Pressure Trend	Fall of 12mb in the 24 hours prior to monitoring
Equipment	GA2000+ & Dipmeter
Operator	GH

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015													
Borehole No.	**Time (00:00)**	**Ambient Pressure (mb)**		**Methane (% v/v)**	**Carbon Dioxide (% v/v)**	**Oxygen (% v/v)**	**Carbon Monoxide (ppm)**	**Hydrogen Sulfide (ppm)**	**Time to steady gas readings (secs)**	**Duration of gas monitoring (secs)**	**Gas Flow (l/hr)**	**Depth to groundwater (m begl)**	**Other Issues i.e. odour, condition of installation, etc**
WS1	**-**	**-**	**Peak**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**Monitoring point not found**
			Steady	**NA**	**NA**	**NA**	**NA**	**NA**			**NA**		
WS2	**10:11**	**1011**	**Peak**	**0.1**	**2.1**	**18.7**	**0**	**0**	**20**	**300**	**0.0**	**1.25**	
			Steady	**0.1**	**2.1**	**18.7**	**0**	**0**			**0.0**		
WS3	**10:24**	**1011**	**Peak**	**0.1**	**1.9**	**17.5**	**0**	**0**	**15**	**300**	**0.0**	**1.23**	
			Steady	**0.0**	**1.9**	**17.5**	**0**	**0**			**0.0**		
WS4	**10:58**	**1011**	**Peak**	**0.2**	**2.0**	**19.1**	**0**	**0**	**30**	**300**	**0.0**	**1.30**	
			Steady	**0.2**	**2.0**	**19.1**	**0**	**0**			**0.0**		
WS5	**11:08**	**1011**	**Peak**	**0.1**	**1.3**	**19.6**	**0**	**0**	**20**	**300**	**0.0**	**1.21**	
			Steady	**0.1**	**1.3**	**19.6**	**0**	**0**			**0.0**		
BH1	**11:19**	**1011**	**Peak**	**1.5**	**3.5**	**18.5**	**17**	**0**	**300**	**600**	**0.0**	**1.44**	
			Steady	**0.8**	**3.0**	**18.5**	**0**	**0**			**0.0**		
BH2	**10:36**	**1011**	**Peak**	**0.3**	**0.0**	**20.1**	**0**	**0**	**10**	**600**	**0.0**	**1.27**	
			Steady	**0.2**	**0.0**	**20.1**	**0**	**0**			**0.0**		
Ambient				**0.0**	**0.0**	**20.8**	**0**	**0**					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Oxygen is below 16% (Coal Authority guidance)

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

NA - Not Applicable/ Not Available
BOH - Bottom of Hole
ND - Not Determined
NGW - No groundwater encountered
NR - None Recorded

Project No.	D41072
Client	Ashwood Homes
Site Location	High Road, Weston
Date	06/07/2021
Weather	Cloudy with sunny intervals becoming windy with showers
Atmospheric Pressure Trend	Fall of 11mb in the 24 hours prior to monitoring
Equipment	GA5000 & Dipmeter
Operator	BP

MONITORING OF SOIL GASES AND GROUNDWATER - IN ACCORDANCE WITH CIRIA C665 / BS8485:2015

Borehole No.	Time (00:00)	Ambient Pressure (mb)		Methane (% v/v)	Carbon Dioxide (% v/v)	Oxygen (% v/v)	Carbon Monoxide (ppm)	Hydrogen Sulfide (ppm)	Time to steady gas readings (secs)	Duration of gas monitoring (secs)	Gas Flow (l/hr)	Depth to groundwater (m begl)	Other Issues i.e. odour, condition of installation, etc
WS1	12:47	995	Peak	0.0	3.0	17.8	0	1	570	660	0.0	1.12	Borehole headworks damaged - replaced bung and gas tap & monitored after 45 minutes
			Steady	0.0	3.0	17.8	0	1			0.0		
WS2	12:20	995	Peak	0.0	0.6	20.4	0	3	150	300	0.0	0.97	
			Steady	0.0	0.1	20.8	0	1			0.0		
WS3	12:08	995	Peak	0.0	1.1	19.2	0	4	120	120	0.6	0.92	Flow decreased to 0.0l/hr in 60 seconds. Monitoring stopped after 120 seconds due to pump flow failure (water in top 1m)
			Steady	0.0	1.1	19.2	0	4			0.0		
WS4	-		Peak	NA	NA	NA	NA	NA	NA	NA	NA	NA	Monitoring point not found
			Steady	NA	NA	NA	NA	NA			NA		
WS5	11:40	994	Peak	0.3	5.5	15.6	0	1	30	300	0.0	1.33	
			Steady	0.3	5.5	15.6	0	1			0.0		
BH1	10:55	993	Peak	32.1	5.6	13.0	1	0	300	600	0.0	1.14	
			Steady	25.0	0.9	13.9	1	0			0.0		
BH2	12:31	995	Peak	0.1	0.1	20.9	0	1	30	600	0.0	1.23	
			Steady	0.1	0.0	21.3	0	0			0.0		
Ambient				0.0	0.0	20.7	0	0					

Notes

Cell is highlighted in the following conditions

1. Where Methane exceeds 1% v/v (after BR212)
2. Where Carbon Dioxide exceeds 5% v/v (after BR212)
3. Where Oxygen is below 16% (Coal Authority guidance)

Where cell is highlighted further consideration of the recorded value is required in accordance with the specified guidance documents

NA - Not Applicable/ Not Available
BOH - Bottom of Hole
ND - Not Determined
NGW - No groundwater encountered
NR - None Recorded

GeoDyne

APPENDIX XV

Conditions & Limitations

Conditions & Limitations

Phase I Desk Studies

1. Works undertaken to provide the basis of the Phase I Desk Study report comprise a review of information available from a number of sources/parties (potentially also including the Client) together with a walk over of the site (where applicable and included within the quotation). The opinions given in the Phase I Desk Study are based on the information available from third parties/sources that has been obtained within the available timeframe. GeoDyne Limited assumes all third party information to be true and correct and therefore cannot accept liability for the accuracy of such information supplied.

2. Should additional information become available that may affect the comments and opinions made within the Phase I Desk Study, GeoDyne Limited reserves the right to review such information and make modifications to comments/opinions as appropriate.

3. It should be borne in mind that a Phase I Desk Study collates available information to generate a conceptual model of the site. The actual geotechnical and environmental considerations can only be fully quantified by intrusive investigation works to confirm the accuracy of the conceptual site model.

Phase II Intrusive Investigations

1. Our quotation assumes that access to the site will be arranged by others at no cost to ourselves.

2. We have assumed that free access is available throughout to the entire site and that works can be undertaken during a single mobilisation. Where restricted access is encountered, or where additional unscheduled mobilisations are required, additional costs may be incurred to the client.

3. We have assumed that all available information relating to buried services will be supplied by the Client at no cost to ourselves. No responsibility will be accepted for damage to underground services that have not been brought to our prior attention by the Client.

4. All excavations/boreholes will be backfilled with compacted arisings upon completion, with any excess arisings left proud of ground levels. Excess arisings will not be removed from the site unless specifically requested by the Client. Where we are requested to remove excess arisings, all associated costs will be passed to the Client.

5. We will attempt to leave the site in a clean and tidy state, however, it must be understood that some disturbance of the site is unavoidable during intrusive works.

6. Exploratory holes are positioned approximately on site by GeoDyne Limited. Should the client require precise locations of all exploratory points, additional fees will be incurred. It must be borne in mind that backfilled trial pits can create ‘soft spots’, therefore, should the Client wish to designate ‘no dig’ zones, for example under the footprint of proposed structures, these must be brought to our attention prior to commencement of works.

7. Groundwater observations relate to conditions encountered at the time of investigation. It must be understood that groundwater levels may vary as a result of recent climatic conditions or seasonal variation.

8. Trial pits and boreholes examine only a small proportion of the total site area. No liability can be accepted for conditions not revealed in exploratory holes, particularly between positions. All extrapolations of available data are given in good faith.

Payment

1 Payment terms are strictly 28 days from the invoice date.

2 Prior to commencement of works, we require receipt of formal written instruction from the party accepting full financial responsibility for the work. In the absence of such an instruction, we would expect the instructing Consulting Engineers/Architects to accept full financial responsibility for the works.

3 Receipt of instruction to commence work shall be taken as acceptance and compliance of the foregoing conditions.

Liability

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