Heckington Fen Solar Park

ENO10123

Environmental Statement | Volume 3: Technical Appendices

Appendix 9.2: Ground Investigation Report

Applicant: Ecotricity (Heck Fen Solar) Limited

Document Reference: 6.3.9.2

Pursuant to: APFP Regulation 5(2)(a)

February 2023

Planning Act 2008

APPENDIX 9.2- GROUND INVESTIGATION REPORT

Document Properties		
Regulation Reference	Regulation 5(2)(a)	
Planning Inspectorate Scheme Reference	EN010123	
Application Document Reference	6.3.9.2	
Title	Appendix 9.2- Ground Investigation Report	
Prepared By	Heckington Fen Energy Park Project Team (Grange GeoConsulting Limited)	
Version History		
Version	**Date**	**Version Status**
Rev 1	February 2023	Application Version

Heckington Fen Solar Park, Heckington Fen, East Heckington, Lincolnshire

Factual Ground Investigation Report

Ecotricity (Heck Fen Solar) Limited

December 2022

Final Report

R22082/R002

Issued by:
Grange GeoConsulting Limited
3 Elm Close
Newark on Trent
Nottinghamshire
NG24 1SE

Telephone: REDACTED
Email: REDACTED

Client:

Ecotricity (Heck Fen Solar) Limited

Project:

Heckington Fen Solar Park, Heckington Fen, East Heckington, Lincolnshire

Title:

Factual Ground Investigation Report

Status:

FINAL REPORT

Date:

December 2022

Document Production Record

Issue Number: 5	Name	Signature
Approved	Steve Woodall (BSc. FGS MCIWEM)	REDACTED

Document Revision Record

Issue number	Date	Revision Details
1	9th November 2022	Draft issue
2	21st November 2022	Final Issue
3	5th December 2022	Amended with additional resistivity results.
4	7th December 2022	Amended with additional resistivity results.
5	21st December 2022	Amended Following Client Review

CONTENTS

1.0 INTRODUCTION 8
2.0 GROUND INVESTIGATION WORKS 12
3.0 CHEMICAL (CONTAMINATION ANALYSIS) LABORATORY TESTING 40
4.0 CONTAMINATION RISK ASSESSMENT CRITERIA 41
5.0 CONTAMINATION LABORATORY TESTING RESULTS AND RISK ASSESSMENT 43
6.0 GEOTECHINCAL LABORATORY TESTING 45
7.0 GEOTECHNICAL TESTING RESULTS 46
8.0 ENGINEERING PROPERTIES OF MATERIALS ENCOUNTERED 59
9.0 GEOTECHNICAL INTERPRETATION AND RECOMMENDATIONS 68
10.0 MINERAL RESOURCES 71
11.0 REFERENCES 72

APPENDICES

Appendix A DRAWINGS
Appendix B GROUND INVESTIGATION PHOTOGRAPHS
Appendix C EXPLORATORY HOLE LOGS
Appendix D GRANGE GEOCONSULTING LTD METHODOLOGY
Appendix E CHEMICAL ANALYSIS RESULTS
Appendix F GEOTECHNICAL TESTING RESULTS
Appendix G FIGURES SUPPORTING ADOPTED ENGINEERING PROPERTIES
Appendix H CBR TEST CERTIFICATES
Appendix I GRANGE GEOCONSULTING PHASE 1 DESK STUDY

EXECUTIVE SUMMARY

SITE INFORMATION & SETTING	**Purpose of This Report**	Factual Ground Investigation Report
	Client	Ecotricity (Heck Fen Solar) Limited.
	Site	Heckington Fen Solar Park, Heckington Fen, East Heckington.
	Site Location	The site is irregular in shape, and occupies an area of approximately 583 hectares. The site is situated approximately 8.9km west of Boston, and 3.7km east of Heckington. The approximate postcode for the site is NG34 9NB, and the approximate National Grid Reference is 520252, 345363
	Current Land Use & Description	At the time of the investigation, the majority of the site was under agricultural cultivation, and comprised a number of large agricultural field units, accessible from one of a number of formal roads and informal access tracks which cross the site. Elm Grange allows access to field units in the west of the site, Rectory Lane in the centre, and Six Hundreds Drove, and associated tracks allow access onto the east. These tracks enter the site from the A17, which delineates part of the southern site boundary. Drainage ditches, forming an interconnected drainage network were situated along the edges of many of the cultivated fields. A number of these ditches contained standing water at the time of the investigation. Farm buildings are noted within, or partially adjacent to the site boundary. One such farm comprises a series of large agricultural buildings and former farmhouse situated toward the east of the site adjacent Six Hundreds Drove. The remaining farm complex (referred to as Elm Grange Farm) is situated toward the south-western periphery of the site. Other notable features identified within, or near the site boundary during the site walkover include; agricultural compounds, some of which contain small or medium sized agricultural buildings, and/or are used as storage areas for agricultural products (including hay bales), small, managed areas of woodland, and individual residential properties (predominantly located along the southern and western site boundaries.
GROUND INVESTIGATION WORKS	**Grange GeoConsulting Ltd Ground Investigation Summary**	Five Cable Percussive boreholes (CP1 to CP5 inclusive), forty six window sample boreholes (WS1 to WS46 inclusive), and thirty three dynamic cone penetrometer tests using a hand held TRL probe (CBR1 to CBR33 inclusive) were undertaken across the site during the investigation in order to enable logging of the soils and rock encountered, to undertake an assessment of the shallow and deep ground conditions, and to provide information on near surface ground density. Soil samples were collected during the investigation to enable testing for contamination and geotechnical testing. In-situ geotechnical testing was also undertaken during the fieldwork phase.
	Ground Conditions	<u>Topsoil/Made Ground</u> Topsoil was recorded at the surface in each of the four boreholes excavated during the investigation. This unit was typically described as firm to stiff friable brown/dark brown slightly silty to silty, locally slightly sandy, slightly gravelly to gravelly, slightly cobbly to cobbly Clay. The thickness of the Topsoil deposits varied between 0.5m (BH1) and 1.0m (BH2). Material designated Topsoil/Made Ground was encountered in forty-five of the fifty excavations undertaken (inclusive of Cable Percussive boreholes). In each case this material was predominantly cohesive, and could be classified as one of four broad sub-types, depending on the proportion of Silt to Clay within the horizon. • Firm to very stiff (rarely soft) friable brown/dark brown/light brown, variably slightly silty to very silty, locally slightly sandy Clay. • Firm to stiff friable brown slightly clayey Silt. • Stiff greyish brown Clay. • Firm to stiff friable brown/light brown locally slightly sandy Silt. <u>Made Ground</u> Material definitively identified as Made Ground was encountered at the surface in six excavations.

A brief summary of the made ground in each of these locations is provided below.

- WS7- Reworked natural material described as firm to stiff brown silty Clay, and containing rare fragments of brick was encountered at the surface and recorded to a depth of 0.4m bgl.
- WS28- A sequence of reworked and anthropogenic materials comprising stiff, friable brown/dark brown slightly silty, very stiff brown/dark brown slightly silty Clay, and a cobble of crushed brick/ceramics was recorded to 0.55m bgl.
- WS33- A sequence of very stiff brown silty Clay, very stiff brown/dark brown slightly silty Clay, and a cobble of crushed brick recorded to 1.5m bgl.
- WS42- Brown/light brown slightly silty, slightly clayey fine to coarse, angular Gravel of flint and quartz, underlain by very stiff dark brown slightly gravelly Clay to a depth of 0.5m bgl.
- WS44- Light brown sandy silty Gravel recorded to 0.5m bgl.
- WS46- Light brown/light grey very gravelly Sand recorded to a depth of 0.13m bgl.

Tidal Flat Deposits

Strata consistent with Tidal Flat Deposits were encountered in each of the fifty excavations undertaken during the investigation. The precise composition and distribution of materials within this unit was complex and variable, however may be generally defined as forming part of a sequence of predominantly cohesive, and predominantly granular horizons.

The following typical cohesive sequence, presented in descending order, was encountered in the majority of excavations, however in individual locations elements of this sequence were reduced or absent.

- Stiff brown or greyish brown locally slightly silty CLAY, or Stiff brown or orange brown SILT.
- Firm to stiff greyish brown, brown or dark brown CLAY or Firm to stiff brown SILT.
- Very soft to soft greyish brown or brown locally slightly silty, slightly sandy, slightly gravelly CLAY or Very soft brownish grey/dark grey/brown/light brown slightly clayey locally slightly sandy SILT.
- Very soft grey/dark grey locally slightly sandy, and/or slightly gravelly CLAY or Very soft dark grey SILT containing occasional to frequent organic fragments.
- Brown/Black rarely pseudofibrous, commonly amorphous PEAT.

Typically underlying the cohesive materials was a coarsening down granular sequence comprising:

- Brown/light grey/dark grey locally slightly clayey to clayey, locally slightly silty SAND.
- Brown/orangish brown/greyish brown/dark grey/light grey slightly silty to silty or slightly clayey to clayey slightly gravelly to very gravelly SAND.
- Orangish brown/yellowish brown locally slightly silty to silty sandy to very sandy GRAVEL.
- Grey/brown SAND AND GRAVEL.

Glacial Till

Glacial Till Deposits were recorded below the Tidal Flat Deposits in sixteen locations (WS3 WS8 to WS14 inclusive, WS17, WS29, WS30, WS44, and CP2 to CP5 inclusive). This unit was encountered at shallow depths (1.5m to 2.45m) toward the south-west and west of the site. Excavations toward the centre of the site proved Glacial Till Deposits at substantially greater depths (8.0m to 9.0m bgl).

In general the cohesive Glacial Till Deposits encountered formed one of four distinct subtypes;

- Brownish grey/light brown slightly clayey to clayey slightly sandy, slightly gravelly SILT.

		• Dark grey/brown/greyish brown or dark grey locally slightly silty, slightly sandy slightly gravelly to gravelly CLAY. In a number of locations (WS9 to WS13 inclusive), interbedded subordinate granular horizons were encountered within this unit, described as orangish brown or brown slightly silty slightly gravelly to very gravelly SAND or sandy GRAVEL. • Light brown slightly silty slightly sandy to sandy CLAY. • Dark grey clay. Recorded in WS29 between 3.1m and 4.0m bgl. <u>Groundwater</u> Groundwater strikes were noted in the majority of excavations undertaken as part of the investigation, at depths of between 1.05m and 3.5m bgl. Several of the window sample boreholes recorded two strikes, including an upper 'seepage', and a more substantial lower strike. No groundwater was encountered in WS13 to WS15 inclusive, WS41 to WS43 inclusive, and WS46.
	Contamination Testing and Risk Assessment	<u>Human Health</u> Twenty soil samples collected during the investigation were subjected to chemical analysis. None of the soil samples analysed proved concentrations of metals, metalloids, speciated PAHs or asbestos fibres which exceeded the adopted Generic Assessment Criteria for Public Open Space (POS(resi)). Whilst no remedial works are considered necessary based on findings of the investigation, a number of precautionary recommendations were made: • It is recommended that during any groundworks, appropriately licenced contractors should be appointed, PPE/RPE should be worn as necessary by groundworkers, and a safe system of work established prior to commencement. • A watching brief should be maintained for contamination throughout the duration of the proposed development. In the event that any unforeseen gross or widespread contamination is encountered on site, an appropriately qualified contaminated land specialist should be contacted. • Specialist contractors should be employed as necessary to advise on the management of unexpected contamination. Assuming these precautions are undertaken, the potential risks to human health and controlled water receptors associated with the identified contaminants during the proposed development of the site is considered low.
	Geotechnical Testing	A wide range of additional *in-situ*, laboratory and chemical testing for geotechnical purposes was undertaken as part of the ground investigation. The results of which have been presented in this report and can be used by Ecotricity (Heck Fen Solar) Limited. to facilitate preliminary geotechnical design.

This Executive Summary forms part of Grange GeoConsulting Limited report number R22082/002 (Issue 5) and should not be used as a separate document.

1.0 INTRODUCTION

1.1 Terms of Reference

1.1.1 Grange GeoConsulting Limited was commissioned by Ecotricity (Heck Fen Solar) Limited to undertake a ground investigation in support of the construction, operation (including maintenance), and decommissioning of a ground mounted solar photovoltaic (PV) electricity generation and energy storage facility ("Energy Park") at Heckington Fen, Lincolnshire, approximately 8.9km west of Boston, and 3.7km east of Heckington. The approximate postcode for the site is NG34 9NB, and the approximate National Grid Reference is 520252, 345363. A Site Location Plan (Drawing R22082-DWG1) is presented in Appendix A.

1.1.2 The site is irregular in shape, and occupies an area of approximately 583 hectares. The Energy Park would comprise approximately 525ha of the site. Topographically, the site is relatively flat, but exhibits a slight slope toward the north and north-east. The elevation of the site varies between 0.77m Above Ordnance Datum (AOD) close to the northern boundary, and 3.3m AOD along the southern boundary.

1.1.3 At the time of the investigation, the majority of the site had been under agricultural cultivation (recently harvested), and comprised a number of large agricultural field units, accessible from one of a number of formal roads and informal access tracks which cross the site. Elm Grange allows access to field units in the west of the site, Rectory Lane in the centre, and Six Hundreds Drove, and associated tracks allow access onto the east. These tracks enter the site from the A17, which delineates part of the southern site boundary. Six Hundreds Drove, and associated tracks allow access onto the east and centre of the site from the A17, which delineates part of the southern site boundary.

1.1.4 Drainage ditches, forming an interconnected drainage network were situated along the edges of many of the cultivated fields. A number of these ditches contained standing water at the time of the investigation. These ditches, including a larger channel referred to as 'Labour in Vain', flow into channelised watercourses located along the northern (Head Dike), and eastern (Holland Dike) boundaries.

1.1.5 Farm buildings are noted within, or adjacent to the site boundary. One such farm comprises a series of large agricultural buildings and former farmhouse situated toward the east of the site adjacent Six Hundreds Drove. This complex comprised four large agricultural buildings of steel frame, cement, and steel sheet construction, and two smaller brick structures clustered around an informal yard area with a compacted earth and managed grass substrate.

1.1.6 The brick structures, which may have historically been used as residences or to house livestock were single storey, with pitched tile and cement sheet roofing. These buildings appeared to be derelict at the time of the investigation.

1.1.7 The remaining farm complex (referred to as Elm Grange Farm), approximately half of which is situated within the proposed development area, is situated toward the south-western periphery of the site. A number of large agricultural buildings associated with this complex are within the site boundary. The remainder of the complex, including the residential component of the farm are situated off site to the south. The element closest to the site comprised a large, single-

storey agricultural building of brick construction with a pitched cement sheet roof, cement sheet eaves, and plastic guttering and downpipes.

1.1.8 Adjacent the large agricultural building are two linear single-storey sheds aligned approximately east to west, and accessible from an unsealed internal access track. The eastern building, which was of blockwork, concrete frame, and cement sheet construction, was open along the eastern elevation. The western building, which was of similar construction to the other buildings within the complex was open along the long (southern) elevation, and internally subdivided into individual sheds. At the time of the investigation a number of the sheds contained agricultural equipment and trailers which appeared in good condition.

1.1.9 North of the sheds is a large (equivalent two-storey) agricultural structure of blockwork and cement sheet construction. The cement sheeting, used as part of the pitched/sloping roof, and exterior cladding was considered likely to contain asbestos, and, though in reasonable condition, was locally slightly damaged.

1.1.10 It is understood that the farming complex toward the south-west of the site is located in a section of the development site in which no significant construction or demolition works are proposed.

1.1.11 Other notable features identified within or adjacent the site boundary during the site walkover include; agricultural compounds, some of which contain small or medium sized agricultural buildings, and/or are used as storage areas for agricultural products (including hay bales), small, managed areas of woodland, and individual residential properties -predominantly located along the southern and western site boundaries.

1.1.12 The area surrounding the site was predominantly agricultural in character, however sporadic commercial facilities have been identified on available mapping. Two petrol filling stations are recorded on the A17 south of the site. A vehicle repair facility (Wilson Prestige Vehicle Repairs Ltd.) is also situated immediately south of the site.

1.1.13 It is understood that the proposed development would comprise the creation of a ground mounted solar photovoltaic (PV) electricity generation and energy storage facility with associated infrastructure known as the ‘Energy Park’. A connection to, and extension at National Grid Bicker Fen Substation is also part of the application – however this is not considered further in this report, which focuses only on the ‘Energy Park’ element of the site. Appendix A provides a plan of the study area.

1.1.14 Existing drainage and access infrastructure is to be retained. The main electrical substation for the facility will be constructed in the centre of the site, with access from a new track from the A17. The energy storage facility will also be situated in this area also. Existing on-site agricultural buildings/farm complexes will be retained.

1.1.15 The generation capacity of the solar park is over 50 megawatts (MW) and therefore represents a Nationally Significant Infrastructure Project (NSIP).

1.1.16 This Ground Investigation Report comprises a summary of the works undertaken as part of the Grange GeoConsulting Ltd ground investigation that was carried out at the Energy Park

site in September 2022. The report summarises the ground conditions at the site and the results of the chemical and geotechnical testing carried out.

1.1.17 The report has been produced with the benefit of a Desk Study, produced as a standalone document by Grange GeoConsulting (Report Ref.R22082/R001). This document should be read in conjunction with the current report and is included for ease of reference as Appendix I.

1.1.18 Authorisation to proceed with this investigation was given by Ecotricity (Heck Fen Solar) Limited via email.

1.2 Objectives

1.2.1 The overall objective of the work undertaken was to carry out a ground investigation and assessment of the site:

- to inform the client of underlying ground and groundwater conditions;
- to provide geotechnical data to facilitate preliminary design work by Ecotricity (Heck Fen Solar) Limited; and
- to assess the environmental quality of underlying soils and groundwater, and their potential to adversely impact the site, the proposed development scheme, and where appropriate, the wider environment.

1.3 Scope of Works

1.3.1 The scope of works, including the location and depth of each investigation position was agreed between Grange GeoConsulting and Ecotricity (Heck Fen Solar) Limited. The original scope of works was outlined in the Grange GeoConsulting Ltd proposal dated 1st September 2022, and summarised below:

- The excavation of 5 No. Cable Percussive Boreholes (designated CP1 to CP5 inclusive) to depths of 10m below ground level (bgl) in order to log the underlying ground conditions, allow the collection of soil samples at varying depths for chemical and geotechnical analysis and to allow in-situ Standard Penetration Testing (SPTs) to be undertaken;
- Dynamic (window) sampling in 46No. locations to depths of up to 5m bgl (or refusal) to enable the inspection of soils encountered, and the collection of soil samples and allow in-situ Standard Penetration Testing (SPTs) to be undertaken;
- Dynamic Cone Penetrometer (DCP) testing using a hand-held TRL probe in 33No. Locations.
- Chemical (contamination analysis) testing of the collected soils;
- Geotechnical testing of the collected soil samples (as appropriate);

- Update the conceptual site model developed for the site as part of the Phase 1 Desk Study in accordance with the findings of the Site Investigation, and undertake a subsequent Qualitative Risk Assessment; and

- Collation of findings within a Ground Investigation Report.

1.4 Provided Information

1.4.1 The following drawings were provided to Grange GeoConsulting Limited for use in the preparation of this report:

- Indicative Solar Park Layout produced by Ecotricity, dated November 2022, reference 6945_T0044_05;

1.4.2 A copy of the above drawing, showing the energy park layout, has been included in Appendix A.

1.5 Limitations

1.5.1 The spacing of the exploratory holes, and the sampling and analysis undertaken as part of the ground investigation, is considered to have provided a reasonable level of certainty about the ground conditions. However, it is important to recognise that contamination can be both widespread and relatively localised, depending upon its source and nature. No investigation, however comprehensive, can be expected to determine the nature and extent of all contamination that could be present, and there will always be an element of uncertainty. The potential for currently undetected contamination to be present must therefore be considered not only in the risk assessment presented within this report, but also in consideration of future development activities, i.e., health and safety planning and risk management.

1.5.2 This report has been prepared for the sole internal use and reliance of the client, Ecotricity (Heck Fen Solar) Limited., and shall not be relied upon by other parties without the express written authority of Grange GeoConsulting Ltd. If an unauthorised third party comes into possession of this report, then they rely on it at their own risk.

2.0 GROUND INVESTIGATION WORKS

2.1 Investigation Rationale

2.1.1 The ground investigation works rationale, summarised in Table 2.1, is based on specifications provided by Ecotricity. The borehole locations were initially proposed by Grange GeoConsulting and agreed with the Client prior to works commencing.

Table 2.1: Ground Investigation Works Rationale

Exploratory Holes	Purpose
Cable Percussive Boreholes with rotary follow on where required to achieve prescribed depths. (CP1 to CP5 inclusive)	• Enable logging of the soils and rock encountered and an assessment of shallow and deep ground conditions within a section of the site where proposed transformer/transmission equipment is to be situated. • Carry out in-situ geotechnical testing (SPT testing) to assess the density of the underlying ground • Allow the collection of soil samples for chemical (contamination analysis) and geotechnical testing • Enable groundwater characteristics to be logged.
Window sample boreholes (WS1 to WS46 inclusive)	• Enable logging of the soils encountered and assess shallow ground and groundwater conditions at the site. • Conduct in-situ penetration testing (SPTs) to assess the density of the ground within the window sample boreholes; • Allow the collection of soil samples for chemical (contamination) and geotechnical testing • The boreholes designated WS1 to WS40 inclusive were positioned throughout the proposed solar park, and spaced so as to provide coverage across the entirety of the site. These excavations would also provide an indication of the variability of ground conditions. • Boreholes designated WS41 to WS46 inclusive were situated within existing and/or proposed access tracks. The objective of these excavations was to obtain information regarding the near surface substrate, and the density of near surface materials to enable the design of future access infrastructure.
Hand-held TRL DCP Probing (Dynamic Cone Penetrometer Testing) undertaken to depths of up to 1.0m bgl. (CBR1 to CBR33 inclusive)	• Enable the examination of near surface ground density in order to enable allow the calculation of CBRs to support geotechnical design.

2.2 Site Works Undertaken

2.2.1 The ground investigation was undertaken between the 20th and 28th October 2022. A selection of photographs taken during the investigation are presented in Appendix B.

2.2.2 The approximate positions of the boreholes were set out on site using a GPS Receiver. The borehole positions, inclusive of Ordnance Survey grid references are shown on the Exploratory Hole Location Plan (Drawing R22082-DWG2) provided in Appendix A. The TRL DCP test locations are shown on the CBR Test Location Plan (Drawing R22082-DWG3). The ground investigation works undertaken are summarised in Table 2.2. The excavation logs, including details of ground conditions, soil sampling, water strikes, any visual or olfactory evidence of

contamination and the in-situ testing are presented in Appendix C. A cross section between the south-western and north-eastern corners of the site showing the depth of the Tidal Flat Deposits is also provided in Appendix C.

Table 2.2: Summary of Exploratory Holes

Explor-atory Hole	Depth (m)	In-situ testing	Observations
CP1 **Loc. Ref** 520437E 345189N	10m bgl	SPTs undertaken at 1m intervals between 3m and 6m bgl, and 1.5m intervals at depths >6m bgl. In addition, SPTs taken at base of borehole (including where terminated due to sampler refusal) Undisturbed Samples taken at 1.2m and 2.0m. Low to moderate SPT value at 3.0m bgl. Moderate SPT at 4.0m bgl. Refusal at 5.0m bgl. Moderate to high SPTs at 6.0m and 7.0m bgl. Moderate SPT at 9m bgl. Low to moderate at 9.5m bgl.	Excavated using Cable Percussive techniques Hand excavated pit undertaken to 1.2m bgl. Groundwater at 2.7m bgl 20 mins after completion. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
CP2 **Loc. Ref** 520579E 345164N	10m bgl	SPTs undertaken at 1m intervals between 3m and 6m bgl, and 1.5m intervals at depths >6m bgl. In addition, SPTs taken at base of borehole (including where terminated due to sampler refusal) Undisturbed Samples taken at 1.2m and 2.0m. Low SPT value at 3.0m bgl. Low to moderate SPT at 4.0m bgl. Moderate SPT at 5.0m bgl. Refusals (N>50) from 6.0m bgl.	Excavated using Cable Percussive techniques Hand excavated pit undertaken to 1.2m bgl. Groundwater at 2.8m bgl 20 mins after completion. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
CP3 **Loc. Ref** 520418E 345414N	10m bgl	SPTs undertaken at 1m intervals between 3m and 6m bgl, and 1.5m intervals at depths >6m bgl. In addition, SPTs taken at base of borehole (including where terminated due to sampler refusal) Undisturbed Samples taken at 1.2m and 2.0m. Moderate to high SPT value at 3.0m bgl. Low to moderate SPTs at 4.0m and 5m bgl. Moderate to high SPT at 6.0m bgl. Refusals (N>50) from 7.5m bgl.	Excavated using Cable Percussive techniques Hand excavated pit undertaken to 1.2m bgl. Groundwater at 2.4m bgl 20 mins after completion. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
CP4 **Loc. Ref** 520618E 345396N	12m bgl	SPTs undertaken at 1m intervals between 3m and 6m bgl, and 1.5m intervals at depths >6m bgl. In addition, SPTs taken at base of borehole (including where terminated due to sampler refusal) Undisturbed Samples taken at 1.2m and 2.0m. Moderate to high SPT	Excavated using Cable Percussive techniques Hand excavated pit undertaken to 1.2m bgl. Groundwater at 2.7m bgl 20 mins after completion. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

Explor-atory Hole	Depth (m)	In-situ testing	Observations
		value at 3.0m bgl. Low to moderate SPTs at 4.0m and 5m bgl. Moderate to high SPT at 6.0m bgl. Refusals (N>50) from 7.5m bgl.	
CP5 **Loc. Ref** 520510E 345378N	10m bgl	SPTs undertaken at 1m intervals between 3m and 6m bgl, and 1.5m intervals at depths >6m bgl. In addition, SPTs taken at base of borehole (including where terminated due to sampler refusal) Undisturbed Samples taken at 1.2m and 2.0m. Moderate SPT value at 3.0m bgl. Moderate to high SPT at 4.0m. High SPTs at 5m and 6m bgl. Moderate to high SPT at 7.5m bgl.	Excavated using Cable Percussive techniques Hand excavated pit undertaken to 1.2m bgl. Groundwater at 2.6m bgl 20 mins after completion. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS1 **Loc. Ref** 520785E 343977N	5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m, and 3.0m bgl. Moderate SPT at 4.0m. Refusal (N>50) at 5.0m bgl.	Groundwater strike at 3.5m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS2 **Loc. Ref** 520477E 344345N	4.6m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, and 2.0m bgl. Moderate SPT at 3.0m. Moderate to high SPTs at 4.0m and 5.0m bgl.	Groundwater strike at 2.6m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS3 **Loc. Ref** 520189E 344249N	3m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, and 2.0m. Refusal (N>50) at 3.0m bgl.	Groundwater strike at 1.05m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS4 **Loc. Ref** 520466E 344812N	3m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, and 2.0m. Refusal (N>50) at 3.0m bgl.	Groundwater strike at 1.6m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS5 **Loc. Ref** 520793E 344718N	4.7m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m. Moderate SPT at 4.0m bgl. Refusal (N>50) at 4.7m bgl.	Groundwater strikes at 1.4m bgl (seepage) and 4.7m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS6 **Loc. Ref** 521051E 345011N	5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m, 3.0m and 4.0m. Low to moderate SPT at 5.0m bgl.	Groundwater strike at 1.4m bgl. Borehole collapsed to 3.5m bgl. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with

Explor-atory Hole	Depth (m)	In-situ testing	Observations
			inert swelling clay (bentonite) and arisings.
WS7 **Loc. Ref** 520513E 345078N	5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m. High SPT at 4.0m. Refusal (N>50) at 5.0m bgl.	Groundwater strike at 3.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS8 **Loc. Ref** 520149E 344771N	4m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m. Low to moderate SPT at 3.0m. Refusal (N>50) at 4.0m bgl.	Groundwater strike at 2.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS9 **Loc. Ref** 519709E 344672N	5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m. Low to moderate SPTs at 3.0m and 4.0m bgl. Moderate to high SPT at 5.0m bgl.	Groundwater strikes at 1.9m (seepage), 3.2m and 4.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS10 **Loc. Ref** 519675E 345042N	4m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Low to moderate SPT at 2.0m. Low SPT at 3.0m bgl. Refusal (>50) at 4.0m bgl.	Groundwater strikes at 1.7m (seepage), and 2.8m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS11 **Loc. Ref** 519393E 344988N	4m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Low to moderate SPTs at 2.0m, and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 1.2m (seepage) and 2.5m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS12 **Loc. Ref** 519033E 344967N	4m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Low to moderate SPTs at 2.0m, and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 1.9m (seepage) and 3.4m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS12 **Loc. Ref** 519033E 344967N	4m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Low to moderate SPTs at 2.0m, and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 1.9m (seepage) and 3.4m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS13 **Loc. Ref** 519131E 345378N	4m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Moderate to high SPT at 2.0m. Moderate SPT at 3.0m bgl. Refusal (N>50) at 4.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

Explor-atory Hole	Depth (m)	In-situ testing	Observations
WS14 **Loc. Ref** 519427E 345420N	4m bgl	SPTs undertaken at 1m intervals. Moderate SPT at 1.0m. Low SPT at 2.0m. Low to moderate SPT at 3.0m bgl. Refusal (N>50) at 4.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS15 **Loc. Ref** 519650E 345538N	1m bgl	SPTs undertaken at 1m intervals. Refusal (N>50) at 1.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS16 **Loc. Ref** 519959E 345488N	3m bgl	SPTs undertaken at 1m intervals. Low to moderate SPT at 1.0m. Low SPT at 2.0m. Refusal (N>50) at 3.0m bgl.	Groundwater strike at 1.4m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS17 **Loc. Ref** 520005E 345256N	2.7m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Low to moderate SPT at 2.0m bgl. Refusal (N>50) at 2.7m bgl.	Groundwater strikes at 1.45m (seepage) and 2.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS18 **Loc. Ref** 520178E 345732N	3.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl. Refusal (N>50) at 3.0m bgl.	Groundwater strike at 1.1m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS19 **Loc. Ref** 520582E 345682N	4.8m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl. Low to moderate SPTs at 3.0m, and 4.0m bgl. Refusal (N>50) at 4.8m bgl.	Groundwater strikes at 2.2m (seepage) and 2.95m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS20 **Loc. Ref** 520953E 345600N	4m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl. Low to moderate SPT at 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 1.8m (seepage) and 2.9m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS21 **Loc. Ref** 521255E 345568N	5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m, 3.0m, and 4.0m bgl. Refusal (N>50) at 5.0m bgl.	Groundwater strikes at 2.2m (seepage) and 3.9m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

Explor-atory Hole	Depth (m)	In-situ testing	Observations
WS22 **Loc. Ref** 521177E 345327N	3.5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 3.5m bgl.	Groundwater strikes at 1.8m (seepage) and 3.1m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS23 **Loc. Ref** 520890E 345241N	3.8m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 3.8m bgl.	Groundwater strike at 1.8m (seepage). Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS24 **Loc. Ref** 521323E 345887N	4m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strike at 1.8m (seepage). Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS25 **Loc. Ref** 520913E 345867N	3.7m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 3.7m bgl.	Groundwater strikes at 2.3m (seepage) and 3.1m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS26 **Loc. Ref** 521049E 346102N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 2.1m (seepage) and 3.65m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS27 **Loc. Ref** 520410E 345975N	2.7m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl. Refusal (N>50) at 2.7m bgl.	Groundwater strikes at 1.6m (seepage) and 2.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS28 **Loc. Ref** 519880E 345962N	3.0m bgl	SPTs undertaken at 1m intervals. Low SPT at 1.0m. Low to moderate SPT at 2.0m bgl. Refusal (N>50) at 3.0m bgl.	Groundwater strikes at 1.2m (seepage) and 1.9m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS29 **Loc. Ref** 519439E 345925N	4.0m bgl	SPTs undertaken at 1m intervals. Low to moderate SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strike at 3.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

Explor-atory Hole	Depth (m)	In-situ testing	Observations
WS30 **Loc. Ref** 519189E 345825N	5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m, 3.0m and 4.0m bgl. Refusal (N>50) at 5.0m bgl.	Groundwater strikes at 1.65m (seepage) and 2.3m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS31 **Loc. Ref** 518942E 346135N	3m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl. Refusal (N>50) at 3.0m bgl.	Groundwater strike at 1.05m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS32 **Loc. Ref** 519335E 346251N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 3.1m (seepage) and 3.95m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS33 **Loc. Ref** 520139E 346166N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 2.05m (seepage) and 3.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS34 **Loc. Ref** 520524E 346249N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 2.5m (seepage) and 3.5m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS35 **Loc. Ref** 520906E 346424N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 1.6m (seepage) and 2.8m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS36 **Loc. Ref** 520714E 346738N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 2.0m (seepage) and 3.0m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS37 **Loc. Ref** 520414E 346557N	4.5m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Moderate to high SPT at 4.0m bgl. Refusal (N>50) at 5.0m bgl.	Groundwater strikes at 1.75m (seepage) and 4.15m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

Explor-atory Hole	Depth (m)	In-situ testing	Observations
WS38 **Loc. Ref** 520119E 346657N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strike at 1.8m (seepage). Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS39 **Loc. Ref** 519900E 346428N	5.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m, 4.0m and 5.0m bgl.	Groundwater strikes at 1.0m (seepage) and 3.5m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS40 **Loc. Ref** 519353E 346605N	4.0m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m, 2.0m and 3.0m bgl. Refusal (N>50) at 4.0m bgl.	Groundwater strikes at 1.0m (seepage) and 2.6m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS41 **Loc. Ref** 519272E 346658N	2m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS42 **Loc. Ref** 519542E 346073N	2m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS43 **Loc. Ref** 520112E 345329N	2m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS44 **Loc. Ref** 519605E 344739N	2m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl.	Groundwater strike at 1.8m bgl (seepage). Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.
WS45 **Loc. Ref** 519102E 344841N	2m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl.	Groundwater strike at 1.05m bgl. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

Explor-atory Hole	Depth (m)	In-situ testing	Observations
WS46 **Loc. Ref** 520757E 345330N	2m bgl	SPTs undertaken at 1m intervals. Low SPTs at 1.0m and 2.0m bgl.	No groundwater encountered. Excavation Stable. No visual or olfactory evidence of significant contamination was encountered. Borehole backfilled with inert swelling clay (bentonite) and arisings.

2.3 Ground Conditions

2.3.1 The ground conditions encountered on site are presented in full in the logs in Appendix C and summarised below in Table 2.3. The observed ground conditions were in general accordance with the published geological records.

Table 2.3: Strata Encountered

Stratum Description	Depth to Top (m bgl)	Depth to Base (m bgl)	Thickness (m)
Made Ground (WS7, WS28, WS33, WS42, WS44 and WS46)	Ground level	0.13m to 1.5m bgl	0.13m to 1.5m
Topsoil/Made Ground	Ground Level	0.10m to 1.2m bgl	0.10m to 1.2m
Tidal Flat Deposits	Ground Level to 1.5m bgl	1.0m to 9.0m bgl (locally base not proven)	0.6m to 8.4m (locally thickness not proven)
Glacial Till	1.5m to 9.0m bgl	2.0m to 12.0m bgl (base not proven)	0.1m to 4.0m (thickness not proven)

2.3.2 Below is a summary of the composition of each of the geological units encountered during the investigation. Given the distance between boreholes, and the various site settings encountered throughout the investigation, there is a degree of variability encountered even within these units. Full detail regarding the ground conditions at each location is provided on the borehole logs included as Appendix C. The following section should be read in conjunction with Table 2.3.

2.4 Topsoil/Made Ground

2.4.1 Encountered at the surface across the majority of the site (predominantly those undertaken within existing agricultural field units), were strata which have been designated 'Topsoil/Made Ground'. These strata exhibited visual evidence of biological and/or anthropogenic turbation, however in most cases contained materials solely of natural provenance. The uncertainty regarding the use of the term 'Made Ground' arises from anecdotal evidence regarding the presence of field drainage systems across many if not all of the field units. Due to the construction characteristics (spacing) of drainage infrastructure, and the discrete nature of borehole excavation, the majority of excavations did not encounter field drainage structures, however a number of boreholes (see Section 2.5) did record brick and ceramic objects consistent with such features. As a result, it is assumed that field drainage may be present across many, if not all of the cultivated areas, and that its installation may have resulted in anthropogenic rework of the upper surface.

2.4.2 Material designated Topsoil/Made Ground was encountered in forty-five of the fifty excavations undertaken (inclusive of Cable Percussive boreholes). In each case this material was

predominantly cohesive, and could be classified as one of four broad sub-types, depending on the proportion of Silt to Clay within the horizon.

2.4.3 A brief summary of the four subtypes, and their distribution is provided below. Further detail is available on the borehole logs included in Appendix C.

- Firm to very stiff (rarely soft) friable brown/dark brown/light brown, variably slightly silty to very silty, locally slightly sandy Clay. This material was the most commonly encountered of the subtypes, and was encountered at the surface in; WS1, WS2, WS4, WS6, WS10, WS15 to WS18 inclusive, WS20, WS22, WS24, WS25, WS31, WS32, WS34, WS36, WS37, WS38, WS40, WS41, WS45, and CP1 to CP5 inclusive. Where identified, this subtype was recorded to depths of between 0.1m and 1.2m bgl. No strong patterns of lateral distribution of this material were identified, however it appears more prevalent toward the east, south-east, north, and north-west than other subtypes.

- Firm to stiff friable brown slightly clayey Silt. Encountered at the surface in eight excavations (WS3, WS5, WS8, WS11, WS14, WS19, WS35, and WS39) and recorded to depths of between 0.18m and 0.6m bgl. This subtype appeared to have been encountered more commonly, but not exclusively toward the south-west of the site.

- Stiff greyish brown Clay. This subtype, containing no significant silt component, was encountered at the surface in a single excavation (WS9), located close to the southern site boundary, and recorded to a depth of 0.5m bgl.

- Firm to stiff friable brown/light brown locally slightly sandy Silt. Where present the sand was described as fine. This subtype was slightly coarser than the materials described above, containing no discernible clay content. Encountered within WS12, WS13, WS21, WS23 and WS30, which were excavated toward the eastern and western peripheries of the site.

2.4.4 Frequent roots were recorded within the upper 0.2-0.5m of each of the above subtypes, reflecting the existing agricultural use of the site.

2.5 Made Ground

2.5.1 Material definitively identified as Made Ground was encountered at the surface in six excavations (WS7, WS28, WS33, WS42, WS44 and WS46). In general, the Made Ground encountered appeared to comprise two types. Boreholes WS7, WS28, and WS33 were excavated within existing agricultural field units. The Made Ground in these locations was typically similar in composition to the Topsoil/Made Ground described above, however in these excavations materials were encountered which confirmed that the upper layer was anthropogenic. These materials (predominantly ceramics and crushed brick) were considered likely to form part of a field drainage system.

2.5.2 The remaining three excavations (WS42, WS44 and WS46) were advanced within existing tracks/infrastructure, and contained materials considered likely to have been placed in order

to improve the geotechnical stability of the upper layers (i.e. sub-base or an unsealed wearing/gravel course).

2.5.3 A brief summary of the made ground in each position is provided below. Further detail is available on the borehole logs included in Appendix C.

- WS7- Reworked material was encountered at the surface and recorded to a depth of 0.4m bgl. This stratum was described as firm to stiff brown silty Clay, and contained rare fragments of brick.

- WS28- A sequence of reworked and anthropogenic materials comprising stiff, friable brown/dark brown slightly silty Clay between 0m and 0.2m bgl, underlain by very stiff brown/dark brown slightly silty Clay to a depth of 0.47m bgl. At the base of the Made Ground in this location was a cobble of crushed brick/ceramics consistent with field drainage structures.

- WS33- A similar sequence to WS28 consisting of Very stiff brown silty Clay between 0.0m and 0.15m, very stiff brown/dark brown slightly silty Clay between 0.15m and 1.45m bgl, and a cobble of crushed brick identified at the base between 1.45m and 1.5m bgl.

2.5.4 It should be noted that in general the cohesive units overlying the likely 'field drainage' materials appeared stiffer than the undisturbed materials below, presumably due to the effects of desiccation due to the improved drainage.

- WS42- Brown/light brown slightly silty, slightly clayey fine to coarse, angular Gravel of flint and quartz between 0.0m and 0.15m bgl, underlain by very stiff dark brown slightly gravelly Clay to a depth of 0.5m bgl. The gravel component within the lower horizon was described as fine to coarse, angular flint, brick, and sandstone.

- WS44- A single layer of Made Ground was encountered between 0.0m and 0.5m bgl. This material was described as light brown sandy silty Gravel. The sand was fine to coarse. The gravel was described as fine to coarse, angular to subrounded flint, sandstone, quartz, and crushed concrete.

- WS46- A layer of light brown/light grey very gravelly Sand was recorded to a depth of 0.13m bgl. The sand was fine to coarse. The gravel consisted of fine to coarse, angular to subangular granite.

2.6 Tidal Flat Deposits

2.6.1 Strata consistent with Tidal Flat Deposits were encountered in each of the fifty excavations undertaken during the investigation. The precise composition and distribution of materials within this unit was complex and variable, however may be generally defined as forming part of a sequence of predominantly cohesive, and predominantly granular horizons.

2.6.2 The cohesive component of the Tidal Flat Deposits was recorded at shallow depths, typically underlying the Made Ground/Topsoil described above. The following typical sequence, presented in descending order, was encountered in the majority of excavations, however in

individual locations elements of this sequence were reduced or absent. In addition, the depth of individual strata within this sequence was laterally variable. Depending on the locally dominant particle size, each of the following units has a predominantly Silt, or Clay variant.

- Stiff brown or greyish brown locally slightly silty CLAY, or Stiff brown or orange brown SILT.
- Firm to stiff greyish brown, brown or dark brown CLAY or Firm to stiff brown SILT.
- Very soft to soft greyish brown or brown locally slightly silty, slightly sandy, slightly gravelly CLAY or Very soft brownish grey/dark grey/brown/light brown slightly clayey locally slightly sandy SILT.
- Very soft grey/dark grey locally slightly sandy, and/or slightly gravelly CLAY or Very soft dark grey SILT containing occasional to frequent organic fragments.
- Brown/Black rarely pseudofibrous, commonly amorphous PEAT.

2.6.3 The point at which the upper firm or stiff horizons are described as soft or very soft appeared to correlate in each position with the depth of groundwater strikes, suggesting desiccation of the upper cohesive units.

2.6.4 Typically underlying the cohesive materials was a coarsening down granular sequence comprising:

- Brown/light grey/dark grey locally slightly clayey to clayey, locally slightly silty SAND. The sand within this horizon was typically fine.
- Brown/orangish brown/greyish brown/dark grey/light grey slightly silty to silty or slightly clayey to clayey slightly gravelly to very gravelly SAND. The sand was generally fine to medium. The gravel was fine to medium, rounded to subangular of quartz, feldspar, and flint.
- Orangish brown/yellowish brown locally slightly silty to silty sandy to very sandy GRAVEL. Sand was typically fine. The gravel was generally described as fine to coarse, angular to rounded of quartz, feldspar, flint, and rare, localised sandstone.
- Grey/brown SAND AND GRAVEL. Sand was fine to coarse. Gravel was fine to coarse, subangular to subrounded of flint and quartz. In general this material was restricted to excavations where the granular Tidal Flat Deposits were recorded to significant depth (Cable Percussive Boreholes).

2.6.5 Where Glacial Till Deposits (See Section 2.7) were encountered at shallow depths within the window sample boreholes, the granular component of the Tidal Flat Deposits appeared to be absent or significantly reduced.

2.6.6 Table 2.4 shows the depth, by excavation, at/to which each of the cohesive or granular sequences were recorded.

Table 2.4: Depth of Tidal Flat Deposit Components (mbgl)

Boreholes	Recorded depths of Cohesive Sequence- Tidal Flat Deposits (mbgl)	Recorded depths of Granular Sequence- Tidal Flat Deposits (mbgl)
CP1	1.2m-3.2m	3.2m-10.0m
CP2	1.0m-3.4m	3.4m-8.6m
CP3	0.8m-2.4m	2.4m-9.8m
CP4	0.6m-2.4m	2.4m-8.0m
CP5	NR	0.6m-9.0m
WS1	0.15m-3.95m	3.95m-5.0m
WS2	0.2m-2.65m	2.65m-4.6m
WS3	0.2m-3.0m	NR
WS4	0.15m-2.95m	2.95m-3.0m
WS5	0.6m-3.85m	3.85m-4.7m
WS6	0.3m-3.9m	3.9m-5.0m
WS7	0.4m-4.45m	4.45m-5.0m
WS8	0.15m-1.91m	NR
WS9	0.5m-2.45m	NR
WS10	0.3m-1.9m	NR
WS11	0.13m-1.5m	NR
WS12	0.7m-1.95m	NR
WS13	0.5m-1.3m	NR
WS14	0.4m-0.7m	0.7m-1.0m
WS15	NR	0.85m-1.0m
WS16	0.3m-1.0m	1.0m-3.0m
WS17	0.18m-1.8m	NR
WS18	0.25m-2.4m	2.4m-3.0m
WS19	0.3m-2.7m	2.7m-4.8m
WS20	0.4m-2.8m	2.8m-4.0m
WS21	0.45m-3.95m	3.95m-5.0m
WS22	0.2m-3.4m	3.4m-3.5m
WS23	0.68m-3.65m	3.65m-3.8m
WS24	0.3m-4.0m	NR
WS25	0.2m-3.5m	3.5m-3.7m
WS26	0.4m-3.65m	3.65m-4.0m

Boreholes	Recorded depths of Cohesive Sequence- Tidal Flat Deposits (mbgl)	Recorded depths of Granular Sequence- Tidal Flat Deposits (mbgl)
WS27	0.15m-2.0m	2.0m-2.7m
WS28	0.55m-1.83m	1.83m-3.0m
WS29	0.25m-3.0m	3.0m-3.1m
WS30	0.5m-2.35m	2.35m-2.5m
WS31	0.23m-1.15m	1.15m-3.0m
WS32	0.17m-3.6m	3.6m-4.0m
WS33	1.5m-3.3m	3.3m-4.0m
WS34	0.2m-3.5m	3.5m-4.0m
WS35	0.3m-3.75m	3.75m-4.0m
WS36	0.2m-3.1m	3.1m-4.0m
WS37	0.2m-4.15m	4.15m-4.5m
WS38	0.2m-3.0m	NR
WS39	0.18m-4.65m	4.65m-5.0m
WS40	0.13m-2.9m	2.9m-4.0m
WS41	0.15m-2.0m	NR
WS42	0.5m-1.9m	1.9m-2.0m
WS43	0.0m-1.9m	1.9m-2.0m
WS44	0.5m-1.45m	NR
WS45	0.1m-1.83m	1.83m-2.0m
WS46	0.13m-2.0m	NR

*NR-Not recorded

2.6.7 A drawing showing the presence, depth and thickness of peat deposits encountered during the site investigation is included in Appendix A (Drawing R22082-DWG3).

2.7 Glacial Till

2.7.1 Glacial Till Deposits were recorded below the Tidal Flat Deposits in sixteen locations (WS3 WS8 to WS14 inclusive, WS17, WS29, WS30, WS44, and CP2 to CP5 inclusive). This unit was encountered at shallow depths (1.5m to 2.45m) in Window Sample Boreholes situated toward the south-west and west of the site. The Cable Percussive Boreholes, excavated toward the centre of the site proved Glacial Till Deposits at substantially greater depths (8.0m to 9.0m bgl). The depth to the interface between the Tidal Flat and Glacial Till Deposits therefore appears to increase toward the east and north-east. Where encountered, the Glacial Till Deposits were recorded to the base of each excavation.

2.7.2 The Glacial Till Deposits encountered were predominantly cohesive in nature, but containing a variable granular component. In general the cohesive Glacial Till Deposits encountered formed one of four distinct subtypes;

- Brownish grey/light brown slightly clayey to clayey slightly sandy, slightly gravelly SILT. The sand was fine to medium. The gravel component of this material was described

as fine, subrounded of indeterminate lithology. This subtype was recorded in WS3 between 2.9m and 3.0m bgl, and WS11 between 1.5m and 2.5m.

- Dark grey/brown/greyish brown or dark grey locally slightly silty, slightly sandy slightly gravelly to gravelly CLAY. The gravel was described as fine to coarse, subangular of chalk, flint, and quartz. This material was the dominant subtype, and was encountered in WS8 between 1.91m and 4.0m bgl, WS9 from 2.45m to 5.0m bgl, WS10 from 1.9m to 4.0m bgl, WS11 between 2.8m and 4.0m bgl, WS12 1.95m to 4.0m bgl, WS13 1.3m to 4.0m bgl, WS14 1.0m to 4.0m bgl, WS17 2.5m to 2.7m bgl, WS44 1.45m to 2.0m bgl, CP2 8.6m to 10.0m bgl, CP3 9.8m to 10.0m bgl, CP4 8.6m to 12.0m bgl, and CP5 between 9.0m and 10.0m bgl. In a number of locations (WS9 to WS13 inclusive), interbedded subordinate granular horizons were encountered within this unit, described as orangish brown or brown slightly silty slightly gravelly to very gravelly SAND or sandy GRAVEL. The sand within this material was fine to medium, and the gravel described as fine to medium, subangular of flint and chalk.

- Light brown slightly silty slightly sandy to sandy CLAY. The sand was fine. This subtype was encountered in a single location (WS17) between 1.8m and 2.5m bgl.

- Dark grey clay. Recorded in WS29 between 3.1m and 4.0m bgl.

2.7.3 The consistency of the cohesive strata was highly variable, and whilst typically firm to stiff, did not appear to exhibit an obvious vertical distribution pattern, with the exception of materials encountered close to the interface with the Tidal Flat Deposits, which appeared to be significantly softer (very soft or soft) when compared with underlying strata. It is assumed that this is a result of surface weathering, or the influence of groundwater within basal sands and gravels of the Tidal Flat Deposits.

2.8 Borehole Stability

2.8.1 One Window Sample excavation (WS6) collapsed back, on completion of the excavation (5.0m bgl), to a depth of 3.5m bgl.

2.8.2 No evidence of borehole instability was noted during the advancement of any of the remaining excavations.

2.9 Visual and Olfactory Evidence of Contamination

2.9.1 No visual or olfactory evidence of contamination was encountered in any of the excavated boreholes.

2.10 Groundwater

2.10.1 Groundwater strikes were noted in the majority of excavations undertaken as part of the investigation. Several of the window sample boreholes recorded two strikes, including an upper seepage, and a more substantial lower strike. The findings are indicative of a perched upper groundwater table with limited recharge rates and localised lateral distribution, and a more substantial groundwater regime, presumably situated within the predominantly granular materials, present at greater depths. No significant pattern of lateral distribution is noted regarding the localised upper groundwater table, however unlike the deeper groundwater, it

appears to be discontinuous. Table 2.5 presents the depths of water strikes recorded during the fieldwork phase.

2.10.2 A plan showing the depth below ground level of groundwater strikes across the site is included in Appendix A (Drawing R22082-DWG4).

Table 2.5: Water Strikes during Fieldwork (mbgl)

Boreholes	Recorded depth of Upper Water Strike (seepage) (mbgl)	Recorded depth of Lower (or Main) Water Strike (mbgl)
CP1		2.7m
CP2		2.8m
CP3		2.4m
CP4		2.7m
CP5		2.6m
WS1		3.5m
WS2		2.6m
WS3		1.05m
WS4		1.6m
WS5	1.4m	4.7m
WS6		1.4m
WS7		3.0m
WS8		2.0m
WS9	1.9m	3.2m
WS10	1.7m	2.8m
WS11	1.2m	2.5m
WS12	1.9m	3.4m (seepage)
WS13	No groundwater encountered	
WS14	No groundwater encountered	
WS15	No groundwater encountered	
WS16		1.4m
WS17	1.45m	2.0m
WS18		1.1m
WS19	2.2m	2.95m
WS20	1.8m	2.9m
WS21	2.2m	3.9m
WS22	1.8m	3.1m
WS23		1.8m (seepage)
WS24		1.8m (seepage)
WS25	2.3m	3.1m
WS26	2.1m	3.65m
WS27	1.6m	2.0m

Boreholes	Recorded depth of Upper Water Strike (seepage) (mbgl)	Recorded depth of Lower (or Main) Water Strike (mbgl)
WS28	1.2m	1.9m
WS29		3.0m
WS30	1.65m	2.3m
WS31		1.05m
WS32	3.1m	3.95m
WS33	2.05m	3.0m
WS34	2.5m	3.5m
WS35	1.6m	2.8m
WS36	2.0m	3.0m
WS37	1.75m	4.15m
WS38		1.8m (seepage)
WS39	1.0m	3.5m
WS40	1.0m	2.6m
WS41	No groundwater encountered	
WS42	No groundwater encountered	
WS43	No groundwater encountered	
WS44		1.8m (seepage)
WS45		1.05m
WS46	No groundwater encountered	

2.11 In-situ Testing

SPT Results

2.11.1 The near surface density of soils below the site were examined in four external locations (CBR 1 to CBR2 inclusive) and two internal positions undertaken through the base of concrete cores (Core 1 and Core 2) excavated in the existing floor slab. The probing was carried out using a hand-held TRL Dynamic Cone Penetrometer (DCP). The penetration characteristics of each soil layer encountered within ca. 1m of the surface (excluding hardstanding) were subsequently used to obtain indicative CBR values.

2.11.2 The results of the testing programme are summarised in Table 2.7, and the testing certificates included in Appendix D. The location of each test is presented on Drawing R22013-DWG2 included in Appendix A.

Table 2.7: TRL DCP Results

Test Reference (Associated BH Location)	Layer Depth* (Top) (mm bgl)	Layer Depth (Bottom) (mm bgl)	CBR Value (%)
CBR 1	0	313	57.3
	313	537	7.7

Test Reference (Associated BH Location)	Layer Depth* (Top) (mm bgl)	Layer Depth (Bottom) (mm bgl)	CBR Value (%)
	537	887	17.8
CBR2	0	195	>100
	195	887	12.1
CBR3	0	117	81.8
	117	233	27.5
	233	883	4.4
CBR4	0	92	41.3
	92	197	27.8
	197	756	8.9
	756	886	15.9
Core 1	152	193	19
	193	239	>100
	239	338	21.1
	338	625	6
	625	895	9.3
Core 2	182	425	12.6
	425	530	4.6
	530	869	2.0

*excluding hardstanding layers

2.11.3 In-situ Standard Penetration Tests (SPTs) were carried out during drilling at approximately 1m intervals in order to allow the assessment of ground conditions by establishing soil strength / density/consistency characteristics. In addition, an SPT was generally undertaken at the base of each excavation on sampler refusal.

2.11.4 The SPT (N values) results obtained are presented in Table 2.6.

Table 2.6: SPT results (N values)

Boreholes	Depth SPT undertaken (m)*	SPT (N values) recorded
CP1	3.0m bgl (TF)	14
	4.0m bgl (TFg)	27
	5.0m bgl (TFg)	>50 (refusal)
	6.0m bgl (TFg)	38
	7.5m bgl (TFg)	38
	9.0m bgl (TFg)	23
	9.5m bgl (TFg)	15
CP2	3.0m bgl (TF)	3
	4.0m bgl (TFg)	16

Boreholes	Depth SPT undertaken (m)*	SPT (N values) recorded
	5.0m bgl (TFg)	20
	6.0m bgl (TFg)	>50 (refusal)
	7.5m bgl (TFg)	>50 (refusal)
	9.5m bgl (GT)	>50 (refusal)
CP3	3.0m bgl (TFg)	35
	4.0m bgl (TFg)	19
	5.0m bgl (TFg)	14
	6.0m bgl (TFg)	36
	7.5m bgl (TFg)	>50 (refusal)
	9.0m bgl (GT)	>50 (refusal)
CP4	3.0m bgl (TFg)	35
	4.0m bgl (TFg)	19
	5.0m bgl (TFg)	14
	6.0m bgl (TFg)	36
	7.5m bgl (TFg)	>50 (refusal)
	9.0m bgl (GT)	>50 (refusal)
CP5	3.0m bgl (TFg)	27
	4.0m bgl (TFg)	32
	5.0m bgl (TFg)	40
	6.0m bgl (TFg)	44
	7.5m bgl (TFg)	35
WS1	1.0m bgl (TF)	7
	2.0m bgl (TF)	0
	3.0m bgl (TF)	3
	4.0m bgl (TFg)	23
	5.0m bgl (TFg)	>50 (refusal)
WS2	1.0m bgl (TF)	4
	2.0m bgl (TF)	3
	3.0m bgl (TFg)	21
	4.0m bgl (TFg)	32
	4.6m bgl (TFg)	32
WS3	1.0m bgl (TF)	9
	2.0m bgl (TF)	2
	3.0m bgl (TFg)	>50 (refusal)
WS4	1.0m bgl (TF)	4
	2.0m bgl (TF)	0
	3.0m bgl (TFg)	>50 (refusal)
WS5	1.0m bgl (TF)	5
	2.0m bgl (TF)	0

Boreholes	Depth SPT undertaken (m)*	SPT (N values) recorded
	3.0m bgl (TF)	4
	4.0m bgl (TFg)	23
	4.7m bgl (TFg)	>50 (refusal)
WS6	1.0m bgl (TF)	4
	2.0m bgl (TF)	2
	3.0m bgl (TF)	4
	4.0m bgl (TFg)	8
	5.0m bgl (TFg)	17
WS7	1.0m bgl (TF)	4
	2.0m bgl (TF)	2
	3.0m bgl (TF)	2
	4.0m bgl (TF)	41
	5.0m bgl (TFg)	44
WS8	1.0m bgl (TF)	8
	2.0m bgl (GT)	8
	3.0m bgl (GT)	12
	4.0m bgl (GT)	>50 (refusal)
WS9	1.0m bgl (TF)	8
	2.0m bgl (TF)	5
	3.0m bgl (GT)	17
	4.0m bgl (GT)	14
	5.0m bgl (GT)	33
WS10	1.0m bgl (TF)	5
	2.0m bgl (GT)	16
	3.0m bgl (GT)	7
	4.0m bgl (GT)	>50 (refusal)
WS11	1.0m bgl (TF)	10
	2.0m bgl (GT)	13
	3.0m bgl (GT)	11
	4.0m bgl (GT)	>50 (refusal)
WS12	1.0m bgl (TF)	6
	2.0m bgl (GT)	12
	3.0m bgl (GT)	13
	4.0m bgl (GT)	>50 (refusal)
WS13	1.0m bgl (TF)	7
	2.0m bgl (GT)	34
	3.0m bgl (GT)	20
	4.0m bgl (GT)	>50 (refusal)
WS14	1.0m bgl (GT)	20

Boreholes	Depth SPT undertaken (m)*	SPT (N values) recorded
	2.0m bgl (GT)	10
	3.0m bgl (GT)	19
	4.0m bgl (GT)	>50 (refusal)
WS15	1.0m bgl (TFg)	>50 (refusal)
WS16	1.0m bgl (TFg)	12
	2.0m bgl (TFg)	10
	3.0m bgl (TFg)	>50 (refusal)
WS17	1.0m bgl (TF)	4
	2.0m bgl (GT)	13
	3.0m bgl (GT)	>50 (refusal)
WS18	1.0m bgl (TFg)	8
	2.0m bgl (TF)	7
	3.0m bgl (TFg)	>50 (refusal)
WS19	1.0m bgl (TF)	4
	2.0m bgl (TF)	3
	3.0m bgl (TFg)	12
	4.0m bgl (TFg)	12
	4.8m bgl (TFg)	>50 (refusal)
WS20	1.0m bgl (TF)	2
	2.0m bgl (TF)	0
	3.0m bgl (TFg)	16
	4.0m bgl (TFg)	>50 (refusal)
WS21	1.0m bgl (TF)	5
	2.0m bgl (TF)	2
	3.0m bgl (TF)	1
	4.0m bgl (TFg)	4
	5.0m bgl (TFg)	14
WS22	1.0m bgl (TF)	6
	2.0m bgl (TF)	0
	3.0m bgl (TF)	3
	3.5m bgl (TFg)	>50 (refusal)
WS23	1.0m bgl (TF)	1
	2.0m bgl (TF)	0
	3.0m bgl (TF)	3
	3.8m bgl (TFg)	>50 (refusal)
WS24	1.0m bgl (TF)	4
	2.0m bgl (TF)	2
	3.0m bgl (TF)	3
	4.0m bgl (TFg-assumed)	>50 (refusal)

Boreholes	Depth SPT undertaken (m)*	SPT (N values) recorded
WS25	1.0m bgl (TF)	6
	2.0m bgl (TF)	1
	3.0m bgl (TF)	3
	3.7m bgl (TFg)	>50 (refusal)
WS26	1.0m bgl (TF)	6
	2.0m bgl (TF)	1
	3.0m bgl (TF)	6
	4.0m bgl (TFg)	>50 (refusal)
WS27	1.0m bgl (TF)	4
	2.0m bgl (TFg)	1
	2.7m bgl (TFg)	>50 (refusal)
WS28	1.0m bgl (TF)	5
	2.0m bgl (TFg)	10
	3.0m bgl (TFg)	>50 (refusal)
WS29	1.0m bgl (TF)	13
	2.0m bgl (TF)	13
	3.0m bgl (TFg)	16
	4.0m bgl (GT)	>50 (refusal)
WS30	1.0m bgl (TF)	9
	2.0m bgl (TF)	8
	3.0m bgl (GT)	6
	4.0m bgl (GT)	8
	5.0m bgl (GT)	12
WS31	1.0m bgl (TF)	5
	2.0m bgl (TFg)	6
	3.0m bgl (TFg)	>50 (refusal)
WS32	1.0m bgl (TF)	4
	2.0m bgl (TFg)	8
	3.0m bgl (TF)	7
	4.0m bgl (TFg)	>50 (refusal)
WS33	1.0m bgl (MG)	5
	2.0m bgl (TF)	8
	3.0m bgl (TF)	5
	4.0m bgl (TFg)	48
WS34	1.0m bgl (TF)	3
	2.0m bgl (TF)	0
	3.0m bgl (TF)	2
	4.0m bgl (TFg)	>50 (refusal)
WS35	1.0m bgl (TF)	4

Boreholes	Depth SPT undertaken (m)*	SPT (N values) recorded
	2.0m bgl (TF)	3
	3.0m bgl (TF)	6
	4.0m bgl (TFg)	>50 (refusal)
WS36	1.0m bgl (TF)	7
	2.0m bgl (TF)	1
	3.0m bgl (TF)	5
	4.0m bgl (TFg)	>50 (refusal)
WS37	1.0m bgl (TF)	7
	2.0m bgl (TF)	3
	3.0m bgl (TF)	5
	4.0m bgl (TF)	33
	4.5m bgl (TFg)	>50 (refusal)
WS38	1.0m bgl (TF)	6
	2.0m bgl (TF)	6
	3.0m bgl (TF)	2
	4.0m bgl (TFg-assumed)	>50 (refusal)
WS39	1.0m bgl (TF)	3
	2.0m bgl (TF)	2
	3.0m bgl (TF)	0
	4.0m bgl (TF)	3
	5.0m bgl (TFg)	1
WS40	1.0m bgl (TFg)	9
	2.0m bgl (TF)	11
	3.0m bgl (TFg)	4
	4.0m bgl (TFg)	>50 (refusal)
WS41	1.0m bgl (TF)	6
	2.0m bgl (TF)	6
WS42	1.0m bgl (TF)	7
	2.0m bgl (TFg)	5
WS43	1.0m bgl (TF)	2
	2.0m bgl (TFg)	2
WS44	1.0m bgl (TF)	7
	2.0m bgl (GT)	4
WS45	1.0m bgl (TF)	8
	2.0m bgl (TFg)	6
WS46	1.0m bgl (TF)	4
	2.0m bgl (TF)	0

*Key to materials in which SPTs were carried out: MG- Made Ground, TF- Tidal Flat Deposits (Cohesive Component), TFg- Tidal Flat Deposits (Granular Component -typically basal gravel), GT- Glacial Till.

2.11.5 Table 2.7 summarises the findings of the SPT testing undertaken, presented by geological unit (see Section 2.3).

Table 2.7: SPT Results

Strata Type	No. of Tests	Minimum Recorded SPT 'N' Value	Maximum Recorded SPT 'N' Value	Mean Average SPT 'N' Value*
Made Ground	1	5	5	5
Tidal Flat Deposits (Cohesive Component)	92	0	41	5.1
Tidal Flat Deposits (Granular Component)	78	1	>50 (refusal)	31.6
Glacial Till	31	4	>50 (refusal)	25.9

* for the purpose of this calculation, the value for refusals ('N'>50) has been taken to be 50.

2.11.6 Table 2.8 summarises the depth at which low to moderate SPT N values (>10 and <20) and SPT N values considered moderate or above (>20) were identified in each excavation, illustrating the depth to 'competent strata'. A drawing plotting the depth to 'geotechnically competent' strata is provided in Appendix A (Drawing R22082-DWG5).

Table 2.8: Depth to Nominated SPT Values

Boreholes	Depth to 'low to moderate' SPT N values (N>10 and <20) mbgl	Depth to 'moderate' SPT 'N' values or above (N>20) mbgl
CP1	3.0	4.0
CP2	4.0	5.0
CP3	NI (4.0)	3.0
CP4	NI (4.0)	3.0
CP5	NI	3.0
WS1	NI	4.0
WS2	NI	3.0
WS3	NI	3.0
WS4	NI	3.0
WS5	NI	4.0
WS6	5.0	NI
WS7	NI	4.0
WS8	3.0	4.0
WS9	3.0	5.0
WS10	2.0	4.0
WS11	3.0	4.0

Boreholes	Depth to 'low to moderate' SPT N values (N>10 and <20) mbgl	Depth to 'moderate' SPT 'N' values or above (N>20) mbgl
WS12	2.0	4.0
WS13	NI	2.0
WS14	NI (2.0)	1.0
WS15	NI	1.0
WS16	1.0	3.0
WS17	2.0	2.7
WS18	NI	3.0
WS19	3.0	4.8
WS20	3.0	4.0
WS21	5.0	NI
WS22	NI	3.5
WS23	NI	3.8
WS24	NI	4.0
WS25	NI	3.7
WS26	NI	4.0
WS27	NI	2.7
WS28	NI	3.0
WS29	1.0	4.0
WS30	5.0	NI
WS31	NI	3.0
WS32	NI	4.0
WS33	NI	4.0
WS34	NI	4.0
WS35	NI	4.0
WS36	NI	4.0
WS37	NI	4.5
WS38	NI	4.0
WS39	NI	NI
WS40	2.0	4.0
WS41	NI	NI
WS42	NI	NI
WS43	NI	NI
WS44	NI	NI
WS45	NI	NI
WS46	NI	NI

* NI- Not Identified. Note- where low to moderate N values were not identified, but moderate (or higher) values were, the first 'competent' stratum exhibited moderate or higher N values.

Hand-Held TRL Probe Results

2.11.7 The near surface density of soils below the site were examined in thirty three locations (CBR 1 to CBR33 inclusive). The probing was carried out using a hand-held TRL Dynamic Cone Penetrometer (DCP). The penetration characteristics of each soil layer encountered within ca. 1m of the surface (excluding hardstanding) were subsequently used to obtain indicative CBR values.

2.11.8 The results of the testing programme are summarised in Table 2.9, and the testing certificates included in Appendix H. The location of each test is presented on Drawing R22082-DWG6 included in Appendix A.

Table 2.9: TRL DCP Results

Test Reference	Layer Depth* (Top) (mm bgl)	Layer Depth (Bottom) (mm bgl)	CBR Value (%)
CBR 1	0	245	0.9
	245	725	9.4
CBR2	0	860	14.6
CBR3	0	190	14.9
	190	830	9.4
CBR4	0	760	5.4
CBR 5	0	380	3.8
	380	780	8.7
CBR 6	0	830	4.0
CBR 7	0	790	3.3
CBR 8	0	860	8.4
CBR 9	0	860	9.0
CBR 10	0	860	6.6
CBR 11	0	830	8.1
CBR 12	0	630	7.0
CBR 13	0	780	5.0
CBR 14	0	750	5.5
CBR 15	0	270	5.4
	270	805	11.9
CBR 16	0	180	2.6
	180	780	9.2
CBR 17	0	850	7.6
CBR 18	0	810	6.4
CBR 19	0	200	>100
CBR 20	0	650	6.8
CBR 21	0	760	14.5
CBR 22	0	100	4.8

Test Reference	Layer Depth* (Top) (mm bgl)	Layer Depth (Bottom) (mm bgl)	CBR Value (%)
	100	810	8.8
CBR 23	0	230	2.0
	230	790	7.5
CBR 24	0	200	2.3
	200	760	7.0
CBR 25	0	840	4.6
CBR 26	0	250	2.8
	250	820	9.7
CBR 27	0	250	1.8
	250	530	7.0
	530	800	2.6
CBR 28	0	630	13.4
CBR 29	0	780	8.0
CBR 30	0	790	6.2
CBR 31	0	830	7.1
CBR 32	0	760	10.3
CBR 33	0	270	0.8
	270	780	9.3

3.0 CHEMICAL (CONTAMINATION ANALYSIS) LABORATORY TESTING

3.1 Sampling Strategy

3.1.1 The spacing of the exploratory holes is considered to have provided Ecotricity (Heck Fen) Ltd. with a reasonable level of certainty about the ground conditions. The following samples were taken by Grange GeoConsulting between the between the 20th and 28th October 2022:

- 2No. soil samples from Made Ground for chemical testing;
- 11No. soil samples from Topsoil/Made Ground for chemical testing; and
- 7No. soil samples from the Tidal Flat Deposits for chemical testing.

3.1.2 Samples were taken, stored, and transported in general accordance with the British Standard 10175: 2011 Code of Practice for Investigation of Potentially Contaminated sites, and transported by courier to I2 Analytical Services; a UKAS accredited laboratory.

3.1.3 The following chemical (contamination analysis) testing was undertaken for soils:

Arsenic (As), Beryllium (Be), Boron (B), Cadmium (Cd), Hexavalent and Total Chromium (Cr II and VI), Copper (Cu), Lead (Pb), Mercury (Hg), Nickel (Ni), Selenium (Se), Vanadium (V), Zinc (Zn), Total Cyanide, pH, Organic Matter, Asbestos Screen and Speciated Polycyclic Aromatic Hydrocarbons (PAHs).

4.0 CONTAMINATION RISK ASSESSMENT CRITERIA

4.1.1 A risk-based approach is used for the assessment of contamination. This requires identification of a contaminant source, a receptor, and a realistic pathway via which the contaminant may reach the receptor.

4.1.2 A risk-based approach is used for the assessment of contamination. This requires the identification of a contaminant source, a receptor, and a realistic pathway via which the contaminant may reach the receptor. The key receptors considered in this assessment are human health receptors associated with the proposed solar farm construction works (groundworkers, maintenance workers and site visitors). Based on the scope of works provided by Ecotricity (Heck Fen Solar) Limited, the risk assessment will include a nominal assessment of risks to controlled waters, however will focus on Human Health Risk.

4.1.3 The Risk Assessment is a two-stage process. The first stage is to perform a Generic Quantitative Risk Assessment (GQRA) - the soil test results have been compared against the relevant Generic Assessment Criteria (GAC). In the absence of a complete regulatory set of screening values, derived using the CLEA Framework, Grange GeoConsulting Limited GAC screening values have been utilised and are based on the following:

- Category 4 Screening Levels (C4SLs) published by DEFRA;
- The 2014 Land Quality Management (LQM) / Chartered Institute of Environmental Health (CIEH) Suitable for Use Levels for Human Health Risk Assessment (S4ULs); and
- Guidance values produced by the Environmental Industries Commission (EIC), the Association of Geotechnical and Geoenvironmental Specialists (AGS), and Contaminated Land: Application in Real Environments (CL:AIRE) in December 2009.

4.1.4 The second stage of the Risk Assessment process is Risk Evaluation, which comprises an authoritative review of the findings with other pertinent information in cases where the GAC are exceeded, to consider if exceedance may be acceptable in the context of the site.

Human Health Assessment

4.1.5 This is a Tier 2 assessment, using GAC soil screening values, and involves generic human health risk assessment for the CLEA scenario: Public Open Space (POSresi). It should be noted that this is a conservative risk assessment, given the nature and proposed use of the site (construction of a solar park and associated infrastructure).

4.1.6 The chemical (contamination analysis) testing results have been screened against Grange GeoConsulting Limited GAC screening values (provided in Appendix D) to carry out an assessment of potential risks associated with contamination at the site. Justification for the criteria adopted for this Risk Assessment is given in Appendix D. In the case where all the samples tested for a given substance were below the GAC, no further consideration is necessary for that substance.

4.1.7 The mean average Soil Organic Matter Content (SOM) has been calculated for each of the of the units encountered at the site. GACs for organic contaminants have been based on a conservative SOM derived from the mean organic matter content recorded during laboratory analysis. Table 4.1 presents the average SOM content for each geological unit, and the subsequent adopted soil organic matter content for GAC comparison.

Table 4.1: Soil Organic Matter Content for GAC Comparison

Stratum	Mean average of recorded SOM values (%)	Adopted GAC SOM (%)
Made Ground	N/A	1%
Topsoil/Made Ground	3.2%	2.5%
Tidal Flat Deposits	1.43%	1%

5.0 CONTAMINATION LABORATORY TESTING RESULTS AND RISK ASSESSMENT

5.1 Soil Analysis Results

Inorganic Contaminants (including Metals and Metalloids)

5.1.1 None of the samples taken from any of the excavations undertaken across the Energy Park Site proved concentrations of metal/metalloid or inorganic contaminants (including total cyanide, total phenols, and arsenic) which were significantly elevated, or which exceeded GACs for a Public Open Space(resi) end-use scenario.

Polycyclic Aromatic Hydrocarbons (PAHs)

5.1.2 None of the soil samples subjected to analysis as part of the current investigation proved individual PAH species at concentrations which exceeded relevant GACs appropriate to the proposed end use.

Asbestos

5.1.3 The concentration of asbestos within each of the samples analysed during the site investigation was found to be below qualitative (microscopy) laboratory levels of detection.

5.1.4 Copies of the chemical analysis certificates are presented in Appendix E.

5.2 Risk Evaluation

5.2.1 The purpose of the current risk assessment is to provide an assessment of risk with respect to the proposed development (solar park and associated infrastructure), human health receptors during the development stage, and controlled waters. An assessment of risk with respect to the existing agricultural site use is beyond the current scope.

5.2.2 During the construction/installation phases of the proposed development, the exposure scenario with respect to human health receptors (groundworkers, maintenance workers, site visitors and users of neighbouring sites) is assumed to be short term, and occupational in nature.

5.2.3 None of the samples scheduled for chemical analysis proved individual contaminant species in excess of the adopted Generic Assessment Criteria, appropriate to the proposed works, and the organic matter content of the materials encountered.

5.2.4 Whilst no remedial works are considered necessary based on findings of the investigation, a number of precautionary recommendations have been made which should be considered during the proposed development.

- It is recommended that during any groundworks, appropriately licenced contractors should be appointed, PPE/RPE should be worn as necessary by groundworkers, and a safe system of work established prior to commencement.

- A watching brief should be maintained for contamination throughout the duration of the proposed development. In the event that any unforeseen gross or widespread contamination is encountered on site (i.e., hydrocarbons, ash, asbestos etc). Grange GeoConsulting Limited (or another appropriately qualified contaminated land specialist) should be contacted immediately. A representative will be able to attend

site, examine any potentially contaminated materials, take soil samples as required, and provide specialist advice. This would be recorded and communicated to the Local Planning Authority (LPA) and an appropriate course of action determined.

- Specialist contractors should be employed as necessary to advise on the management of unexpected contamination.

5.2.5 Assuming these precautions are undertaken, the potential for risk to human health and controlled water receptors associated with the identified contaminants during the proposed development works at the energy park is considered **low**.

6.0 GEOTECHINCAL LABORATORY TESTING

6.1 Sampling Strategy

6.1.1 The following soil samples were taken by Grange GeoConsulting Ltd between the 20th and 28th October 2022 for the purpose of geotechnical testing (excluding samples scheduled for pH testing and acid neutralisation as part of the chemical analysis programme).

- 1 No. soil samples from Made Ground;
- 15No. soil samples from Topsoil/Made Ground;
- 112No. soil samples from the Cohesive Component of the Tidal Flat Deposits;
- 36No. soil samples from the Granular Component of the Tidal Flat Deposits; and
- 18No. soil samples from the Glacial Till Deposits.

6.1.2 Samples were taken, stored, and transported in general accordance with the British Standard 10175: 2011 Code of Practice for Investigation of Potentially Contaminated sites, and transported by courier to I2 Analytical Services; a UKAS accredited laboratory.

6.2 Laboratory Analyses Undertaken

6.2.1 Laboratory analysis has been undertaken to assess the density of the underlying ground, and to inform the design of the proposed works. The following analyses were undertaken:

- Natural moisture content testing;
- pH testing (as part of chemical suite);
- 40No. Atterberg limit/Plasticity Index Tests;
- 10No. Triaxial compressive strength tests on soils;
- 23No. Particle Size Distribution tests;
- 28No. Linear Shrinkage tests on soils;
- 10No. Bulk Density Tests on Soil Samples;
- 9No. One Dimensional Consolidation Tests;
- 41No. Electrical Resistivity Tests;
- 21No. Chemical tests for aggressive ground indicators (including water soluble sulphate); and
- Acid Neutralisation testing.

7.0 GEOTECHNICAL TESTING RESULTS

The results of the geotechnical testing programme are summarised in the following section of the report, enabling Ecotricity (Heck Fen Solar) Limited. to undertake preliminary geotechnical design for the proposed solar park and associated infrastructure.

7.1 pH

7.1.1 Table 7.1 shows the ranges of pH which were recorded in samples taken from the various units identified on site. Copies of the analysis certificates are included in Appendices E and F.

Table 7.1: pH test results

Stratum	Min. pH Value Recorded	Max. pH Value Recorded
Made Ground	7.9	7.9
Made Ground/Topsoil	6.4	8.6
Tidal Flat Deposits (Cohesive Component)	5.2	8.5
Tidal Flat Deposits (Granular Component)	6.9	8.4
Glacial Till	8.2	8.7

7.2 Natural Moisture Content

7.2.1 The natural moisture content of the geotechnical samples taken are presented by geological unit in Table 7.2. The analysis certificates are presented in Appendix F.

Table 7.2: Moisture content test results

Stratum	No. of Tests	Min. Recorded Natural Moisture Content (%)	Max. Recorded Natural Moisture Content (%)
Made Ground/Topsoil	4	9.5	22
Tidal Flat Deposits (Cohesive Component)	27	16	89 (106%, 173% and 179% recorded in Peat deposits)
Tidal Flat Deposits (Granular Component)	6	22	42
Glacial Till	6	14	19

7.3 Particle Size Distribution

7.3.1 Particle Size Distribution (PSD) tests were undertaken on samples obtained during the investigation, representative of the various geological units encountered. The results of these tests are summarised in Table 7.3 and presented in full in Appendix F.

Table 7.3: Particle Size Distribution Tests

Borehole Location	Stratum	Sample Depth and Location (m bgl)	Sample Proportions (dry mass %)
CP1	Tidal Flat Deposits (Granular Component)	4.0m to 5.0m bgl.	24% Gravel 73% Sand 3% Fines (<0.063mm)
CP1	Tidal Flat Deposits (Granular Component)	7.0m to 8.0m bgl.	38% Gravel 59% Sand 3% Fines (<0.063mm)
CP2	Tidal Flat Deposits (Granular Component)	4.0m to 5.0m bgl.	62% Gravel 34% Sand 4% Fines (<0.063mm)
CP2	Tidal Flat Deposits (Granular Component)	5.0m to 6.0m bgl.	59% Gravel 37% Sand 4% Fines (<0.063mm)
CP2	Tidal Flat Deposits (Granular Component)	7.5m to 8.0m bgl.	92% Gravel 7% Sand 1% Fines (<0.063mm)
CP3	Tidal Flat Deposits (Granular Component)	3.0m to 4.0m bgl.	54% Gravel 39% Sand 7% Fines (<0.063mm)
CP3	Tidal Flat Deposits (Granular Component)	5.0m to 6.0m bgl.	7% Gravel 88% Sand 5% Fines (<0.063mm)
CP3	Tidal Flat Deposits (Granular Component)	9.0m to 9.5m bgl	73% Gravel 26% Sand 1% Fines (<0.063mm)
CP4	Tidal Flat Deposits (Granular Component)	2.8m bgl.	32% Gravel 48% Sand 13% Silt 7% Clay
CP4	Tidal Flat Deposits (Granular Component)	4.0m to 5.0m bgl.	53% Gravel 45% Sand 2% Fines (<0.063mm)

Borehole Location	Stratum	Sample Depth and Location (m bgl)	Sample Proportions (dry mass %)
CP4	Tidal Flat Deposits (Granular Component)	6.5m to 7.5m bgl.	58% Gravel 38% Sand 4% Fines (<0.063mm)
CP5	Tidal Flat Deposits (Granular Component)	3.5m to 4.0m bgl.	54% Gravel 41% Sand 5% Fines (<0.063mm)
CP5	Tidal Flat Deposits (Granular Component)	5.5m to 6.0m bgl.	7% Gravel 89% Sand 4% Fines (<0.063mm)
WS5	Tidal Flat Deposits (Granular Component)	4.0m to 4.7m bgl.	27% Gravel 66% Sand 7% Fines (<0.063mm)
WS9	Glacial Till	3.3m to 3.7m bgl	34% Gravel 54% Sand 12% Fines (<0.063mm)
WS11	Glacial Till	1.5m to 2.0m bgl	8% Gravel 23% Sand 68% Fines (<0.063mm)
WS12	Glacial Till	3.2m to 4.0m bgl	8% Gravel 16% Sand 75% Fines (<0.063mm)
WS18	Tidal Flat Deposits (Granular Component)	2.5m to 2.7m bgl.	24% Gravel 68% Sand 8% Fines (<0.063mm)
WS20	Tidal Flat Deposits (Cohesive Component)	1.5m to 2.0m bgl	1% Gravel 19% Sand 79% Fines (<0.063mm)
WS23	Tidal Flat Deposits (Cohesive Component)	2.0m to 3.0m bgl	1% Gravel 2% Sand 98% Fines (<0.063mm)
WS31	Tidal Flat Deposits (Granular Component)	2.5m to 3.0m bgl.	12% Gravel 75% Sand 13% Fines (<0.063mm)
WS32	Tidal Flat Deposits (Granular Component)	4.0m to 5.0m bgl.	36% Gravel 54% Sand 11% Fines (<0.063mm)

Borehole Location	Stratum	Sample Depth and Location (m bgl)	Sample Proportions (dry mass %)
WS39	Tidal Flat Deposits (Cohesive Component)	3.0m to 4.0m bgl	0% Gravel 28% Sand 72% Fines (<0.063mm)

7.4 Atterberg Testing/Plasticity Index

7.4.1 The volume change potential as described in NHBC Standards 2021 (Chapter 4.2) with respect to building near trees have been determined from the results of plasticity index tests on samples of cohesive soils (and cohesive components of predominantly granular units) taken from the various geological units at the site. These are summarised in Table 7.4.

Table 7.4: Volume Change Potential

Stratum	No. Tests	Modified Plasticity Index (%)	Plasticity Designation	Volume Change Potential
Made Ground/Topsoil	4	9.9% to 25%	Low to Medium	Low to Medium
Tidal Flat Deposits (Cohesive Component)	27	12% to 66% (55%, 93% and 106% in Peat)	Low to Very High (Very High-Peat)	Low to High (High for Peat)
Tidal Flat Deposits (Granular Component)	6	12.7% to 32%	Medium to High	Low to Medium
Glacial Till	6	12.7% to 19.2%	Low	Low

7.5 Triaxial Compressive Strength Testing (inc. Bulk Density)

7.5.1 Triaxial Compressive Strength tests were undertaken on selected (successful) undisturbed samples (U100) collected from cohesive deposits (and cohesive components of predominantly granular units) encountered during the investigation. The results are presented in Table 7.5 and included in in full in Appendix F. Bulk Density, obtained as part of the Triaxial Testing programme are also included in Table 7.5.

Table 7.5: Triaxial Compressive Strength Test Results

Borehole Location	Stratum	Sample Depth	Results Summary
CP1	Made Ground/ Topsoil	1.0m to 1.45m bgl	Bulk Density: 1.82 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 122 kPa Mode of Failure: Compound
CP1	Tidal Flat Deposits (Cohesive Component) [Peat]	2.0m to 2.45m bgl	Bulk Density: 1.22 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 16 kPa Mode of Failure: Compound

Borehole Location	Stratum	Sample Depth	Results Summary
CP2	Tidal Flat Deposits (Cohesive Component)	1.0m to 1.45m bgl	Bulk Density: 1.73 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 71 kPa Mode of Failure: Brittle
CP2	Tidal Flat Deposits (Cohesive Component)	2.0m to 2.45m bgl	Bulk Density: 1.82 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 24 kPa Mode of Failure: Compound
CP3	Tidal Flat Deposits (Cohesive Component)	1.0m to 1.45m bgl	Bulk Density: 1.75 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 56 kPa Mode of Failure: Compound
CP3	Tidal Flat Deposits (Cohesive Component)	2.0m to 2.45m bgl	Bulk Density: 1.82 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 25 kPa Mode of Failure: Compound
CP4	Tidal Flat Deposits (Cohesive Component)	1.0m to 1.45m bgl	Bulk Density: 1.83 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 117 kPa Mode of Failure: Compound
CP4	Tidal Flat Deposits (Cohesive Component) [Peat]	2.0m to 2.45m bgl	Bulk Density: 1.56 Mg/m^3 Rate of Strain: 1.96%/min Undrained Shear Strength: 19 kPa Mode of Failure: Compound
CP5	Tidal Flat Deposits (Granular Component)	1.0m to 1.45m bgl	Bulk Density: 1.83 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 147 kPa Mode of Failure: Compound
CP5	Tidal Flat Deposits (Cohesive Component) [Peat]	2.0m to 2.45m bgl	Bulk Density: 1.28 Mg/m^3 Rate of Strain: 2.00%/min Undrained Shear Strength: 31 kPa Mode of Failure: Compound

7.6 Linear Shrinkage Tests

7.6.1 Linear Shrinkage Tests were undertaken on selected samples collected from cohesive deposits (and cohesive components of predominantly granular units) encountered during the investigation. The results are presented in Table 7.6 and included in in full in Appendix F.

Table 7.6: Linear Shrinkage Results

Stratum Sampled	No. Tests	Percentage of Sample Passing 425µm	Minimum Recorded Linear Shrinkage (%)	Maximum Recorded Linear Shrinkage (%)
Made Ground/Topsoil	2	100%	6%	12%
Tidal Flat Deposits (Cohesive Component)	18	89% to 100%	3%	19%

Stratum Sampled	No. Tests	Percentage of Sample Passing 425µm	Minimum Recorded Linear Shrinkage (%)	Maximum Recorded Linear Shrinkage (%)
Tidal Flat Deposits (Granular Component)	3	100%	3%	14%
Glacial Till	5	72% to 100%	9%	14%

7.7 One-Dimensional Consolidation Test

7.7.1 One-Dimensional Consolidation Tests were undertaken on samples collected from the various units encountered during the site investigation. The results are presented in Table 7.7 and included in Appendix F.

Table 7.7: One-Dimensional Consolidation Test Results

Borehole Location	Stratum	Sample Depth	Results Summary
CP1	Tidal Flat Deposits (Cohesive Component)	1.0m to 1.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.57 Mg/m^3 Final bulk density: 1.98 Mg/m^3 Initial saturation: 79% Final Saturation: 124% Initial void ratio: 1.375 Final void ratio: 0.897
CP1	Tidal Flat Deposits (Cohesive Component) [Peat]	2.0m to 2.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.50 Mg/m^3 Final bulk density: 1.85 Mg/m^3 Initial saturation: 92% Final Saturation: 120% Initial void ratio: 1.998 Final void ratio: 1.234
CP2	Tidal Flat Deposits (Cohesive Component)	1.0m to 1.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.85 Mg/m^3 Final bulk density: 2.06 Mg/m^3 Initial saturation: 89% Final Saturation: 113% Initial void ratio: 0.835 Final void ratio: 0.631

Borehole Location	Stratum	Sample Depth	Results Summary
CP2	Tidal Flat Deposits (Cohesive Component)	2.0m to 2.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.83 Mg/m^3 Final bulk density: 2.04 Mg/m^3 Initial saturation: 98% Final Saturation: 119% Initial void ratio: 0.968 Final void ratio: 0.707
CP3	Tidal Flat Deposits (Cohesive Component)	1.0m to 1.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.78 Mg/m^3 Final bulk density: 2.00 Mg/m^3 Initial saturation: 83% Final Saturation: 103% Initial void ratio: 0.924 Final void ratio: 0.680
CP3	Tidal Flat Deposits (Cohesive Component)	2.0m to 2.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.80 Mg/m^3 Final bulk density: 1.97 Mg/m^3 Initial saturation: 107% Final Saturation: 117% Initial void ratio: 1.163 Final void ratio: 0.835
CP4	Tidal Flat Deposits (Cohesive Component)	1.0m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.89 Mg/m^3 Final bulk density: 2.18 Mg/m^3 Initial saturation: 87% Final Saturation: 120% Initial void ratio: 0.746 Final void ratio: 0.483
CP5	Tidal Flat Deposits (Granular Component)	1.0m to 1.45m bgl	Particle Density: 2.65 Mg/m^3 Initial bulk density: 1.86 Mg/m^3 Final bulk density: 2.08 Mg/m^3 Initial saturation: 78% Final Saturation: 107% Initial void ratio: 0.735 Final void ratio: 0.560

7.8 Aggressive Ground

7.8.1 The results of the chemical analysis undertaken with respect to aggressive ground indicators are presented in Table 7.8.

Table 7.8: Aggressive Ground Testing.

Stratum	No. of Tests	Total Sulphate as SO4 (%)		Water Soluble Sulphate as SO4 (g/l)		Total Sulphur (%)	
		Min	Max	Min	Max	Min	Max
Made Ground/Topsoil	3	0.05	1.04	0.031	3.7	0.037	0.49
Tidal Flat Deposits (Cohesive Component)	9	0.043	1.42	0.04	5.8	0.054	3.81
Tidal Flat Deposits (Granular Component)	6	0.044	0.244	0.11	1	0.032	0.082
Glacial Till	3	0.061	0.101	0.26	0.4	0.06	0.435

7.8.2 In accordance with BRE (Special Digest 1), the Design Sulphate (DS) classification and the Aggressive Chemical Environment for Concrete (ACEC) classification have been calculated for each of the units tested. Based on the results obtained, strata from the Made Ground/Topsoil and Tidal Flat Deposits (Cohesive Component) would be classified DS4 AC3s. The granular component of the Tidal Flat Deposits, and the Glacial Till would be classified DS2 AC1s.

7.8.3 These classifications assume static, and natural conditions.

7.9 Acid Neutralisation

7.9.1 Table 7.9 shows the results of Acid Neutralisation Capacity testing undertaken on samples taken from the various units identified on site. Copies of the analysis certificates are included in Appendix E.

Table 7.9: Acid Neutralisation Capacity Testing

Stratum	Min. Acid Neutralisation Capacity Recorded (mmol/kg)	Max. Acid Neutralisation Capacity Recorded (mmol/kg)
Made Ground	2	11
Made Ground/Topsoil	-5.5	4.8
Tidal Flat Deposits (Cohesive Component)	-7.2 (-73 in organic Clays)	12
Tidal Flat Deposits (Granular Component)	1.4	1.4
Glacial Till	Not tested	Not Tested

7.10 Electrical Resistivity Testing

7.10.1 Electrical Resistivity Testing was undertaken on selected samples obtained during the investigation. The results are presented in Table 7.10 and the analysis certificates included in Appendix E.

Table 7.10: Electrical Resistivity Testing Results

Borehole	Sample Depth	Stratum Sampled	Analysis Result
WS24	0.3m to 0.9m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.355 Mg/m^3 Moisture Content Before Test: 26.3% Moisture Content After Test: 47.8% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 10Ωm Resistivity (Saturated- corrected to 20°C); 9.3Ωm
WS25	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.363 Mg/m^3 Moisture Content Before Test: 24.2% Moisture Content After Test: 46.8% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 10Ωm Resistivity (Saturated- corrected to 20°C); 9.8Ωm
WS26	0.4m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.456 Mg/m^3 Moisture Content Before Test: 27.2% Moisture Content After Test: 37.8% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.3Ωm Resistivity (Saturated- corrected to 20°C); 9.3Ωm
WS35	0.3m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.256 Mg/m^3 Moisture Content Before Test: 28.6% Moisture Content After Test: 44.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 8.2Ωm Resistivity (Saturated- corrected to 20°C); 7.6Ωm
WS36	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.312 Mg/m^3 Moisture Content Before Test: 30.5% Moisture Content After Test: 53.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 10Ωm Resistivity (Saturated- corrected to 20°C); 9.3Ωm
WS37	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.369 Mg/m^3 Moisture Content Before Test: 22.3% Moisture Content After Test: 38.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 8.0Ωm Resistivity (Saturated- corrected to 20°C); 6.9Ωm
WS37	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.369 Mg/m^3 Moisture Content Before Test: 22.3% Moisture Content After Test: 38.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 8.0Ωm Resistivity (Saturated- corrected to 20°C); 6.9Ωm
WS34	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.569 Mg/m^3 Moisture Content Before Test: 21.7% Moisture Content After Test: 33.5% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 11Ωm

Borehole	Sample Depth	Stratum Sampled	Analysis Result
WS27	0.15m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.330 Mg/m^3 Moisture Content Before Test: 29.8% Moisture Content After Test: 54.2% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 6Ωm Resistivity (Saturated- corrected to 20°C); 5Ωm
WS19	0.30m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.318 Mg/m^3 Moisture Content Before Test: 21.6% Moisture Content After Test: 49.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 10Ωm Resistivity (Saturated- corrected to 20°C); 9.1Ωm
WS16	0.30m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.474 Mg/m^3 Moisture Content Before Test: 27.8% Moisture Content After Test: 55.2% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 12Ωm Resistivity (Saturated- corrected to 20°C); 12Ωm
WS15	0.10m to 0.85m bgl	Made Ground/ Topsoil	Bulk Density: 1.383 Mg/m^3 Moisture Content Before Test: 19.9% Moisture Content After Test: 39.8% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 7.6Ωm Resistivity (Saturated- corrected to 20°C); 7.6Ωm
WS14	0.40m to 0.7m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.231 Mg/m^3 Moisture Content Before Test: 18.8% Moisture Content After Test: 52.4% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 5.9Ωm Resistivity (Saturated- corrected to 20°C); 5.2Ωm
WS29	0.25m to 0.9m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.371 Mg/m^3 Moisture Content Before Test: 25.4% Moisture Content After Test: 47.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 7.2Ωm Resistivity (Saturated- corrected to 20°C); 6.6Ωm
CP2	0.5m to 1.0m bgl	Made Ground/ Topsoil	Bulk Density: 1.538 Mg/m^3 Moisture Content Before Test: 21.6% Moisture Content After Test: 40.2% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 7.4Ωm Resistivity (Saturated- corrected to 20°C); 6.4Ωm
CP5	0.5m to 1.0m bgl	Made Ground/ Topsoil	Bulk Density: 1.819 Mg/m^3 Moisture Content Before Test: 34.2% Moisture Content After Test: 36.1% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 7.9Ωm Resistivity (Saturated- corrected to 20°C); 7.9Ωm
CP5	1.5m to 2.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.628 Mg/m^3 Moisture Content Before Test: 41.5% Moisture Content After Test: 46.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 4.3Ωm Resistivity (Saturated- corrected to 20°C); 4.3Ωm

Borehole	Sample Depth	Stratum Sampled	Analysis Result
CP4	0.5m to 1.0m bgl	Made Ground/ Topsoil	Bulk Density: 1.783 Mg/m^3 Moisture Content Before Test: 39.4% Moisture Content After Test: 39.8% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 2.8Ωm Resistivity (Saturated- corrected to 20°C); 2.8Ωm
CP4	1.5m to 2.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.644 Mg/m^3 Moisture Content Before Test: 54.0% Moisture Content After Test: 53.5% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 5.1Ωm Resistivity (Saturated- corrected to 20°C); 5.0Ωm
WS40	0.15m to 0.8m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.402 Mg/m^3 Moisture Content Before Test: 39.1% Moisture Content After Test: 46.7% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.1Ωm Resistivity (Saturated- corrected to 20°C); 8.2Ωm
WS32	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.441 Mg/m^3 Moisture Content Before Test: 30.3% Moisture Content After Test: 43.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 9.8Ωm
WS31	0.23m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.389 Mg/m^3 Moisture Content Before Test: 27.0% Moisture Content After Test: 48.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 7.7Ωm Resistivity (Saturated- corrected to 20°C); 7.0Ωm
WS12	0.7m to 1.9m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.788 Mg/m^3 Moisture Content Before Test: 45.8% Moisture Content After Test: 41.6% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 5.1Ωm Resistivity (Saturated- corrected to 20°C); 5.1Ωm
WS11	0.3m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.538 Mg/m^3 Moisture Content Before Test: 38.9% Moisture Content After Test: 42.7% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 11Ωm
WS9	0.5m to 1.5m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.467 Mg/m^3 Moisture Content Before Test: 31.7% Moisture Content After Test: 43.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 9.5Ωm
WS17	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.430 Mg/m^3 Moisture Content Before Test: 27.7% Moisture Content After Test: 48.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 5.5Ωm Resistivity (Saturated- corrected to 20°C); 4.8Ωm

Borehole	Sample Depth	Stratum Sampled	Analysis Result
WS8	0.15m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.521 Mg/m^3 Moisture Content Before Test: 34.6% Moisture Content After Test: 42.6% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.6Ωm Resistivity (Saturated- corrected to 20°C); 9.1Ωm
WS3	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.810 Mg/m^3 Moisture Content Before Test: 27.6% Moisture Content After Test: 28.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 28Ωm Resistivity (Saturated- corrected to 20°C); 26Ωm
WS18	0.25m to 0.9m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.396 Mg/m^3 Moisture Content Before Test: 42.6% Moisture Content After Test: 55.4% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 8.4Ωm Resistivity (Saturated- corrected to 20°C); 8.2Ωm
WS28	0.6m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.805 Mg/m^3 Moisture Content Before Test: 33.2% Moisture Content After Test: 34.7% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 17Ωm Resistivity (Saturated- corrected to 20°C); 18Ωm
WS33	0.15m to 1.0m bgl	Made Ground	Bulk Density: 1.376 Mg/m^3 Moisture Content Before Test: 22.4% Moisture Content After Test: 41.3% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 10Ωm
WS38	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.470 Mg/m^3 Moisture Content Before Test: 26.4% Moisture Content After Test: 40.8% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 8.9Ωm Resistivity (Saturated- corrected to 20°C); 8.2Ωm
WS13	0.5m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.362 Mg/m^3 Moisture Content Before Test: 38.7% Moisture Content After Test: 63.5% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 6.7Ωm Resistivity (Saturated- corrected to 20°C); 6.3Ωm
WS1	0.15m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.403 Mg/m^3 Moisture Content Before Test: 29.5% Moisture Content After Test: 40.5% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 9.5Ωm
WS2	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.212 Mg/m^3 Moisture Content Before Test: 20.7% Moisture Content After Test: 45.9% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.1Ωm Resistivity (Saturated- corrected to 20°C); 9.0Ωm

Borehole	Sample Depth	Stratum Sampled	Analysis Result
WS6	0.3m to 0.95m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.635 Mg/m^3 Moisture Content Before Test: 34.6% Moisture Content After Test: 38.5% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.1Ωm Resistivity (Saturated- corrected to 20°C); 8.5Ωm
WS5	0.8m to 2.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.429 Mg/m^3 Moisture Content Before Test: 34.2% Moisture Content After Test: 46.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 10Ωm
WS4	0.15m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.189 Mg/m^3 Moisture Content Before Test: 29.5% Moisture Content After Test: 45.3% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.6Ωm Resistivity (Saturated- corrected to 20°C); 8.8Ωm
WS7	0.4m to 0.8m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.507 Mg/m^3 Moisture Content Before Test: 30.2% Moisture Content After Test: 39.2% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 7.5Ωm Resistivity (Saturated- corrected to 20°C); 7.1Ωm
WS22	0.2m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.367 Mg/m^3 Moisture Content Before Test: 20.1% Moisture Content After Test: 45.2% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 11Ωm
WS20	0.8m to 1.5m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.407 Mg/m^3 Moisture Content Before Test: 25.3% Moisture Content After Test: 44.0% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 9.4Ωm Resistivity (Saturated- corrected to 20°C); 5.8Ωm
WS21	0.45m to 1.0m bgl	Tidal Flat Deposits- Cohesive Component (TF)	Bulk Density: 1.335 Mg/m^3 Moisture Content Before Test: 20.9% Moisture Content After Test: 48.2% Distance Between Electrodes: 197mm Resistivity (Initial- corrected to 20°C): 11Ωm Resistivity (Saturated- corrected to 20°C); 10Ωm

8.0 ENGINEERING PROPERTIES OF MATERIALS ENCOUNTERED

Based on results of *in-situ* and laboratory testing obtained during the Site Investigation, anticipated engineering properties of the strata encountered have been derived and are provided below. A series of Figures supporting the calculations/adoption of parameters presented in this section are included as Appendix G.

8.1 Parameter Derivation Rationale

8.1.1 Table 8.1 provides a summary of the rationale behind the derivation of geotechnical/engineering parameters.

Table 8.1: Parameter Derivation Rationale

Soil Properties	Method of derivation
Unit Weight	Obtained from site specific laboratory test results where available or from commonly accepted values for the material from literature.
Atterberg Limits	Obtained from site specific Atterberg limit test results where available or from commonly accepted values for the material from literature.
Linear Shrinkage	The direct results from the lab testing are presented. No interpretation or correlation has been undertaken.
SPT N	Obtained from site specific SPT test results where available or from commonly accepted values for the material from literature.
Undrained Shear Strength	Obtained from site specific triaxial tests. Also from correlation with SPT N_{60} values in accordance with Stroud (1974) presented in CIRIA 143 and Tomlinson 2001 Page 11. In the absence of Energy Ratio data for the SPT tests, 60% is assumed. Qualitative consistency descriptions (Tomlinson, 2001, p9) have been assessed where there is insufficient testing data available.
Effective Angle of Shearing Resistance	Obtained from correlations with site specific data as follows: •Granular material – correlation with SPT N_{60} values, (Peck,1974) where available or from commonly accepted values for the material from literature. In the absence of ER data for the SPT tests, 60% is assumed. •Cohesive material – correlation with site specific plasticity index where available or from commonly accepted values for the material from literature.
Effective Cohesion	Conservatively assumed as 0 kPa
Young's Modulus (E_u and E')	• Granular material – E' is derived from SPT N data according to the equation SPT N60 = E' presented in CIRIA 143 •Cohesive material – Eu = 300*cu from Tomlinson, 2001 . E' = Eu / 0.8 from CIRIA 143

Coefficient of Volume Compressibility	Obtained using oedometer test results and correlation with SPT, Tomlinson, 2001, Fig 1.5 = mv = 1/f2*N (m2/MN) Consideration given to Table 5.1 (Carter and Bentley, Soil Properties and their Correlations)
Coefficient of Consolidation	Obtained using oedometer test results.

8.2 Soil Geotechnical Parameters

8.2.1 Unit Weight

Table 8.2: Unit Weight Parameters

Stratum	Design Parameter and Justification
Glacial Till (GT)	No site-specific testing data is available. Using published values and engineering judgement a generally accepted unit weight has been proposed. A unit weight of 19 kN/m^3 is proposed.
Made Ground (MG)	No site-specific testing data is available. On the premise that the Made Ground encountered at the site is re- worked Tidal Flats Deposits the Unit Weight for the Tidal Flat Deposits is considered to be applicable. A unit weight of 17 kN/m^3 is proposed.
Tidal Flat Deposits- Cohesive Component (TF)	8No. test results ranging from 12 to 18kN/m^3 with a mean of 17kN/m^3. A unit weight of 17 kN/m^3 is proposed.
Tidal Flat Deposits- Granular Component (TFg)	2No. test results ranging of 13 and 18 kN/m^3 providing a mean of 15kN/m^3. A unit weight of 18 kN/m^3 is proposed.

8.2.2 Atterberg Limits

Table 8.3: Atterberg Limits

Stratum	Design Parameter and Justification
Glacial Till (GT)	6No. test results providing values for Liquid Limit (LL) of between 28% and 35% (a mean of 33%), Plastic Limit (PL) of between 13% and 17% (a mean of 16%) and Plasticity Index (PI) of between 14% and 19% (a mean of 17%). A PI of 17% is proposed.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	3No. test results providing values for Liquid Limit (LL) of between 31% and 48% (a mean of 41%), Plastic Limit (PL) of between 21% and 26% (a mean of 23%) and Plasticity Index (PI) of between 10% and 23% (a mean of 18%). A PI of 18% is proposed.
Tidal Flat Deposits-Cohesive Component (TF) (Inclusive of Peat Deposits)	25No. test results providing values for Liquid Limit (LL) of between 34% and 206% (a mean of 73%), Plastic Limit (PL) of between 19% and 121% (a mean of 36%) and Plasticity Index (PI) of between 8% and 94% (a mean of 37%). The following results, associated with organic deposits are noted: • Sample from 1.1m in WS 23: LL 110%, PL 44%, PI 66% (Associated moisture content of 89%) • Sample from 2m in CP1: LL 206%, PL 112%, PI 94% (Associated moisture content of 179%) • Sample from 2m in CP4: LL 176%, PL 121%, PI 55% (Associated moisture content of 173%) • Sample from 2m in CP5: LL 200%, PL 94%, PI 106% (Associated moisture content of 106%) A PI of 37% is proposed.

8.2.3 Linear Shrinkage

Table 8.4: Linear Shrinkage

Stratum	Design Parameter and Justification
Glacial Till (GT)	4No. test results ranging from 9% to 14% with a mean of 11.5%. A linear shrinkage of 12% is proposed.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	2No. test results of 6 and 12% with a mean of 9%. A linear shrinkage of 9% is proposed.
Tidal Flat Deposits-Cohesive Component (TF)	19No. test results ranging from 3% to 19% with a mean of 11.6%. The median of the results is 13%. A linear shrinkage of 13% is proposed.

8.2.4 SPT 'N' Value

Table 8.5: SPT 'N' Value

Stratum	Design Parameter and Justification
Glacial Till (GT)	32No. test results with N values ranging from 4 to >50 (mean of 27, mode of 50, median of 18). Eight of the eleven engineering descriptions for the Glacial Till Materials which recorded N>50 have consistency descriptions ranging between very soft and stiff. The remaining three tests were undertaken in ground described as 'hard'. It is considered appropriate to remove 8 of the N>50 results from the dataset when analysing the range of SPT N values as these are likely to have been undertaken on coarse materials (cobble or boulder). This results in a reduction of the mean to 19, the mode to 12 and the median to 13. An N value (uncorrected) of 19 is proposed. This is considered conservative for foundation analyses.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	1No. test result, providing an N value of 5. The engineering description for the material within which SPT N result was obtained was 'Very stiff brown/dark brown slightly silty CLAY'. Strength descriptions for the made ground encountered throughout all the exploratory holes varies between soft and very stiff. An N value (uncorrected) of 5 is proposed.
Tidal Flat Deposits-Cohesive Component (TF)	92No. test results with N values ranging from 0 to 41 (mean of 5, mode of 3, median of 4). Engineering descriptions range from very soft to very stiff (>150kPa). An N value (uncorrected) of 4 is proposed.
Tidal Flat Deposits-Granular Component (TFg)	77No. test results with N values ranging from 1 to 50 (mean of 31, mode of 50, median of 35). Twenty nine N results from this dataset (N>50) have been discounted due to potential influence of coarse materials (cobble/boulder) giving a N range of between 1 and 46, a mean of 20, mode of 8 and a median of 17. An N value (uncorrected) of 20 is proposed.

8.2.5 Undrained Shear Strength

Table 8.6: Undrained Shear Strength (C_U)

Stratum	Design Parameter and Justification
Glacial Till (GT)	No triaxial test results available on this material. 32No. SPT test results were obtained with representative results ranging from 4 to >50 (mean of 19). As discussed in Table 8.5, a subset of the results (N>50) has been removed from the dataset. Correlation of the SPT proposed N value of 19 (N_{60} of 19) results returns a value of 105kPa. A PI value of 17% and a subsequent f1 correlation value of 5.5 were used in the calculation of undrained shear strength from SPT N values. The engineering descriptions of the material available on the exploratory hole logs range the consistency from Very soft: Cu <20kPa through to very stiff/

Stratum	Design Parameter and Justification
	hard: >150kPa. (9 units were described as predominantly granular). An undrained shear strength (Cu) of 105kPa is proposed.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	No triaxial test results available on this material. 1No. SPT result of 5. Correlation of the SPT N value of 5 (N_{60}=5) returns a value of 28kPa. A PI value of 18% and a subsequent f1 correlation value of 5.5 were used in the calculation of undrained shear strength from the SPT N value. Of the 55 descriptions of the material on the exploratory hole logs: • 3 of 55 descriptions list Soft: 20-40kPa • 3 of 55 descriptions list Firm: 40-75kPa • 6 of 55 descriptions list Firm to stiff: 75-100kPa • 31 of 55 descriptions Stiff: 75-150kPa • 6 of 55 descriptions list Very stiff/ hard: >150kPa (4 of 55 descriptions described granular material, 2 of 55 descriptions list no consistency descriptor for cohesive material). An undrained shear strength (Cu) of 25kPa is proposed.
Tidal Flat Deposits-Cohesive Component (TF)	8 No. triaxial test results available with a range of 16-122kPa and a mean of 56kPa. 92No. SPT results proved N values of between 0 and 41 (mean of 5). Correlation of the SPT N value of 4 (N_{60}=4) results returns a value of 18kPa. A PI value of 37% and a subsequent f1 correlation value of 4.5 were used in the calculation of undrained shear strength from SPT N values. Engineering descriptions range from very soft (<20kPa) to very stiff (>150kPa). An undrained shear strength (Cu) of 20 kPa is proposed.
Tidal Flat Deposits-Granular Component (TFg)	No Correlation or assessment of SPT results undertaken as the material is granular and therefore the parameter is not applicable. No undrained shear strength (Cu) is proposed.

8.2.6 Effective Angle of Shearing Resistance

Table 8.7: Effective Angle of Shearing Resistance

Stratum	Design Parameter and Justification
Glacial Till (GT)	No shear box test results are available. 6No. PI results with range of 14-19% and a mean of 17% and a proposed PI value of 17%. Effective stress parameters understood not to be relevant for the proposed construction. No effective angle of friction is proposed.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	No shear box test results are available. 3No. PI results with range of 10-23% and a mean of 18% and a proposed PI value of 18%. Effective stress parameters understood not to be relevant for the proposed construction. No effective angle of friction is proposed.
Tidal Flat Deposits-	No shear box test results are available. 25 no. PI results with range of 8-

Stratum	Design Parameter and Justification
Cohesive Component (TF)	94% and a mean of 37% and a proposed PI value of 37%. Effective stress parameters understood not to be relevant for the proposed construction. No effective angle of friction is proposed.
Tidal Flat Deposits-Granular (TFg)	No shear box test results are available. 77No. SPT test results ranging from 1-50. 29No. due to rejection of results where N>50 as discussed in Table 8.5, proving N values of between 1 and 46, with a mean of 20. The proposed N value for this material is 20. Using Peck, et al. 1974 for a groundwater level of 0 mbgl with a unit weight of 18 kN/m3 suggests a range of 27-48° and a mean of 40° based on applicable SPT results. If the N results of >50 are discounted due to a cobble or boulder, the range is 27-45 with a mean of 36. An effective angle of friction of 35° is proposed.

8.2.7 Young's Modulus (Eu and E')

Table 8.8: Young's Modulus

Stratum	Design Parameter and Justification
Glacial Till (GT)	No direct site-specific undrained shear strength test results available, nor are any site-specific test results allowing correlation. Using adopted undrained shear strength (Cu) of 105kPa and Eu = 300*Cu from Tomlinson, 2001. Gives an Eu of 32MPa. Using the equation E' = Eu / 0.8 from CIRIA 143. Gives an E' of 40MPa. An undrained Young's modulus (Eu) of 32MPa is proposed.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	No direct site-specific undrained shear strength test results available, nor are any site-specific test results allowing correlation. Using adopted undrained shear strength (Cu) of 25kPa and Eu = 300*Cu from Tomlinson, 2001. Gives an Eu of 8MPa. Using the equation E' = Eu / 0.8 from CIRIA 143. Gives an E' of 10MPa. An undrained Young's modulus (Eu) of 10MPa is proposed.
Tidal Flat Deposits-Cohesive Component (TF)	No direct site-specific undrained shear strength test results available, nor are any site-specific test results allowing correlation. Using adopted undrained shear strength (Cu) of 20kPa and Eu = 300*Cu from Tomlinson, 2001. Gives an Eu of 6MPa. Using the equation E' = Eu / 0.8 from CIRIA 143. Gives an E' of 8MPa. An undrained Young's modulus (Eu) of 8MPa is proposed.

Stratum	Design Parameter and Justification
Tidal Flat Deposits-Granular Component (TFg)	No direct site-specific undrained shear strength test results available. Using SPT N data according to the equation SPT N60 = E' presented in CIRIA 143 the proposed N value of 20, gives an E' of 20MPa A drained Young's modulus (E') of 20MPa is proposed.

8.2.8 Coefficient of Volume Compressibility (MV)

Table 8.9: Coefficient of Volume Compressibility

Stratum	Design Parameter and Justification
Glacial Till (GT)	No oedometer tests were carried out. Using the SPT correlation: 1 / (f2 x N) = 1 / (0.6 x 19) = 0.09 m^2/MN This equates to 'Low Compressibility' and is typical for glacial till using Tomlinson, 2002. p77. A coefficient of volume compressibility of 0.09 m^2/MN is proposed.
Made Ground (MG) (inclusive of Topsoil/Made Ground)	No oedometer tests were carried out. Using the SPT correlation: 1 / (f2 x N) = 1 / (0.6 x 5) = 0.3 m^2/MN This equates to 'Medium to High Compressibility' using Tomlinson, 2002. p77. A coefficient of volume compressibility of 0.3 m^2/MN is proposed.
Tidal Flat Deposits-Cohesive Component (TF)	7No. oedometer tests were carried out. Applied pressures ranged from 20kPa to 2560kPa. Using the SPT correlation: 1 / (f2 x N) = 1 / (0.45 x 4) = 0.55 m^2/MN The range of Mv values for all the pressure stages combined is 0.01-1.9 with a mean of 0.46 m^2/MN. Both these values equate to 'High Compressibility' and is usual for normally consolidated alluvial clays using Tomlinson, 2002. p77. A coefficient of volume compressibility of 0.6 m^2/MN is proposed.
Tidal Flat Deposits-Granular Component (TFg)	No coefficient of volume compressibility is proposed.

8.2.9 Coefficient of Consolidation (CV)

Table 8.10: Coefficient of Consolidation

Stratum	Design Parameter and Justification
Glacial Till (GT)	No oedometer tests were carried out on samples of Glacial Till. **No coefficient of consolidation is proposed.**
Made Ground (MG) (inclusive of Topsoil/Made Ground)	No oedometer tests were carried out on samples of Made Ground/Topsoil. **No coefficient of consolidation of is proposed.**
Tidal Flat Deposits-Cohesive Component (TF)	7No. oedometer tests were carried out. Applied pressures ranged from 20kPa to 2560kPa. Using t50, log m^2/yr the range of Cv values for all the pressure stages combined is 0.4-20 with a mean of 4.6 m^2/yr. Using t90, root m^2/yr the range of Cv values for all the pressure stages combined is 0.5-45 with a mean of 7.5 m^2/yr. **A coefficient of volume compressibility of 5 m^2/yr is proposed.**
Tidal Flat Deposits-Granular Component (TFg)	2No. oedometer tests were carried out. Applied pressures ranged from 20kPa to 640kPa. Using t50, log m^2/yr the range of Cv values for all the pressure stages combined is 0.4-43 with a mean of 6.9 m^2/yr. Using t90, root m^2/yr the range of Cv values for all the pressure stages combined is 0.62-8.9 with a mean of 3.6 m^2/yr. These are likely to represent the tidal flat deposits-granular soil unit. **No coefficient of volume compressibility is proposed.**

8.2.10 Summary of Engineering Properties

Table 8.11. Summary of Engineering Properties

Geological Unit	Bulk Unit Weight (kN/m^3)	Plasticity Index (PI) %	Linear Shrinkage %	SPT N	Undrained Shear Strength (C_U) (kPa)	Effective Stress (Assumes c=0kPa) Φ'(°)	Undrained Young's Modulus (Eu) (MPa)	Drained Young's Modulus (E') (MPa	M_V (m^2/MN)	C_V (m^2/y)
Made Ground (MG) (inclusive of Topsoil/Made Ground)	17	18	9	5	25	N/A	10	N/A	0.3	N/A
Tidal Flat Deposits-Cohesive Component (TF)	17	37	13	4	20	N/A	8	N/A	0.6	5
Tidal Flat Deposits-Granular Component (TFg)	18	N/A	N/A	20	N/A	35	N/A	20	N/A	N/A
Glacial Till (GT)	19	17	12	19	105	N/A	32	N/A	0.09	N/A

9.0 GEOTECHNICAL INTERPRETATION AND RECOMMENDATIONS

9.1 Foundations

9.1.1 Grange Geoconsulting Ltd. have been asked to provide an indicative interpretation of foundation solutions associated with the proposed substation structure to be situated toward the east of the site. It is understood that this structure will comprise a relatively lightly loaded single storey building, however at the time of the investigation proposed building loads had not been provided.

9.1.2 In addition, Grange Geoconsulting Ltd. were asked to confirm the suitability of piled foundations anticipated to support the construction of solar panels.

9.1.3 The ground conditions within the proposed location of the substation have been characterised by the Cable Percussive Boreholes (CP1 to CP5 inclusive), and by adjacent Window Sample Boreholes WS7 and WS19 undertaken during the investigation.

9.1.4 The selected exploratory holes encountered Made Ground or Topsoil to a depth of between 0.3m and 1.2m bgl, typically overlying soft, frequently organic clays and peat (Cohesive Tidal Flat Deposits) to depths of between 2.4m and 4.45m bgl. Predominantly granular Tidal Flat Deposits (Sands and Gravels) were recorded below the cohesive materials and proven to significant depth (4.8m (WS19) to 10.0m (CP1) bgl).

9.1.5 The allowable bearing pressure / design bearing pressure for foundations takes into consideration an acceptable load to take into account the risk of shear failure of the ground (ultimate limit state) and also acceptable limits of settlement (serviceability limit state).

9.1.6 Made Ground will not be suitable as a foundation stratum for the substation or solar panels due to its inherent variability and risk of intolerable differential settlement.

9.1.7 The cohesive component of the Tidal Flat Deposits exhibited consistently low SPT values (See Section 2.11). Due to its low inherent strength, these materials are considered unlikely to be suitable as a founding stratum for the proposed substation development using strip or trench fill foundations, or the proposed piled foundations for solar panels.

9.1.8 The granular component of the Tidal Flat Deposits could be suitable as a founding stratum for the proposed substation using strip or trench fill foundations, depending upon the imparted loads. Care should be taken when selecting foundation depths in order to ensure that adjacent foundations are placed in materials of similar bearing and consolidation characteristics, thus avoiding any potential differential settlement.

9.1.9 Alternatively, a different foundation option should be adopted for the substation infrastructure, such as a piling solution. The following sections will discuss potential foundation options.

9.2 Shallow and Trenchfill Foundations (Substation)

9.2.1 It is recommended that shallow foundations, if selected as an option for the substation development, should be extended through any Made Ground, and soft/organic cohesive Tidal Flat Deposits, and placed within the granular component of the unit. This will require extension

of footings, with depths varying between 2.4m and 4.45m, based on the findings of the ground investigation. Within the predominantly granular materials of this unit an allowable bearing pressure of 300kN/m^2 can be assumed, using 0.6m wide strip footings, allowing for a Factor of Safety (FoS) of 3. This bearing pressure should limit total foundation settlement to less than 25mm.

9.2.2 Should the financial constraints of extended traditional strip footings prove infeasible, or should additional loading be required, an alternative foundation solution should be sought, such as piled foundations.

9.2.3 Where foundations require deepening to greater than 2.5m below ground level, they must be designed by an engineer, as specified in NHBC Technical Requirement R5.

9.2.4 Foundations which span founding materials of different stiffness should have mesh reinforcement placed top and bottom of the foundation.

9.2.5 The depth of foundations should be designed, and the formations inspected by a geotechnical engineer. Any sub-formation materials deemed as unsuitable such as soft or loose zones should be excavated and replaced with well compacted suitable granular fill or lean mix concrete.

9.3 Piled Foundations (Substation and/or Solar Panels)

9.3.1 The proposed substation development, and/or solar panels may be founded on a system of ground beams spanning onto piles taken down into the deeper granular Tidal Flat Deposits, or Glacial Till which exhibited increased geotechnical strength, or alternatively to solid strata from the Ampthill Clay Formation, which was not encountered during the excavation. Should it be necessary to found on the bedrock, additional investigation works are likely to be necessary in order to identify and prove the geotechnical suitability of this unit.

9.3.2 A variety of pile types may be used, including driven, bored, and continuous flight auger (CFA) piles, subject to constraints on noise and vibration.

9.3.3 Because of the various advantages and limitations of each pile type, and the cost implications, advice should be sought from specialist piling contractors to determine the most suitable and cost-effective type. They should also be able to give recommended pile diameters and depths and likely pile capacities, with guaranteed performance. It is recommended a pile test be carried out to confirm pile capacities. In assessing the pile capacities, contractors should make an allowance for the effects of negative skin friction.

9.3.4 For piled foundations floor slabs should be designed as suspended.

9.3.5 There may be differential settlement between piled structures and the surrounding ground level. Provision should therefore be made to make up ground levels at threshold positions, loading bays, vehicle access doorways, etc. Alternatively, these materials should be removed and replaced in a controlled manner by suitable existing materials or imported engineered fill.

9.3.6 A lightweight pile foundation solution should be suitable for solar panels, subject to constraints and opportunities provided by specialist piling contractors, as discussed above. The likely

depths of piled foundations associated with solar panels may be finalised following confirmation of proposed loads.

9.4 Ground Floor Slabs

9.4.1 Ground floor slabs may be constructed as ground bearing providing foundations are not within the zone of influence of a tree, where the floor slabs overlie natural materials, or where a piled solution has been adopted. Where Made Ground is predominantly granular in nature and less than 1.2m thick, ground bearing slabs may be suitable provided the Made Ground is compacted with a heavy vibrating roller and any soft spots removed and replace by granular fill.

9.5 Groundwater

9.5.1 Based on the findings of the investigation, groundwater may be encountered within shallow excavations at the site, at an approximate depth of between 1.05m and 3.5m bgl. Excavations are likely to act as a sump, potentially requiring dewatering. This should be taken into consideration when planning any excavation work.

9.6 Buried Concrete

9.6.1 Based on the results obtained, strata from the Made Ground/Topsoil and Tidal Flat Deposits (Cohesive Component) would be classified DS4 AC3s. The granular component of the Tidal Flat Deposits, and the Glacial Till would be classified DS2 AC1s.

10.0 MINERAL RESOURCES

10.0.1 The Mineral and Waste Local Plan (Site Locations) (MWLP), produced by Lincolnshire County Council and adopted in December 2017 establishes potential sites and areas suitable for mineral and waste development within the County. The principal local minerals identified by the MWLC are Sands and Gravels for use as aggregate in the construction industry. It is anticipated that Lincolnshire will experience a Sand and Gravel resource shortfall of approximately 19Mt between 2014 and 2031.

10.0.2 The MWLC (Site Locations) document also indicates that the resource shortfall may be met through the exploitation of reserves within existing quarry sites, and through extension to existing quarry sites.

10.0.3 The proposed development area at Heckington Fen is not identified as an allocated Mineral Site in the MWLP (Site Locations) document.

10.0.4 The ground conditions encountered during the site investigation have not identified any materials which are considered likely to be viable as a mineral resource. Peat deposits encountered were discontinuous, relatively thin, and present at depth. Each of these characteristics are likely to make extraction financially prohibitive.

10.0.5 Sand and gravel deposits present at the site were predominantly identified as part of a complex sequence of interbedded cohesive and granular horizons. None of the granular strata appeared sufficiently well sorted to be useful as an aggregate resource, and in most locations contained secondary cohesive materials. As a result, these materials are considered unlikely to comprise a viable mineral resource.

11.0 REFERENCES

BRITISH STANDARDS INSTITUTION. 1999. Code of practice for Site Investigations. *BS 5930 Incorporating Amendment No.2:2010.* BSI, London.

BRITISH STANDARDS INSTITUTION. 2011. Code of Practice for Investigation of Potentially Contaminated sites. *BS 10175.* BSI, London.

BRITISH STANDARDS INSTITUTION. 2003. Geotechnical investigation and testing - Identification and classification of rock - Part 1: Identification and description. *BS EN ISO 14689-1 Incorporating Corrigendum No.1.* BSI, London

BRITISH STANDARDS INSTITUTION. 2004. Soil quality. Characterization of soil related to groundwater protection. *ISO 15175.* BSI, London.

CIEH and CL:AIRE. May 2008. *Guidance on comparing soil contamination data with a critical concentration.* Chartered Institute of Environmental Health and Contaminated Land: Applications in Real Environments, London, 66pp.

DCLG. March 2012. *National Planning Policy Framework*. DCLG, London.

DCLG. March 2012. *Technical Guidance top the National Planning Policy Framework.* DCLG, London.

DEFRA. April 2012. *Contaminated Land Statutory Guidance*. DEFRA, London.

EIC, AGS and CL:AIRE. 2009. The EIC/AGS/CL:AIRE Soil Generic Assessment Criteria for Human Health Risk Assessment. Environmental Industries Commission, Association of Geotechnical and Geoenvironmental Specialists and Contaminated Land: Applications in Real Environments. Available from [redacted]

NATHANAIL, P., McCAFFREY, C., ASHMORE, M., CHENG, Y., GILLETT, A., OGDNE, R. and SCOTT, D. 2009. The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment (2nd ed.). Land Quality Press, Nottingham.

RUDLAND, D. J., LANCEFIELD, R. M. and MAYELL, P. N. 2001. Contaminated land risk assessment. A guide to good practice. *CIRIA Report C552*. CIRIA, London. 158 pp.

APPENDICES

Appendix A DRAWINGS

Appendix B GROUND INVESTIGATION PHOTOGRAPHS

Appendix C EXPLORATORY HOLE LOGS

Appendix D GRANGE GEOCONSULTING LTD METHODOLOGY

Appendix E CHEMICAL ANALYSIS RESULTS

Appendix F GEOTECHNICAL TESTING RESULTS

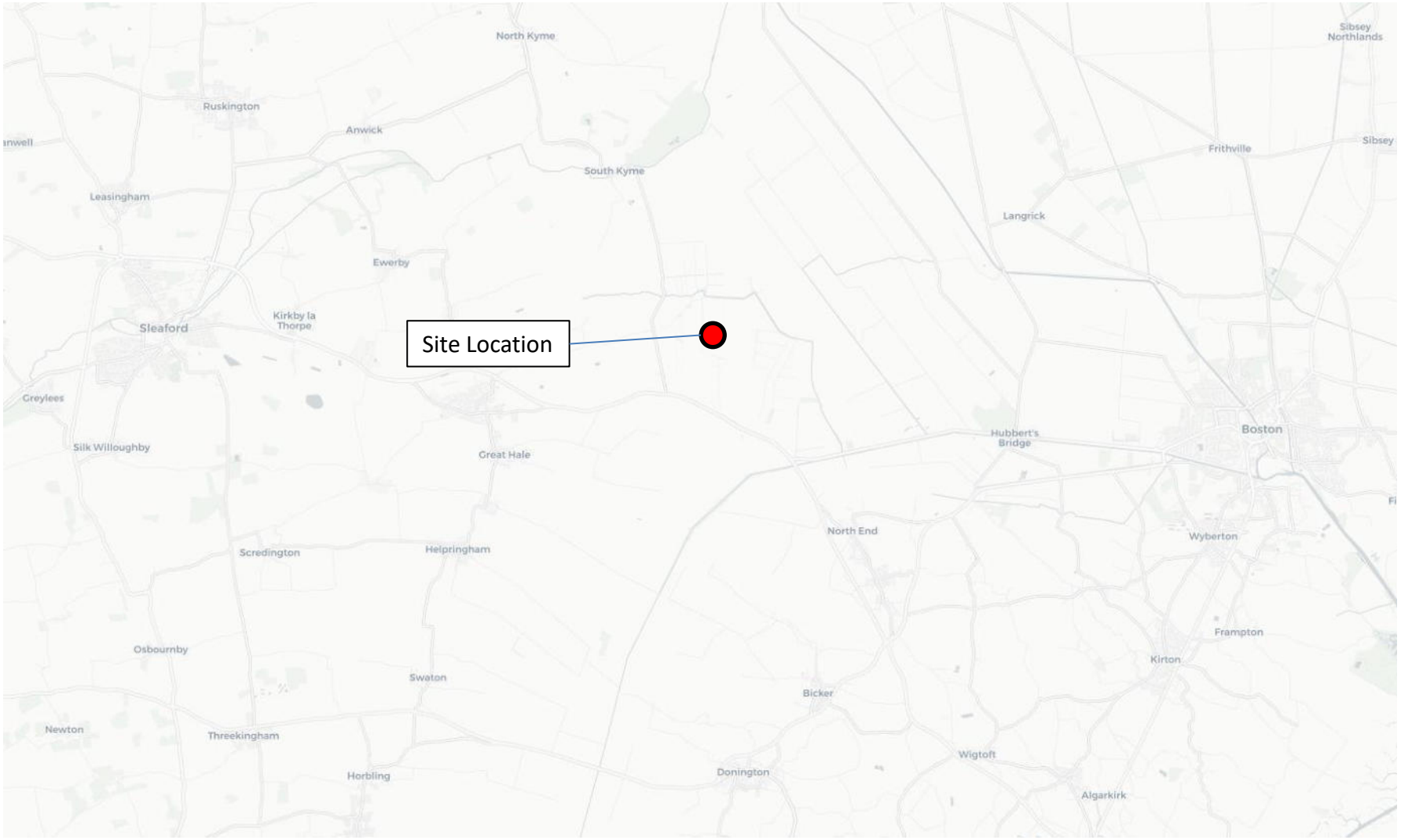
Appendix G FIGURES SUPPORTING ADOPTED ENGINEERING PROPERTIES

Appendix H CBR TEST CERTIFICATES

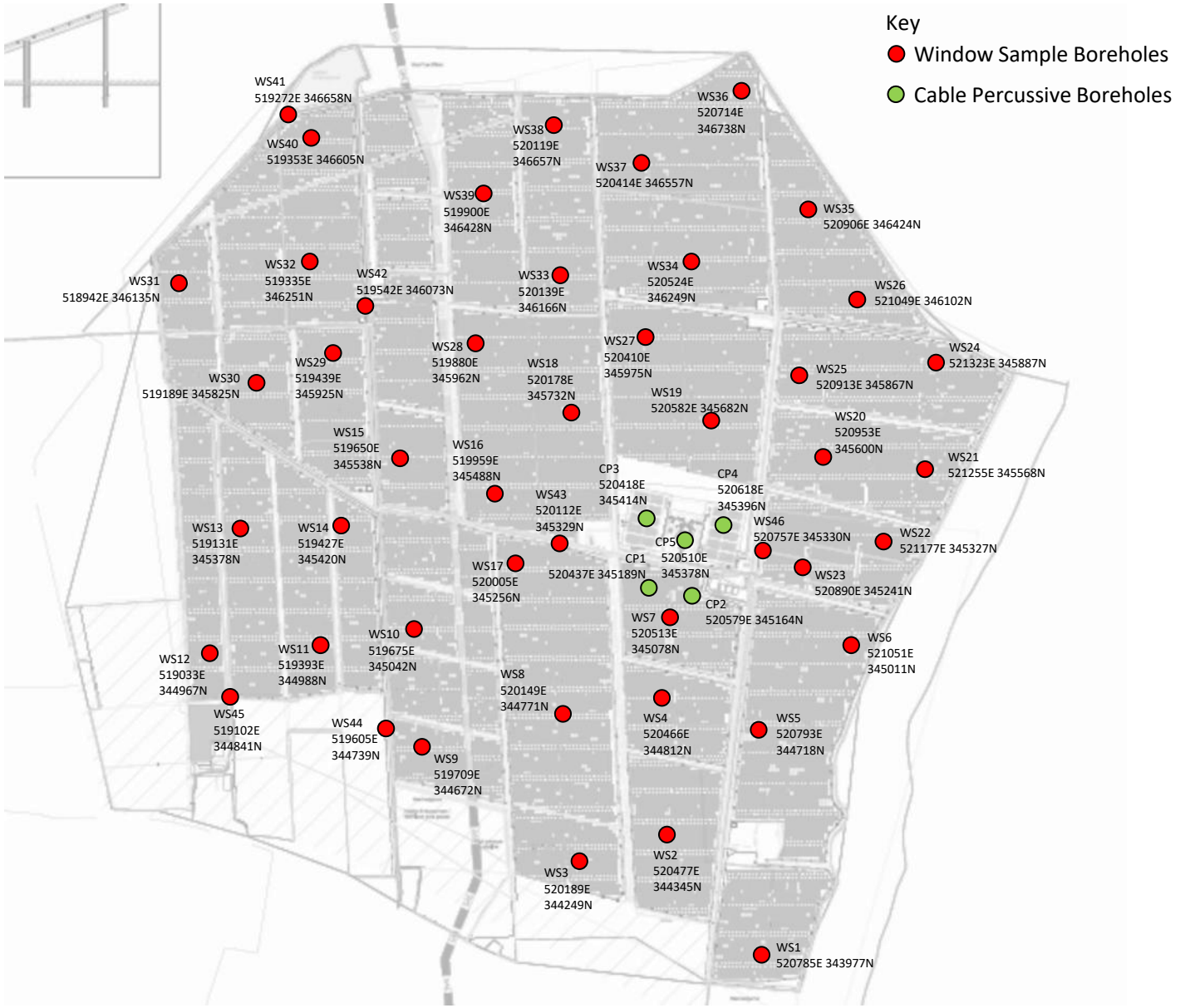
Appendix I GRANGE GEOCONSULTING PHASE 1 DESK STUDY

Appendix A

DRAWINGS

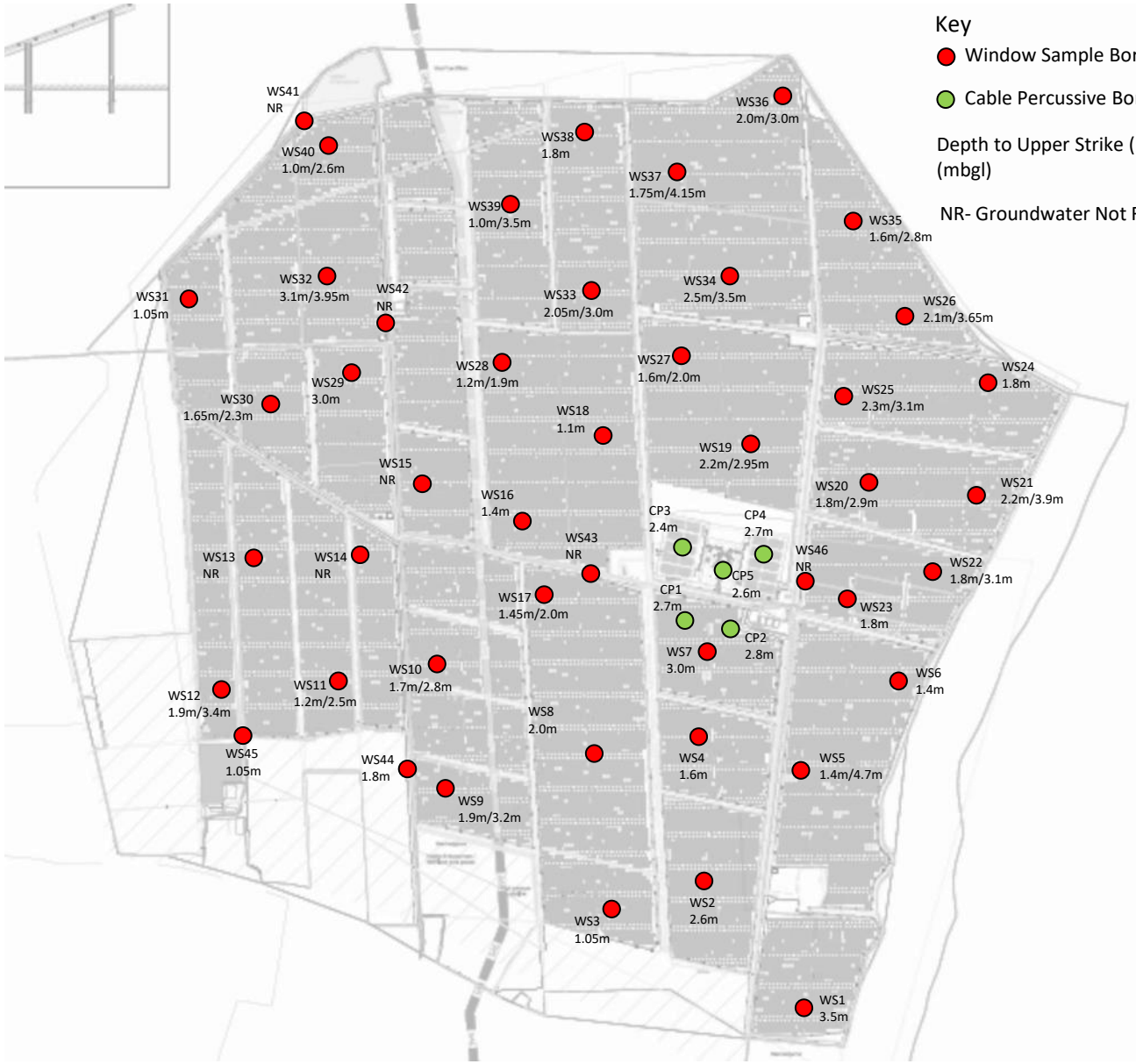


Grange Geo	**Site Location Plan** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) **Date**- 7th November 2022	North	R22082/R002-DWG1

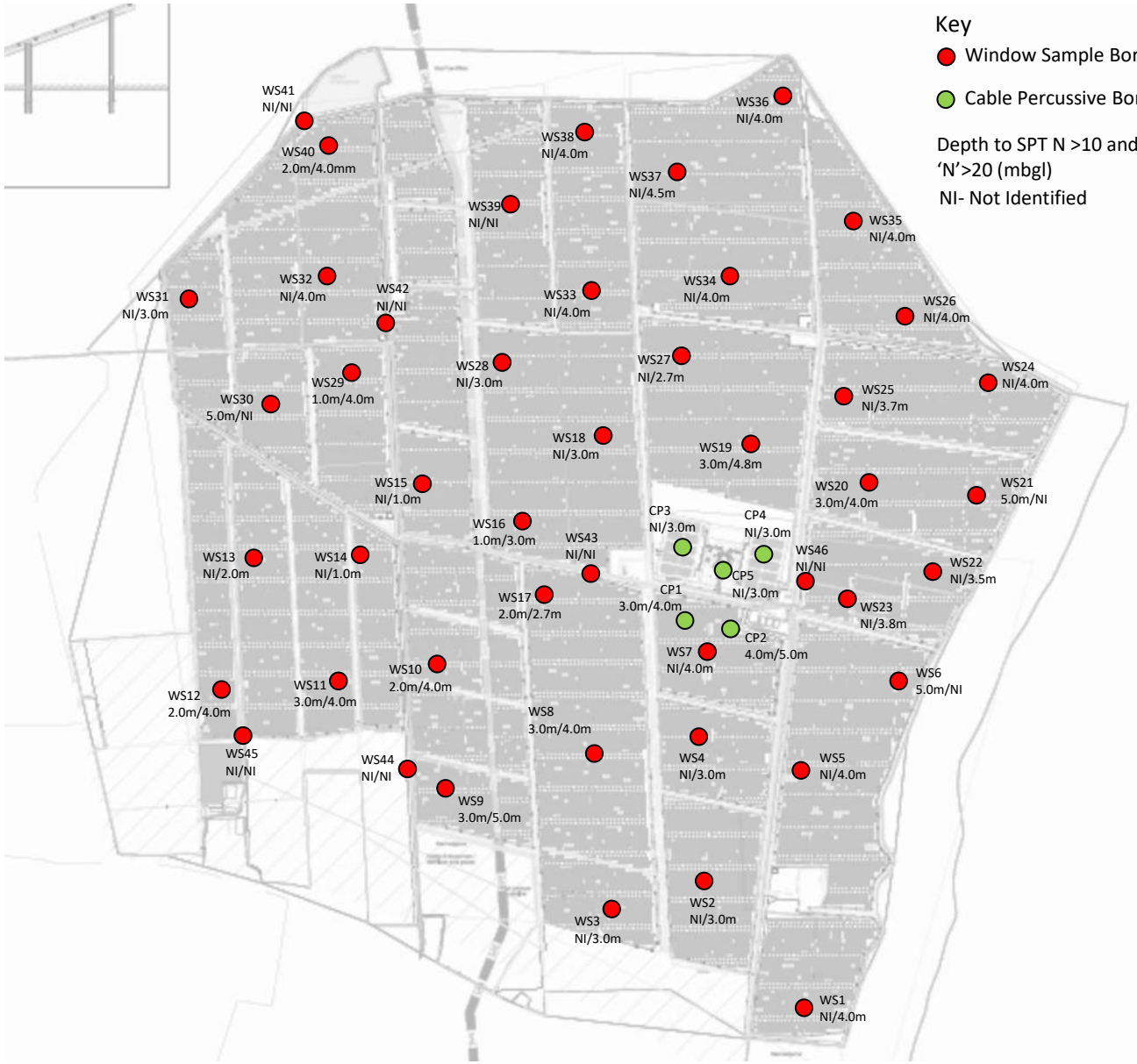


Grange Geo	**Exploratory Hole Location Plan** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- 7th November 2022	North ↑	R22082/R002 DWG 2

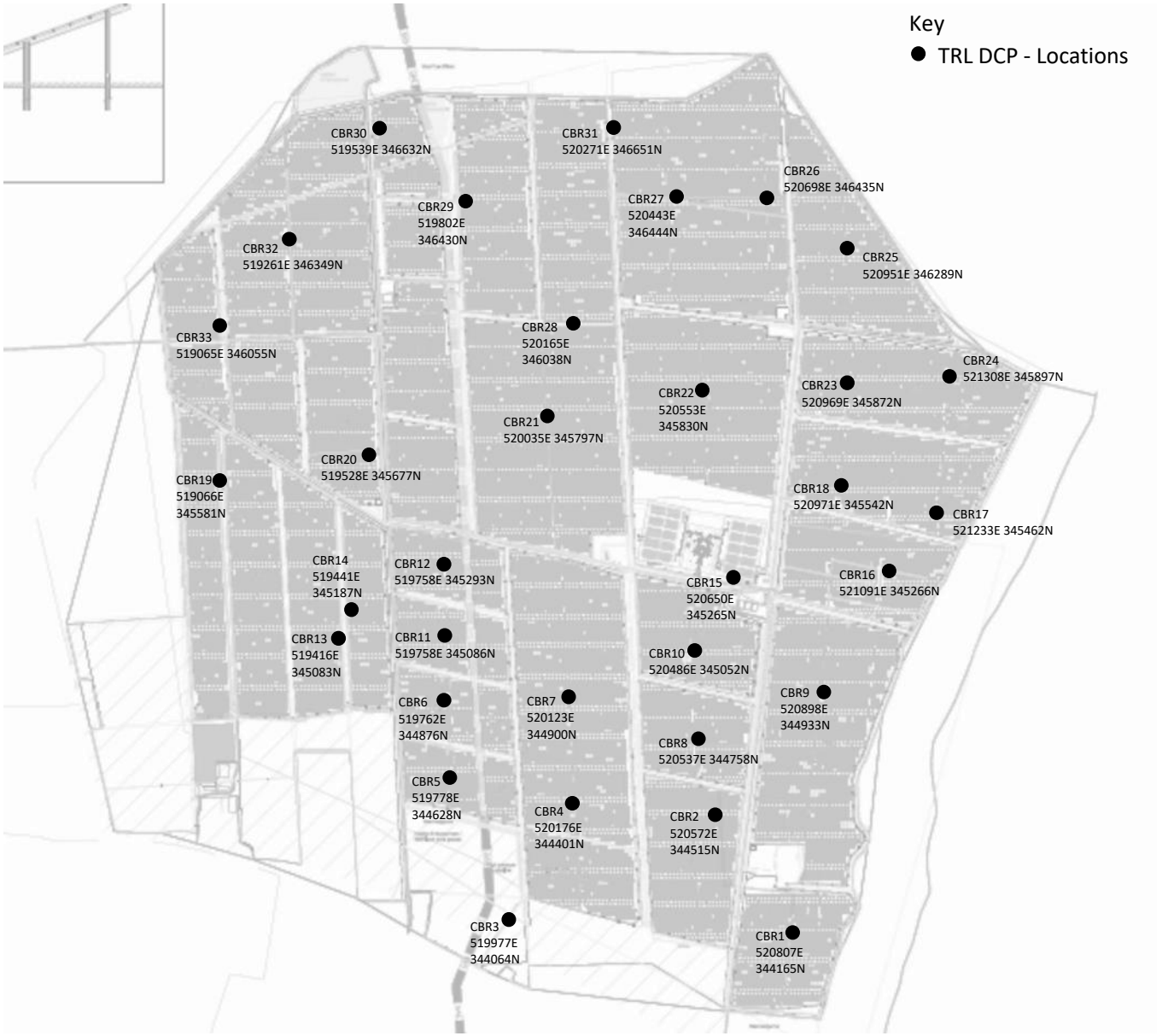
Grange Geo	**Peat Summary Plan** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- 7th November 2022	North	R22082/R002 DWG 3



Grange Geo	**Groundwater Strikes** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- 7th November 2022	North	R22082/R002 DWG 4



Grange Geo	**Depth to Nominated SPT 'N' Values** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- 7th November 2022	North	R22082/R002 DWG 5



Grange Geo	**CBR Test Location Plan** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- 7th November 2022	North	R22082/R002 DWG 6

ecotricity

LEGEND

- DCO EXTENT (6945_1051_09)
- Perimeter Fence
- Ditch
- Water
- OHL
- Gate
- High Vegetation
- Gas
- Access Tracks
- Existing Road
- Inverter and Transformer Station
- Site Main Substation / Energy Storage Compound
- Construction & Operational Compounds
- Solar Park Zone Max Height 3m
- Solar Park Zone. Max Height 3.5m
- Habitat Enhancement / BNG

Full arrangement of substation including drainage TBC.
Full arrangement of permanent and temporary site entrance TBC.

Figure: 1

Title: Indicative Solar Park Layout

0m 500m

Scale: 1: 12,500 @ A3

Drawn by:	Checked by:	Approved by:
MW		

Ref: 6945_T0044_05 **Date:** November 2022

Heckington Fen Solar Park

Appendix B

GROUND INVESTIGATION PHOTOGRAPHS

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Grange Geo	**Photo Record** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd.	**Date**- 7th Nov. 2022	Appendix B

Appendix C

EXPLORATORY HOLE LOGS

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520437.00 N345189.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP1	CP		AH	1:30	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Stiff, brown, slightly sandy, silty CLAY. [Topsoil/ Made Ground]
		1.20 - 1.65	U		1.20			
								Firm, grey brown and orange brown mottled, slightly sandy, silty, CLAY. Occasional decayed roots. [Tidal Flat Deposits]
		2.00 - 2.45	U					
					2.20			
								Soft, grey CLAY with black pockets of organic matter. [Tidal Flat Deposits]
		3.00	SPT	N=14 (4,3/3,4,3,4)				
					3.20			
								Dense to very dense, yellow brown, slightly silty, very gravelly, medium SAND. Gravels of fine to coarse, sub angular to rounded flint and quartzite. [Tidal Flat Deposits]
		4.00	SPT	N=27 (3,5/6,6,7,8)				
		5.00	SPT	N=50 (6,10/50 for 240mm)				
		6.00	SPT	N=38 (4,5/7,8,10,13)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.70m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520437.00 N345189.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP1	CP		AH	1:30	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		7.50	SPT	N=38 (3,6/7,8,11,12)				Dense to very dense, yellow brown, slightly silty, very gravelly, medium SAND. Gravels of fine to coarse, sub angular to rounded flint and quartzite. [Tidal Flat Deposits]
		9.00	SPT	N=23 (3,3/4,4,5,10)				
		9.50	SPT	N=15 (2,0/2,7,3,3)				
					10.00			End of Borehole at 10.000m

7 8 9 10 11 12

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.70m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520579.00 N345164.00
Project No. : R22082		Drilling Equipment: Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP2	CP		AH	1:30	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Stiff, brown, silty CLAY. [Topsoil/Made Ground]	
					1.00				1
		1.20 - 1.65	U					Firm, grey brown and orange brown mottled, silty CLAY. [Tidal Flat Deposits]	
					1.60			Grey brown, clayey SILT. [Tidal Flat Deposits]	
					1.80			Soft, grey CLAY with pockets of black organic matter. [Tidal Flat Deposits]	
		2.00 - 2.45	U						2
		3.00	SPT	N=3 (1,0/1,0,1,1)	3.00			Black PEAT. [Tidal Flat Deposits]	3
					3.40			Loose, light brown, silty, medium grained SAND. [Tidal Flat Deposits]	
		4.00	SPT	N=16 (3,4/4,4,4,4)	4.00			Medium dense, brown, slightly silty, very sandy, GRAVEL. Gravels of fine to coarse, sub angular to rounded flint and quartzite. [Tidal Flat Deposits]	4
		5.00	SPT	N=20 (3,3/3,5,6,6)					5
					6.00				6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.80m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520579.00 N345164.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP2	CP		AH	1:30	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		6.00	SPT	N=50 (4,6/50 for 245mm)				Dense, brown, slightly silty, fine SAND. [Tidal Flat Deposits]
					7.20			
		7.50	SPT	N=50 (6,8/50 for 275mm)				Dense, brown, slightly silty, sandy, GRAVEL. Gravels of fine to coarse, sub angular to rounded flint and quartzite. [Tidal Flat Deposits]
					8.60			
		9.50	SPT	N=60 (7,12/60 for 275mm)				Hard, grey, slightly gravelly, CLAY. Gravels of fine to medium sub angular Chalk and quartzite. [Glacial Till]
					10.00			End of Borehole at 10.000m

7 8 9 10 11 12

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.80m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520418.00 N345414.00
Project No. : R22082		Drilling Equipment: Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP3	CP		AH	1:30	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Brown, slightly silty, CLAY. [Topsoil/Made Ground]
					0.80			Firm, grey brown and orange brown mottled, silty CLAY. [Tidal Flat Deposits]
		1.20 - 1.65	U					
		2.00 - 2.45	U					
					2.40			Dense, grey brown, silty, very sandy GRAVEL. Gravels of medium to coarse, sub rounded to sub angular flint and quartzite. [Tidal Flat Deposits]
		3.00	SPT	N=35 (4,5/8,9,10,8)				
		4.00	SPT	N=19 (3,4/4,5,4,6)				
		5.00	SPT	N=14 (2,3/2,4,4,4)	5.00			Dense, grey, slightly silty, gravelly SAND. Gravels of fine to coarse, angular to rounded quartzite and flint. [Tidal Flat Deposits]
		6.00	SPT	N=36 (4,6/6,8,10,12)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.40m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520418.00 N345414.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP3	CP		AH	1:30	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		7.50	SPT	50 (6,9/50 for 175mm)				Dense, grey, slightly silty, gravelly SAND. Gravels of fine to coarse, angular to rounded quartzite and flint. [Tidal Flat Deposits]
		9.00	SPT	N=50 (6,8/50 for 265mm)	9.00			Grey slightly silty very sandy GRAVEL. Gravel fine to coarse angular to subrounded of quartzite and flint. [Tidal Flat Deposits]
					9.80			Hard, grey, slightly gravelly, CLAY. Gravels of fine to medium sub angular Chalk and quartzite. [Glacial Till]
					10.00			End of Borehole at 10.000m

7 8 9 10 11 12

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.40m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520618.00 N345396.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP4	CP		AH	1:30	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Firm, brown, silty CLAY. [Topsoil/Made Ground]
					0.60			Firm, brown, grey and orange mottled, silty CLAY. [Tidal Flat Deposits]
		1.20 - 1.65	U					
		2.00 - 2.45	U					
					2.40			Medium dense, grey brown, clayey silty very gravelly SAND. [Tidal Flat Deposits]
		3.00	SPT	N=35 (4,5/8,9,10,8)	3.00			Medium dense, light brown, slightly silty, SAND and GRAVEL. [Tidal Flat Deposits]
		4.00	SPT	N=19 (3,4/4,5,4,6)				
		5.00	SPT	N=14 (2,3/2,4,4,4)	5.00			Dense, light brown, slightly gravelly, SAND. Gravels of fine to coarse, sub rounded flint and quartzite. [Tidal Flat Deposits]
		6.00	SPT	N=36 (4,6/6,8,10,12)	6.00			

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 12m bgl.
Groundwater at 2.70m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520618.00 N345396.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP4	CP		AH	1:30	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		7.50	SPT	50 (6,9/50 for 215mm)				Dense, light brown, slightly silty very sandy GRAVEL. Gravels of medium to coarse, sub angular to sub rounded flint and quartzite. [Tidal Flat Deposits]
					8.00			Hard, grey, slightly gravelly, CLAY. Gravels of fine to medium sub angular Chalk and quartzite. [Glacial Till]
		9.00	SPT	N=50 (6,8/50 for 265mm)				
					12.00			End of Borehole at 12.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 12m bgl.
Groundwater at 2.70m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520510.00 N345378.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP5	CP		AH	1:30	Sheet 1 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Stiff, brown, silty CLAY. [Topsoil/Made Ground]
					0.60			Medium dense, grey brown, clayey SAND. [Tidal Flat Deposits]
		1.20 - 1.65	U					
		2.00 - 2.45	U					
					2.40			Medium dense, yellow brown, slightly silty, SAND and GRAVEL. Gravels of fine to coarse, sub angular to rounded quartzite and flint. [Tidal Flat Deposits]
		3.00	SPT	N=27 (3,5/6,6,8,7)	3.00			Medium dense, yellow brown, slightly silty, very sandy GRAVEL. Gravels of fine to coarse, sub angular to rounded quartzite and flint. [Tidal Flat Deposits]
		4.00	SPT	N=32 (4,5/7,8,8,9)				
		5.00	SPT	N=40 (5,6/8,10,12,10)				
					5.20			Dense, grey brown, slightly silty, SAND with rare flint gravels. [Tidal Flat Deposits]
		6.00	SPT	N=44 (5,7/8,9,11,16)				

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.60m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520510.00 N345378.00	
Project No. : R22082		Drilling Equipment	Cable Percussive Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
CP5	CP		AH	1:30	Sheet 2 of 2

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		7.50	SPT	N=35 (5,7/9,10,8,8)				Dense, grey brown, slightly silty, SAND with rare flint gravels. [Tidal Flat Deposits]
					7.80			Dense, grey brown, SAND and GRAVEL. Gravels of fine to coarse, sub angular to sub rounded flint and quartzite. [Tidal Flat Deposits]
					9.00			Hard, grey, slightly gravelly, CLAY. Gravels of fine to medium sub angular Chalk and quartzite. [Glacial Till]
					10.00			End of Borehole at 10.000m

7 8 9 10 11 12

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 10m bgl.
Groundwater at 2.60m bgl 20 minutes after completion.
Borehole backfilled with arisings.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 20/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520785.00 N343977.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS1	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.15	ES					Stiff brown slightly silty to silty Clay [Topsoil/ Made Ground]
		0.15 - 1.00	B		0.15			Stiff brown mottled grey slightly silty CLAY [Tidal Flat Deposits]
		1.00	SPT	N=7 (2,2/1,2,2,2)	1.00			Firm greyish brown CLAY [Tidal Flat Deposits]
		1.50 - 1.60	D		1.50			Soft greyish brown CLAY. Very soft from 2.0m bgl. [Tidal Flat Deposits]
		2.00	SPT	N=0 (0,0/0,0,0,0)				
		2.50						Very soft grey mottled dark grey CLAY. Occasional to frequent organic fragments. [Tidal Flat Deposits]
		2.80 - 3.00	D					
		3.00	SPT	N=3 (0,0/0,1,1,1)				
	▼	3.40 - 3.50	D		3.40			Brownish black pseudo-fibrous PEAT [Tidal Flat Deposits]
		4.00 - 5.00	B		3.95			Brown/orangish brown slightly gravelly SAND. Sand is fine to medium. Gravel is fine, rounded of quartz, feldspar and rare sandstone. Slightly clayey between 4.5m and 4.6m bgl. [Tidal Flat Deposits]
		4.00	SPT	N=23 (2,4/4,5,7,7)				
		5.00	SPT	50 (10,13/50 for 205mm)	5.00			End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5m bgl.
Water strike at 3.5m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 20/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520477.00 N344345.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS2	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.20	ES					Firm friable brown silty to very silty slightly sandy Clay [Topsoil/Made Ground]
		0.20 - 1.00	B		0.20			Stiff brown mottled grey slightly silty CLAY. Soft to firm from 1.1m bgl. [Tidal Flat Deposits]
		1.00 - 1.20 1.00	D SPT	N=4 (1,1/1,1,1,1)				
					1.45			Soft brown mottled grey slightly gravelly CLAY. Gravel is fine, angular of mudstone. Frequent organic fragments. [Tidal Flat Deposits]
		1.95 - 2.15 2.00	D SPT	N=3 (0,0/0,1,1,1)				
					2.15			Black slightly sandy pseudo-fibrous to amorphous PEAT [Tidal Flat Deposits]
	▼				2.65			Brown mottled grey slightly silty SAND. Sand is fine to medium. Very wet. [Tidal Flat Deposits]
		3.00	SPT	N=21 (1,2/4,6,6,5)				
		3.30 - 4.60	B		3.30			Brown mottled grey slightly silty gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded of quartz and feldspar. Very wet. [Tidal Flat Deposits]
		4.00	SPT	N=32 (1,3/6,8,8,10)				
		4.60	SPT	N=32 (8,6/6,8,8,10)	4.60			End of Borehole at 4.600m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.6m bgl due to sampler refusal.
Water strike at 2.6m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520189.00 N344249.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS3	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 1.00	B		0.20			Stiff friable brown slightly clayey Silt. [Topsoil/ Made Ground]
	▼	1.00 - 1.10 1.00	ES SPT	N=9 (2,2/3,2,3,1)				Stiff friable brown mottled orange brown SILT. Soft from 1.05m bgl. Very soft from 1.4m bgl. [Tidal Flat Deposits]
		1.50 - 1.80	D					
		2.00	SPT	N=2 (1,1/0,0,1,1)	1.90			Very soft brownish grey slightly clayey SILT. [Tidal Flat Deposits]
		2.10 - 2.50	D		2.10			Very soft grey CLAY. [Tidal Flat Deposits]
					2.50			Black amorphous PEAT. [Tidal Flat Deposits]
		3.00	SPT	N=50 (7,6/50 for 255mm)	2.90 3.00			Very soft brownish grey clayey, slightly sandy, slightly gravelly SILT. Sand is fine to medium. Gravel is fine, subrounded of indeterminate lithology. [Glacial Till]
								End of Borehole at 3.000m

1 2 3 4 5 6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.0m bgl due to sampler refusal.
Water strike at 1.05m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 20/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520466.00 N344812.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS4	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.15	ES					Firm to stiff friable brown silty slightly sandy Clay. Frequent roots. [Topsoil/Made Ground]
		0.15 - 1.00	B		0.15			Stiff greyish brown CLAY. Occasional rootlets to 0.75m bgl. Firm from 1.15m bgl. Soft from 1.4m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=4 (1,1/1,1,1,1)				
	▼	1.50 - 1.80	D					
		2.00 - 2.50	D		1.90			Very soft grey/dark grey CLAY. [Tidal Flat Deposits]
		2.00	SPT	N=0 (0,0/0,0,0,0)				
					2.60			Black amorphous PEAT. [Tidal Flat Deposits]
		3.00	SPT	N=50 (2,5/50 for 285mm)	2.95 3.00			Brown slightly gravelly to gravelly SAND. Sand is coarse. Gravel is fine to medium, rounded of quartz and feldspar. Wet. [Tidal Flat Deposits]
								End of Borehole at 3.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.0m bgl due to sampler refusal.
Water strike at 1.6m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 20/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520793.00 N344718.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS5	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 0.50	ES					Firm to stiff brown clayey SILT. [Topsoil/Made Ground]
					0.60			Stiff brown/dark brown slightly silty CLAY. [Tidal Flat Deposits]
		0.80 - 2.00	B		0.80			Firm to stiff brown/dark grey CLAY. Becoming soft to firm below 1.1m bgl. Very soft to soft below 1.85m bgl. Very soft, with poor recovery from 2.0m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=5 (1,1/1,1,1,2)				
	▼				1.85			Very soft dark grey CLAY. Occasional organic fragments. [Tidal Flat Deposits]
		2.00 - 2.50	D					
		2.00	SPT	N=0 (0,0/0,0,0,0)				
		3.00	SPT	N=4 (1,1/1,1,1,1)				
		3.45 - 3.85	D		3.45			Dark grey/black/brown amorphous PEAT. [Tidal Flat Deposits]
					3.85			Light grey clayey SAND. Sand is coarse. [Tidal Flat Deposits]
	▼	4.00 - 4.70	B		4.00			Greyish brown slightly silty very gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, angular to subangular of quartz and feldspar. Very Wet. [Tidal Flat Deposits]
		4.00	SPT	N=23 (0,0/3,4,8,8)				
		4.70	SPT	N=50 (10,12/50 for 265mm)	4.70			End of Borehole at 4.700m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.7m bgl due to sampler refusal.
Water strike (seepage) at 1.4m bgl. Second strike at 4.7m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 20/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E521051.00 N345011.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS6	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.30	ES					Firm to stiff friable brown/dark brown mottled grey silty Clay. [Topsoil/Made Ground]
		0.30 - 0.95	B		0.30			Stiff dark brown mottled grey slightly silty CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=4 (1,1/1,1,1,1)	0.95			Firm brown/dark brown mottled grey CLAY. Very closely spaced 20° discontinuities with silt partings. [Tidal Flat Deposits]
		1.15 - 2.00	B		1.15			Soft light brown/brown clayey SILT. Damp. Wet from 1.65m bgl. Very soft from 1.9m bgl. Very poor recovery between 2m and 3m bgl. [Tidal Flat Deposits]
	▼	2.00 - 3.00	D					
		2.00	SPT	N=2 (1,1/0,0,1,1)				
		3.00	SPT	N=4 (0,0/1,1,1,1)				
					3.20			Very soft dark grey SILT. [Tidal Flat Deposits]
		3.50 - 3.80	D					
		4.00	SPT	N=8 (1,1/2,2,2,2)	3.90			Dark grey/light grey silty SAND. Silt absent below 4.0m bgl. [Tidal Flat Deposits]
					4.55			Brown/light brown slightly gravelly SAND. Sand is medium to coarse. Gravel is fine to coarse, subangular to subrounded of quartz, flint and feldspar. Very wet. [Tidal Flat Deposits]
		5.00	SPT	N=17 (5,4/4,4,4,5)	5.00			End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5m bgl.
Water strike at 1.4m bgl.
Borehole collapsed to 3.5m bgl.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520513.00 N345078.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS7	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40 - 0.80	B		0.40			Firm to stiff brown silty Clay. Rare fragments of broken house-brick. [Made Ground]
		0.80 - 1.00	ES		0.80			Stiff brown slightly silty CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=4 (0,0/1,1,1,1)				Firm to stiff brown SILT. [Tidal Flat Deposits]
		1.20 - 1.50	D		1.20			Very soft brown slightly clayey SILT. Clayey from 1.5m bgl. [Tidal Flat Deposits]
		2.00	SPT	N=2 (0,0/0,0,1,1)				
		2.50 - 2.80	D		2.15			Very soft dark grey slightly clayey to clayey SILT. [Tidal Flat Deposits]
	▼	3.00	SPT	N=2 (0,0/0,0,1,1)	3.00			No recovery
		4.00	SPT	N=41 (5,5/8,10,12,11)	4.00			Very soft dark grey slightly clayey to clayey SILT. [Tidal Flat Deposits]
					4.45			Dark grey silty slightly gravelly SAND. Sand is fine. Gravel is fine, subangular to subrounded of quartz and feldspar. [Tidal Flat Deposits]
		5.00	SPT	N=44 (8,7/10,10,12,12)	4.80 5.00			Brown slightly gravelly SAND. Sand medium to coarse. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits] End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5m bgl.
Water strike at approximately 3.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520149.00 N344771.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS8	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.15	ES					Stiff friable clayey Silt. [Topsoil/Made Ground]
		0.15 - 1.00	B		0.15			Stiff to very stiff brown slightly silty CLAY. Stiff from 0.95m bgl. Firm from 1.5m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=8 (2,2/3,2,2,1)				
		1.10 - 1.30	D					
					1.65			Soft greyish brown slightly silty CLAY. Occasional organic fragments. [Tidal Flat Deposits]
	▼	2.00	SPT	N=8 (1,1/2,1,2,3)	1.87 1.91			Black amorphous PEAT. [Tidal Flat Deposits]
								Very soft dark grey slightly silty slightly gravelly CLAY. Gravel is fine, subangular of chalk. Becoming brown from 2.05m bgl. [Glacial Till]
		2.50 - 2.80	D		2.45			Firm to stiff brown slightly silty slightly gravelly CLAY. Gravel is fine, subangular of chalk. [Glacial Till]
		3.00	SPT	N=12 (4,3/3,3,4,2)				
		4.00	SPT	N=50 (8,10/50 for 265mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Possible water strike at 2.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519709.00 N344672.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS9	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Stiff greyish brown Clay. [Topsoil/Made Ground]
		0.50 - 1.50	B		0.50			Stiff greyish brown CLAY. Firm by 1.5m bgl. Soft to firm from 2.0m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=8 (2,2/1,3,2,2)				
	▼	2.00	SPT	N=5 (2,2/1,1,1,2)				
		2.20 - 2.40	D		2.15 2.20			Black amorphous PEAT. [Tidal Flat Deposits]
					2.40			Soft black/dark grey CLAY. Organic. [Tidal Flat Deposits]
					2.45			Black amorphous PEAT. [Tidal Flat Deposits]
								Stiff brown gravelly CLAY. Gravel is fine to coarse, subangular of chalk. Soft from 3.05m bgl. [Glacial Till]
		3.00	SPT	N=17 (3,5/4,4,4,5)				
	▼	3.30 - 3.70	B		3.30			Orangish brown/brown silty very gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular of flint. [Glacial Till]
					3.70			Firm to stiff greyish brown gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
	▼	4.00	SPT	N=14 (3,4/3,3,5,3)	4.00			Orangish brown/brown slightly silty slightly gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular of flint. [Glacial Till]
					4.20			Soft to firm grey slightly gravelly CLAY. Gravel is fine, subrounded of indeterminate lithology. [Glacial Till]
		4.50 - 5.00	D					
		5.00	SPT	N=33 (7,7/9,8,9,7)	5.00			End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5m bgl.
Water strike at 1.9m bgl (Seepage). Second strike at 3.2m bgl. Third strike at 4.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519675.00 N345042.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS10	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.00 - 0.30	ES					Stiff friable brown silty Clay. Frequent roots. [Topsoil/Made Ground]
		0.30 - 1.00	B		0.30			Very stiff greyish brown slightly silty CLAY. Firm from 1.0m bgl. Soft to firm from 1.1m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=5 (3,2/1,1,1,2)				
					1.30			Very soft grey/black CLAY. Frequent pockets of black amorphous Peat. [Tidal Flat Deposits]
		1.50 - 1.70	D		1.50			Very soft dark grey slightly silty CLAY. [Tidal Flat Deposits]
	▼				1.70			Very soft light brown clayey SILT. [Tidal Flat Deposits]
		2.00	SPT	N=16 (4,3/4,4,3,5)	1.90			Firm to stiff brown slightly gravelly CLAY. Gravel is fine, subangular of chalk. [Glacial Till]
					2.10			Orangish brown/light brown sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium, subangular of chalk. [Glacial Till]
		2.60 - 2.80	D		2.53			Stiff greyish brown slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
	▼				2.85			
		2.90 - 3.40	B					Orangish brown/light brown sandy GRAVEL. Sand is fine to medium. Gravel is fine to medium, subangular of chalk and flint. [Glacial Till]
		3.00	SPT	N=7 (2,2/2,1,3,1)				
					3.40			Firm greyish brown slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
		4.00	SPT	N=50 (9,10/50 for 255mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.7m bgl (seepage). Possible second strike at 2.8m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519393.00 N344988.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS11	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.13			Stiff brown clayey Silt. [Topsoil/Made Ground]
		0.30 - 1.00	B					Very stiff brown /greyish brown slightly silty CLAY. Occasional pockets of light brown silt. Closely spaced subhorizontal to 45° discontinuities. [Tidal Flat Deposits]
		1.00 - 1.20	ES					
	▼	1.00	SPT	N=10 (1,3/3,2,3,2)	1.20			Black amorphous PEAT. [Tidal Flat Deposits]
		1.50 - 2.00	B		1.50			Soft to firm light brown slightly clayey slightly sandy slightly gravelly SILT. Gravel is occasional, fine to medium, subangular to subrounded of chalk and flint. [Glacial Till]
		2.00	SPT	N=13 (3,3/4,3,3,3)				
	▼				2.50			Orange/brown slightly gravelly SAND. Sand is fine to coarse. Gravel is fine, subrounded of indeterminate lithology. [Glacial Till]
					2.80			Stiff greyish brown/grey slightly gravelly CLAY. Gravel is fine to medium, subangular to subrounded of chalk and flint. [Glacial Till]
		3.00	SPT	N=11 (1,2/2,3,3,3)				
		3.20 - 3.50	D					
		4.00	SPT	N=50 (7,8/50 for 270mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.2m bgl (seepage). Possible second strike at 2.5m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519033.00 N344967.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS12	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 0.50	D					Firm to stiff friable brown Silt. Frequent roots in top 0.1m. [Topsoil/Made Ground]
		0.20 - 0.50	ES					
		0.70 - 1.90	B		0.70			Stiff greyish brown CLAY. Soft to firm from 1.5m bgl. Very soft between 1.90m and 1.95m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=6 (1,2/2,1,2,1,2,1)				
	▼	2.00	SPT	N=12 (3,3/3,4,3,2)	1.95			Soft greyish brown slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to coarse, subrounded to subangular of chalk and flint. [Glacial Till]
					2.20			Orangish brown SAND. Sand is fine to coarse. [Glacial Till]
		2.40 - 2.80	D		2.40			Firm greyish brown gravelly CLAY. Gravel is fine to coarse, subangular to angular of chalk and flint. [Glacial Till]
		3.00	SPT	N=13 (4,4/3,3,4,3)				
		3.20 - 4.00	B		3.10 3.15			Orangish brown SAND. Sand is fine to coarse. [Glacial Till]
	▼							Firm to stiff greyish brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse, subangular to angular of chalk and flint. [Glacial Till]
		4.00	SPT	N=50 (4,5/50 for 275mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.9m bgl (seepage). Possible second strike at 3.4m bgl. (seepage).
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519131.00 N345378.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS13	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.50 0.00 - 0.50	D ES					Soft brown Silt. Frequent roots. Light brown between 0.45m and 0.50m bgl. [Topsoil/Made Ground]
		0.50 - 1.00	B		0.50			Stiff dark grey/dark brown CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=7 (1,2/2,1,2,2)	1.00			Firm brown slightly silty to silty CLAY. [Tidal Flat Deposits]
		1.30 - 1.50	D		1.30			Firm brown mottled dark grey slightly silty slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
		2.00	SPT	N=34 (1,2/10,8,8,8)	1.93 2.10			Orangish brown gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded of quartz. [Glacial Till]
					2.35			Very stiff brown mottled dark grey slightly silty slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
					2.45			Orangish brown gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded of quartz. [Glacial Till]
		3.00 - 4.00 3.00	B SPT	N=20 (3,3/4,6,5,5)				Firm to stiff brown mottled dark grey slightly silty slightly gravelly CLAY. Gravel is fine to coarse, subangular of chalk. [Glacial Till]
		4.00	SPT	N=50 (9,8/50 for 275mm)	4.00			End of Borehole at 4.000m

1 2 3 4 5 6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519427.00 N345420.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS14	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Stiff brown clayey SILT. Frequent roots. [Topsoil/Made Ground]
		0.40 - 0.70	B		0.40			
								Stiff grey mottled light grey and light brown slightly silty CLAY. Occasional to frequent pockets of light grey and light brown silt. [Tidal Flat Deposits]
		0.70 - 1.00	ES		0.70			
								Dark brown slightly silty SAND. Sand is fine. [Tidal Flat Deposits]
		1.00	SPT	N=20 (4,6/4,4,6,6)	1.00			
								Stiff light brown slightly silty slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
		1.50 - 1.80	D					
		2.00	SPT	N=10 (1,2/2,2,3,3)				
					2.20			
								Firm dark grey/grey slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. Stiff from 3.0m bgl. [Glacial Till]
		2.50 - 2.80	D					
		3.00 - 4.00	B					
		3.00	SPT	N=19 (4,5/5,6,4,4)				
		4.00	SPT	N=50 (7,8/50 for 255mm)	4.00			
								End of Borehole at 4.000m

1 2 3 4 5 6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519650.00 N345538.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS15	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.10	ES					Very stiff friable brown slightly silty Clay. [Topsoil/ Made Ground]
		0.10 - 0.85	B					
		0.85 - 0.95	D		0.85			Brown slightly gravelly SAND. Sand is fine to medium. Gravel is occasional, rounded of quartz. [Tidal Flat Deposits]
		1.00	SPT	N=50 (3,4/50 for 255mm)	0.95 1.00			Orangish brown sandy GRAVEL. Sand is fine. Gravel is fine to coarse, angular to rounded of quartz and rare sandstone. [Tidal Flat Deposits]
								End of Borehole at 1.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 1.0m bgl due to sampler refusal.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519959.00 N345488.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS16	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 1.00	B		0.30			Stiff brown silty to very silty CLAY. Frequent roots [Topsoil/Made Ground]
								Stiff greyish brown CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=12 (3,3/4,4,2,2)	1.00			Orangish brown slightly clayey slightly gravelly SAND. Sand is fine to medium. Gravel is occasional, medium to coarse, rounded of quartz. [Tidal Flat Deposits]
	▼	1.20 - 1.50	D					
		1.50 - 1.70	ES					
		2.00 - 3.00	B		1.90			Orangish brown slightly gravelly SAND. Sand is medium to coarse. Gravel is occasional, medium, rounded of quartz. [Tidal Flat Deposits]
		2.00	SPT	N=10 (2,2/3,3,3,1)				
		3.00	SPT	N=50 (10,10/12,13,13,12)	3.00			End of Borehole at 3.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.0m bgl due to sampler refusal.
Water strike at 1.4m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520005.00 N345256.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS17	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.18	ES					Stiff light brown silty Clay. [Topsoil/Made Ground]
		0.20 - 1.00	B		0.18			Stiff brown slightly silty CLAY. Firm to stiff with occasional organic fragments from 0.9m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=4 (1,1/1,1,1,1)	1.05			
		1.10 - 1.60	D					Soft grey CLAY. Frequent organic fragments. [Tidal Flat Deposits]
	▼				1.65			Black amorphous PEAT. [Tidal Flat Deposits]
					1.80			
	▼	2.00	SPT	N=13 (3,3/3,3,4,3)				Soft light brown silty slightly sandy to sandy CLAY. Sand is fine. Occasional pockets of slightly gravelly sand. [Glacial Till]
		2.50 - 2.70	D		2.50			Stiff light brown gravelly CLAY. Gravel is fine to coarse, subangular of chalk, flint and quartz. [Glacial Till]
		2.70	SPT	N=50 (11,10/50 for 245mm)	2.70			End of Borehole at 2.700m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.7m bgl due to sampler refusal.
Water strike at 1.45m bgl (seepage). Possible second strike at 2.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520178.00 N345732.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS18	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.25 - 0.90	B		0.25			Stiff friable brown/dark brown slightly silty CLAY. Frequent roots. [Topsoil/Made Ground]
	▼	1.00 1.05 - 1.30	SPT ES	N=8 (1,1/1,2,3,2)	1.05			Very stiff brown mottled dark brown and dark grey slightly silty CLAY. Frequent rootlets. Soft from 0.9m bgl. [Tidal Flat Deposits]
		1.60 - 1.70	D		1.60			Black silty slightly gravelly SAND. Sand is fine to medium. Gravel is rare, medium to coarse, rounded of quartz. Organic. [Tidal Flat Deposits]
		2.00	SPT	N=7 (2,3/2,2,1,2)				Very soft brown silty slightly sandy gravelly CLAY. Gravel is fine to medium, subangular to subrounded of quartz and flint. Becoming firm from 2.1m bgl. [Tidal Flat Deposits]
		2.40 - 3.00	B		2.40			Dark grey slightly silty very gravelly SAND. Sand is fine. Gravel is occasional, fine to medium, rounded of quartz. Becoming light grey below 2.45m bgl. [Tidal Flat Deposits]
		3.00	SPT	N=50 (3,7/50 for 255mm)	3.00			End of Borehole at 3.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.0m bgl due to sampler refusal.
Water strike at 1.1m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520582.00 N345682.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS19	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 1.00	B		0.30			Stiff friable brown clayey Silt. [Topsoil/Made Ground]
		1.00 - 1.20 1.00	ES SPT	N=4 (0,0/1,1,1,1)				Stiff brown slightly silty CLAY. Subhorizontal discontinuities with silt partings at 0.96m, 1.1m and 1.3m bgl. [Tidal Flat Deposits]
		1.60 - 1.80	D		1.50			Firm brown slightly silty CLAY. [Tidal Flat Deposits]
		2.00	SPT	N=3 (0,0/0,1,1,1)	1.90 2.05			Soft brown slightly silty CLAY. [Tidal Flat Deposits]
	▼	2.30 - 2.50	D		2.20			Very soft brown mottled grey slightly silty CLAY. [Tidal Flat Deposits]
					2.65			Very soft grey mottled dark grey CLAY. Occasional to frequent organic fragments. [Tidal Flat Deposits]
					2.70			Black amorphous PEAT. [Tidal Flat Deposits]
	▼	2.90 - 4.00 3.00	B SPT	N=12 (3,3/3,3,3,3)	2.90			Dark grey SAND. Sand is medium. [Tidal Flat Deposits] Brown medium SAND. Sand is medium to coarse. [Tidal Flat Deposits]
		4.00	SPT	N=12 (2,2/4,3,3,2)				
		4.80	SPT	N=46 (12,8/7,8,16,15)	4.80			End of Borehole at 4.800m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.8m bgl due to sampler refusal.
Water strike at 2.2m bgl. (seepage). Second strike at 2.95m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520953.00 N345600.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS20	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.40 - 0.80	ES		0.40			Firm friable brown slightly silty Clay. [Topsoil/ Made Ground]
		0.80 - 1.50	B					Firm to stiff brown/light brown slightly clayey to clayey SILT. Subhorizontal discontinuities at 0.95m and 1.05m bgl with light brown silt partings. [Tidal Flat Deposits]
		1.00	SPT	N=2 (0,0/0,1,1,0)				
		1.50 - 2.00	B		1.50			Very soft brown slightly silty slightly sandy slightly gravelly CLAY. Becoming brownish grey at 1.9m bgl. [Tidal Flat Deposits]
	▼	2.00	SPT	N=0 (0,0/0,0,0,0)				
		2.20 - 2.60	D		2.20			Very soft dark grey slightly silty CLAY. Frequent organic fragments. [Tidal Flat Deposits]
					2.60			Dark brown amorphous PEAT. [Tidal Flat Deposits]
					2.80			Grey SAND. Sand is fine to medium. [Tidal Flat Deposits]
	▼	3.00	SPT	N=16 (2,2/3,4,4,5)	2.90			Brown slightly clayey slightly gravelly SAND. Sand is fine to medium. Gravel is occasional, fine to coarse, rounded of quartz. [Tidal Flat Deposits]
		3.45 - 4.00	B		3.45			Brown SAND. Sand is fine to medium. [Tidal Flat Deposits]
		4.00	SPT	N=50 (10,8/50 for 265mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.8m bgl (seepage). Second strike at 2.9m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E521255.00 N345568.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS21	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.45 - 1.00	B		0.45			Stiff friable brown Silt. Cobble of light brown siltstone at 0.4m bgl. [Topsoil/Made Ground]	
		1.00 - 1.20 1.00 1.20 - 1.40	ES SPT D	N=5 (1,1/1,2,1,1)	1.00			Stiff dark brown silty CLAY/clayey SILT. [Tidal Flat Deposits]	1
	▼	2.00	SPT	N=2 (0,0/0,1,1,0)				Soft to firm greyish brown CLAY. Very soft with rare organic fragments below 2.1m bgl. [Tidal Flat Deposits]	2
		3.00	SPT	N=1 (0,0/0,0,1,0)	2.85			Very soft grey CLAY. Dark grey from 3.5m bgl. [Tidal Flat Deposits]	3
		3.50 - 3.70	D						
	▼	4.00	SPT	N=4 (2,2/1,1,1,1)	3.70			Dark brown/dark grey/black amorphous, locally pseudo-fibrous PEAT. [Tidal Flat Deposits]	
					3.95			Dark grey fine to medium SAND. [Tidal Flat Deposits]	4
					4.10			Brown slightly gravelly SAND. Sand is fine to coarse. Gravel is coarse, rounded of quartzite. [Tidal Flat Deposits]	
					4.70			Light brown/brown slightly gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded of quartz, feldspar and flint. [Tidal Flat Deposits]	5
		5.00	SPT	N=14 (3,4/4,4,3,3)	5.00			End of Borehole at 5.000m	
									6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5m bgl.
Water strike at 2.2m bgl (Seepage). Second strike at 3.9m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E521177.00 N345327.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS22	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.20	ES					Soft brown silty Clay. Frequent roots. [Topsoil/ Made Ground]
		0.20 - 1.00	B		0.20			Stiff brown friable silty CLAY. Closely spaced subhorizontal discontinuities, with fine sand/silt partings. [Tidal Flat Deposits]
		1.00	SPT	N=6 (1,1/1,1,2,2)	1.00			Stiff brown/dark brown CLAY [Tidal Flat Deposits]
		1.50 - 1.80	D					
	▼				1.80			Soft greyish brown CLAY. Occasional organic fragments. Very soft from 2.2m bgl. [Tidal Flat Deposits]
		2.00	SPT	N=0 (0,0/0,0,0,0)				
		2.80 - 3.00	D		2.85			Black/dark grey amorphous PEAT. [Tidal Flat Deposits]
	▼	3.00	SPT	N=3 (0,0/0,1,1,1)				
		3.15 - 3.40	B		3.15			Very soft brown silty sandy CLAY. [Tidal Flat Deposits]
		3.50	SPT	50 (7,11/50 for 170mm)	3.40 3.50			Brown gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular to rounded of quartz, feldspar and flint. [Tidal Flat Deposits]
								End of Borehole at 3.500m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.5m bgl due to sampler refusal.
Water strike at 1.8m bgl. (Seepage). Possible second strike at 3.1m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520890.00 N345241.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS23	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
								Soft friable brown slightly sandy Silt. Sand is fine. [Topsoil/Made Ground]
		0.40 - 0.60 0.40 - 0.60	D ES		0.35			Light brown slightly silty SAND. Sand is fine. Thin band (2mm) of dark brown fine to medium sand at base. [Tidal Flat Deposits]
					0.68			Firm to stiff brown slightly silty CLAY. [Tidal Flat Deposits]
		1.00 1.10 - 2.00	SPT D	N=1 (0,0/0,0,0,1)	1.10			Soft grey CLAY. Occasional organic fragments below 1.5m bgl. Very soft below 1.8m bgl. [Tidal Flat Deposits]
	▼							
		2.00 - 3.00 2.00	B SPT	N=0 (0,0/0,0,0,0)	2.00			Very soft dark grey slightly sandy slightly gravelly CLAY with frequent organic fragments. [Tidal Flat Deposits]
		3.00	SPT	N=3 (0,0/0,0,2,1)				
					3.40			Dark grey/black sandy slightly gravelly PEAT. Gravel occasional, angular of flint. [Tidal Flat Deposits]
					3.65			Orangish brown slightly gravelly SAND. Sand is fine to medium. Gravel is fine to medium, subangular to rounded of quartzite, flint and feldspar. [Tidal Flat Deposits]
		3.80	SPT	N=50 (14,10/50 for 255mm)	3.80			End of Borehole at 3.800m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.8m bgl due to sampler refusal.
Water strike at 1.8m bgl. (seepage).
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E521323.00 N345887.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS24	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.30	D					Stiff friable brown silty Clay/Clayey Silt. Frequent roots. [Topsoil/Made Ground]
		0.30 - 0.90	B		0.30			Stiff brown slightly silty CLAY. [Tidal Flat Deposits]
		1.00 - 1.20 1.00	ES SPT	N=4 (1,1/1,1,1,1)	0.90			Firm to stiff greyish brown CLAY. Soft to firm below 1.5m bgl. [Tidal Flat Deposits]
	▼	1.80 - 2.00	D		1.80			Soft grey CLAY. Occasional to frequent organic fragments. Very soft below 2.0m bgl. [Tidal Flat Deposits]
		2.00 - 3.00 2.00	B SPT	N=2 (0,0/0,1,1,0)				
		3.00	SPT	N=3 (0,0/0,1,1,1)				
		4.00	SPT	N=50 (8,10/50 for 295mm)	3.90 4.00			Black amorphous, locally pseudo-fibrous PEAT. [Tidal Flat Deposits] End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.8m bgl (seepage).
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520913.00 N345867.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS25	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.20	ES					Firm to stiff friable brown slightly silty Clay. [Topsoil/Made Ground]
		0.20 - 1.00	B		0.20			Stiff brown slightly silty CLAY. Firm from 1.3m bgl. Soft from 1.6m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=6 (1,1/1,2,1,2)				
		1.50 - 1.80	D					
		2.00	SPT	N=1 (0,0/0,0,1,0)				
	▼				2.10			Very soft dark grey/grey CLAY. Occasional organic fragments. [Tidal Flat Deposits]
		2.50 - 2.80	D					
		3.00	SPT	N=3 (1,1/1,1,1,0)				
	▼				3.05			Dark brown/dark grey/black sandy amorphous PEAT. [Tidal Flat Deposits]
					3.50			Brown slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits]
		3.70	SPT	N=50 (10,12/50 for 245mm)	3.70			End of Borehole at 3.700m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.7m bgl due to sampler refusal.
Water strike at 2.3m bgl. (Seepage). Second strike at 3.1m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E521049.00 N346102.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS26	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.40	ES					Stiff brown silty Clay. Frequent roots. [Topsoil/ Made Ground]
		0.40 - 1.00	B		0.40			Stiff brown slightly silty CLAY. Firm from 0.95m bgl. Soft to firm from 1.05m bgl. [Tidal Flat Deposits]
		1.00 - 1.20 1.00	D SPT	N=6 (1,1/2,2,1,1)				
					1.70			Very soft grey mottled brown CLAY. Occasional organic fragments. Grey mottled dark grey from 2.5m bgl. Poor recovery 2.0m to 3.0m bgl. [Tidal Flat Deposits]
	▼	2.00	SPT	N=1 (1,1/0,0,0,1)				
		3.00	SPT	N=6 (1,2/2,1,1,2)				
	▼	3.55 - 3.65	D		3.55			Dark brown/dark grey/black sandy amorphous PEAT. [Tidal Flat Deposits]
		3.65 - 4.00	B		3.65			Brown very gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits]
		4.00	SPT	50 (25 for 85mm/50 for 165mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 2.1m bgl (seepage). Possible second strike at 3.65m bgl.
Excavation Stable. Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520410.00 N345975.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS27	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.15	ES					Stiff friable brown slightly silty Clay. Frequent Roots [Topsoil/Made Ground]
		0.15 - 1.00	B		0.15			Stiff brown CLAY [Tidal Flat Deposits]
		1.00	SPT	N=4 (0,0/1,1,1,1)				
		1.10 - 1.50	D		1.10			Firm greyish brown CLAY. Grey and soft below 1.5m bgl. Very soft below 1.7m bgl. Frequent organic fragments below 1.85m bgl. [Tidal Flat Deposits]
	▼							
	▼	2.00 - 2.65	B		1.95			Brown/black amorphous PEAT. [Tidal Flat Deposits]
		2.00	SPT	N=1 (0,0/1,0,0,0)	2.00			Brown very clayey SAND. Sand is fine to medium. [Tidal Flat Deposits]
		2.70	SPT	50 (25 for 75mm/50 for 190mm)	2.65 2.70			Brown very gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded to subrounded of quartz and feldspar. [Tidal Flat Deposits]
								End of Borehole at 2.700m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.7m bgl due to sampler refusal.
Water strike at 1.6m bgl. (seepage). Second strike at 2.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519880.00 N345962.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS28	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 0.40	ES		0.20			Stiff friable brown/dark brown slightly silty Clay. Frequent roots. [Made Ground]
					0.47			Very stiff brown/dark brown slightly silty Clay. [Made Ground]
		0.60 - 1.00	B		0.55			Cobble of crushed red brick. [Made Ground]
		1.00	SPT	N=5 (2,1/1,2,1,1)	1.00			Stiff friable brown mottled dark brown, dark grey, light grey and orange brown SILT. [Tidal Flat Deposits]
	▼	1.30 - 1.50	D		1.30			Soft friable brown mottled dark brown, dark grey, light grey and orange brown slightly clayey SILT. [Tidal Flat Deposits]
		1.50 - 1.80	D					Very soft brownish grey slightly silty CLAY. [Tidal Flat Deposits]
					1.80			Black amorphous PEAT. [Tidal Flat Deposits]
	▼	1.90 - 2.50	B		1.83			Orangish brown clayey slightly gravelly to gravelly SAND. Sand is fine. Gravel is medium, rounded of quartz. Occasional organic fragments. [Tidal Flat Deposits]
		2.00	SPT	N=10 (2,3/3,3,2,2)				
					2.50			Brown slightly silty SAND. Sand is fine. [Tidal Flat Deposits]
		3.00	SPT	N=50 (5,8/50 for 275mm)	3.00			End of Borehole at 3.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.0m bgl due to sampler refusal.
Water strike at 1.2m bgl (seepage). Possible second strike at 1.9m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519439.00 N345925.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS29	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.25 - 0.90	B		0.25			Stiff dark brown slightly silty Clay. [Topsoil/Made Ground]
		0.90 - 1.00	ES		0.90			Stiff to very stiff dark greyish brown CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=13 (1,2/3,3,4,3)	1.00			Dark brown mottled black sandy SILT. Abundant organic fragments. [Tidal Flat Deposits]
		1.50 - 1.80	D					Soft to firm orangish brown silty CLAY. [Tidal Flat Deposits]
					1.80			Firm grey mottled brown CLAY. Fine to medium sand pocket at 1.95m bgl. Rare fine angular gravel of feldspar from 2.45m bgl. Occasional organic fragments from 2.65m bgl. Soft from 2.95m bgl. [Tidal Flat Deposits]
		2.00	SPT	N=13 (3,3/4,4,4,1)				
	▼	3.00	SPT	N=16 (4,5/5,5,4,2)	3.00			Orangish brown slightly gravelly SAND. Sand is fine to medium. Gravel is occasional, fine to medium, rounded of quartz. [Tidal Flat Deposits]
		3.10 - 3.50	D		3.10			Very soft dark grey CLAY. Soft from 3.3m bgl. Firm from 3.8m bgl. [Glacial Till]
		4.00	SPT	N=50 (8,8/50 for 240mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 3.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519189.00 N345825.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS30	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.50	D					Stiff brown friable Silt. [Topsoil/Made Ground]
		0.00 - 0.50	ES					
		0.50 - 1.00	B		0.50			Very stiff brown slightly silty CLAY. Firm from 1.1m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=9 (2,1/3,2,2,2)				
					1.25			Dark brown/black amorphous PEAT. [Tidal Flat Deposits]
					1.30			Firm brown mottled light brown clayey slightly sandy SILT Soft from 1.7m bgl. Very soft from 2.1m bgl. [Tidal Flat Deposits]
	▼							
		2.00	SPT	N=8 (2,2/2,2,2,2)				
	▼				2.35			Orange slightly clayey to clayey gravelly SAND. Sand is fine to medium. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits]
		2.50 - 2.80	D		2.50			Firm grey mottled brown slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk. [Glacial Till]
		3.00	SPT	N=6 (4,3/2,1,1,2)				
		4.00	SPT	N=8 (2,2/2,2,2,2)				
		5.00	SPT	N=12 (3,3/3,3,3,3)	5.00			End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5.0m bgl.
Water strike at 1.65m bgl. (Seepage). Possible second strike at 2.3m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E518942.00 N346135.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS31	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.23 - 1.00	B		0.23			Stiff friable brown slightly silty Clay. Frequent roots. [Topsoil/Made Ground]
	▼	1.00	SPT	N=5 (0,1/1,1,2,1)	1.05			Very stiff brown CLAY. Occasional pockets of orange/brown silty clay from 0.8m bgl. [Tidal Flat Deposits]
		1.15 - 1.30	ES		1.15			Very soft black slightly sandy CLAY. Sand is fine. Abundant roots. [Tidal Flat Deposits]
								Orangish brown SAND. Sand is fine to medium. [Tidal Flat Deposits]
					1.65			Light brown silty very gravelly SAND. Sand is fine to medium. Gravel is occasional, fine to medium, rounded of feldspar. Gravel rare between 2.35m and 2.7m bgl. [Tidal Flat Deposits]
		2.00	SPT	N=6 (2,2/1,2,2,1)				
		2.50 - 3.00	B					
		3.00	SPT	N=50 (8,10/50 for 285mm)	3.00			End of Borehole at 3.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 3.0m bgl due to sampler refusal.
Water strike at 1.05m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519335.00 N346251.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS32	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.15	ES					Very stiff friable brown silty Clay. [Topsoil/Made Ground]
		0.20 - 1.00	B		0.17			Very stiff greyish brown slightly silty CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=4 (1,1/1,1,1,1)				
		2.00	SPT	N=8 (1,2/2,1,2,3)	1.85			Light brown silty SAND. Sand is fine. Clayey from 2.1m bgl. [Tidal Flat Deposits]
		2.50 - 2.80	D		2.30			Soft greyish brown slightly silty CLAY. [Tidal Flat Deposits]
	▼	3.00	SPT	N=7 (2,1/2,2,1,2)				
		3.35 - 3.60	D		3.10			Very soft grey slightly silty CLAY. [Tidal Flat Deposits]
					3.35			Black amorphous PEAT. [Tidal Flat Deposits]
					3.60			Dark grey very clayey SAND. [Tidal Flat Deposits]
	▼	4.00 - 5.00	B		3.95			Orangish brown silty very gravelly SAND. Sand is fine to medium. Gravel is fine to medium, rounded to subangular of quartz, flint and feldspar. [Tidal Flat Deposits]
		4.00	SPT	N=50 (10,10/50 for 255mm)				
					5.00			End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5.0m bgl.
Water strike at 3.1m bgl (Seepage). Second strike at 3.95m
Excavation stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520139.00 N346166.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS33	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15 - 1.00	B		0.15			Very stiff brown silty CLAY. Frequent roots. [Made Ground]
								Very stiff brown/dark brown slightly silty CLAY. [Made Ground]
		1.00 - 1.20 1.00	ES SPT	N=5 (1,1/1,1,2,1)				
					1.45			Cobble of crushed brick. [Made Ground]
					1.50			Soft brownish grey CLAY. [Tidal Flat Deposits]
		1.75 - 2.00	D		1.75			Very soft grey/dark grey CLAY. Occasional organic fragments. [Tidal Flat Deposits]
	▼	2.00	SPT	N=8 (2,2/2,3,2,1)				
					2.25			Very soft dark grey CLAY [Tidal Flat Deposits]
		2.50 - 2.80	D					
					2.93			Black amorphous PEAT. [Tidal Flat Deposits]
	▼	3.00	SPT	N=5 (2,2/1,2,1,1)	3.00			Very soft brown sandy CLAY. Sand is fine to medium. [Tidal Flat Deposits]
		3.30 - 4.00	B		3.30			Brown SAND. Sand is fine to medium. [Tidal Flat Deposits]
		4.00	SPT	N=50 (6,8/50 for 245mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 2.05m bgl (seepage). Possible second strike at 3.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520524.00 N346249.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS34	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 0.40 0.20 - 1.00	ES B		0.20			Stiff friable brown slightly silty Clay. Frequent roots. [Topsoil/Made Ground]
		1.00	SPT	N=3 (1,1/0,0,1,2)				Stiff brown slightly silty CLAY. Subhorizontal discontinuities with silt partings at 0.91m and 1.07m bgl. Firm from 1.1m bgl [Tidal Flat Deposits]
		1.80 - 2.00	D		1.80			Soft grey slightly silty CLAY. Occasional organic fragments. [Tidal Flat Deposits]
		2.00	SPT	N=0 (0,0/0,0,0,0)	2.05			Very soft grey/dark grey CLAY. Mottled black and organic from 2.8m bgl. [Tidal Flat Deposits]
	▼	2.80 - 3.00	D					
		3.00	SPT	N=2 (1,1/0,0,1,1)				
	▼	3.40 - 3.50	D		3.40			Black/brown amorphous PEAT. [Tidal Flat Deposits]
					3.50			Light grey SAND. Sand is medium to coarse. [Tidal Flat Deposits]
					3.70			Orange/brown SAND. Sand is fine to medium. [Tidal Flat Deposits]
		4.00	SPT	N=50 (25 for 115mm/50 for 260mm)	3.90 4.00			Orange/brown gravelly to very gravelly SAND. Sand is fine to medium. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits]
								End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 2.5m bgl (seepage). Possible second strike at 3.5m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520906.00 N346424.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS35	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.30 - 1.00	B		0.30			Stiff brown friable clayey Silt. Frequent roots. [Topsoil/Made Ground]
		1.00	SPT	N=4 (2,2/1,1,1,1)				Stiff brown slightly silty CLAY. Firm from 0.8m bgl. [Tidal Flat Deposits]
	▼	1.45 - 2.00	D		1.45			Soft grey CLAY. Occasional organic fragments. [Tidal Flat Deposits]
		2.00	SPT	N=3 (0,0/0,1,1,1)	2.10			Very soft dark grey CLAY. Occasional to frequent organic fragments. Poor recovery 2.0m to 3.0m bgl. [Tidal Flat Deposits]
		2.50 - 2.80	ES					
	▼	3.00	SPT	N=6 (2,1/1,2,2,1)				
		3.75 - 4.00	D		3.65 3.75			Black amorphous PEAT. [Tidal Flat Deposits] Brown Sand. Sand is medium. [Tidal Flat Deposits]
		4.00	SPT	N=50 (10,11/12,15,13,10)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.6m bgl (seepage). Possible second strike at 2.8m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520714.00 N346738.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS36	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.20	ES					Stiff friable brown slightly silty Clay. [Topsoil/ Made Ground]
		0.20 - 1.00	B		0.20			Stiff brown CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=7 (2,2/2,1,2,2)				
		1.50 - 1.80	D					
					1.65			Soft to firm brown CLAY. Occasional organic fragments. [Tidal Flat Deposits]
	▼	2.00 - 2.50	D		1.95			Very soft grey CLAY. Occasional organic fragments [Tidal Flat Deposits]
		2.00	SPT	N=1 (0,0/0,0,1,0)				
	▼	3.00	SPT	N=5 (1,1/1,2,1,1)	2.95			Brownish black amorphous PEAT. [Tidal Flat Deposits]
		3.10 - 3.30	B		3.10			Dark brown/dark grey silty to very silty slightly gravelly SAND. Sand is fine to medium. Gravel is fine, rounded of quartz and feldspar. [Tidal Flat Deposits]
					3.30			Dark brown slightly gravelly SAND. Sand is fine to medium. Gravel is fine, rounded of quartz and feldspar. [Tidal Flat Deposits]
		4.00	SPT	N=50 (8,8/50 for 275mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 2.0m bgl (seepage). Possible second strike at 3.0m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 22/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520414.00 N346557.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS37	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 1.00	B		0.20			Stiff, friable brown silty to very silty Clay. Frequent roots. [Topsoil/Made Ground]
		1.00 - 1.50 1.00 - 1.50 1.00	D ES SPT	N=7 (2,2/2,2,1,1,2)				Stiff brown slightly silty CLAY. Firm from 1.0m bgl. Pocket of fine brown sand at 1.55m bgl. [Tidal Flat Deposits]
	▼				1.75			Very soft grey CLAY. Occasional to frequent organic fragments. [Tidal Flat Deposits]
		2.00 - 2.50 2.00	D SPT	N=3 (0,0/0,1,1,1)				
		3.00	SPT	N=5 (1,1/1,2,1,1)				
					3.85			Black amorphous PEAT. [Tidal Flat Deposits]
		4.00	SPT	N=33 (6,6/8,8,8,9)	4.00			Very soft grey CLAY. [Tidal Flat Deposits]
	▼	4.15 - 4.45	B		4.15			Brown SAND. Sand is fine to medium. [Tidal Flat Deposits]
		4.50	SPT	50 (10,12/50 for 165mm)	4.45 4.50			Brown very gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, rounded to subround of quartz and feldspar. [Tidal Flat Deposits]
								End of Borehole at 4.500m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.5m bgl due to sampler refusal.
Water strike at 1.75m bgl (seepage). Possible second strike at 4.15m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520119.00 N346657.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS38	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 1.00	B		0.20			Stiff friable brown slightly silty Clay. [Topsoil/ Made Ground]
								Very stiff brown slightly silty CLAY. Thin (25mm and 10mm) bands of light grey silt at 0.78m and 0.83m bgl. [Tidal Flat Deposits]
		1.00 - 1.10 1.00	ES SPT	N=6 (1,1/2,1,2,1)	1.00			Firm greyish brown slightly silty CLAY. [Tidal Flat Deposits]
	▼				1.45			Soft grey/dark grey CLAY. Rare organic fragments from 1.8m bgl. Very soft and slightly silty from 2.2m bgl. [Tidal Flat Deposits]
		2.00 - 2.20 2.00	D SPT	N=6 (2,2/1,2,1,2)				
					2.45 2.48			Black amorphous PEAT. [Tidal Flat Deposits] Very soft grey/dark grey CLAY. [Tidal Flat Deposits]
		3.00	SPT	N=2 (1,1/0,1,0,1)				
		4.00	SPT	N=50 (4,7/50 for 255mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.8m bgl (seepage).
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 28/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519900.00 N346428.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS39	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.18 - 1.00	B		0.18			Stiff friable brown clayey Silt. [Topsoil/Made Ground]
								Stiff mottled light brown slightly clayey SILT. [Tidal Flat Deposits]
	▼	1.00 - 1.50 1.00	ES SPT	N=3 (0,1/1,0,1,1)	1.00			Very soft to soft brown mottled light brown slightly clayey SILT. [Tidal Flat Deposits]
		1.50 - 2.00	D					
		2.00	SPT	N=2 (0,0/0,1,1,0)				
		3.00 - 4.00 3.00	B SPT	N=0 (0,0/0,0,0,0)	3.00			Very soft dark grey slightly clayey slightly sandy SILT. Recovered as slurry between 4.0m and 4.65m bgl. [Tidal Flat Deposits]
	▼							
		4.00 - 4.65 4.00	D SPT	N=3 (0,0/1,1,0,1)				
					4.65			Brown/dark grey slightly silty gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, subangular to angular of quartz, flint and feldspar. [Tidal Flat Deposits]
		5.00	SPT	N=1 (0,0/0,0,0,1)	5.00			End of Borehole at 5.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 5.0m bgl.
Water strike at 1.0m bgl (seepage). Possible second strike at 3.5m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519353.00 N346605.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS40	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15 - 0.80	B		0.13			Stiff friable dark brown slightly silty to silty Clay. Frequent roots. [Topsoil/Made Ground]
								Stiff brown slightly silty CLAY. [Tidal Flat Deposits]
	▼	1.00 - 1.20 1.00	ES SPT	N=9 (2,2/3,2,2,2)	0.97 1.00			Dark brown/black amorphous PEAT. [Tidal Flat Deposits]
								Dark grey SAND. Sand is fine to medium. Becoming brown/orangeish brown from 1.2m. [Tidal Flat Deposits]
		1.45 - 1.80	D		1.45			Very soft to soft light brown slightly clayey slightly sandy SILT. [Tidal Flat Deposits]
					1.80			
		2.00	SPT	N=11 (3,2/3,3,3,2)				Very soft light grey clayey slightly gravelly SILT. Gravel is fine, subrounded of indeterminate lithology. [Tidal Flat Deposits]
	▼							
		3.00 - 3.80 3.00	D SPT	N=4 (1,1/1,1,1,1)	2.90			Light grey silty SAND. Sand is fine. [Tidal Flat Deposits]
		4.00	SPT	N=50 (3,4/50 for 285mm)	4.00			End of Borehole at 4.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 4.0m bgl due to sampler refusal.
Water strike at 1.0m bgl. (seepage). Second strike at 2.6m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519272.00 N346658.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS41	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.15 - 0.60	D		0.15			Stiff friable brown silty Clay. Frequent roots. [Topsoil/Made Ground]
					0.60			Very stiff brown/dark brown CLAY. Extremely closely spaced subhorizontal discontinuities with silt partings. [Tidal Flat Deposits]
					0.65			Light brown slightly silty slightly clayey gravelly SAND. Sand is fine to medium. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits]
		1.00	SPT	N=6 (2,2/2,1,1,2)				Stiff brown slightly silty CLAY [Tidal Flat Deposits]
		1.10 - 1.30	D					
					1.30			Soft friable light brown clayey sandy SILT. Sand is fine. [Tidal Flat Deposits]
					1.45			Soft to firm brown slightly silty CLAY. Pocket of fine to medium sand at base (1.7m to 1.75m bgl). [Tidal Flat Deposits]
					1.75			Very soft light brown/grey slightly silty to silty CLAY. [Tidal Flat Deposits]
		2.00	SPT	N=6 (2,1/2,2,1,1)	2.00			End of Borehole at 2.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.0m bgl.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 26/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519542.00 N346073.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS42	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15			Brown/light brown slightly silty slightly clayey Gravel. Gravel is fine to coarse, angular of flint and quartz. [Made Ground]
					0.50			Very stiff dark brown slightly gravelly Clay. Gravel is fine to coarse, angular of flint, brick and sandstone. [Made Ground]
		0.70 - 0.80	D					Stiff to very stiff brown CLAY. Becoming firm from 0.9m bgl, and soft from 1.0m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=7 (2,2/1,2,2,2)				
		1.50 - 1.85	D		1.50			Very soft to soft grey CLAY. Frequent organic fragments. [Tidal Flat Deposits]
					1.85			Soft dark brown slightly sandy SILT. Organic. [Tidal Flat Deposits]
		2.00	SPT	N=5 (1,2/1,1,2,1)	1.90			
					2.00			Brown gravelly SAND. Sand is fine to medium. Gravel is medium, rounded to angular of flint and quartz. [Tidal Flat Deposits]
								End of Borehole at 2.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.0m bgl.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 23/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520112.00 N345329.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS43	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.20 - 0.50	D					Grass over very stiff friable brown slightly silty CLAY. [Tidal Flat Deposits]
					0.80			Stiff light brown friable SILT. [Tidal Flat Deposits]
		1.00 - 1.20	D		1.00			
		1.00	SPT	N=2 (0,0/0,1,1,0)				Firm to stiff greyish brown CLAY. [Tidal Flat Deposits]
					1.55			Soft to firm greyish brown CLAY. Occasional organic fragments. [Tidal Flat Deposits]
					1.90			
		2.00	SPT	N=2 (0,0/1,0,1,0)	2.00			Brown clayey to very clayey SAND. Sand is fine to medium. [Tidal Flat Deposits]
								End of Borehole at 2.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.0m bgl.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519605.00 N344739.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS44	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.00 - 0.50	ES					Light brown sandy silty Gravel. Sand is fine to coarse. Gravel is fine to coarse, angular to subrounded of flint, sandstone, quartz and crushed concrete. [Made Ground]
		0.50 - 1.00	D		0.50			Stiff friable brown motled grey slightly clayey to clayey SILT. Soft to firm from 0.95m bgl. [Tidal Flat Deposits]
		1.00	SPT	N=7 (2,2/1,2,2,2)	1.00			Firm orangish brown SILT. [Tidal Flat Deposits]
		1.50 - 2.00	D		1.45			Firm greyish brown slightly gravelly CLAY. Gravel is fine to medium, subangular of chalk and flint. [Glacial Till]
	▼	2.00	SPT	N=4 (1,1/1,1,1,1)	2.00			End of Borehole at 2.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.0m bgl.
Groundwater strike at 1.8m bgl (seepage)
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 27/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E519102.00 N344841.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS45	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		0.10 - 0.50	D		0.10			Stiff brown silty gravelly Clay. [Topsoil/Made Ground]
								Stiff brown silty CLAY. Pockets of light brown silt at 0.55m, 0.62m and 0.74m bgl. [Tidal Flat Deposits]
					0.80			Soft to firm light brown SILT. [Tidal Flat Deposits]
	▼	1.00	SPT	N=8 (2,2/2,2,2,2)				
		1.20	D					
					1.83			Orangish light brown slightly silty gravelly SAND. Sand is fine to medium. Gravel is fine to medium, rounded of quartz and feldspar. [Tidal Flat Deposits]
		2.00	SPT	N=6 (3,1/2,1,1,1,2)	2.00			End of Borehole at 2.000m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

Borehole terminated at 2.0m bgl.
Groundwater strike at 1.05m bgl.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Drilling Log

Project Name: Heckington Fen	Client: Ecotricity Ltd.	Date: 21/09/2022	
Location: Heckington Fen, Sleaford	Contractor: N/A	Co-ords: E520757.00 N345330.00	
Project No. : R22082		Drilling Equipment	Dynamic Sample Rig

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS46	WS		SW	1:30	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.13			Light brown/light grey very gravelly Sand. Sand is fine to coarse, gravel is fine to coarse, angular to subangular of granite. [Made Ground]
		0.30 - 0.40	D					Stiff brown silty CLAY. [Tidal Flat Deposits]
					0.47			
					0.58			Soft to firm brown/dark brown clayey SILT. [Tidal Flat Deposits]
		0.70 - 0.80	D		0.70			Soft brown mottled orange clayey SILT. [Tidal Flat Deposits]
								Soft brown CLAY. [Tidal Flat Deposits]
		1.00	SPT	N=4 (1,1/1,1,1,1)	0.98			Black amorphous PEAT. [Tidal Flat Deposits]
					1.00			No recovery.
		2.00	SPT	N=1 (0,0/0,1,0,0)	2.00			End of Borehole at 2.000m

1 2 3 4 5 6

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

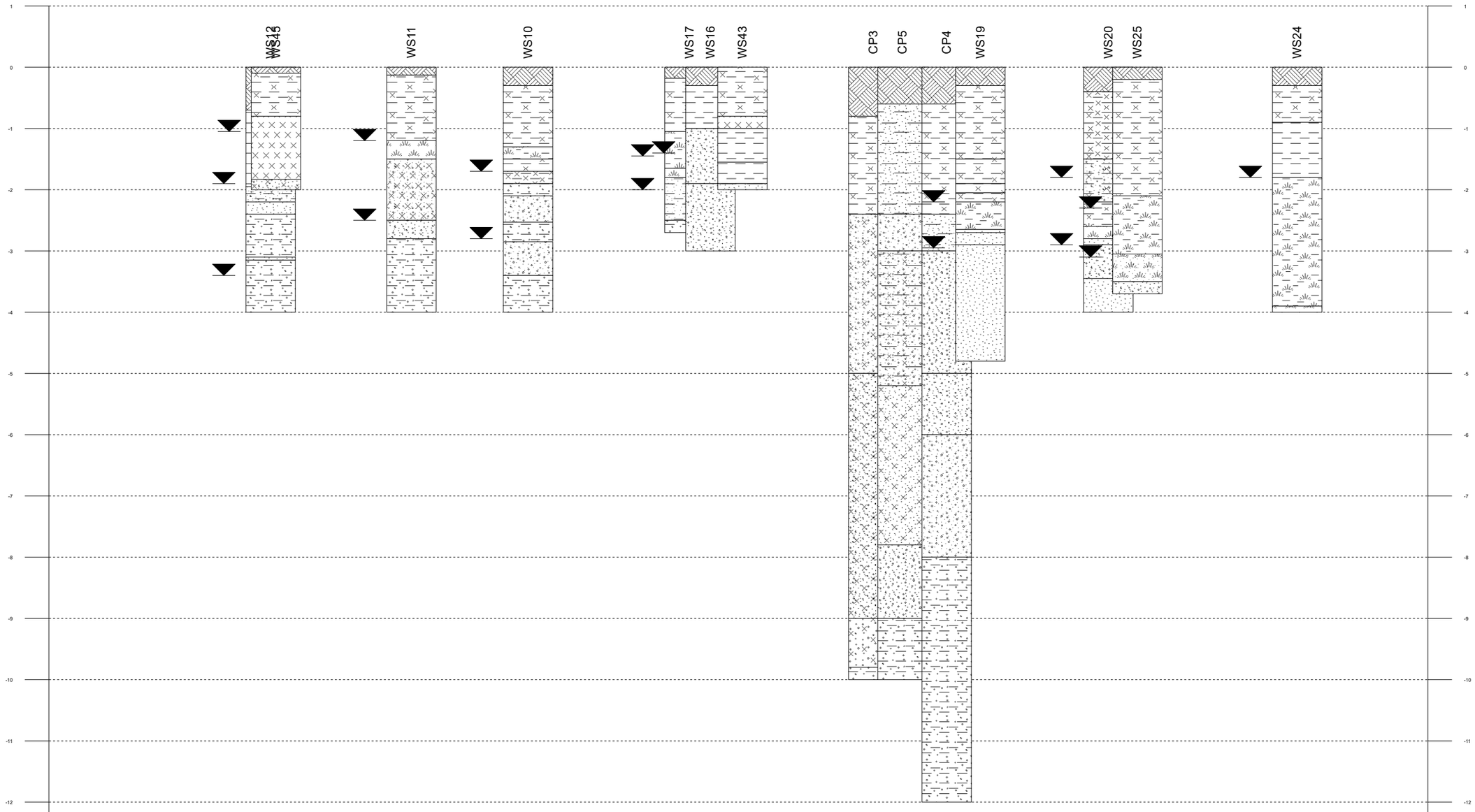
Borehole terminated at 2.0m bgl.
No groundwater encountered.
Excavation Stable.
Borehole backfilled with arisings and bentonite.

Project Id: R22082	Title: Section Line
Project Title: Heckington Fen	Vertical Scale: 1:70
Location: Heckington Fen, Sleaford	Horizontal Scale: 1:10303
Client: Ecotricity Ltd.	Engineer: Steve Woodall/Andrew Hare

Grange Geo

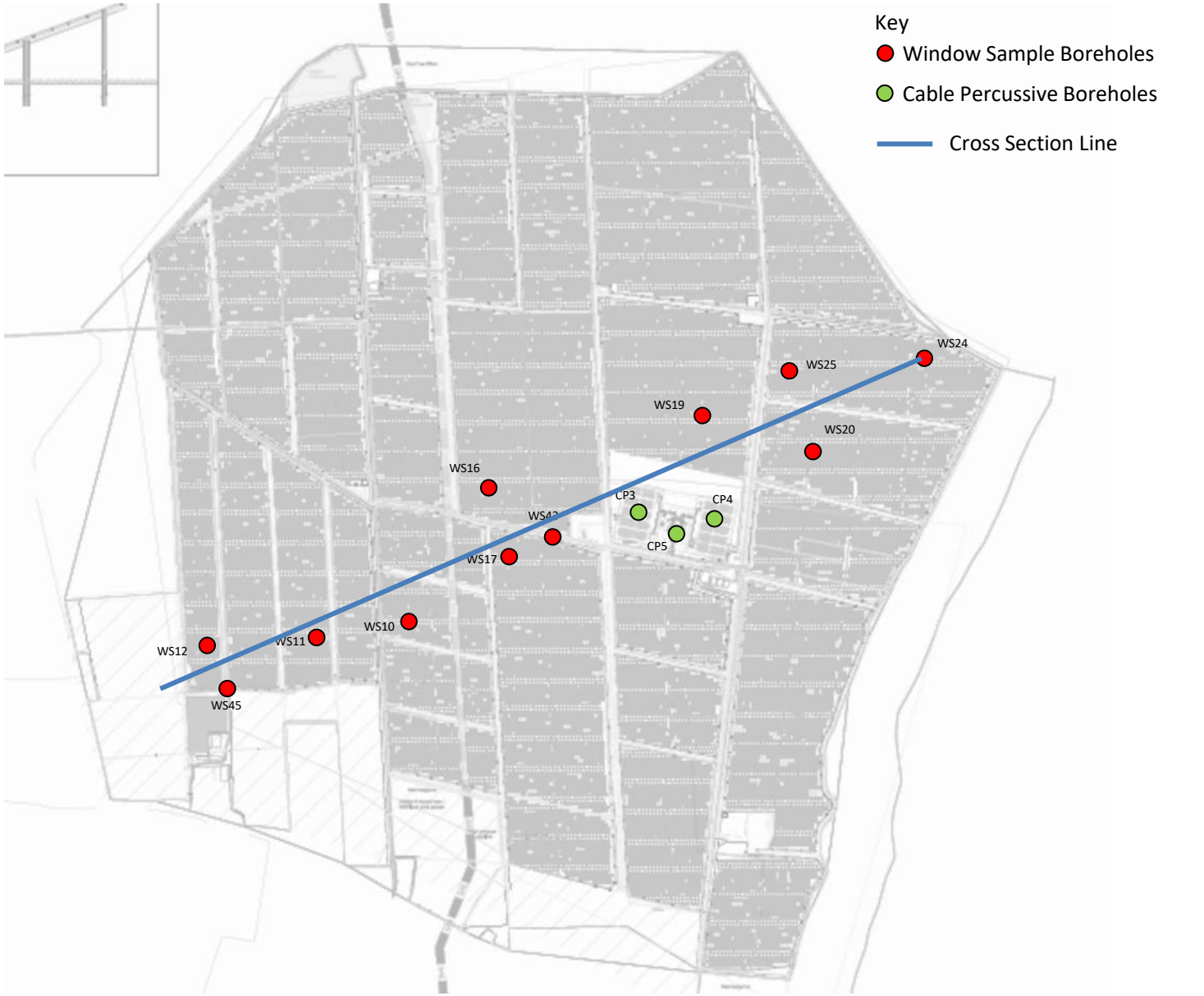
Legend Key

- TOPSOIL
- Silty CLAY
- CLAY
- SILT/CLAY
- Clayey SAND
- SILT
- Gravelly SAND
- Organic CLAY
- PEAT
- Sandy gravelly SILT
- Silty sandy gravelly CLAY
- Sandy CLAY
- Silty gravelly SAND
- Gravelly CLAY
- Sandy gravelly CLAY
- Sandy GRAVEL



-13.00

Chainage (m)	0.00	220.87	233.85	559.34	839.46	1227.45	1277.86	1354.69	1669.19	1739.17	1845.38	1926.52	2233.96	2303.85	**2688.76**
Elevation (mAOD)		77.23	65.84	47.19	110.23	45.71	185.37	21.48	65.67	135.40	161.99	114.61	108.64	152.13	6.84
Offset (m)															



Grange Geo	**Cross Section Plan** Heckington Fen Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- 7th November 2022	North	Appendix C

Appendix D

GRANGE GEOCONSULTING LTD METHODOLOGY

RISK ASSESSMENT RATIONALE

The work presented in this report has been carried out in general accordance with recognised best practice as detailed in guidance documents such as in BS5930:1999 and BS10175:2001. Important aspects of the risk assessment process are transparency and justification. The rationale behind the risk assessments presented is given in this appendix.

A preliminary risk assessment is made of both geotechnical and geo-environmental hazards identified at the desk study stage and confirmed (or amended) at the ground investigation stage. This is based on a simple matrix of probability of occurrence versus the consequence, as explained below. In the case of geo-environmental hazards, the risk assessment process proceeds to the next level, the generic risk assessment, in which actual contaminant concentrations are considered.

Preliminary Risk Assessment (Geotechnical Risk Register)

The preliminary geotechnical risk register is compiled in accordance with the Highways Agency Design Manual for Roads and Bridges HD/02. This requires an estimation of the *probability* of an event happening multiplied by the *impact* or consequences of that event. Five levels of probability and impact are given scores and these are multiplied to give a risk rating and a qualitative risk level is assigned as in Table A based on the terminology of Clayton (2001).

Table A: Geotechnical Risk Rating

Assessment of Geotechnical Risks (Risk Register)				
Probability (P)	**Impact (I)**	**Impact in terms of cost or time (% of construction cost or time)**	**Risk Rating (R = P x I)**	**Risk Level**
Very likely (5)	Very High (5)	>25%	17 to 25	Intolerable
Likely (4)	High (4)	10 to 25%	13 to 16	Intolerable
Probable (3)	Medium (3)	4 to 10%	9 to 12	Substantial
Unlikely (2)	Low (2)	1 to 4%	5 to 8	Tolerable
Negligible (1)	Very Low (1)	<1%	1 to 4	Trivial

Preliminary Risk Assessment (Geoenvironmental Consequences and Probability)

The Preliminary Risk Assessment includes a geo-environmental Hazard Identification, which seeks to list all the suspected contaminant **sources**, the **receptors** that might be harmed by those sources and the **pathways** via which the sources might reach the receptors to cause the harm. The source-pathway-receptor concept is known as a pollution linkage, and only when a linkage is complete is there any possibility of risk of harm arising.

The Hazard Identification evaluates all the **possible** pollution linkages in tabular form. Professional judgement is then used to evaluate which of these pollution linkages may be considered as **plausible**. Plausible pollution linkages are unacceptable risks in terms of the current contaminated land regime legal framework and require either remediation or further assessment. These are normally addressed via intrusive ground investigation and the chemical analysis of soil and water samples.

Where no plausible linkage identified, the linkage is classed as ‘no linkage’ in the summary table and no further action is required. If a linkage is plausible, a comparison is made of consequence against probability in general accordance with the guidance given in CIRIA Report C552 (Rudland *et al* 2001). Classification of consequences and probability are given in CIRIA C552 Tables 6.3 and 6.4, respectively, but there are

several inconsistencies in the original Table 6.3, in particular relating to 'significant harm or significant possibility of significant harm' (SH/SPOSH). Consequently, the table has been updated by Grange Geo in line with current practice and is given in Table B. Also added are scores from 1 to 4 for each category.

The basis of the classification is that 'severe' and 'major' are likely to result in SH/SPOSH as defined by the EPA 1990, Part 2A, with 'severe' resulting in acute harm. 'Moderate' lies below the level of SH/SPOSH but above the level of 'no harm' as implied by the relevant Generic assessment criterion (GAC, see below). Minor lies below the 'no harm' level.

Table B: Classification of Consequences of Geoenvironmental Risks

Classification of Consequences for Geoenvironmental Risks		
Classification	**Definition**	**Examples**
Severe (4 points)	Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. I.e. >>SH/SPOSH, concentrations are high enough to cause acute (short-term) effects.	Human health: short-term (acute) effects likely to result in significant harm. E.g. high conc. of cyanide at the surface of an informal recreational area. Planting: complete and rapid die-back of landscaped areas. Controlled waters: short-term pollution, e.g. major spillage into controlled water. Buildings etc.: catastrophic damage, e.g. explosion causing collapse. Ecosystems: short-term risk to an ecosystem or organism forming part of that ecosystem in a designated protected area, e.g. by contamination spillage. Site workers: risk assessment required to determine PPE and this may involve USEPA Level A, B or C protection.
Major (3 points)	Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of unacceptable intake or contact. I.e. >SH/SPOSH.	Human health: long-term (chronic) effects likely to result in significant harm. E.g. high conc. of contaminants close to the surface of a development site. Planting: stressed or dead plants in landscaped areas. Controlled waters: pollution of sensitive water resources, e.g. leaching into major or minor aquifers or rivers. Buildings etc.: damage renders unsafe to occupy. Ecosystems: death of species in an ecosystem in a designated protected area, e.g. by contamination spillage. Site workers: risk assessment required to determine PPE and this may involve USEPA Level B, C or D protection.

Classification of Consequences for Geoenvironmental Risks		
Classification	**Definition**	**Examples**
Moderate (2 points)	Concentration of contaminants is likely to (or is known from previous data to) exceed that indicative of no harm but not unacceptable intake or contact. I.e. >SVG/GAC but <SH/SPOSH.	Human health: harm but probably not significant harm unless particularly sensitive individual within the receptor group. May be aesthetic/olfactory impacts. Planting: damage to plants in landscaped areas, e.g. stunted growth, discoloration. Controlled waters: pollution of non-sensitive water bodies e.g. leaching into non-classified groundwater or minor ditches. Buildings etc.: damage to sensitive buildings etc. Ecosystems: minor change in an ecosystem in a designated protected area, but not significant harm. Site workers: risk assessment required to determine PPE and this may involve USEPA Level C or D protection.
Minor (1 point)	Concentration of contaminants is likely to (or is known from previous data to) be less than that indicative of no harm. I.e. <SGV/GAC.	No measurable effects, but simple PPE required (USEPA Level D protection, i.e. overalls, boots, goggles, hard hat).

CIRIA Table 6.4 is reproduced as Table C below, but also with the addition of scores from 1 to 4. This provides an estimate of the probability that the event described by the pollution linkage will occur. For example, the likelihood that pollution of groundwater will occur by leaching of metals into the aquifer.

Table C: Classification of Probability of Geoenvironmental Risks

Classification of Probability of Geoenvironmental Risks	
Classification	**Definition**
High (4 points)	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Medium (3 points)	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event in not inevitable, but possible in the short term and likely over the long term.
Low (2 points)	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is no means certain that even over a longer period such event could take place, and is less likely in the shorter term.
Unlikely (1 point)	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

The perceived level of risk for each pathway is then derived from the probability versus consequences matrix, modified after CIRIA C552 Table 6.5, given in Table D. The scores are summed accordingly and the result assigned a risk level by dividing the range between the minimum score of 1 and the maximum score of 16 equally into 5 categories i.e. 1 to <4 is very low risk, 4 to <7 is low risk, 7 to <10 is moderate risk, 10 to <13 is high risk and 13 to 16 is very high risk.

Table D: Qualitative Risk Level from Consequence and Probability

		Consequence			
Probability	*product*	**Severe (4)**	**Major (3)**	**Moderate (2)**	**Minor (1)**
	High (4)	16 = Very high risk	12 = High risk	8 = Moderate risk	4 = Low risk
	Medium (3)	12 = High risk	9 = Moderate risk	6 = Low risk	3 = Very low risk
	Low (2)	8 = Moderate risk	6 = Low risk	4 = Low risk	2 = Very low risk
	Unlikely (1)	4 = Low risk	3 = Very low risk	2 = Very low risk	1 = Very low risk

This approach assumes an equivalence between probability and consequences and ignores the difficulty that can arise where to probability of occurrence appears to be almost negligible but the consequences are very severe. In such conditions, there is a degree of subjectivity in assessing the level of risk and it could be low, moderate or high. Such risks may require specialist consideration beyond the scope of this standard report.

A description of the classified risks and the likely action required can be determined from Table E.

Table E: Description of the Classified Risks and Likely Action Required

Description of Classified Risks and Likely Action Required	
Very High Risk	A significant pollution linkage, including actual evidence of significant harm or significant possibility and significant harm, is clearly identifiable at the site (e.g. from visual or documentary evidence) under current conditions, with potential for legal and/or financial consequences for the site owner or other Responsible Person. Remediation advisable based on acute impacts being likely. Immediate action should be considered.
High Risk	A pollution linkage is identifiable at the site under current and future use conditions. Although likely, there is no obvious actual evidence of significant harm or significant possibility and significant harm under current conditions. Extent of risk is therefore subject to confirmation by investigation and risk assessment and most likely to be deemed significant. Remediation required for redevelopment and may also be required under Part 2A for existing receptors.
Moderate Risk	A pollution linkage is identifiable at the site under current and future use conditions. However, it is not likely to be a significant linkage under current conditions. Actual extent of risk subject to confirmation by additional investigation and risk assessment and most likely to lie between no possibility of harm (under current conditions) and significant possibility of significant harm (under conditions created by new use). Remediation may be required for redevelopment.
Low risk	Potential pathways and receptors exist but history of contaminative use or site conditions indicates that contamination is likely to be of limited extent and below the level of no possibility of harm. Precautionary investigations and risk assessment advisable on change of use.
Very Low Risk	No pollution linkage likely to exist under current or future conditions. Site not capable of being determined under Part 2A (in accordance with PPS23) where the Local Authority inspects the site. No further action recommended.

Contaminant Analysis of Samples

CLR 8 (Environment Agency 2002b), the DoE Industry Profile documents and ISO10381-5 provide good summaries of priority pollutants for UK sites. Additionally, the Environment Agency has produced a list of priority pollutants for ecological risk assessment in a consultation document (Environment Agency 2003a). These documents have been used, with the findings of the Phase 1 investigation, to scope the analyses of chemicals of potential concern.

Grange Geo considers there to be a minimum requirement for soil chemical analysis, even for Greenfield sites, to satisfy the 'suitable for use' criterion of the planning regime. The GACs adopted by Grange Geo for the Site are given in the following table.

There is no safe acceptable level for asbestos in soils, detect or non-detect is recorded with asbestos quantification undertaken on samples found to contain asbestos.

The tables below and overleaf for the derivation of Generic Criteria for the **Public Open Spaces (Resi)**

Table F: Generic Assessment Criteria (GAC) for Public Open Space (Resi)

Based on a 1% Soil Organic Matter Content (most conservative approach)

Based on SGVs, C4SL and S4UL values

Heavy Metals	
Arsenic	79
Beryllium	2.2
Boron	21,000
Cadmium	120
Chromium	1,500
Chromium VI	7.7
Copper	12,000
Lead	630
Mercury (elemental)	16
Mercury (inorganic)	120
Nickel	230
Selenium	1,100
Vanadium	2,000
Zinc	81,000
BTEX	
Benzene	72
Toluene	56,000
Ethyl Benzene	24,000
m/p Xylenes	41,000
o Xylenes	41,000
Xylenes	41,000
Speciated PAHs	
Naphthalene	4,900
Acenaphthylene	15,000

Acenaphthene	15,000
Fluorene	9,900
Phenanthrene	3,100
Anthracene	74,000
Fluoranthene	3,100
Pyrene	7,400
Benzo[a]anthracene	29
Chrysene	57
Benzo[b]fluoranthene	7.1
Benzo[k]fluoranthene	190
Benzo[a]pyrene	5.7
Indeno[123-cd]pyrene	82
Dibenzo[ah]anthracene	0.57
Benzo[ghi]perylene	640
Asbestos	
Asbestos	Non-detected

Appendix E

CHEMICAL ANALYSIS RESULTS

Steve Woodall
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Notts
NG24 4AD

e: steve@grangegeo.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: [redacted]
e: reception@i2analytical.com

Analytical Report Number : 22-87280

Project / Site name:	Heckington Fen (Heck Fen)	**Samples received on:**	29/09/2022
Your job number:	R22082	**Samples instructed on/ Analysis started on:**	29/09/2022
Your order number:		**Analysis completed by:**	10/10/2022
Report Issue Number:	1	**Report issued on:**	10/10/2022
Samples Analysed:	16 soil samples		

Signed: [redacted]

Anna Goc
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443420	2443421	2443422	2443423	2443424
Sample Reference				WS40	WS32	WS31	WS30	WS13
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.20	0.00-0.15	1.15-1.30	0.00-0.50	0.00-0.50
Date Sampled				26/09/2022	26/09/2022	26/09/2022	26/09/2022	26/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	13	14	15	9.3	11
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	GFI	N/A	GFI	GFI
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	6.6	-	7.7	8
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Sulphide	mg/kg	1	MCERTS	-	1	-	1.8	1.8
Elemental Sulphur	mg/kg	5	MCERTS	-	12	-	< 5.0	12
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	-7.2	-	-6.3	4.8	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	18	-	8.7	8.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1	-	0.55	0.53
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.2	-	1.6	0.4
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8	-	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	32	-	19	17
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	20	-	9.9	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	21	-	13	12
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	28	-	17	17
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	52	-	30	27
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	65	-	46	42

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443420	2443421	2443422	2443423	2443424
Sample Reference				WS40	WS32	WS31	WS30	WS13
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.20	0.00-0.15	1.15-1.30	0.00-0.50	0.00-0.50
Date Sampled				26/09/2022	26/09/2022	26/09/2022	26/09/2022	26/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443425	2443426	2443427	2443428	2443429
Sample Reference				WS12	WS44	WS10	WS17	WS8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-0.50	0.00-0.50	0.00-0.30	0.00-0.18	0.00-0.15
Date Sampled				27/09/2022	27/09/2022	27/09/2022	27/09/2022	28/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	8.8	3.8	14	17	15
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	GFI	GFI	N/A	GFI	N/A
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8	7.9	-	6.4	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Sulphide	mg/kg	1	MCERTS	2	380	-	2.3	-
Elemental Sulphur	mg/kg	5	MCERTS	< 5.0	19	-	13	-
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	3.7	11	-1.4	-	-5.5
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	25	-	18	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.55	1.9	-	1.1	-
Boron (water soluble)	mg/kg	0.2	MCERTS	2.1	0.4	-	1.5	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	< 1.8	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	18	23	-	35	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	6.8	-	21	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	14	12	-	30	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	18	-	33	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	30	56	-	56	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	43	52	-	74	-

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443425	2443426	2443427	2443428	2443429
Sample Reference				WS12	WS44	WS10	WS17	WS8
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20-0.50	0.00-0.50	0.00-0.30	0.00-0.18	0.00-0.15
Date Sampled				27/09/2022	27/09/2022	27/09/2022	27/09/2022	28/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443430	2443431	2443432	2443433	2443434
Sample Reference				WS3	WS18	WS28	WS33	WS38
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.10	1.05-1.30	0.20-0.40	1.00-1.20	1.00-1.10
Date Sampled				28/09/2022	28/09/2022	28/09/2022	28/09/2022	28/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	20	27	14	18	20
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	GFI	N/A	GFI	N/A	GFI
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.6	-	7.9	-	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Sulphide	mg/kg	1	MCERTS	8.2	-	1.9	-	2.3
Elemental Sulphur	mg/kg	5	MCERTS	12	-	12	-	12
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	-	-73	2	4.1	4.4
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	-	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.3	-	13	-	9.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.43	-	0.92	-	1
Boron (water soluble)	mg/kg	0.2	MCERTS	1	-	1	-	4.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	< 1.8	-	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	14	-	28	-	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	5	-	12	-	12
Lead (aqua regia extractable)	mg/kg	1	MCERTS	6.4	-	17	-	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	12	-	26	-	30
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	24	-	47	-	54
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	31	-	57	-	65

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443430	2443431	2443432	2443433	2443434
Sample Reference				WS3	WS18	WS28	WS33	WS38
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.10	1.05-1.30	0.20-0.40	1.00-1.20	1.00-1.10
Date Sampled				28/09/2022	28/09/2022	28/09/2022	28/09/2022	28/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443435
Sample Reference				WS39
Sample Number				None Supplied
Depth (m)				1.00-1.50
Date Sampled				28/09/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	22
Total mass of sample received	kg	0.001	NONE	1

Asbestos in Soil	Type	N/A	ISO 17025	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-
Total Cyanide	mg/kg	1	MCERTS	-
Sulphide	mg/kg	1	MCERTS	-
Elemental Sulphur	mg/kg	5	MCERTS	-
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	12

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-
Acenaphthylene	mg/kg	0.05	MCERTS	-
Acenaphthene	mg/kg	0.05	MCERTS	-
Fluorene	mg/kg	0.05	MCERTS	-
Phenanthrene	mg/kg	0.05	MCERTS	-
Anthracene	mg/kg	0.05	MCERTS	-
Fluoranthene	mg/kg	0.05	MCERTS	-
Pyrene	mg/kg	0.05	MCERTS	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-
Chrysene	mg/kg	0.05	MCERTS	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-

Analytical Report Number: 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2443435
Sample Reference				WS39
Sample Number				None Supplied
Depth (m)				1.00-1.50
Date Sampled				28/09/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**	

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-87280
Project / Site name: Heckington Fen (Heck Fen)

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2443420	WS40	None Supplied	1.00-1.20	Brown sand with gravel.
2443421	WS32	None Supplied	0.00-0.15	Brown clay and loam with vegetation.
2443422	WS31	None Supplied	1.15-1.30	Brown sand.
2443423	WS30	None Supplied	0.00-0.50	Brown loam and clay with vegetation and gravel
2443424	WS13	None Supplied	0.00-0.50	Brown loam and clay with vegetation and gravel
2443425	WS12	None Supplied	0.20-0.50	Brown loam and clay with vegetation and gravel
2443426	WS44	None Supplied	0.00-0.50	Brown sand with gravel.
2443427	WS10	None Supplied	0.00-0.30	Brown loam and clay with gravel and vegetation.
2443428	WS17	None Supplied	0.00-0.18	Brown clay and loam with vegetation.
2443429	WS8	None Supplied	0.00-0.15	Brown loam and clay with vegetation and gravel
2443430	WS3	None Supplied	1.00-1.10	Brown sandy clay.
2443431	WS18	None Supplied	1.05-1.30	Black clay and loam with vegetation.
2443432	WS28	None Supplied	0.20-0.40	Brown clay and loam with vegetation and gravel
2443433	WS33	None Supplied	1.00-1.20	Brown clay and sand.
2443434	WS38	None Supplied	1.00-1.10	Brown clay and sand.
2443435	WS39	None Supplied	1.00-1.50	Brown clay and sand.

Analytical Report Number : 22-87280
Project / Site name: Heckington Fen (Heck Fen)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Steve Woodall
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Notts
NG24 4AD

e: steve@grangegeo.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: [redacted]
e: reception@i2analytical.com

Analytical Report Number : 22-86321

Project / Site name:	Heckington Fen (Heck Fen)	**Samples received on:**	22/09/2022
Your job number:	R22082	**Samples instructed on/ Analysis started on:**	23/09/2022
Your order number:		**Analysis completed by:**	04/10/2022
Report Issue Number:	1	**Report issued on:**	04/10/2022
Samples Analysed:	10 soil samples		

Signed: [redacted]

Adam Fenwick
Technical Reviewer
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-86321
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2437428	2437429	2437430	2437431	2437432
Sample Reference				WS1	WS2	WS6	WS5	WS4
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.15	0.00-0.20	1.00-1.15	0.20-0.50	0.00-0.15
Date Sampled				20/09/2022	20/09/2022	20/09/2022	20/09/2022	20/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	14	17	9.7	15
Total mass of sample received	kg	0.001	NONE	1.1	1.1	1.1	1.1	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	N/A	DSA	EC
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9	8.2	-	8.6	7.9
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Organic Matter (automated)	%	0.1	MCERTS	3.8	3.6	-	1.3	4.4
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	-	-	10	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	16	14	-	8.1	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	-	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	26	-	22	32
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	16	-	8.6	15
Lead (aqua regia extractable)	mg/kg	1	MCERTS	24	18	-	10	22
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	22	-	20	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	49	41	-	36	51
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	69	58	-	44	69

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-86321
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2437433	2437434	2437435	2437436	2437437
Sample Reference				WS7	WS23	WS22	WS20	WS21
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.80-1.00	0.40-0.60	0.00-0.20	0.40-0.80	1.00-1.20
Date Sampled				20/09/2022	20/09/2022	20/09/2022	20/09/2022	20/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	3.9	15	14	18
Total mass of sample received	kg	0.001	NONE	1.1	1.1	1.1	1.1	1.1
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	N/A	EC	N/A	EC	EC

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	8.2	-	7.4	8.1
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Organic Matter (automated)	%	0.1	MCERTS	-	0.8	-	1.9	1.6
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	1.9	-	1.7	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	< 0.80	< 0.80

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	9.1	-	10	16
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8	-	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	14	-	24	36
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	5.7	-	12	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	7.4	-	12	18
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	12	-	23	33
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	21	-	38	56
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	29	-	48	69

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-86321
Project / Site name: Heckington Fen (Heck Fen)

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2437428	WS1	None Supplied	0.00-0.15	Brown clay and loam with gravel and vegetation.
2437429	WS2	None Supplied	0.00-0.20	Brown clay and loam with gravel and vegetation.
2437430	WS6	None Supplied	1.00-1.15	Brown clay and sand with gravel.
2437431	WS5	None Supplied	0.20-0.50	Brown sandy clay with gravel and vegetation.
2437432	WS4	None Supplied	0.00-0.15	Brown clay and loam with gravel and vegetation.
2437433	WS7	None Supplied	0.80-1.00	Brown clay and sand with gravel and vegetation.
2437434	WS23	None Supplied	0.40-0.60	Brown sand.
2437435	WS22	None Supplied	0.00-0.20	Brown clay and loam with gravel and vegetation.
2437436	WS20	None Supplied	0.40-0.80	Brown clay and sand with gravel and vegetation.
2437437	WS21	None Supplied	1.00-1.20	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 22-86321
Project / Site name: Heckington Fen (Heck Fen)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Steve Woodall
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Notts
NG24 4AD

e: steve@grangegeo.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: [redacted]
e: reception@i2analytical.com

Analytical Report Number : 22-86527

Project / Site name:	Heckington Fen Heck Fen	**Samples received on:**	26/09/2022
Your job number:	R22082	**Samples instructed on/ Analysis started on:**	27/09/2022
Your order number:		**Analysis completed by:**	10/10/2022
Report Issue Number:	1	**Report issued on:**	10/10/2022
Samples Analysed:	13 soil samples		

Signed: [redacted]

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-86527
Project / Site name: Heckington Fen Heck Fen

Lab Sample Number				2438844	2438845	2438846	2438847	2438848
Sample Reference				WS25	WS24	WS26	WS35	WS36
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.20	1.00-1.20	0.00-0.40	2.50-2.80	0.00-0.20
Date Sampled				22/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	17	24	16	40	14
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	-	Not-detected	-	-
Asbestos Analyst ID	N/A	N/A	N/A	EC	N/A	EC	N/A	N/A
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	6.7	-	6.4	-	-
Total Cyanide	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Sulphide	mg/kg	1	MCERTS	4	-	17	-	-
Elemental Sulphur	mg/kg	5	MCERTS	12	-	12	-	-
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	0.57	2.7	-2.7	0.83	-0.55
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Chrysene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	-	< 0.05	-	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	-	< 0.80	-	-

Analytical Report Number: 22-86527
Project / Site name: Heckington Fen Heck Fen

Lab Sample Number				2438844	2438845	2438846	2438847	2438848
Sample Reference				WS25	WS24	WS26	WS35	WS36
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.20	1.00-1.20	0.00-0.40	2.50-2.80	0.00-0.20
Date Sampled				22/09/2022	22/09/2022	22/09/2022	22/09/2022	22/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	-	22	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	-	1.4	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	2.7	-	2	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	-	< 0.2	-	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	-	< 1.8	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	37	-	44	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	19	-	27	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	-	31	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	-	< 0.3	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	-	39	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	< 1.0	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	57	-	68	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	73	-	84	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-86527
Project / Site name: Heckington Fen Heck Fen

Lab Sample Number				2438849	2438850	2438851	2438852	2438853
Sample Reference				WS37	WS34	WS27	WS19	WS16
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.50	0.20-0.40	0.00-0.15	1.00-1.20	1.50-1.70
Date Sampled				22/09/2022	22/09/2022	23/09/2022	23/09/2022	23/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	24	16	16	19	13
Total mass of sample received	kg	0.001	NONE	1	1	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-	-	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	EC	N/A	N/A	N/A

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	-	8.5	-	-	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Sulphide	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Elemental Sulphur	mg/kg	5	MCERTS	-	12	-	-	-
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	2.1	2.1	0.57	12	0.33

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	-	-

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-	-	-

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-	-	-

Analytical Report Number: 22-86527
Project / Site name: Heckington Fen Heck Fen

Lab Sample Number				2438849	2438850	2438851	2438852	2438853
Sample Reference				WS37	WS34	WS27	WS19	WS16
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-1.50	0.20-0.40	0.00-0.15	1.00-1.20	1.50-1.70
Date Sampled				22/09/2022	22/09/2022	23/09/2022	23/09/2022	23/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	15	-	-	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	1.1	-	-	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.7	-	-	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-	-	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8	-	-	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	35	-	-	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	16	-	-	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	19	-	-	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	-	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	31	-	-	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	-	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	54	-	-	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	67	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-86527
Project / Site name: Heckington Fen Heck Fen

Lab Sample Number				2438854	2438855	2438856
Sample Reference				WS15	WS14	WS29
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.10	0.70-1.00	0.90-1.00
Date Sampled				23/09/2022	23/09/2022	23/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	16	9.9	34
Total mass of sample received	kg	0.001	NONE	1	1	1
Asbestos in Soil	Type	N/A	ISO 17025	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	N/A	EC	N/A
General Inorganics						
pH - Automated	pH Units	N/A	MCERTS	-	8.1	-
Total Cyanide	mg/kg	1	MCERTS	-	< 1.0	-
Sulphide	mg/kg	1	MCERTS	-	3	-
Elemental Sulphur	mg/kg	5	MCERTS	-	12	-
Acid Neutralisation Capacity	+/- mmol/kg	-999	NONE	-0.33	1.4	-22
Total Phenols						
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-
Speciated PAHs						
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	< 0.05	-
Total PAH						
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	< 0.80	-

Analytical Report Number: 22-86527
Project / Site name: Heckington Fen Heck Fen

Lab Sample Number				2438854	2438855	2438856
Sample Reference				WS15	WS14	WS29
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				0.00-0.10	0.70-1.00	0.90-1.00
Date Sampled				23/09/2022	23/09/2022	23/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Heavy Metals / Metalloids						
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	7.4	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.21	-
Boron (water soluble)	mg/kg	0.2	MCERTS	-	1.3	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	< 0.2	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	-	< 1.8	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	19	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	12	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	8.3	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	5.5	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	18	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	29	-

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-86527
Project / Site name: Heckington Fen Heck Fen

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2438844	WS25	None Supplied	0.00-0.20	Brown loam and clay with vegetation and gravel
2438845	WS24	None Supplied	1.00-1.20	Brown clay with vegetation.
2438846	WS26	None Supplied	0.00-0.40	Brown loam and clay with vegetation and gravel
2438847	WS35	None Supplied	2.50-2.80	Grey clay with vegetation.
2438848	WS36	None Supplied	0.00-0.20	Brown loam and clay with vegetation and gravel
2438849	WS37	None Supplied	1.00-1.50	Brown clay with vegetation.
2438850	WS34	None Supplied	0.20-0.40	Brown clay and loam with vegetation and gravel
2438851	WS27	None Supplied	0.00-0.15	Brown clay and loam with vegetation and gravel
2438852	WS19	None Supplied	1.00-1.20	Brown clay and sand with vegetation.
2438853	WS16	None Supplied	1.50-1.70	Light brown sand with gravel.
2438854	WS15	None Supplied	0.00-0.10	Brown loam and clay with vegetation and gravel
2438855	WS14	None Supplied	0.70-1.00	Brown clay and sand with gravel and vegetation.
2438856	WS29	None Supplied	0.90-1.00	Brown clay and sand with vegetation.

Analytical Report Number : 22-86527
Project / Site name: Heckington Fen Heck Fen

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance""	L046-PL	W	NONE
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Elemental sulphur in soil	Determination of elemental sulphur in soil by extraction in acetonitrile followed by HPLC.	In-house method based on Secondsite Property Holdings Guidance for Assessing and Managing Potential	L021-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix F

GEOTECHNICAL TESTING RESULTS

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

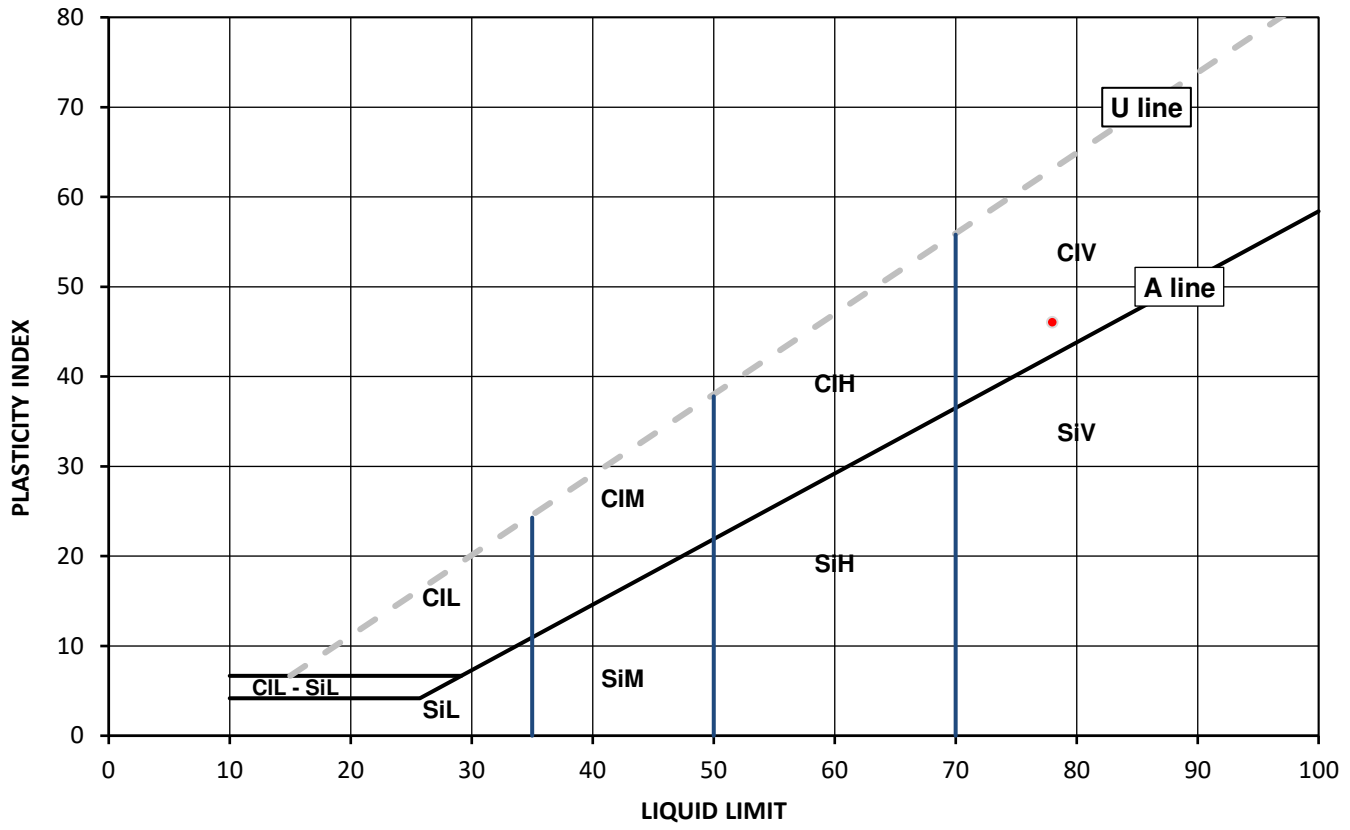
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437831	Depth Top [m]:	1.50
Hole No.:	WS1	Depth Base [m]:	1.60
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown CLAY		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
40	78	32	46	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

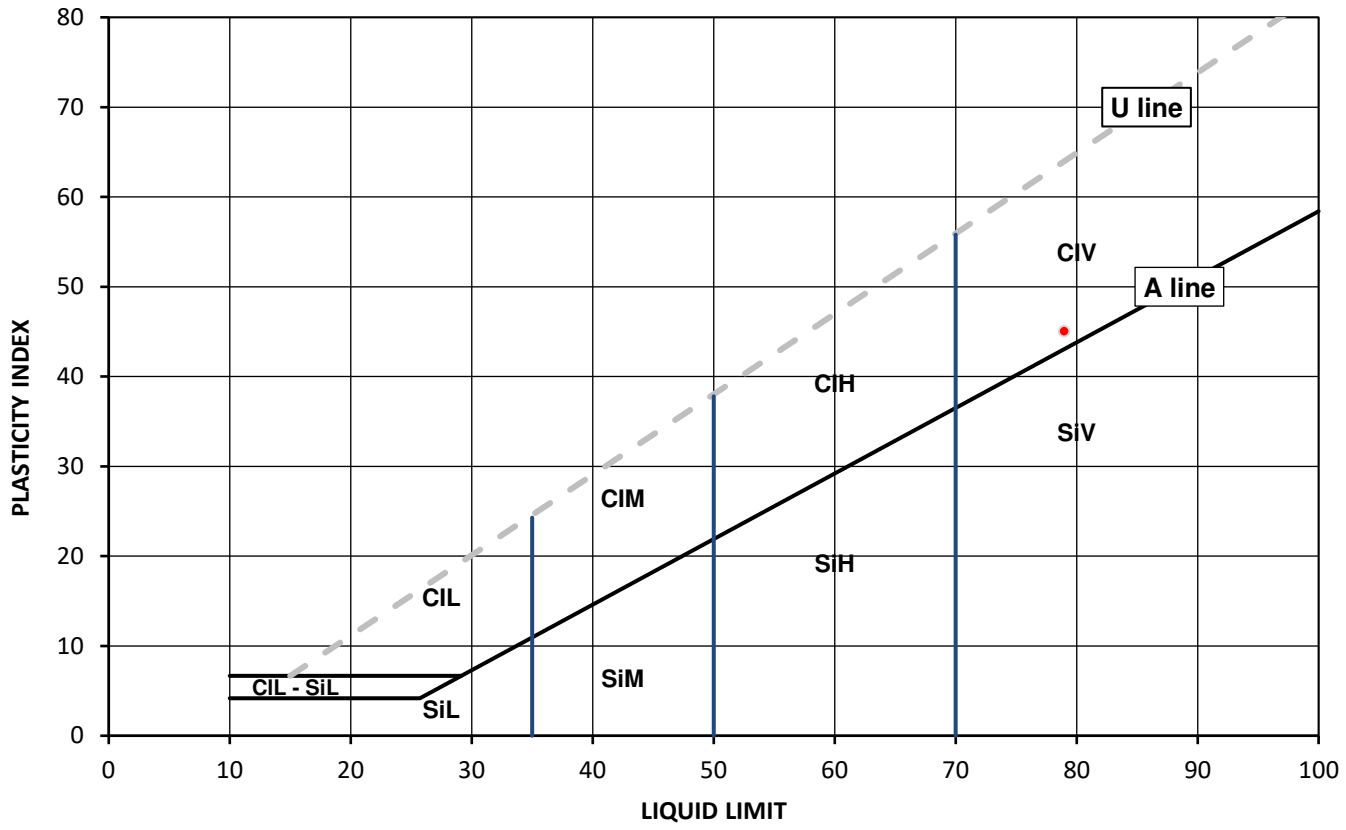
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437834	Depth Top [m]:	1.95
Hole No.:	WS2	Depth Base [m]:	2.15
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey CLAY		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
57	79	34	45	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

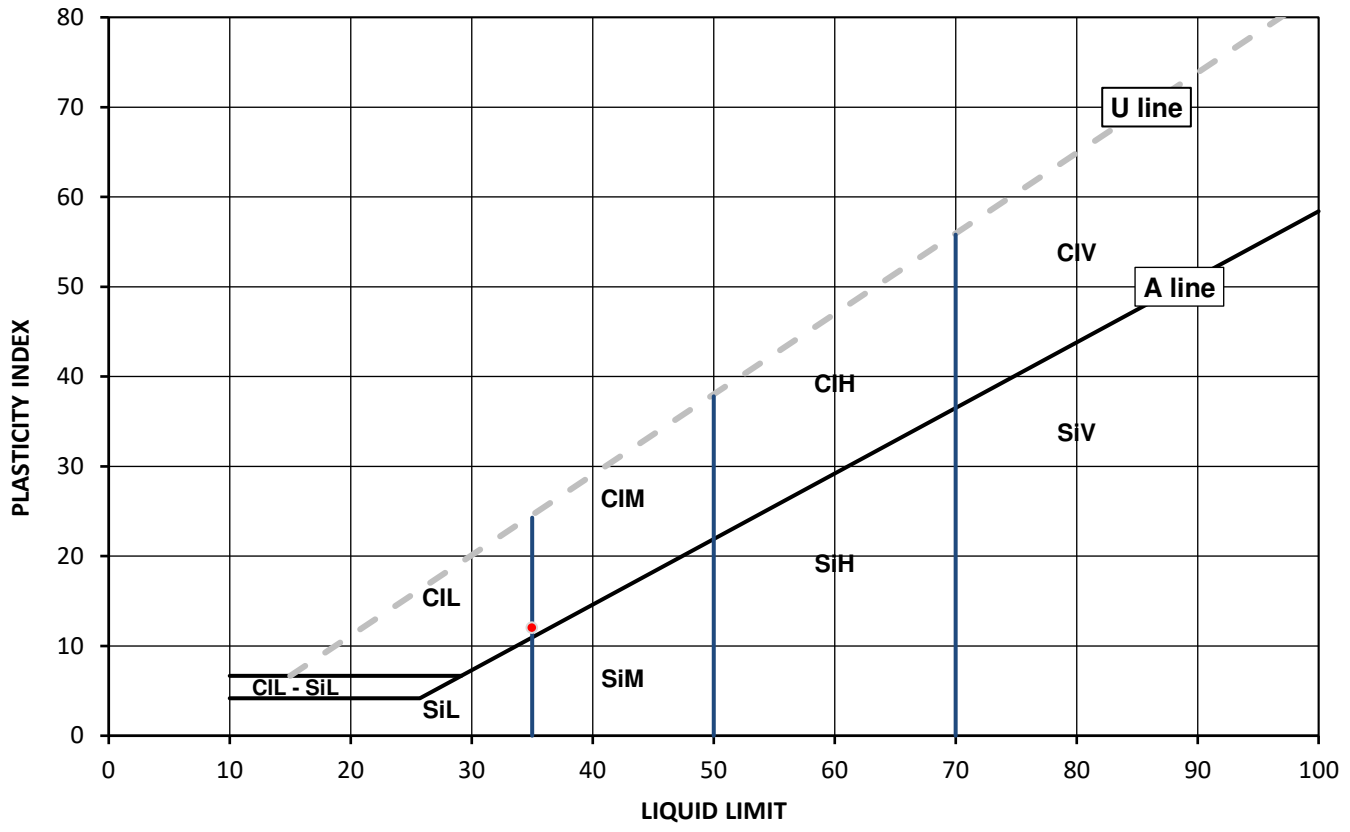
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437836	Depth Top [m]:	3.50
Hole No.:	WS6	Depth Base [m]:	3.80
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
33	35	23	12	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

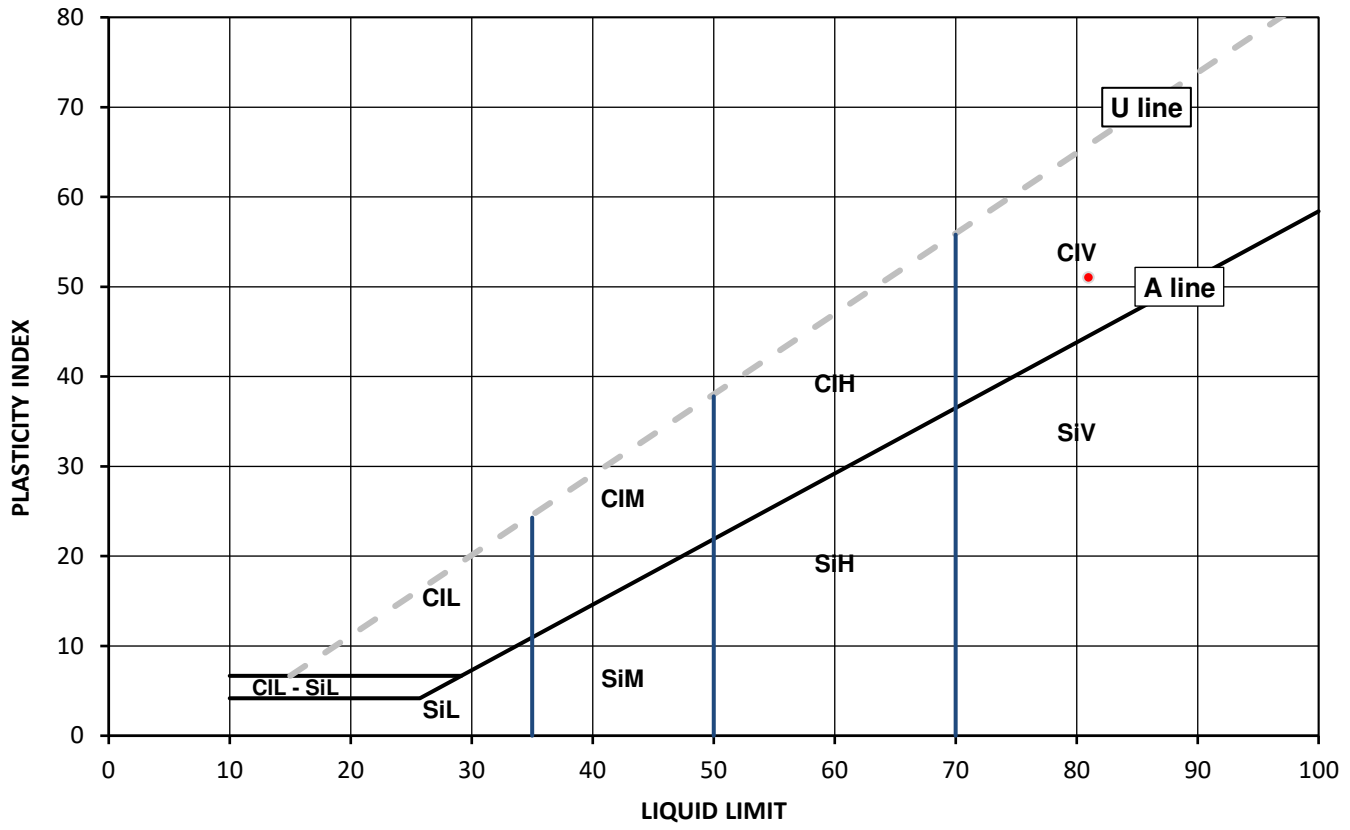
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437840	Depth Top [m]:	2.00
Hole No.:	WS4	Depth Base [m]:	2.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
62	81	30	51	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

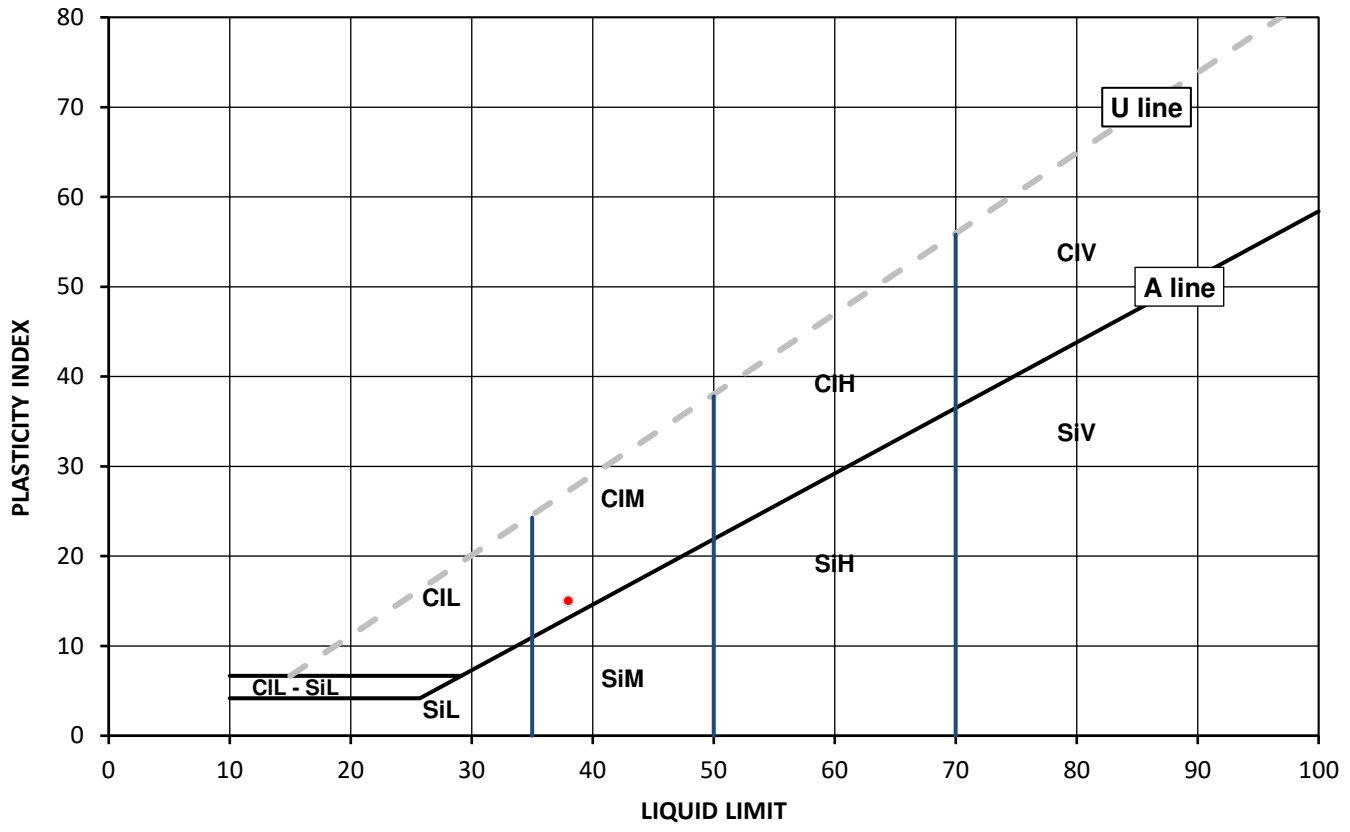
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437841	Depth Top [m]:	1.20
Hole No.:	WS7	Depth Base [m]:	1.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown sandy CLAY		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	38	23	15	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

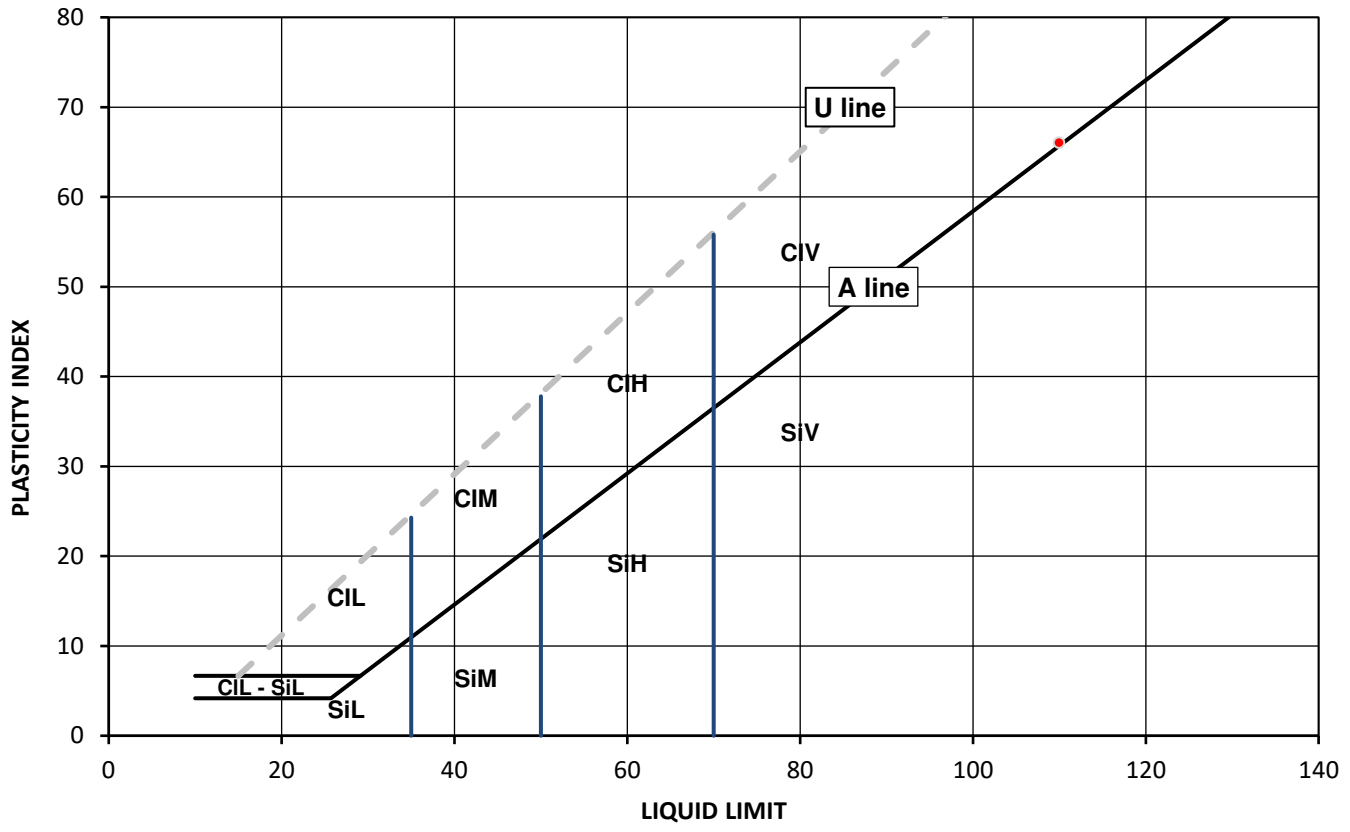
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437843	Depth Top [m]:	1.10
Hole No.:	WS23	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly organic CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
89	110	44	66	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

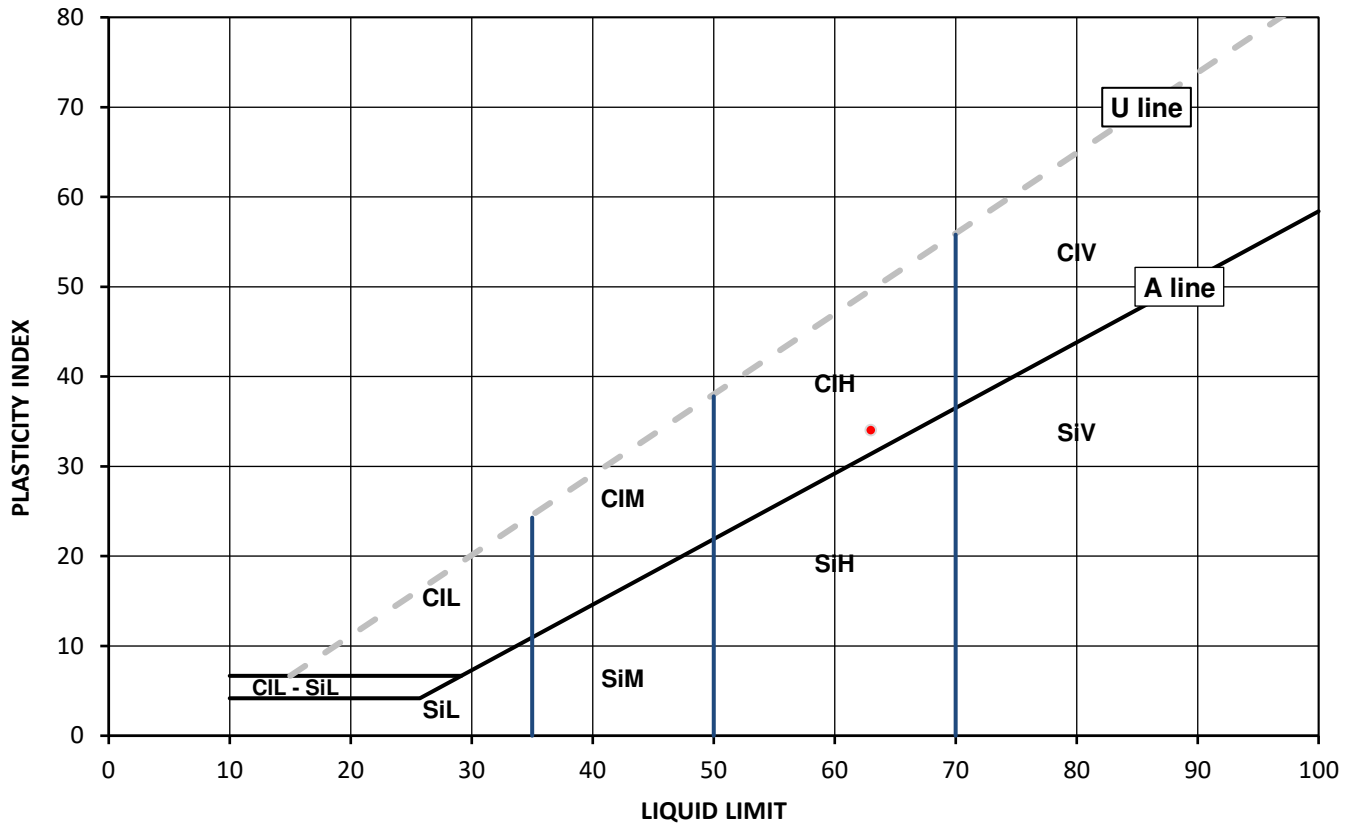
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437845	Depth Top [m]:	0.30
Hole No.:	WS46	Depth Base [m]:	0.40
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown CLAY		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
21	63	29	34	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

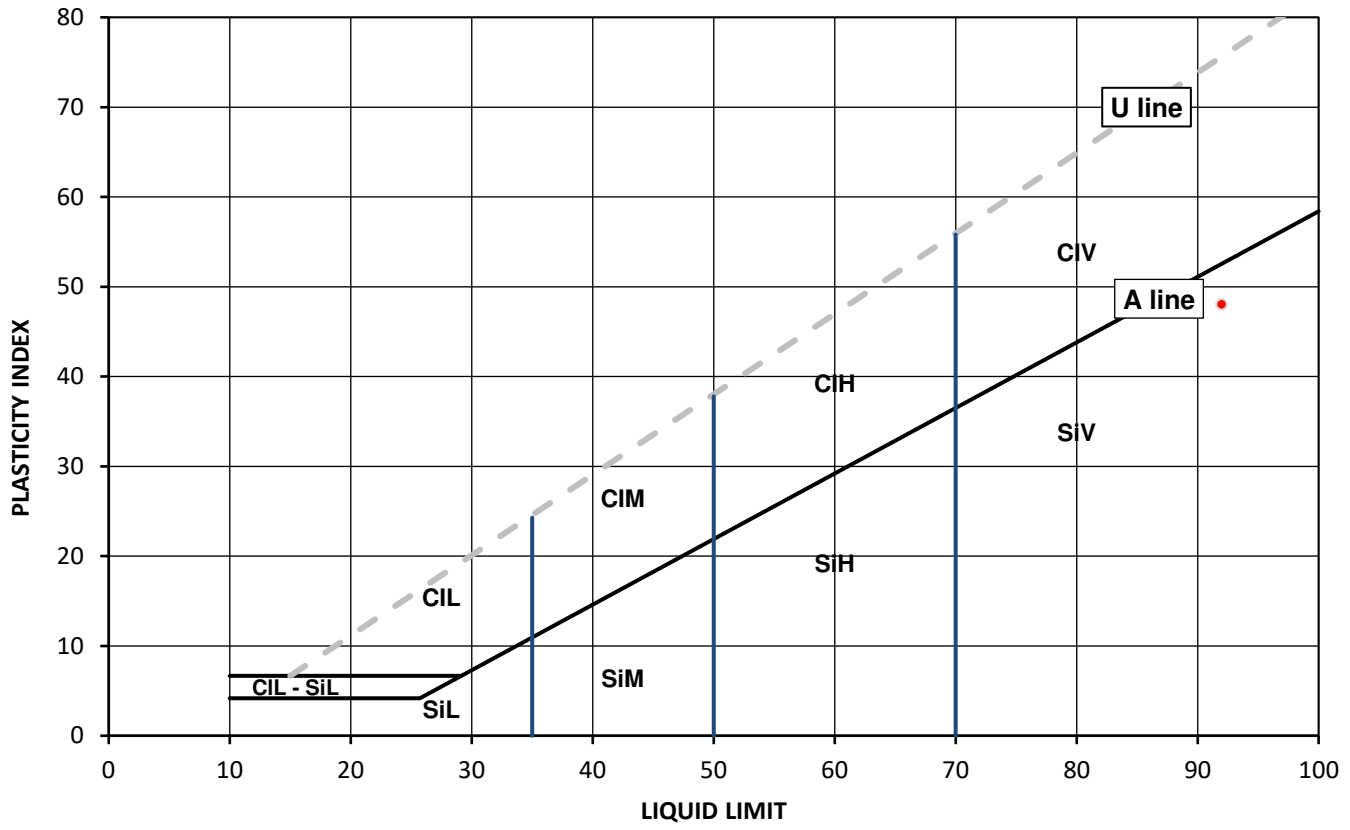
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437847	Depth Top [m]:	1.50
Hole No.:	WS22	Depth Base [m]:	1.80
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly organic CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
64	92	44	48	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	03/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

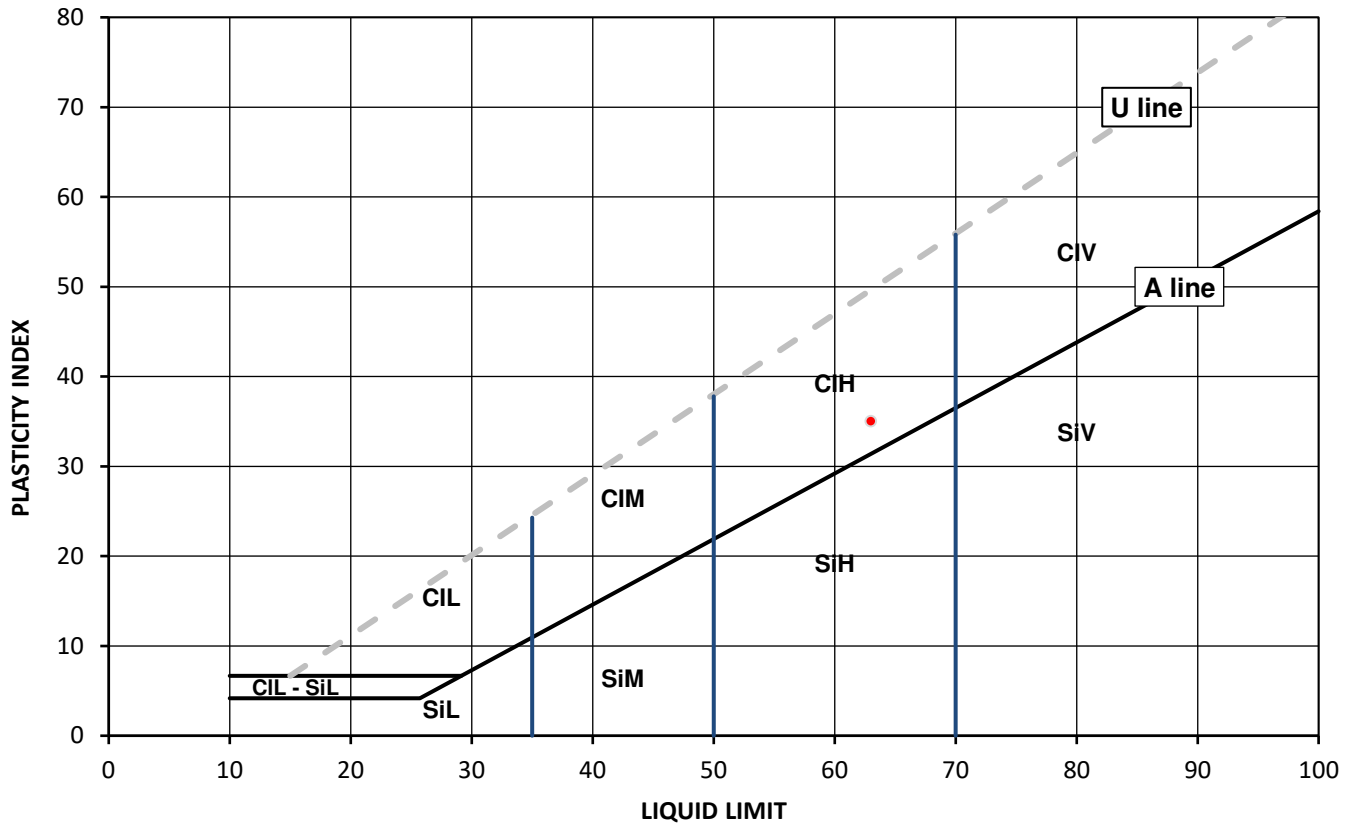
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437848	Depth Top [m]:	1.20
Hole No.:	WS21	Depth Base [m]:	1.40
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown CLAY		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
30	63	28	35	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 232.12

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen Heck Fen

Client Reference: R22082
Job Number: 22-86370
Date Sampled: 20/09/2022
Date Received: 22/09/2022
Date Tested: 03/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-1 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2437831	WS1	Not Given	1.50	1.60	D	Brown CLAY	Atterberg 1 Point	40		100	78	32	46						
2437834	WS2	Not Given	1.95	2.15	D	Brownish grey CLAY	Atterberg 1 Point	57		100	79	34	45						
2437848	WS21	Not Given	1.20	1.40	D	Brown CLAY	Atterberg 1 Point	30		100	63	28	35						
2437847	WS22	Not Given	1.50	1.80	D	Brownish grey slightly organic CLAY	Atterberg 1 Point	64		100	92	44	48						
2437843	WS23	Not Given	1.10	2.00	D	Brownish grey slightly organic CLAY	Atterberg 1 Point	89		100	110	44	66						
2437840	WS4	Not Given	2.00	2.50	D	Brownish grey CLAY	Atterberg 1 Point	62		100	81	30	51						
2437845	WS46	Not Given	0.30	0.40	D	Brown CLAY	Atterberg 1 Point	21		100	63	29	34						
2437836	WS6	Not Given	3.50	3.80	D	Brownish grey sandy CLAY	Atterberg 1 Point	33		100	35	23	12						
2437841	WS7	Not Given	1.20	1.50	D	Brown sandy CLAY	Atterberg 1 Point	31		100	38	23	15						

Note: # Non accredited; NP - Non plastic

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 234.14

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen Heck Fen

Client Reference: R22082
Job Number: 22-86370
Date Sampled: 20/09/2022
Date Received: 22/09/2022
Date Tested: 03/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
2437831	WS1	Not Given	1.50	1.60	D	Brown CLAY		40	Sample was quartered, oven dried at 107.7 °C			
2437834	WS2	Not Given	1.95	2.15	D	Brownish grey CLAY		57	Sample was quartered, oven dried at 107.7 °C			
2437848	WS21	Not Given	1.20	1.40	D	Brown CLAY		30	Sample was quartered, oven dried at 107.7 °C			
2437847	WS22	Not Given	1.50	1.80	D	Brownish grey slightly organic CLAY		64	Sample was quartered, oven dried at 107.7 °C			
2437843	WS23	Not Given	1.10	2.00	D	Brownish grey slightly organic CLAY		89	Sample was quartered, oven dried at 107.7 °C			
2437840	WS4	Not Given	2.00	2.50	D	Brownish grey CLAY		62	Sample was quartered, oven dried at 107.7 °C			
2437845	WS46	Not Given	0.30	0.40	D	Brown CLAY		21	Sample was quartered, oven dried at 107.7 °C			
2437836	WS6	Not Given	3.50	3.80	D	Brownish grey sandy CLAY		33	Sample was quartered, oven dried at 109 °C			
2437841	WS7	Not Given	1.20	1.50	D	Brown sandy CLAY		31	Sample was quartered, oven dried at 107.7 °C			

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

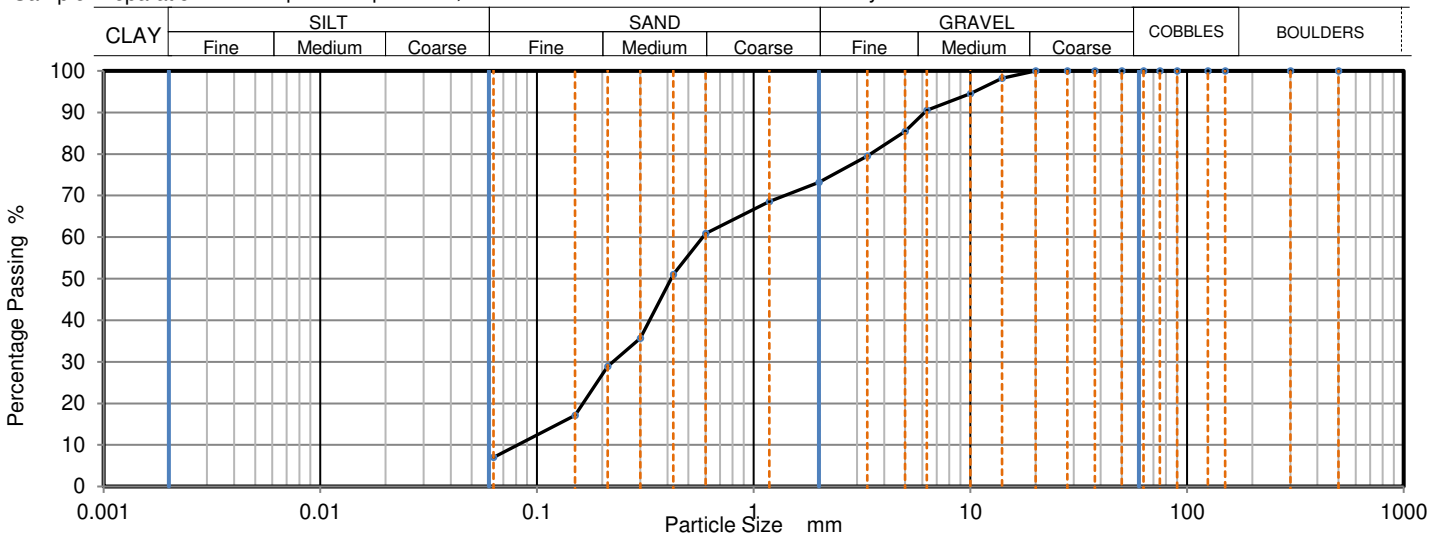
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	04/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437838	Depth Top [m]:	4.00
Hole No.:	WS5	Depth Base [m]:	4.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown gravelly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 108.7 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	95		
6.3	91		
5	85		
3.35	80		
2	73		
1.18	69		
0.6	61		
0.425	51		
0.3	36		
0.212	29		
0.15	17		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0
Gravel	27
Sand	66
Fines <0.063mm	7

Grading Analysis		
D100	mm	20
D60	mm	0.582
D30	mm	0.224
D10	mm	0.08
Uniformity Coefficient		7.3
Curvature Coefficient		1.1

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

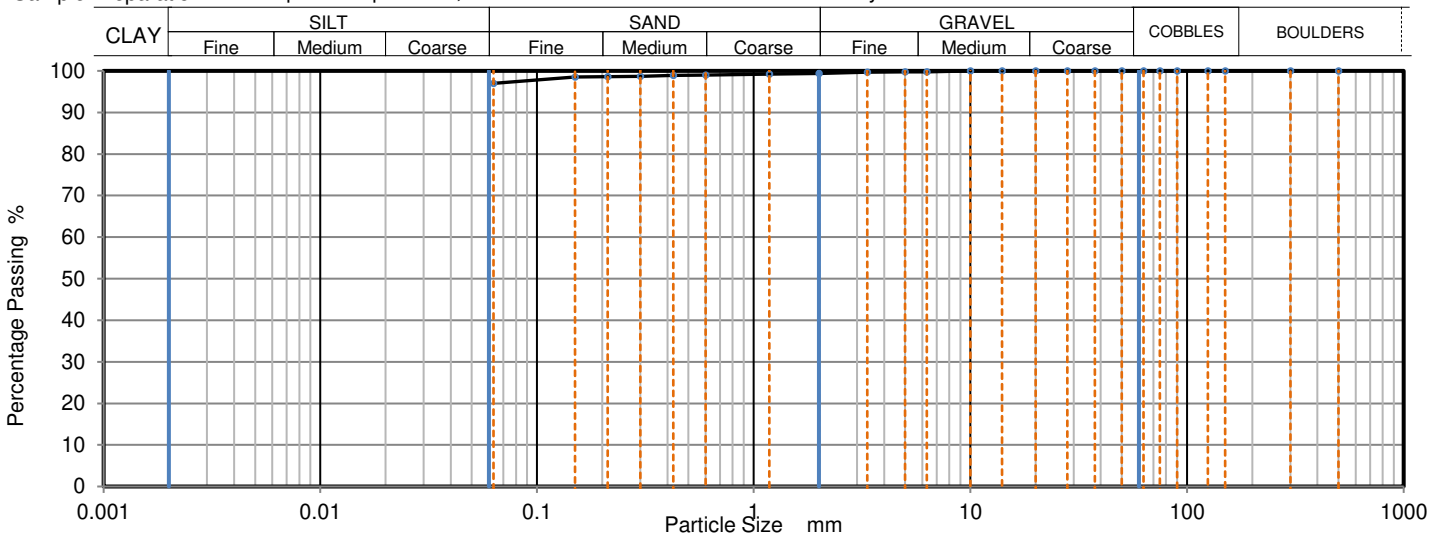
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	20/09/2022
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	04/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2437844	Depth Top [m]:	2.00
Hole No.:	WS23	Depth Base [m]:	3.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Greyish brown slightly sandy CLAY		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	98		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	2
Fines <0.063mm	98

Grading Analysis		
D100	mm	10
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

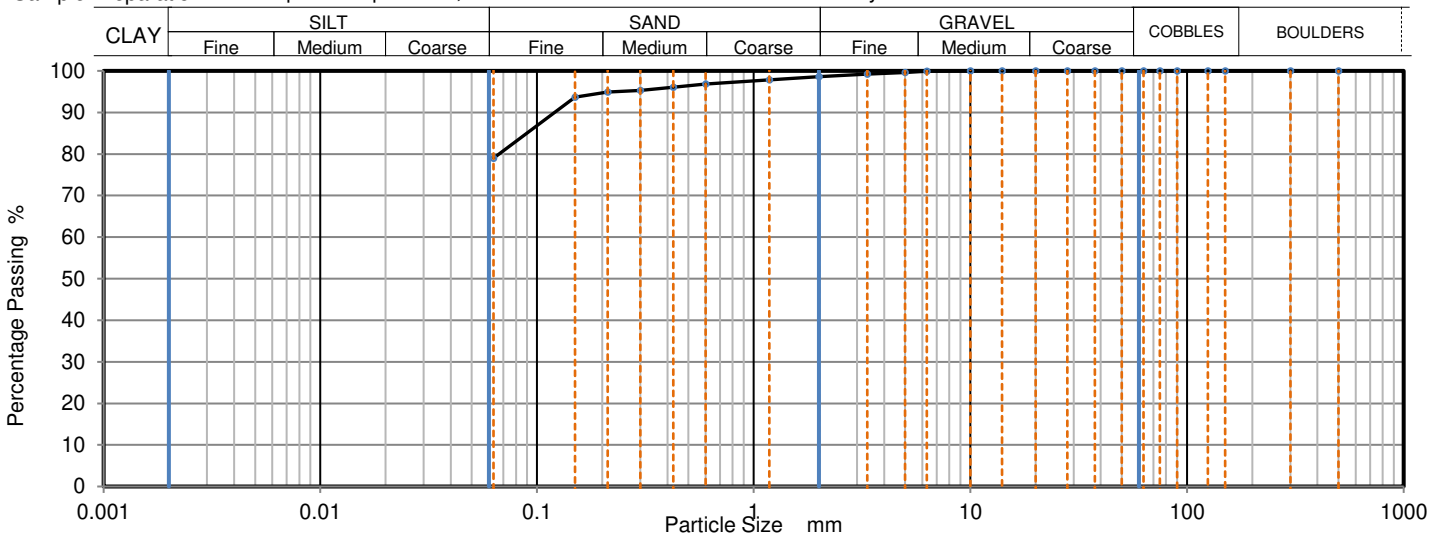
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-86370
		Date Sampled:	Not Given
		Date Received:	22/09/2022
Contact:	Steve Woodall	Date Tested:	06/10/2022
Site Address:	Heckington Fen Heck Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2439605	Depth Top [m]:	1.50
Hole No.:	WS20	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey sandy CLAY		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	98		
0.6	97		
0.425	96		
0.3	95		
0.212	95		
0.15	94		
0.063	79		

Sample Proportions	% dry mass
Very coarse	0
Gravel	1
Sand	19
Fines <0.063mm	79

Grading Analysis		
D100	mm	10
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 100.21

SUMMARY REPORT

DETERMINATION OF SHRINKAGE CHARACTERISTICS - LINEAR SHRINKAGE

Tested in Accordance with: BS 1377-2: 1990: Clause 6.5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen Heck Fen

Client Reference: R22082
Job Number: 22-86370
Date Sampled: 20/09/2022
Date Received: 22/09/2022
Date Tested: 03/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Material <425µm	Preparation	Linear Shrinkage					
		Reference	Depth Top m	Depth Base m	Type			%		%					
2437832	WS1	Not Given	2.80	3.00	D	Brown CLAY		97	Specimen prepared from natural material	15					
2437833	WS2	Not Given	1.00	1.20	D	Brown CLAY		100	Specimen prepared from natural material	13					
2437849	WS21	Not Given	3.50	3.70	D	Brownish grey CLAY		100	Specimen prepared from natural material	13					
2437843	WS23	Not Given	1.10	2.00	D	Brownish grey slightly organic CLAY		100	Specimen prepared from natural material	19					
2437839	WS4	Not Given	1.50	1.80	D	Brown CLAY		100	Specimen prepared from natural material	15					
2437846	WS46	Not Given	0.70	0.80	D	Brown CLAY		100	Specimen prepared from natural material	11					
2437837	WS5	Not Given	2.00	2.50	D	Brownish grey CLAY		100	Specimen prepared from natural material	11					
2437835	WS6	Not Given	2.00	3.00	D	Brownish grey very silty CLAY		100	Specimen prepared from natural material	3					
2437842	WS7	Not Given	2.50	2.80	D	Brownish grey slightly gravelly very silty CLAY		98	Specimen prepared from natural material	3					

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 13/10/2022

GF 103.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

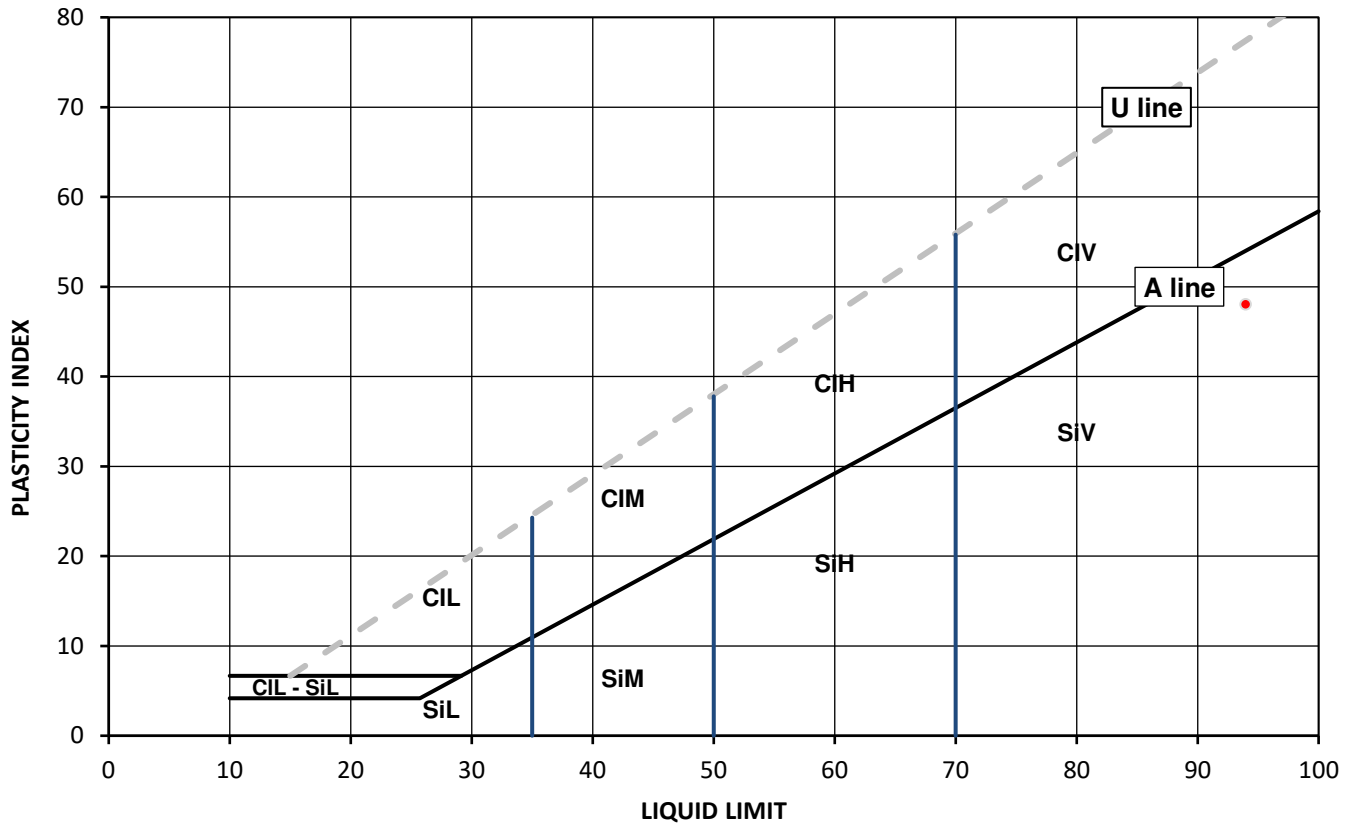
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	26/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443450	Depth Top [m]:	1.50
Hole No.:	WS42	Depth Base [m]:	1.85
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown mottled grey CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
64	94	46	48	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

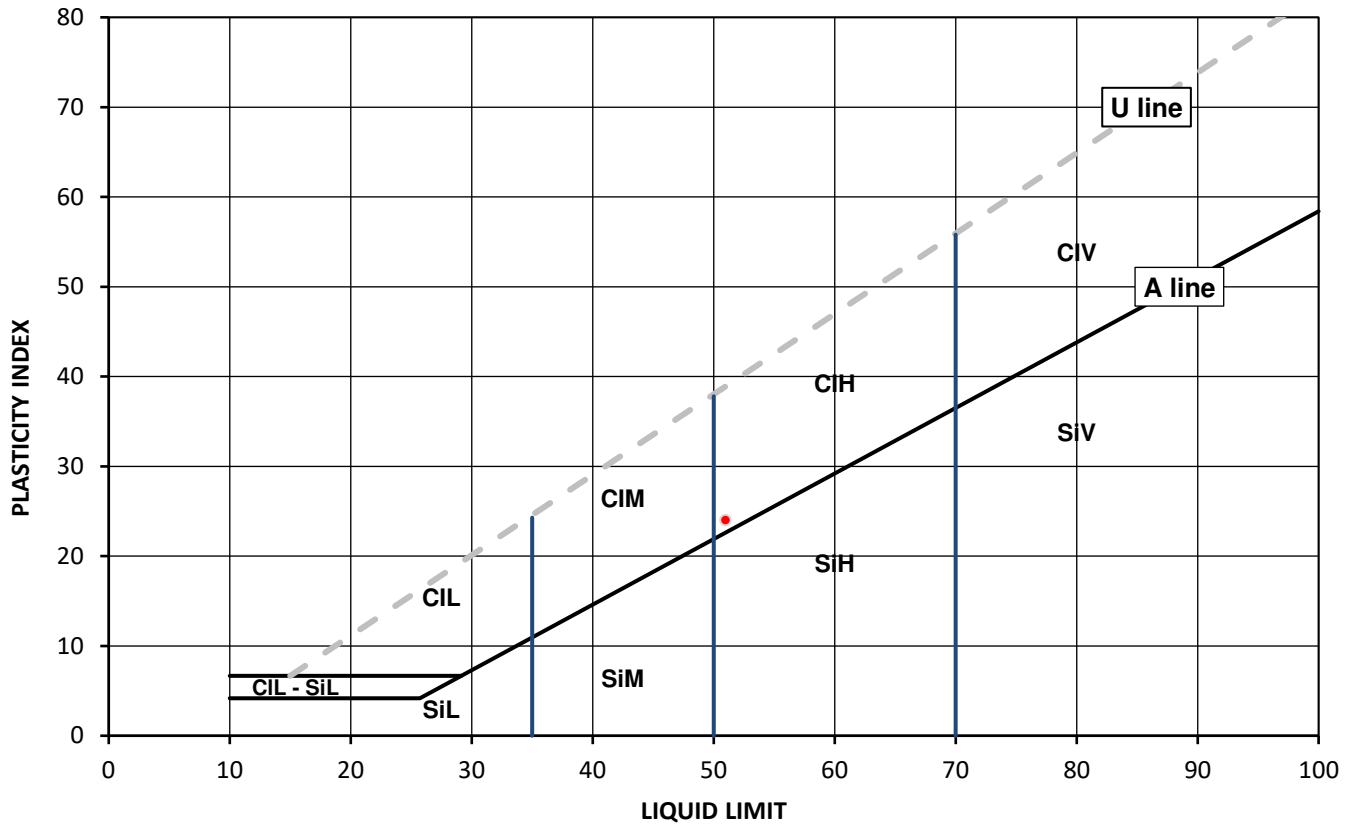
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	26/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443451	Depth Top [m]:	0.15
Hole No.:	WS41	Depth Base [m]:	0.60
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	51	27	24	91



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

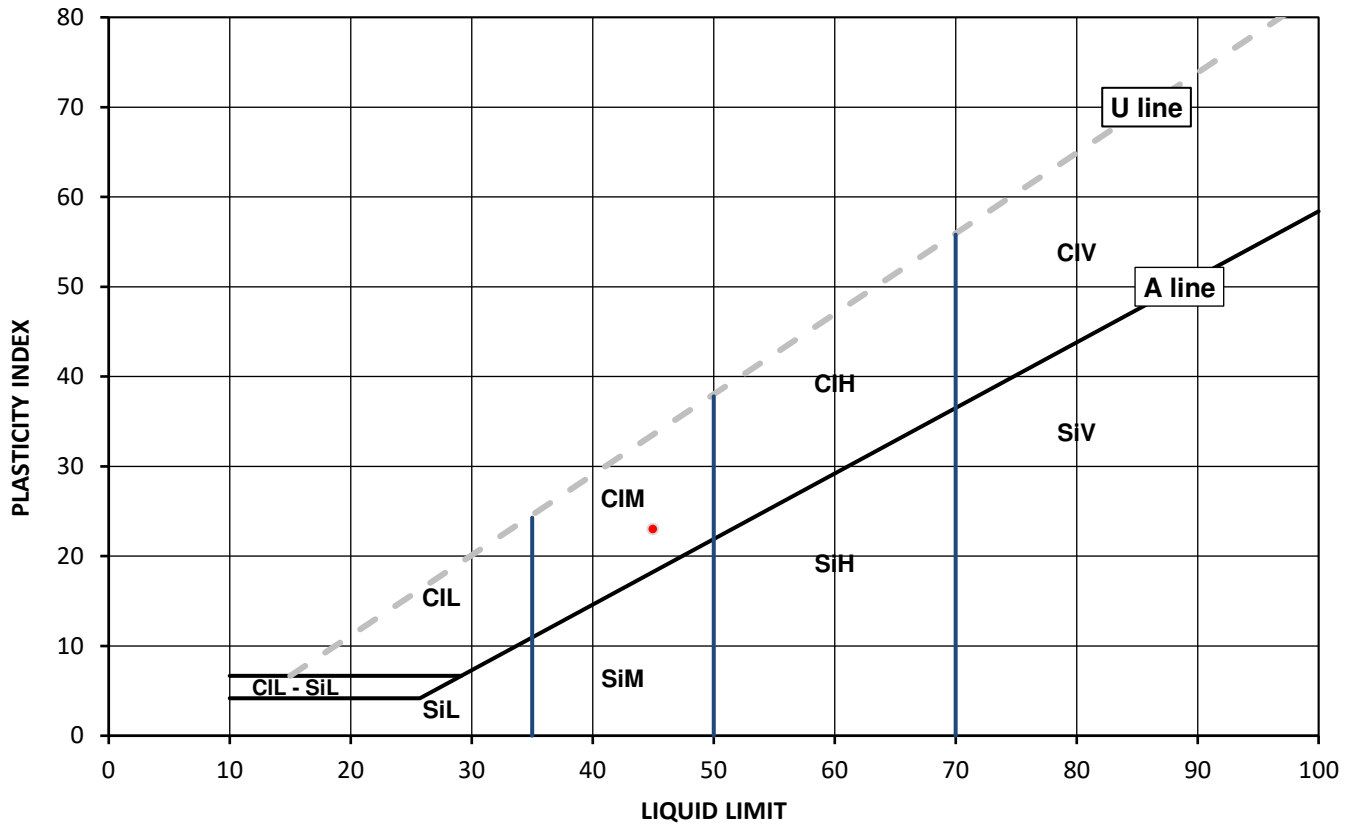
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	26/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443456	Depth Top [m]:	0.00
Hole No.:	WS30	Depth Base [m]:	0.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown mottled dark brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
14	45	22	23	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

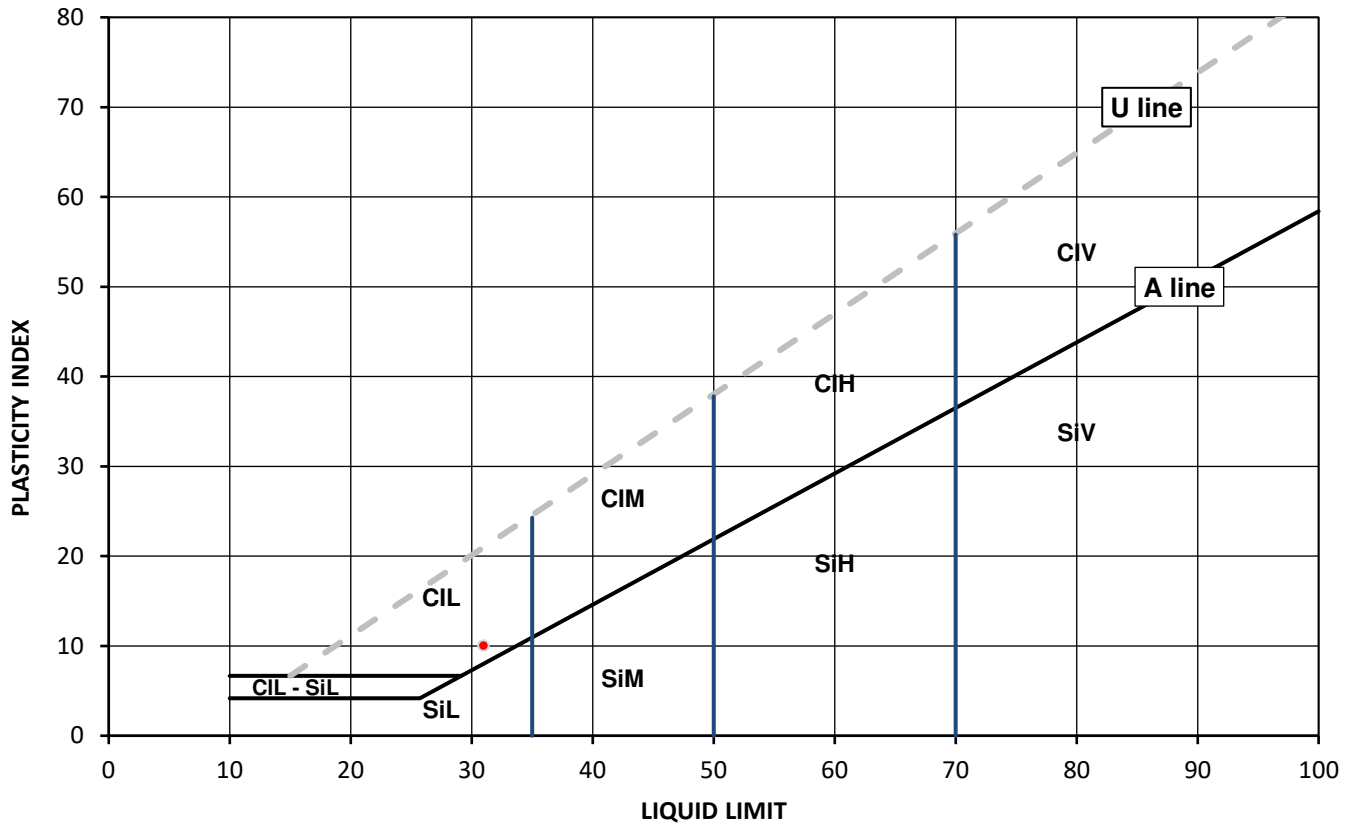
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	26/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443458	Depth Top [m]:	0.00
Hole No.:	WS13	Depth Base [m]:	0.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown slightly gravelly very sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
9.5	31	21	10	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

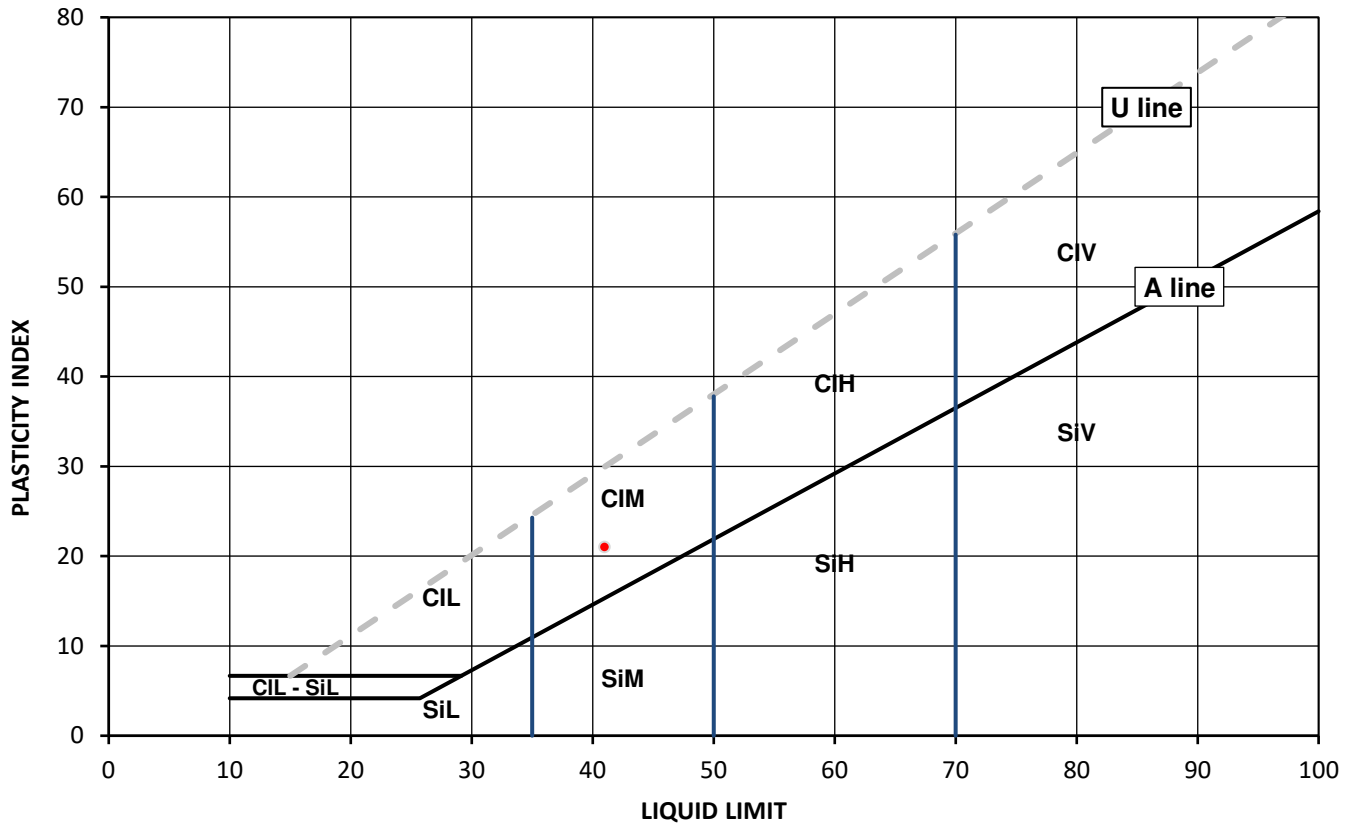
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443460	Depth Top [m]:	0.10
Hole No.:	WS45	Depth Base [m]:	0.50
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown mottled brownish grey slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	41	20	21	95



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

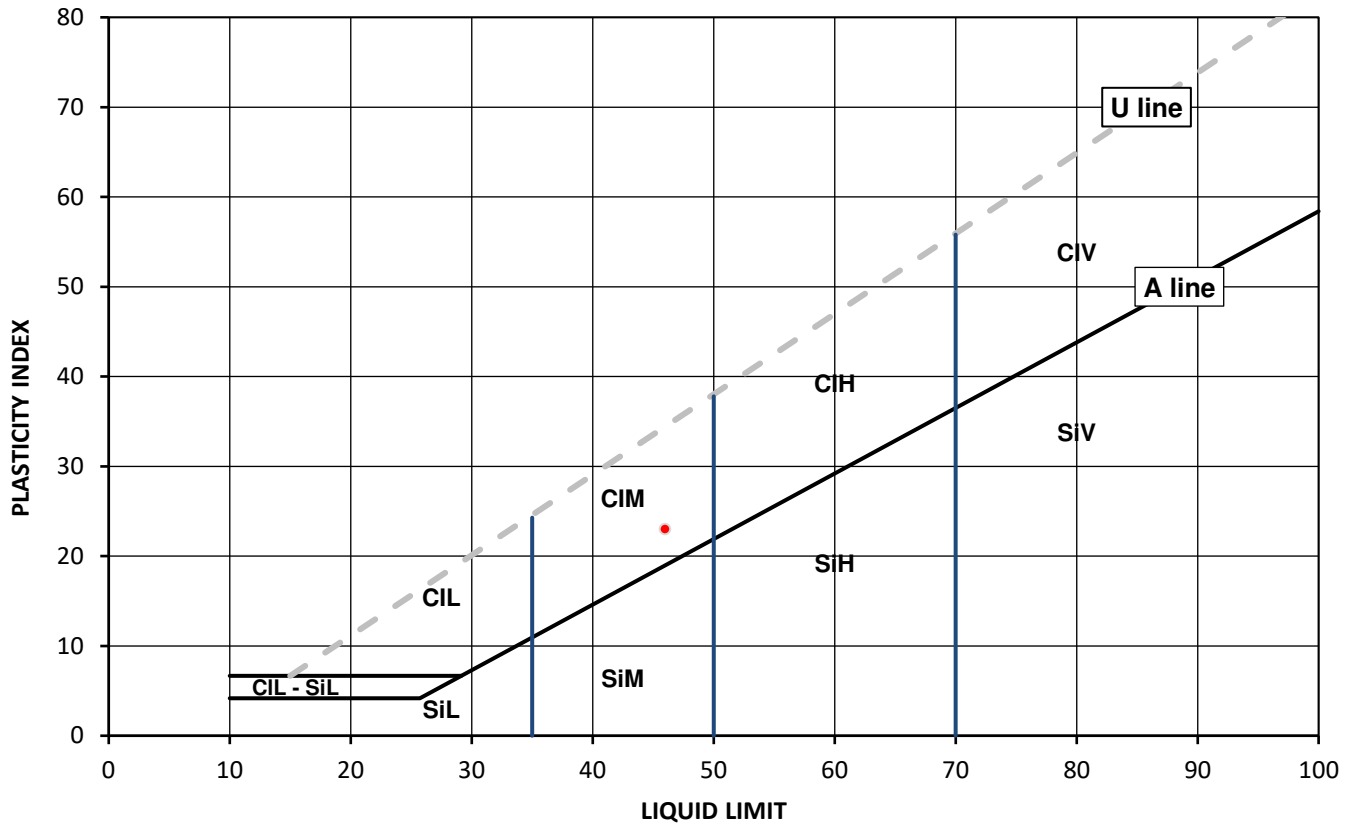
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443463	Depth Top [m]:	0.50
Hole No.:	WS44	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown mottled grey slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
27	46	23	23	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

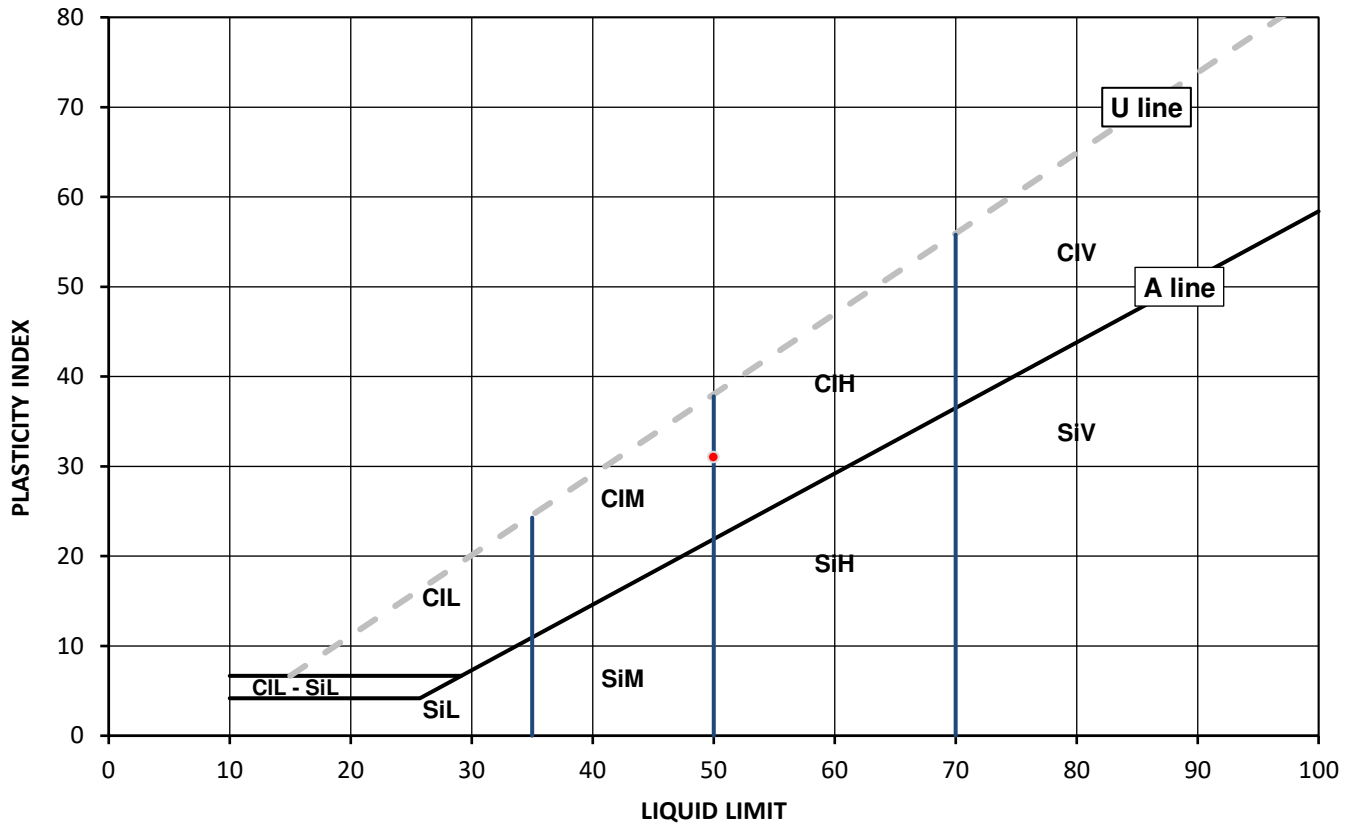
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443468	Depth Top [m]:	1.50
Hole No.:	WS10	Depth Base [m]:	1.70
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Dark brown mottled yellowish brown slightly gravelly slightly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
24	50	19	31	85



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

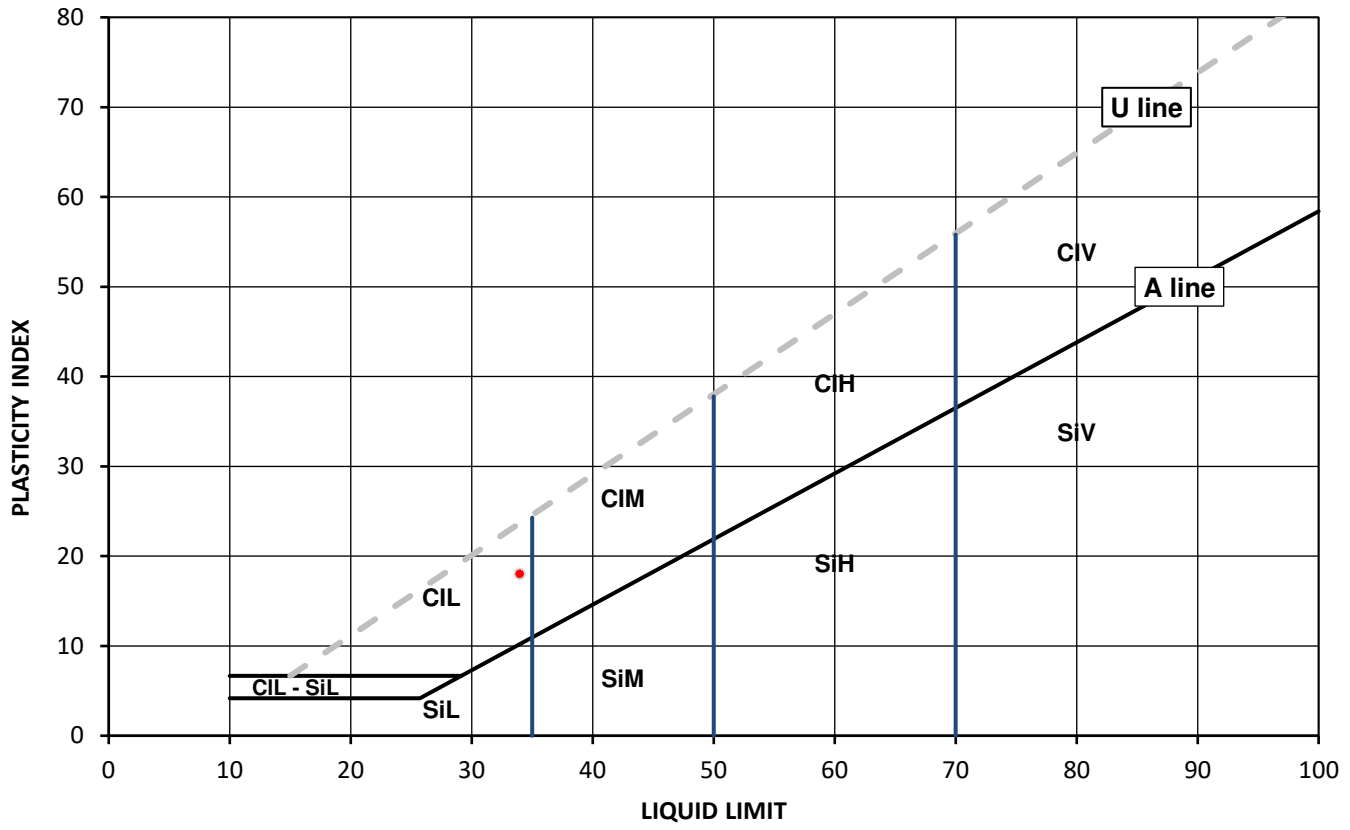
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443471	Depth Top [m]:	2.50
Hole No.:	WS17	Depth Base [m]:	2.70
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown mottled light grey slightly gravelly very sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
16	34	16	18	71



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

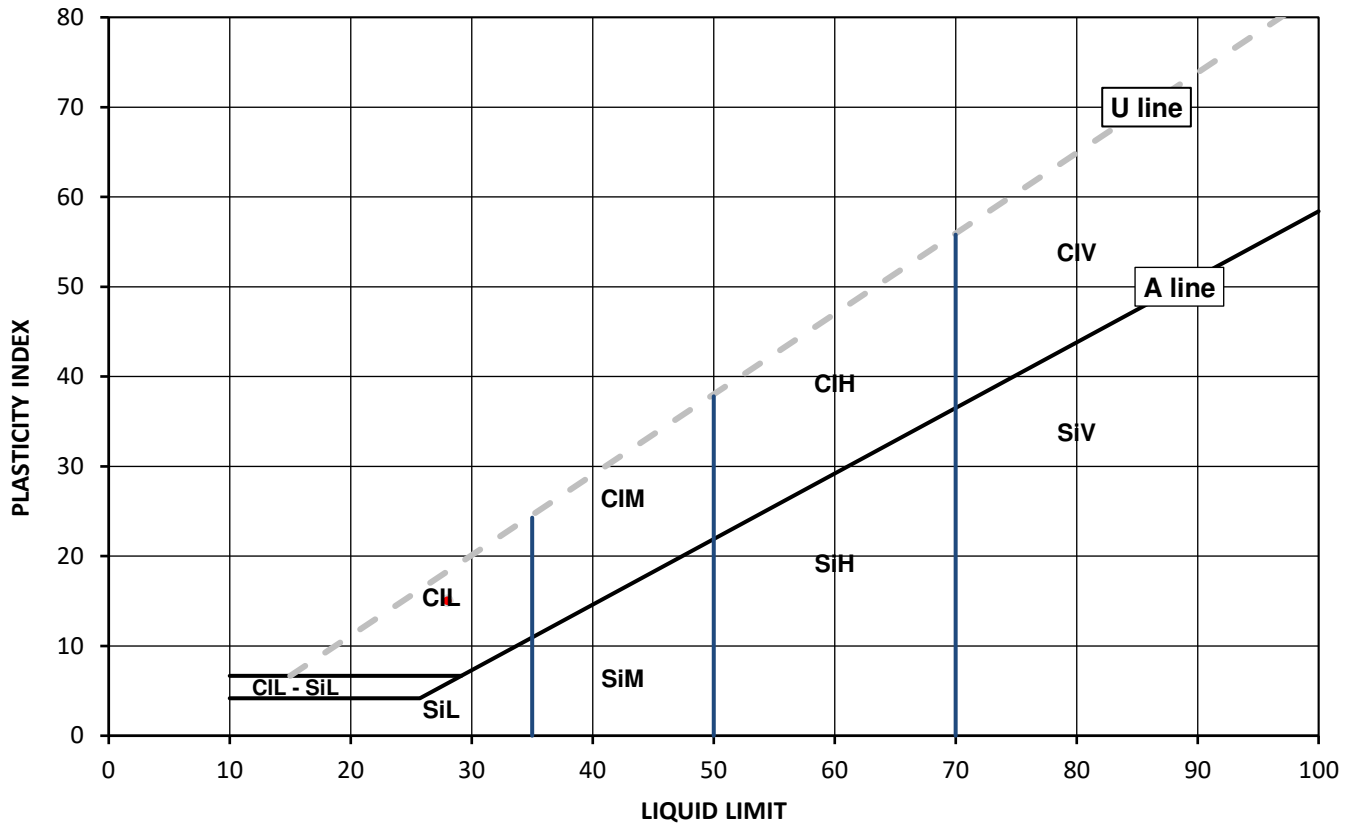
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443472	Depth Top [m]:	2.50
Hole No.:	WS8	Depth Base [m]:	2.70
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown mottled light grey slightly gravelly very sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
14	28	13	15	86



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

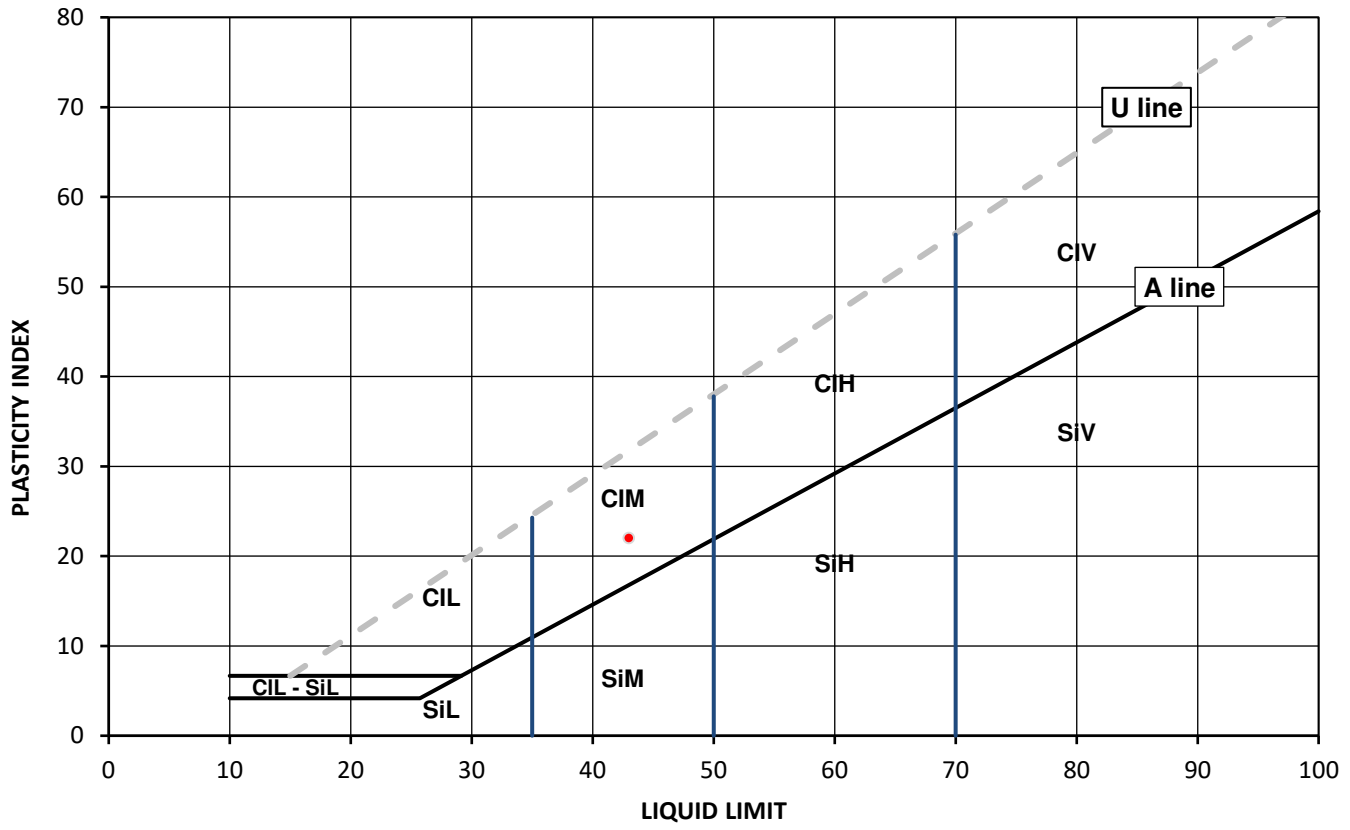
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443475	Depth Top [m]:	2.50
Hole No.:	WS18	Depth Base [m]:	2.70
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown mottled brownish grey gravelly sandy CLAY		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
35	43	21	22	58



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

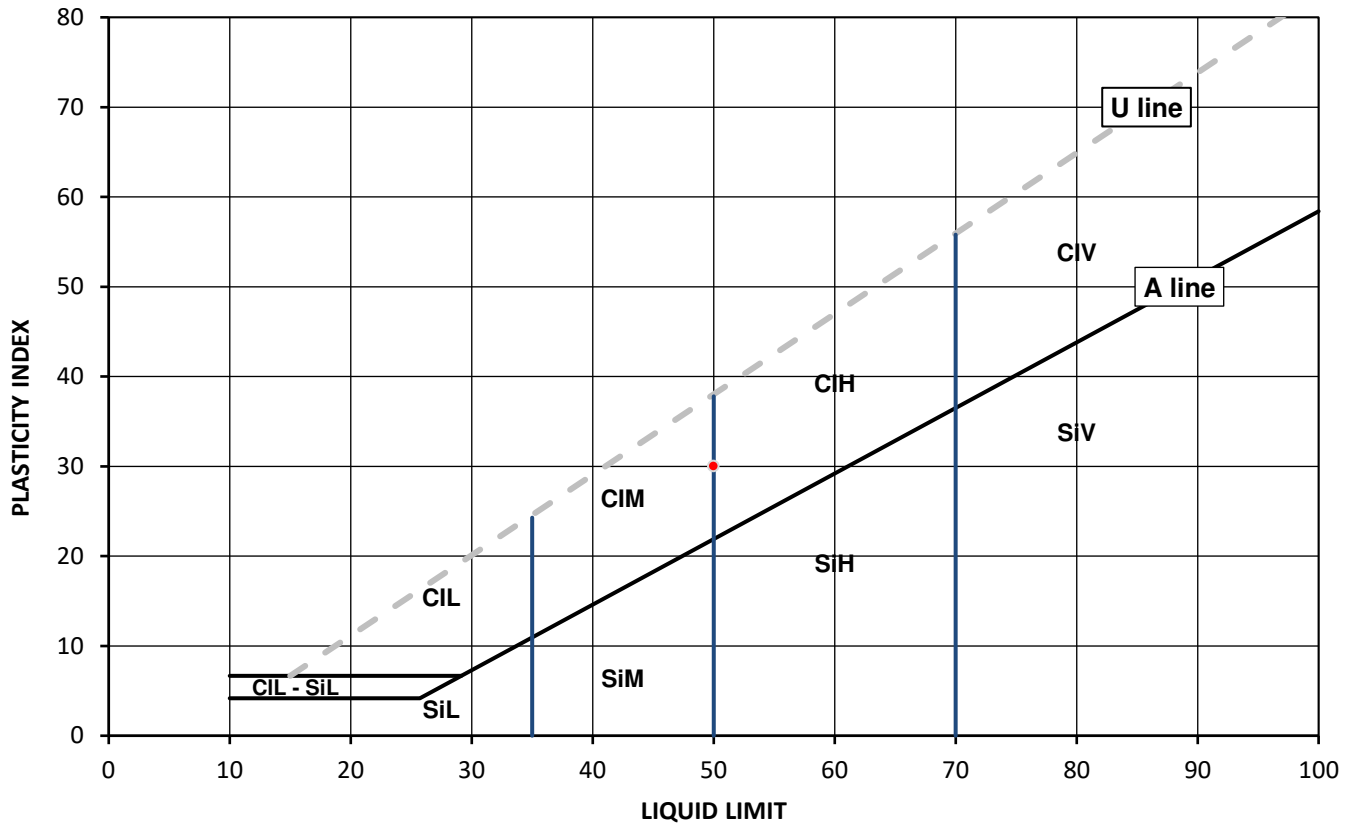
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443478	Depth Top [m]:	2.50
Hole No.:	WS28	Depth Base [m]:	2.70
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
42	50	20	30	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

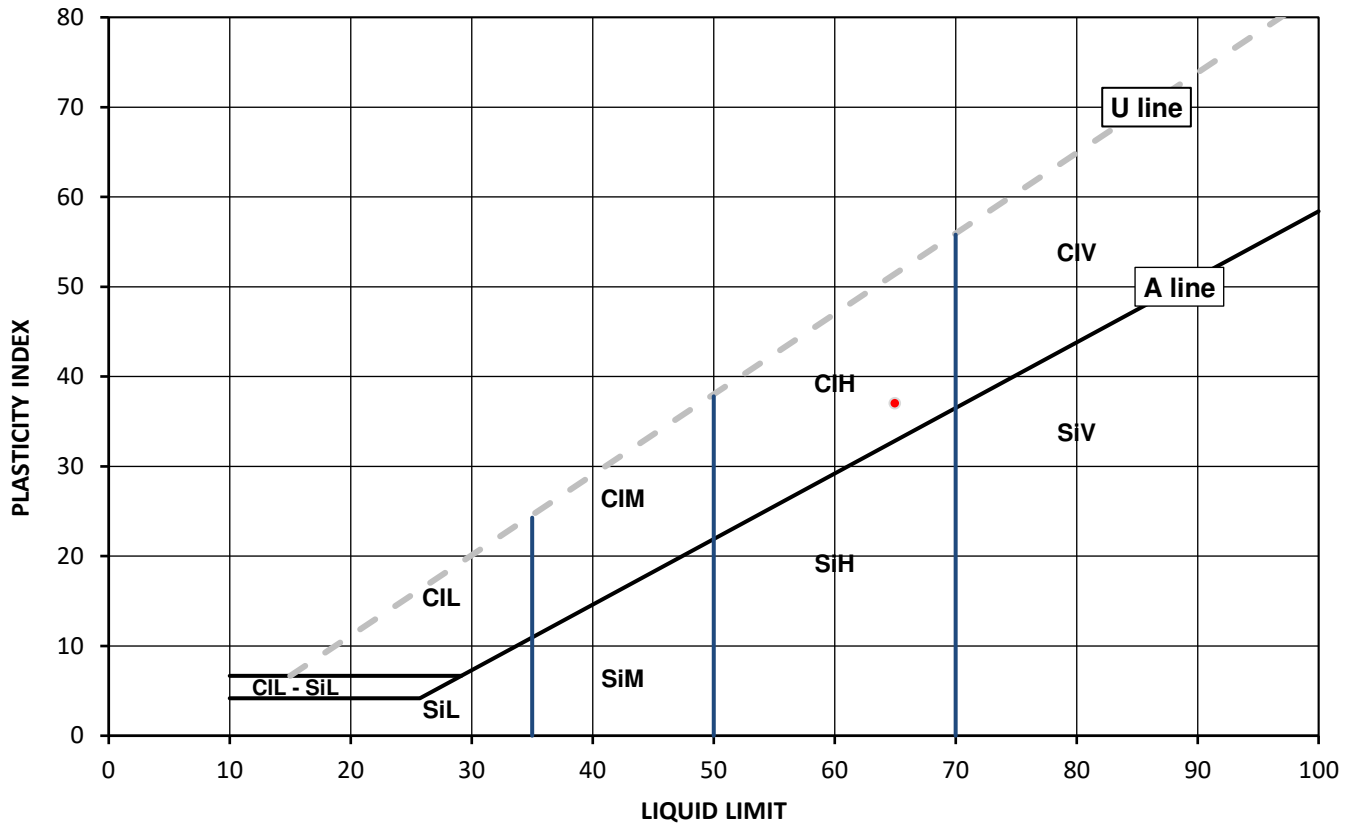
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443480	Depth Top [m]:	2.50
Hole No.:	WS33	Depth Base [m]:	2.80
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Grey CLAY		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
49	65	28	37	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

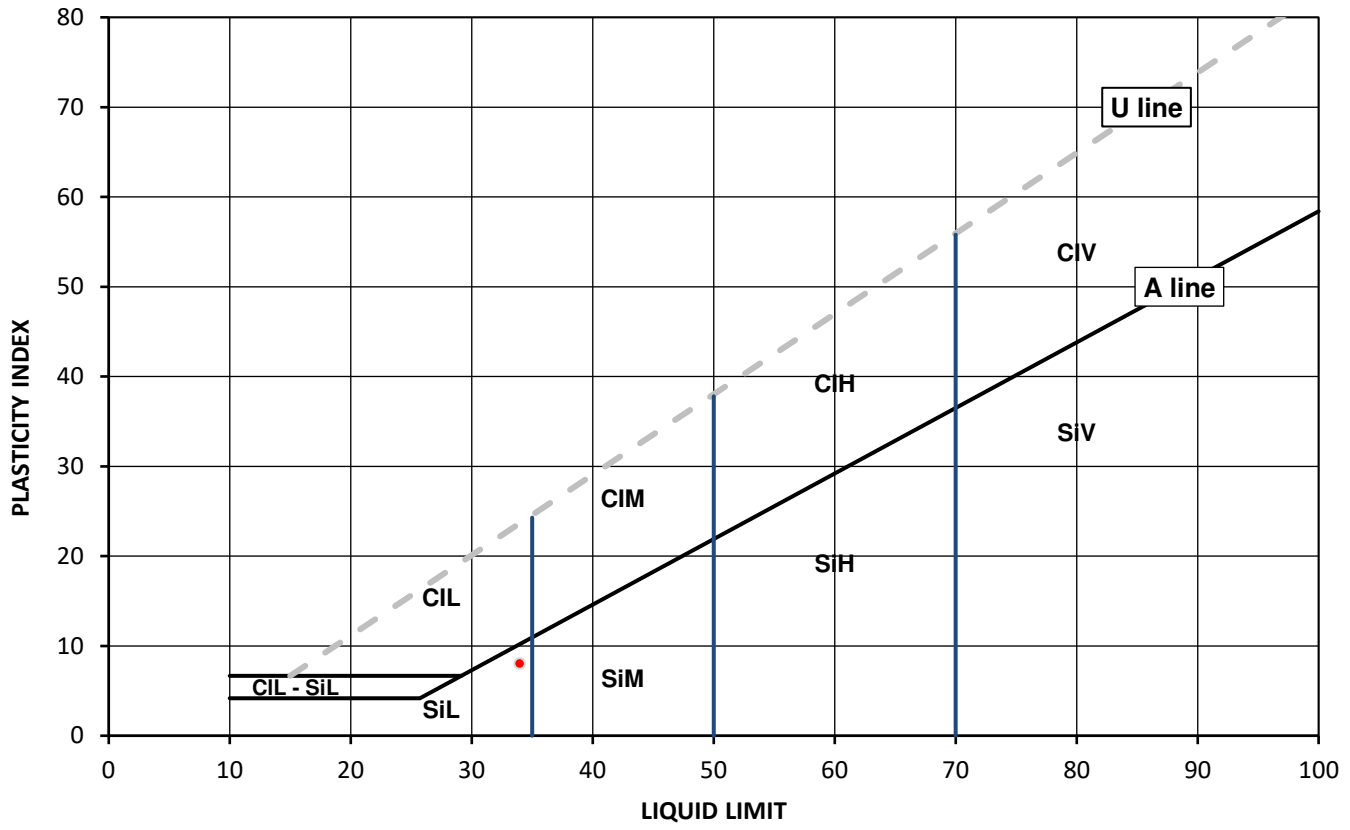
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443482	Depth Top [m]:	1.50
Hole No.:	WS39	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Yellowish brown SILT		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	34	26	8	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 232.12

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen

Client Reference: R22082
Job Number: 22-87282
Date Sampled: 26/09 - 28/09/2022
Date Received: 29/09/2022
Date Tested: 10/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-1 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2443468	WS10	Not Given	1.50	1.70	D	Dark brown mottled yellowish brown slightly gravelly slightly sandy CLAY	Atterberg 1 Point	24		85	50	19	31						
2443458	WS13	Not Given	0.00	0.50	D	Yellowish brown slightly gravelly very sandy CLAY	Atterberg 1 Point	9.5		99	31	21	10						
2443471	WS17	Not Given	2.50	2.70	D	Yellowish brown mottled light grey slightly gravelly very sandy CLAY with fragments of chalk	Atterberg 1 Point	16		71	34	16	18						
2443475	WS18	Not Given	2.50	2.70	D	Yellowish brown mottled brownish grey gravelly sandy CLAY	Atterberg 1 Point	35		58	43	21	22						
2443478	WS28	Not Given	2.50	2.70	D	Brownish grey slightly sandy CLAY	Atterberg 1 Point	42		100	50	20	30						
2443456	WS30	Not Given	0.00	0.50	D	Yellowish brown mottled dark brown slightly sandy CLAY	Atterberg 1 Point	14		100	45	22	23						
2443480	WS33	Not Given	2.50	2.80	D	Grey CLAY	Atterberg 1 Point	49		100	65	28	37						
2443482	WS39	Not Given	1.50	2.00	D	Yellowish brown SILT	Atterberg 1 Point	31		100	34	26	8						
2443451	WS41	Not Given	0.15	0.60	D	Brownish grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	16		91	51	27	24						
2443450	WS42	Not Given	1.50	1.85	D	Brown mottled grey CLAY	Atterberg 1 Point	64		100	94	46	48						

Note: # Non accredited; NP - Non plastic

Comments:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 234.14

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen

Client Reference: R22082
Job Number: 22-87282
Date Sampled: 27/09 - 28/09/2022
Date Received: 29/09/2022
Date Tested: 10/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-1 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2443463	WS44	Not Given	0.50	1.00	D	Yellowish brown mottled grey slightly gravelly slightly sandy CLAY	Atterberg 1 Point	27		99	46	23	23						
2443460	WS45	Not Given	0.10	0.50	D	Yellowish brown mottled brownish grey slightly gravelly sandy CLAY	Atterberg 1 Point	17		95	41	20	21						
2443472	WS8	Not Given	2.50	2.70	D	Yellowish brown mottled light grey slightly gravelly very sandy CLAY with fragments of chalk	Atterberg 1 Point	14		86	28	13	15						

Note: # Non accredited; NP - Non plastic

Comments:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 234.14

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen

Client Reference: R22082
Job Number: 22-87282
Date Sampled: 26/09 - 28/09/2022
Date Received: 29/09/2022
Date Tested: 10/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
2443468	WS10	Not Given	1.50	1.70	D	Dark brown mottled yellowish brown slightly gravelly slightly sandy CLAY		24	Sample was quartered, oven dried at 106.1 °C			
2443458	WS13	Not Given	0.00	0.50	D	Yellowish brown slightly gravelly very sandy CLAY		9.5	Sample was quartered, oven dried at 106.1 °C			
2443471	WS17	Not Given	2.50	2.70	D	Yellowish brown mottled light grey slightly gravelly very sandy CLAY with fragments of chalk		16	Sample was quartered, oven dried at 106.1 °C			
2443475	WS18	Not Given	2.50	2.70	D	Yellowish brown mottled brownish grey gravelly sandy CLAY		35	Sample was quartered, oven dried at 106.1 °C			
2443478	WS28	Not Given	2.50	2.70	D	Brownish grey slightly sandy CLAY		42	Sample was quartered, oven dried at 106.1 °C			
2443456	WS30	Not Given	0.00	0.50	D	Yellowish brown mottled dark brown slightly sandy CLAY		14	Sample was quartered, oven dried at 106.1 °C			
2443480	WS33	Not Given	2.50	2.80	D	Grey CLAY		49	Sample was quartered, oven dried at 106.1 °C			
2443482	WS39	Not Given	1.50	2.00	D	Yellowish brown SILT		31	Sample was quartered, oven dried at 106.1 °C			
2443451	WS41	Not Given	0.15	0.60	D	Brownish grey slightly gravelly slightly sandy CLAY		16	Sample was quartered, oven dried at 106.1 °C			
2443450	WS42	Not Given	1.50	1.85	D	Brown mottled grey CLAY		64	Sample was quartered, oven dried at 106.1 °C			

Comments:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen

Client Reference: R22082
Job Number: 22-87282
Date Sampled: 27/09 - 28/09/2022
Date Received: 29/09/2022
Date Tested: 10/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
2443463	WS44	Not Given	0.50	1.00	D	Yellowish brown mottled grey slightly gravelly slightly sandy CLAY		27	Sample was quartered, oven dried at 106.1 °C			
2443460	WS45	Not Given	0.10	0.50	D	Yellowish brown mottled brownish grey slightly gravelly sandy CLAY		17	Sample was quartered, oven dried at 106.1 °C			
2443472	WS8	Not Given	2.50	2.70	D	Yellowish brown mottled light grey slightly gravelly very sandy CLAY with fragments of chalk		14	Sample was quartered, oven dried at 106.1 °C			

Comments:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 099.16

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

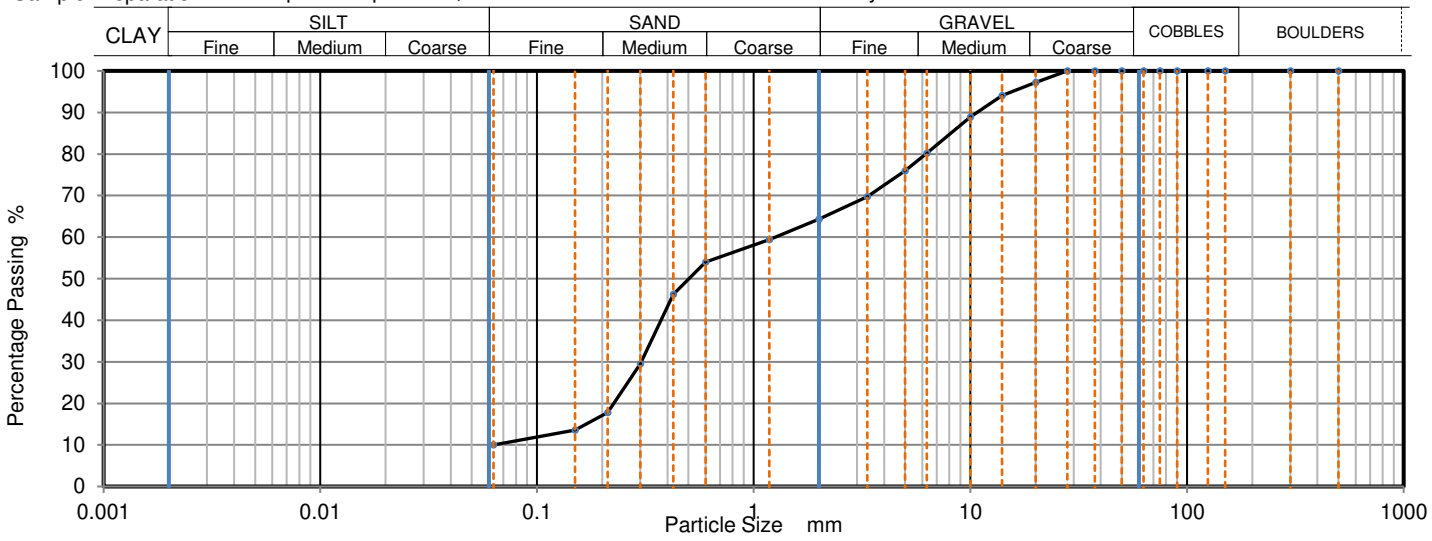
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	26/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443454	Depth Top [m]:	4.00
Hole No.:	WS32	Depth Base [m]:	5.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown clayey very gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.1 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	94		
10	89		
6.3	80		
5	76		
3.35	70		
2	64		
1.18	59		
0.6	54		
0.425	46		
0.3	30		
0.212	18		
0.15	14		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0
Gravel	36
Sand	54
Fines <0.063mm	11

Grading Analysis		
D100	mm	28
D60	mm	1.26
D30	mm	0.303
D10	mm	
Uniformity Coefficient		> 20
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

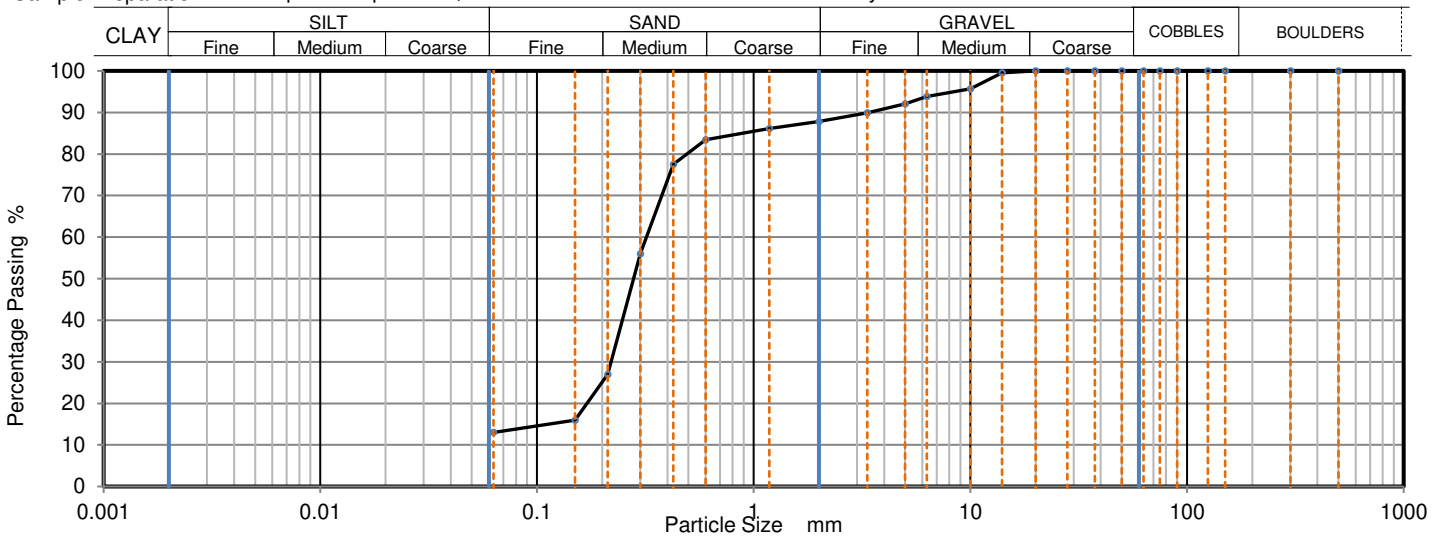
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	26/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443455	Depth Top [m]:	2.50
Hole No.:	WS31	Depth Base [m]:	3.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey gravelly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	96		
6.3	94		
5	92		
3.35	90		
2	88		
1.18	86		
0.6	83		
0.425	78		
0.3	56		
0.212	27		
0.15	16		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0
Gravel	12
Sand	75
Fines <0.063mm	13

Grading Analysis		
D100	mm	20
D60	mm	0.32
D30	mm	0.22
D10	mm	
Uniformity Coefficient		> 5.1
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

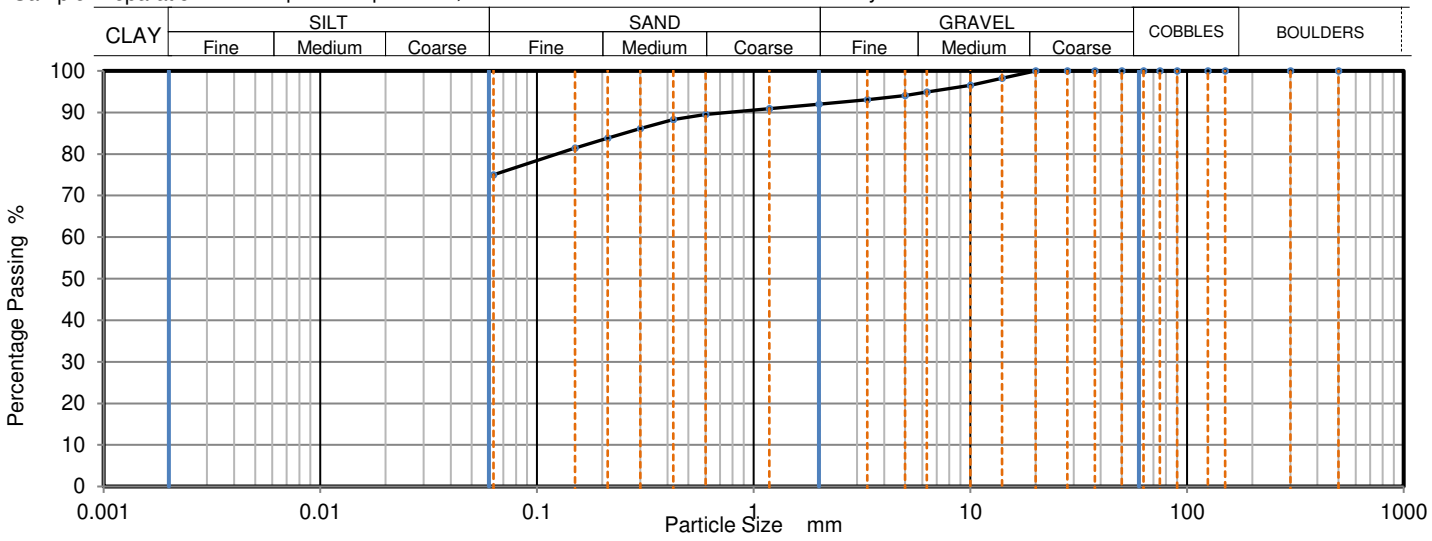
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443462	Depth Top [m]:	3.20
Hole No.:	WS12	Depth Base [m]:	4.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey gravelly sandy CLAY with fragments of chalk		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	97		
6.3	95		
5	94		
3.35	93		
2	92		
1.18	91		
0.6	90		
0.425	88		
0.3	86		
0.212	84		
0.15	81		
0.063	76		

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	16
Fines <0.063mm	75

Grading Analysis		
D100	mm	20
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

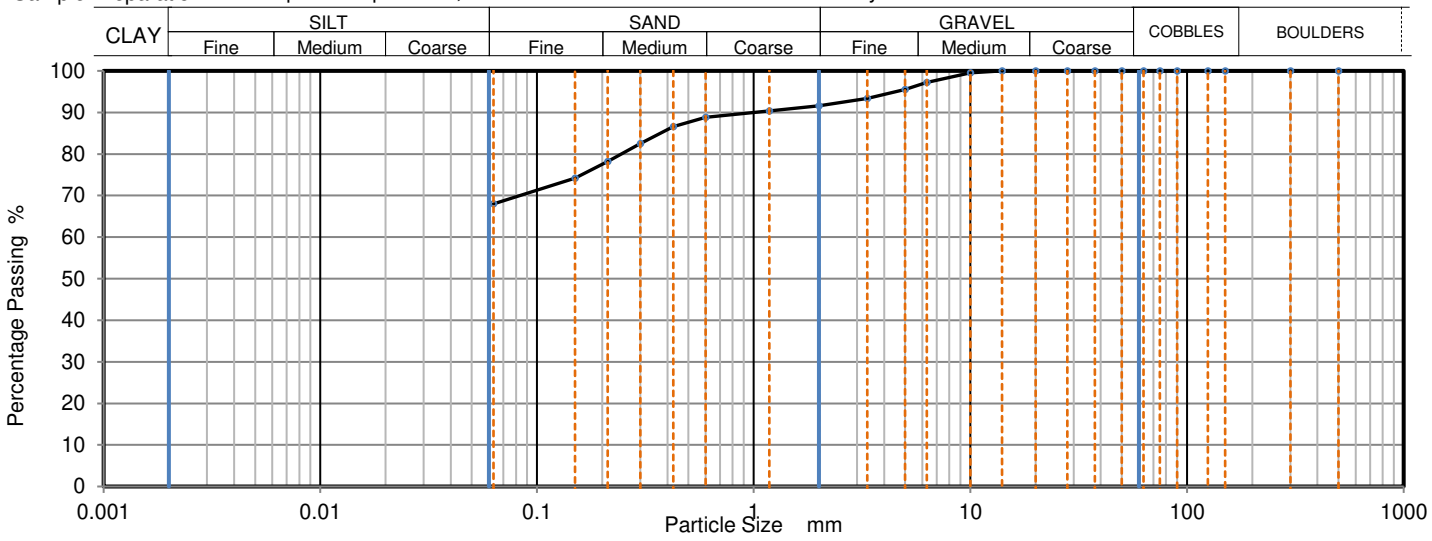
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443464	Depth Top [m]:	1.50
Hole No.:	WS11	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey gravelly sandy CLAY with fragments of chalk		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	97		
5	96		
3.35	93		
2	92		
1.18	90		
0.6	89		
0.425	87		
0.3	83		
0.212	78		
0.15	74		
0.063	68		

Sample Proportions	% dry mass
Very coarse	0
Gravel	8
Sand	23
Fines <0.063mm	68

Grading Analysis		
D100	mm	14
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

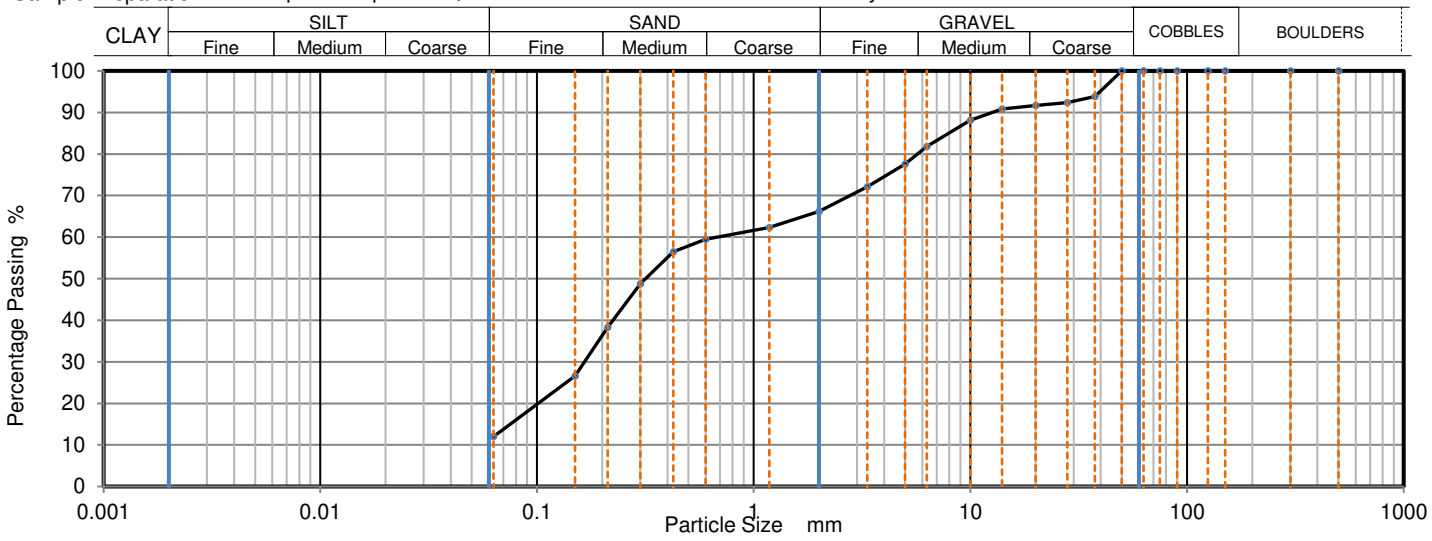
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	27/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443467	Depth Top [m]:	3.30
Hole No.:	WS9	Depth Base [m]:	3.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown clayey very gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	94		
28	92		
20	92		
14	91		
10	88		
6.3	82		
5	78		
3.35	72		
2	66		
1.18	62		
0.6	60		
0.425	57		
0.3	49		
0.212	38		
0.15	27		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0
Gravel	34
Sand	54
Fines <0.063mm	12

Grading Analysis		
D100	mm	50
D60	mm	0.681
D30	mm	0.166
D10	mm	
Uniformity Coefficient		> 11
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

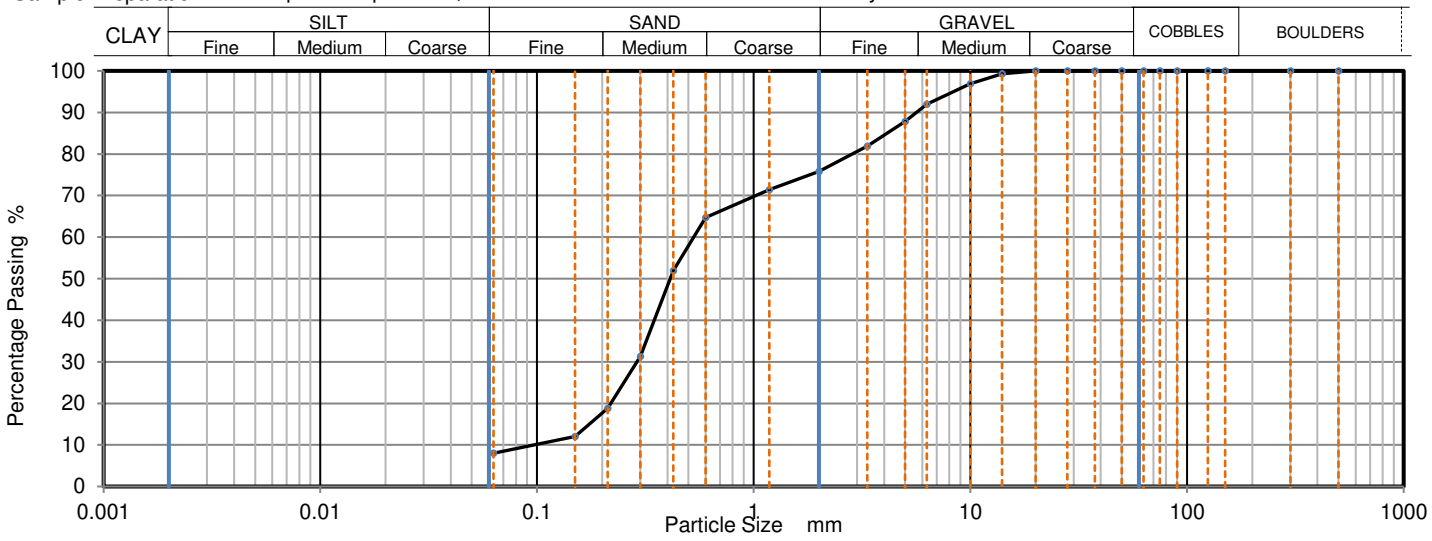
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443476	Depth Top [m]:	2.50
Hole No.:	WS18	Depth Base [m]:	2.70
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown gravelly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	97		
6.3	92		
5	88		
3.35	82		
2	76		
1.18	71		
0.6	65		
0.425	52		
0.3	31		
0.212	19		
0.15	12		
0.063	8		

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	68
Fines <0.063mm	8

Grading Analysis		
D100	mm	20
D60	mm	0.529
D30	mm	0.29
D10	mm	0.0969
Uniformity Coefficient		5.5
Curvature Coefficient		1.6

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

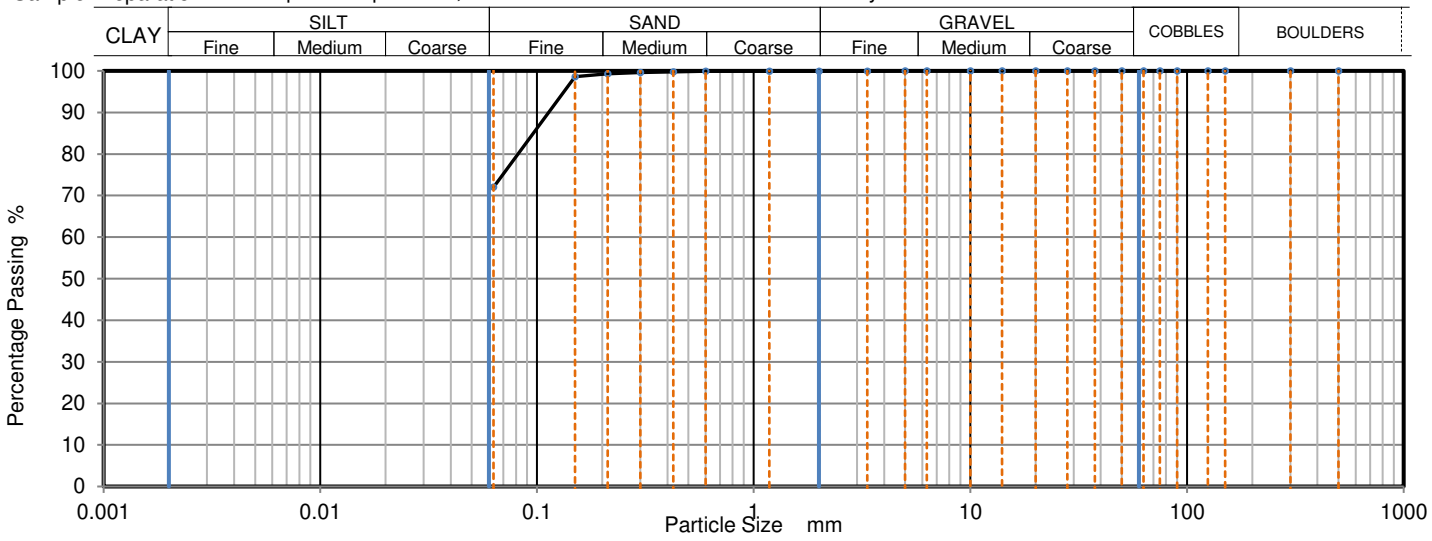
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-87282
		Date Sampled:	28/09/2022
		Date Received:	29/09/2022
Contact:	Steve Woodall	Date Tested:	10/10/2022
Site Address:	Heckington Fen	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2443483	Depth Top [m]:	3.00
Hole No.:	WS39	Depth Base [m]:	4.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Grey sandy CLAY		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	100		
0.3	100		
0.212	99		
0.15	99		
0.063	72		

Sample Proportions	% dry mass
Very coarse	0
Gravel	0
Sand	28
Fines <0.063mm	72

Grading Analysis		
D100	mm	5
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		N/A
Curvature Coefficient		

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 100.21

SUMMARY REPORT

DETERMINATION OF SHRINKAGE CHARACTERISTICS - LINEAR SHRINKAGE

Tested in Accordance with: BS 1377-2: 1990: Clause 6.5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen

Client Reference: R22082
Job Number: 22-87282
Date Sampled: 26/09 - 28/09/2022
Date Received: 29/09/2022
Date Tested: 10/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Material <425µm	Preparation	Linear Shrinkage					
		Reference	Depth Top m	Depth Base m	Type			%		%					
2443469	WS10	Not Given	2.60	2.80	D	Yellowish brown mottled light grey slightly gravelly slightly sandy CLAY with fragments of chalk		72	Sample washed through 425µm sieve	9					
2443465	WS11	Not Given	3.20	3.50	D	Bluish grey slightly gravelly slightly sandy CLAY with fragments of chalk		96	Sample washed through 425µm sieve	10					
2443461	WS12	Not Given	0.20	0.50	D	Brown very sandy CLAY with fragments of grass		100	Specimen prepared from natural material	6					
2443459	WS13	Not Given	1.30	1.50	D	Yellowish brown slightly gravelly slightly sandy CLAY with fragments of chalk		92	Sample washed through 425µm sieve	13					
2443470	WS17	Not Given	1.10	1.60	D	Brownish grey mottled cream colour slightly sandy CLAY		100	Specimen prepared from natural material	17					
2443477	WS28	Not Given	2.50	2.70	D	Brown slightly sandy CLAY		100	Specimen prepared from natural material	13					
2443474	WS3	Not Given	2.50	2.70	D	Brown very sandy silty CLAY		100	Specimen prepared from natural material	3					
2443457	WS30	Not Given	2.50	2.80	D	Light grey mottled yellowish brown slightly gravelly slightly sandy CLAY with fragments of chalk		99	Sample washed through 425µm sieve	9					
2443453	WS32	Not Given	2.50	2.80	D	Brownish grey sandy CLAY		100	Specimen prepared from natural material	13					
2443479	WS33	Not Given	1.75	2.00	D	Brownish grey slightly silty CLAY		100	Specimen prepared from natural material	13					

Comments:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 103.14

SUMMARY REPORT

DETERMINATION OF SHRINKAGE CHARACTERISTICS - LINEAR SHRINKAGE

Tested in Accordance with: BS 1377-2: 1990: Clause 6.5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Steve Woodall

Site Address: Heckington Fen

Client Reference: R22082
Job Number: 22-87282
Date Sampled: 26/09 - 28/09/2022
Date Received: 29/09/2022
Date Tested: 10/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Material <425µm	Preparation	Linear Shrinkage					
		Reference	Depth Top m	Depth Base m	Type			%		%					
2443481	WS38	Not Given	2.00	2.20	D	Grey CLAY		100	Specimen prepared from natural material	16					
2443452	WS40	Not Given	1.45	1.80	D	Yellowish brown slightly gravelly sandy CLAY		99	Specimen prepared from natural material	7					
2443473	WS8	Not Given	2.50	2.70	D	Brown slightly sandy CLAY		100	Specimen prepared from natural material	14					
2443466	WS9	Not Given	2.20	2.40	D	Dark brown mottled yellowish brown slightly gravelly slightly sandy CLAY		89	Sample washed through 425µm sieve	15					

Comments:

Signed: [redacted]

Anna Dudzinska
PL Deputy Head of Reporting Team
for and on behalf of i2 Analytical Ltd

Date Reported: 21/10/2022

GF 103.14

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

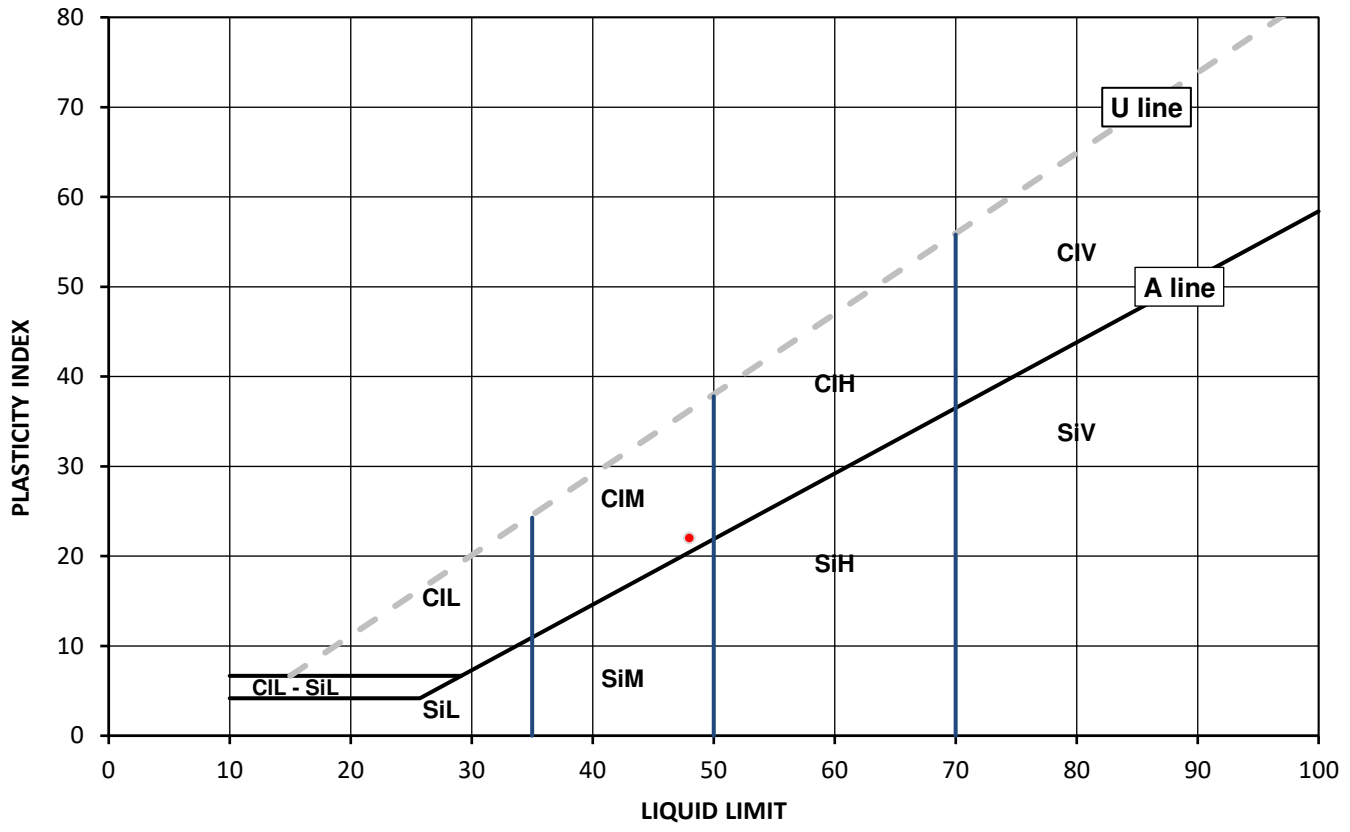
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451923	Depth Top [m]:	0.50
Hole No.:	CP2	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly sandy slightly silty CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	48	26	22	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

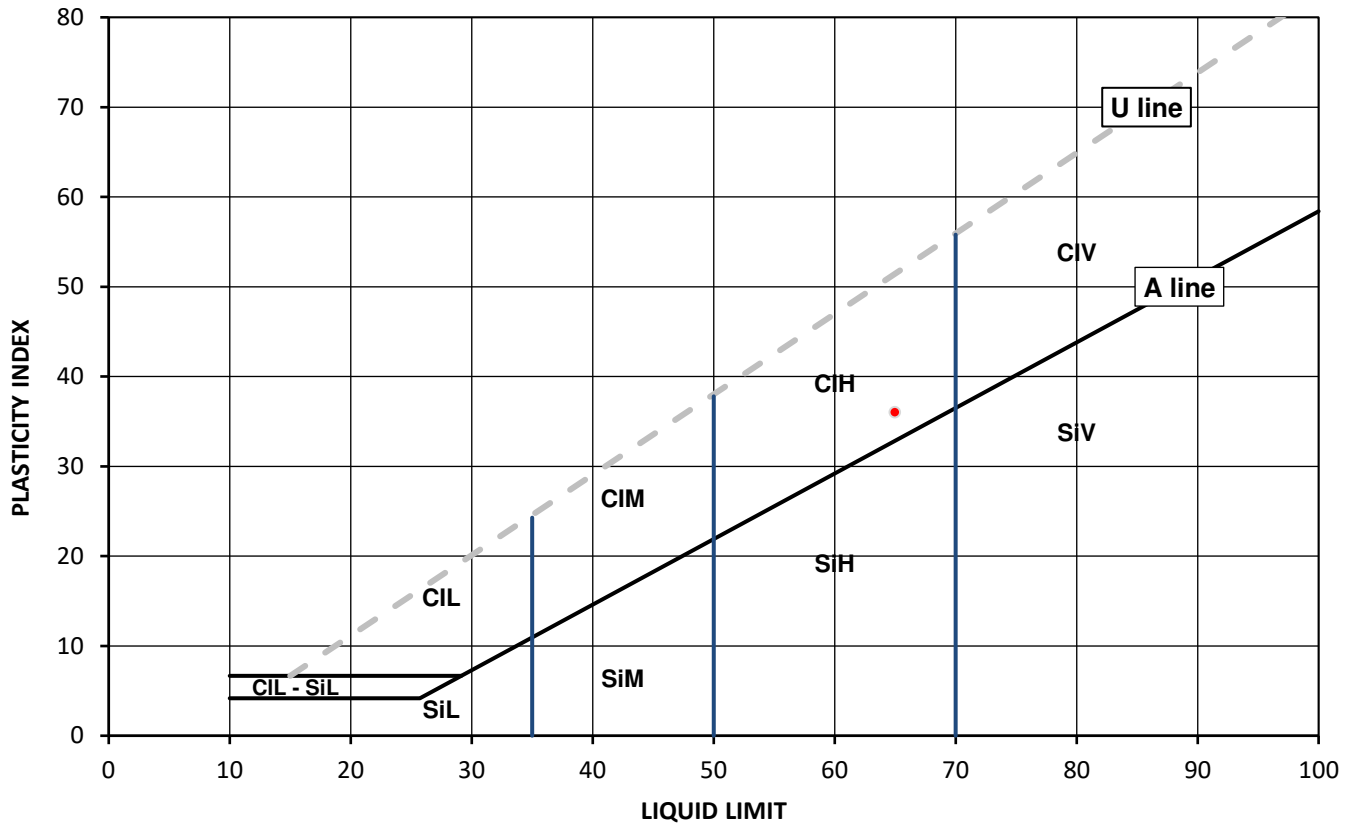
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451924	Depth Top [m]:	1.00
Hole No.:	CP2	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled light brown CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
36	65	29	36	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

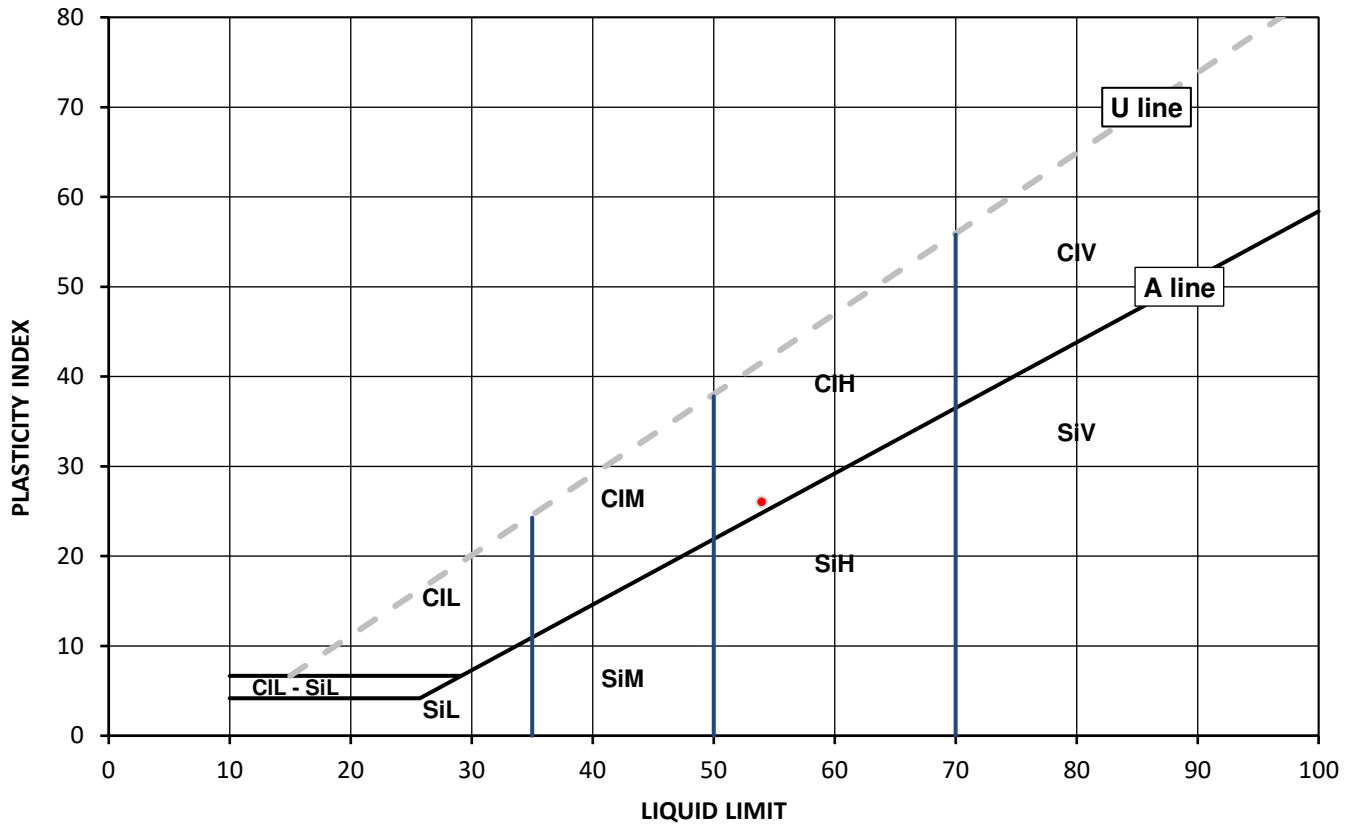
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451925	Depth Top [m]:	2.00
Hole No.:	CP2	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
37	54	28	26	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

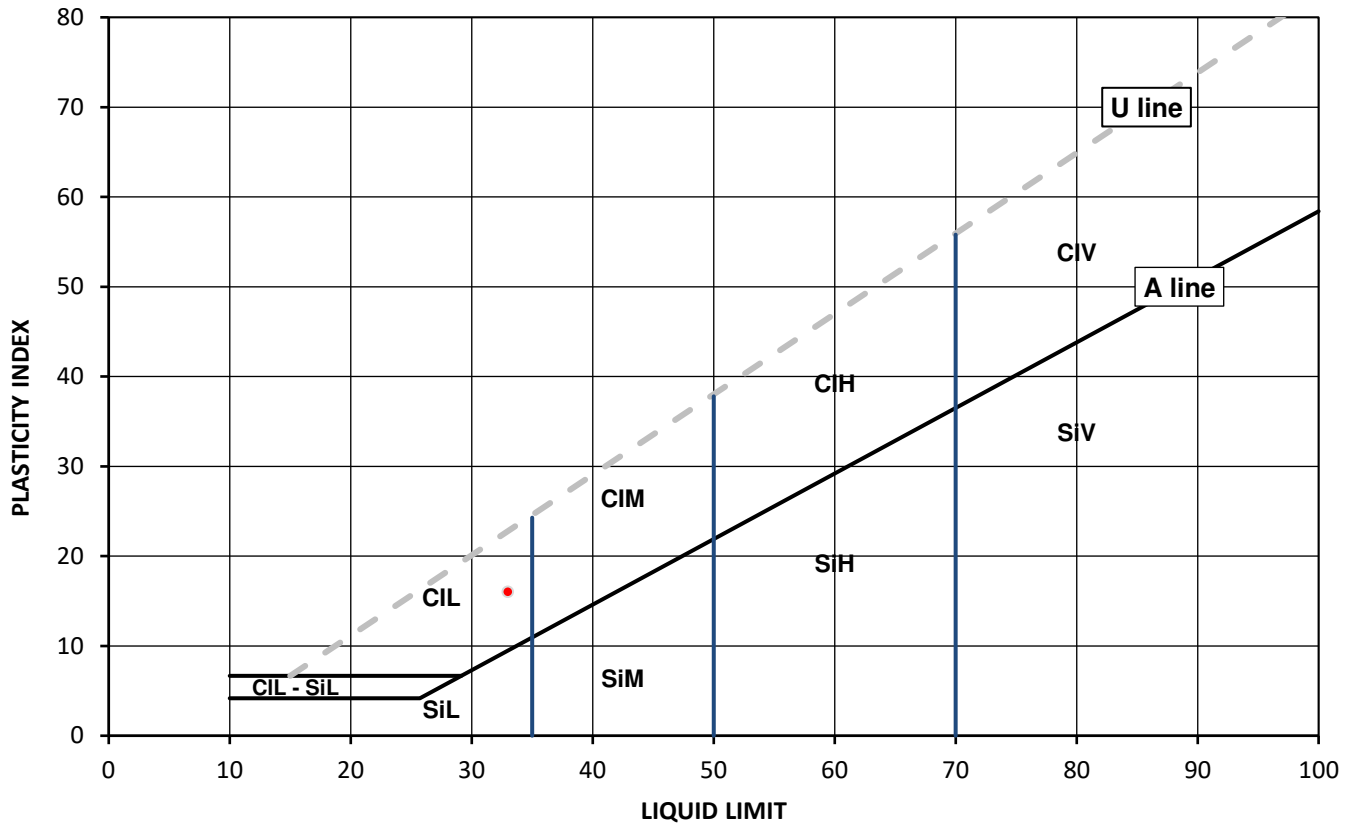
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451929	Depth Top [m]:	9.50
Hole No.:	CP2	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	33	17	16	86



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

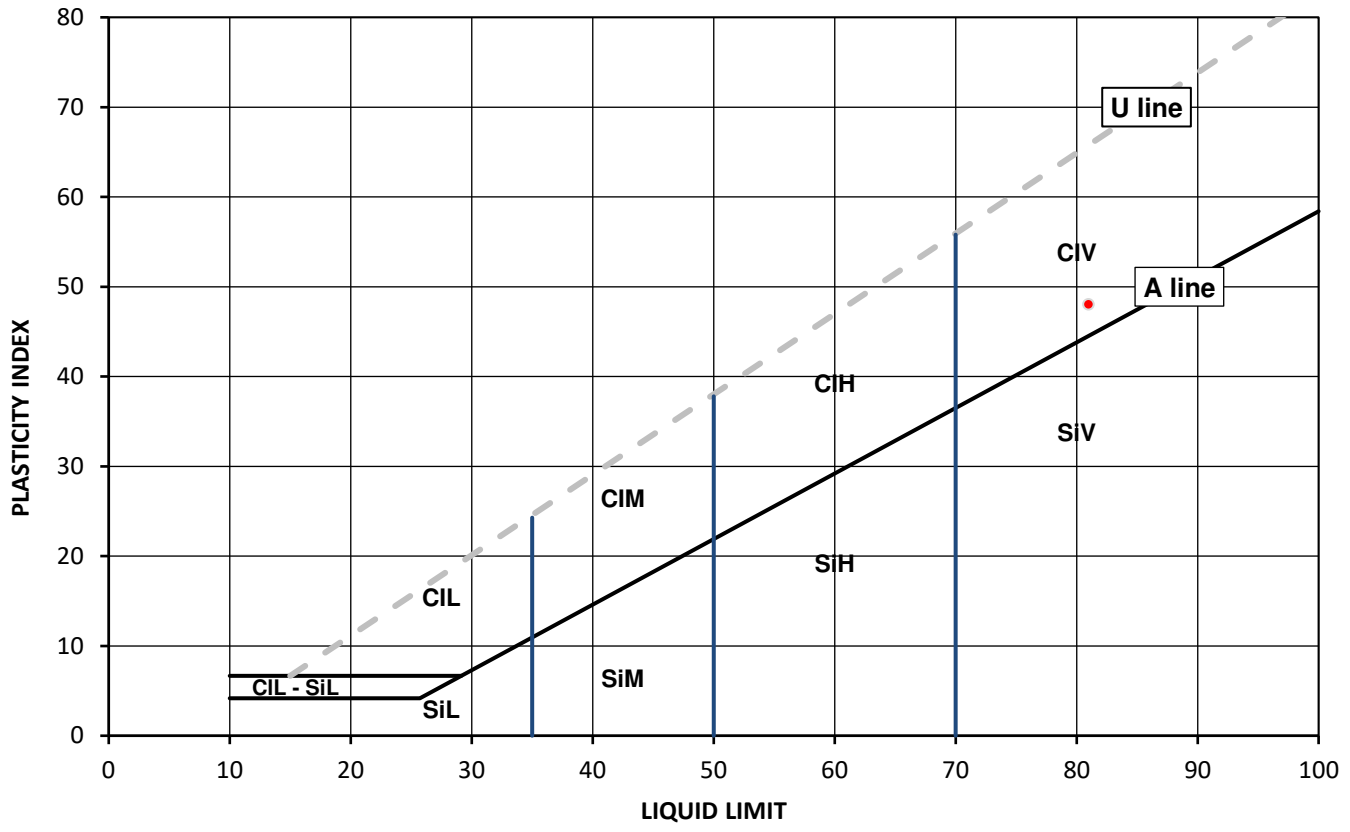
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451930	Depth Top [m]:	1.00
Hole No.:	CP1	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brownish grey mottled brown CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
30	81	33	48	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

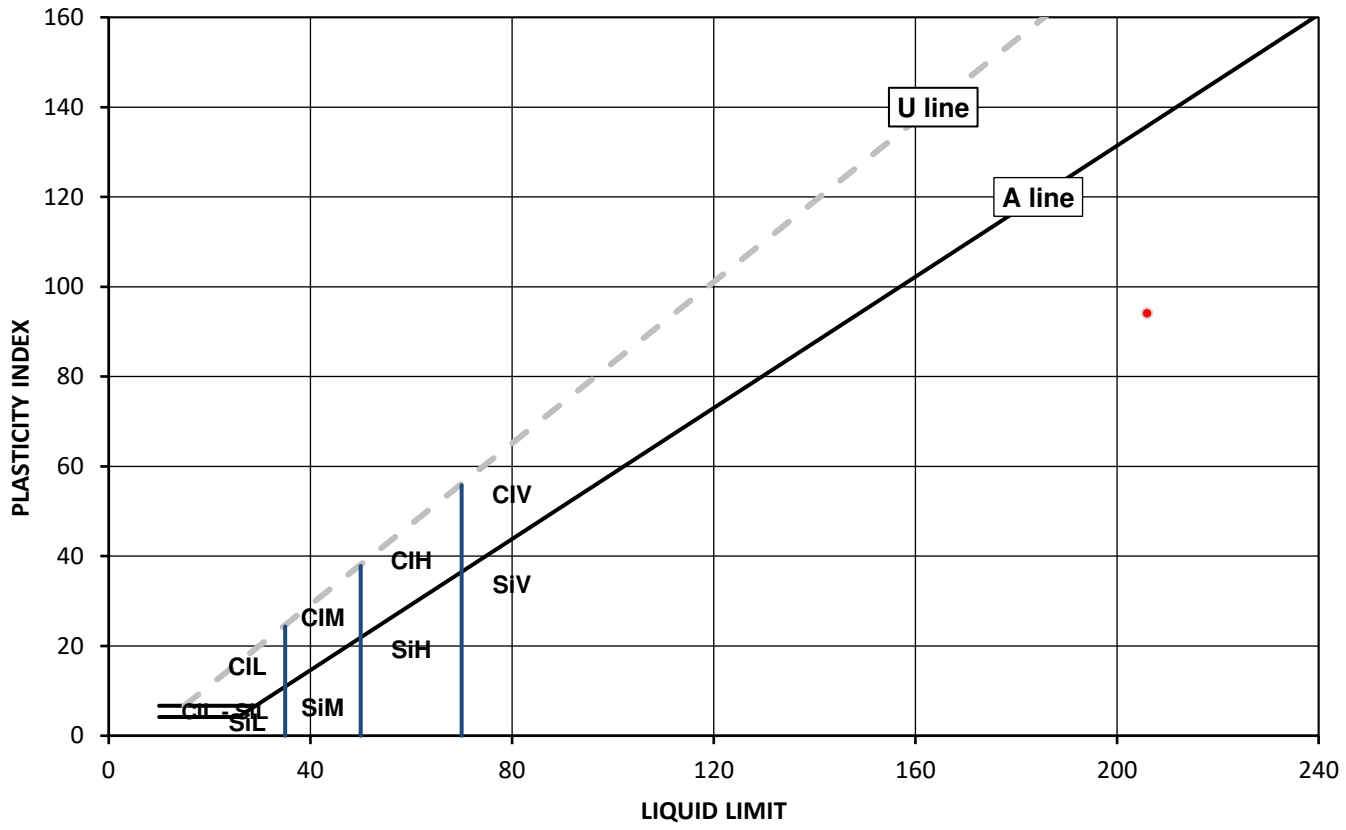
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451931	Depth Top [m]:	2.00
Hole No.:	CP1	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to black slightly gravelly PEAT		
Sample Preparation:	Tested after >425um removed by hand		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
179	206	112	94	99



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

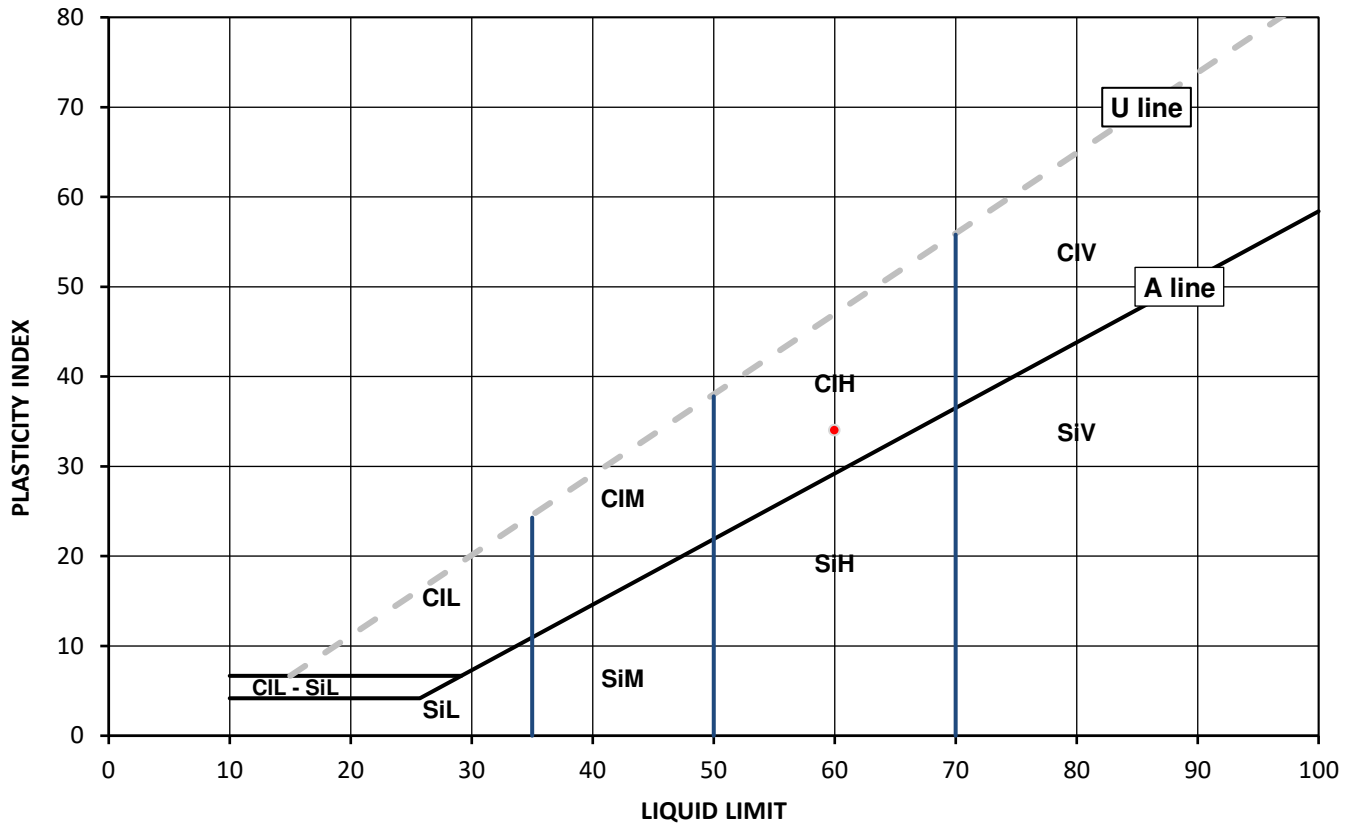
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	22/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451934	Depth Top [m]:	1.00
Hole No.:	CP3	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled grey CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
31	60	26	34	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

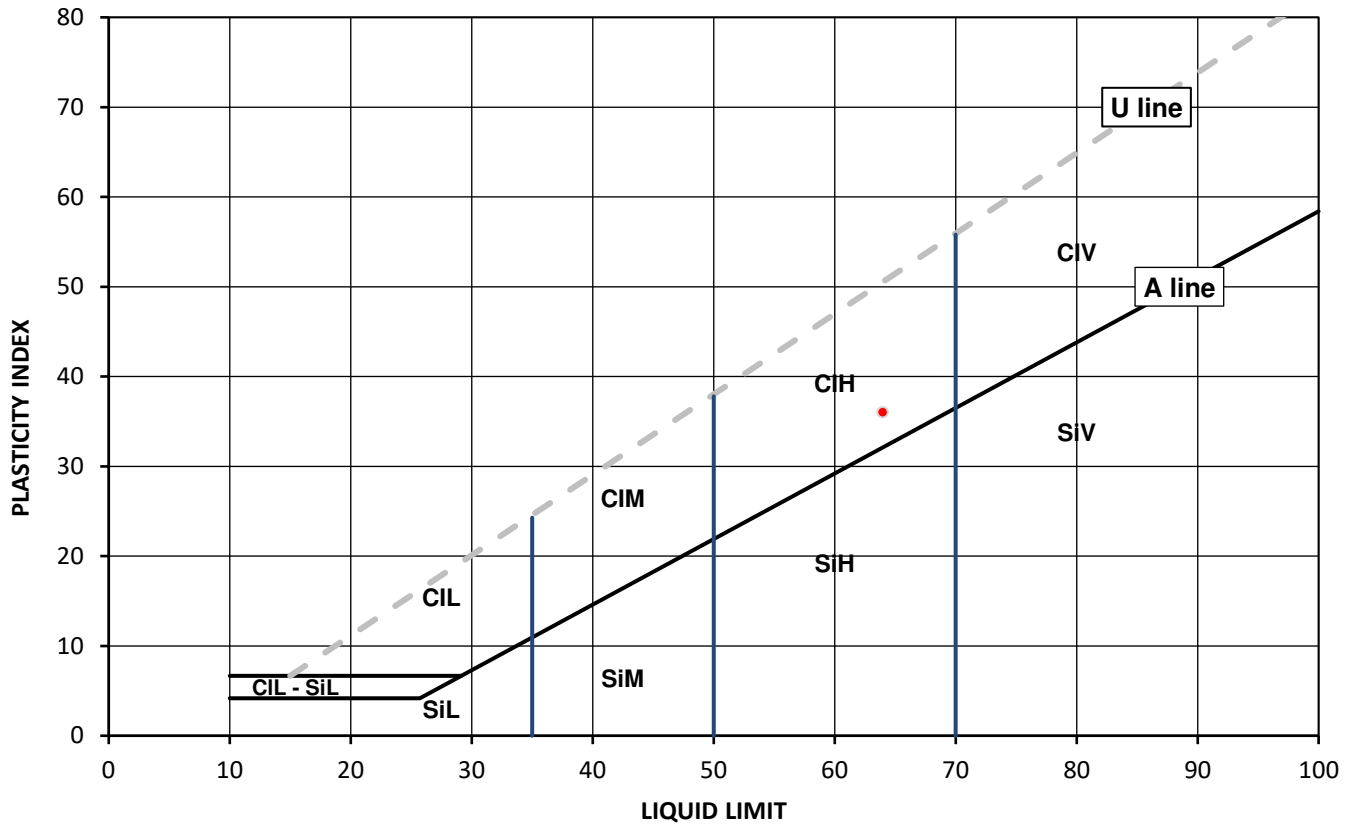
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451935	Depth Top [m]:	2.00
Hole No.:	CP3	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled grey CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
41	64	28	36	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

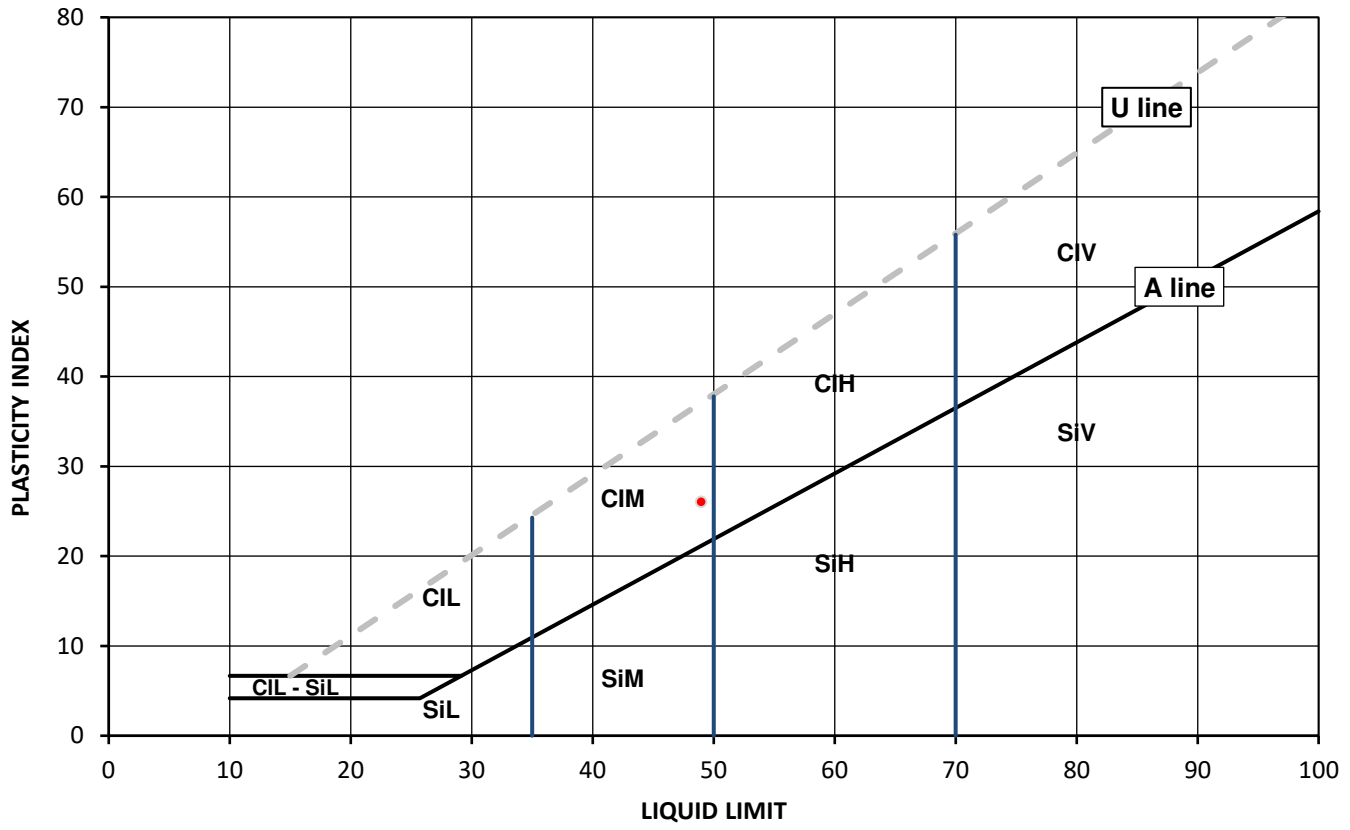
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451939	Depth Top [m]:	0.50
Hole No.:	CP5	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
22	49	23	26	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

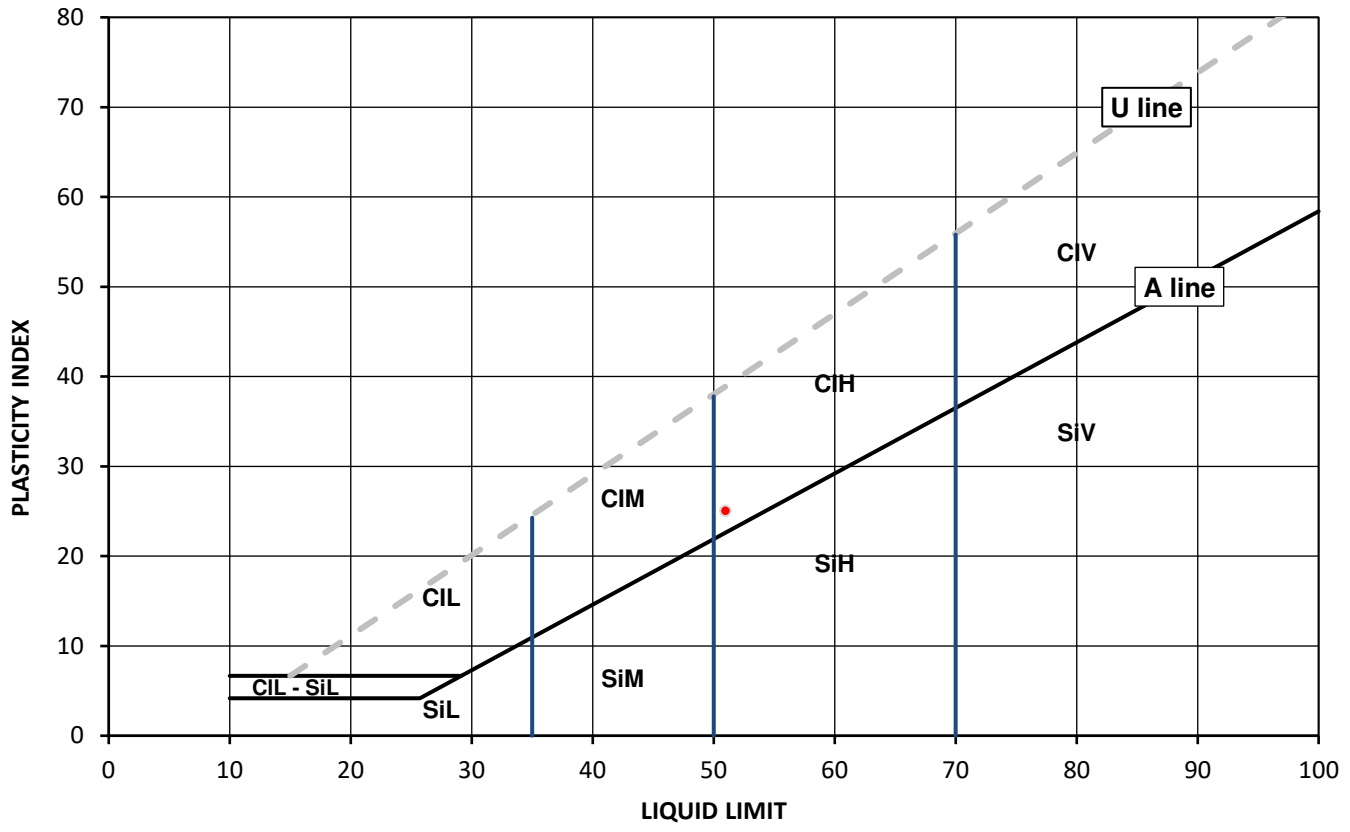
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451940	Depth Top [m]:	1.00
Hole No.:	CP5	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brownish grey mottled light grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
23	51	26	25	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

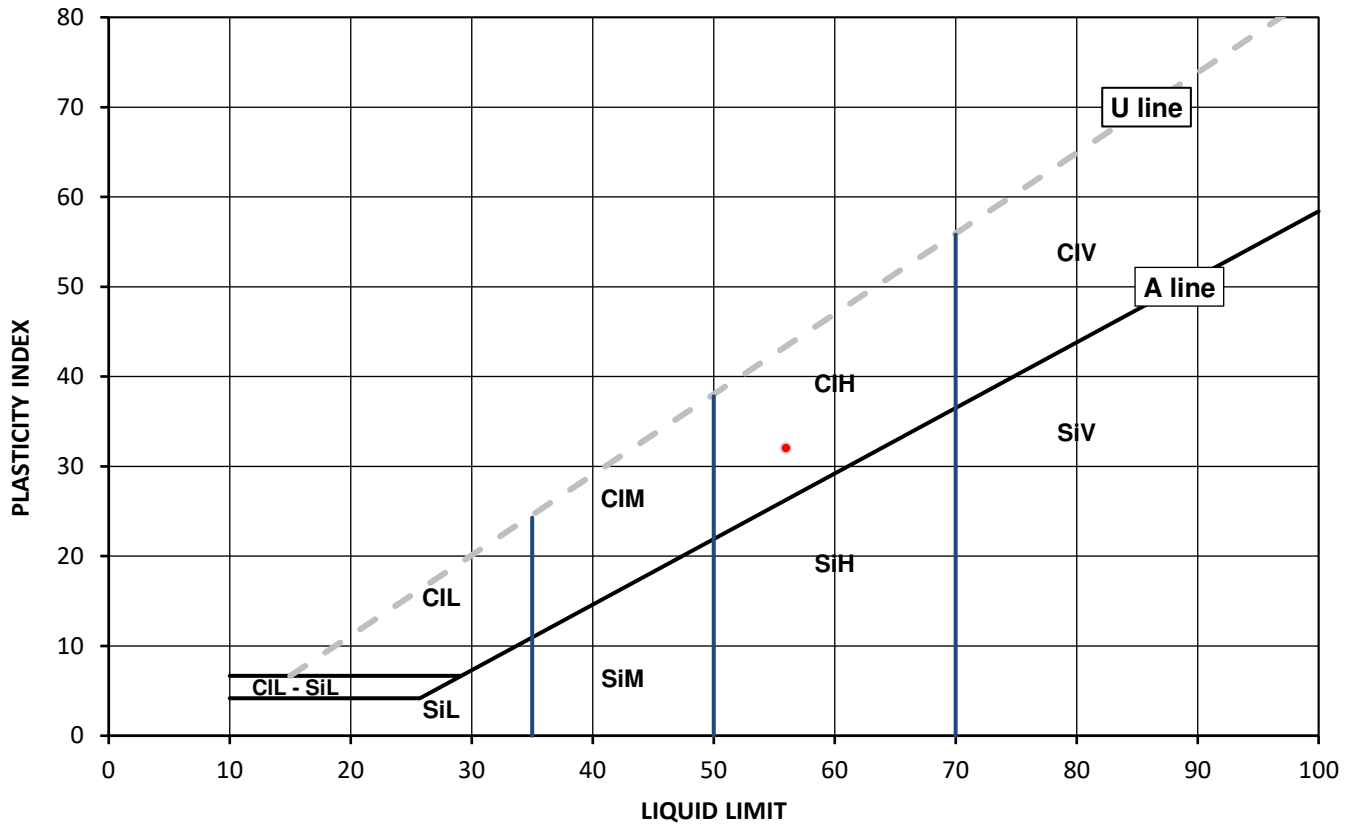
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451941	Depth Top [m]:	1.50
Hole No.:	CP5	Depth Base [m]:	2.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
29	56	24	32	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

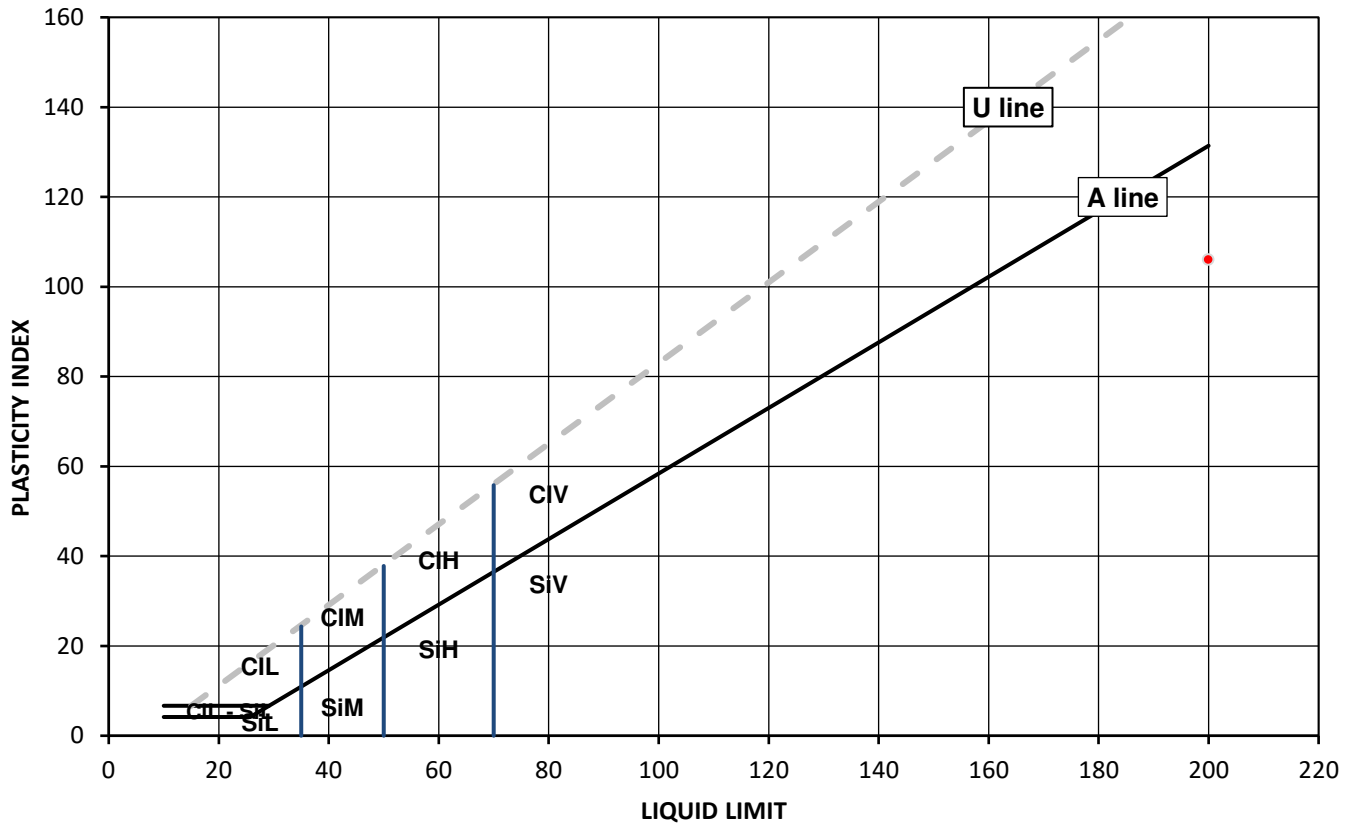
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451942	Depth Top [m]:	2.00
Hole No.:	CP5	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to black PEAT		

Sample Preparation: Tested in natural condition

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
106	200	94	106	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

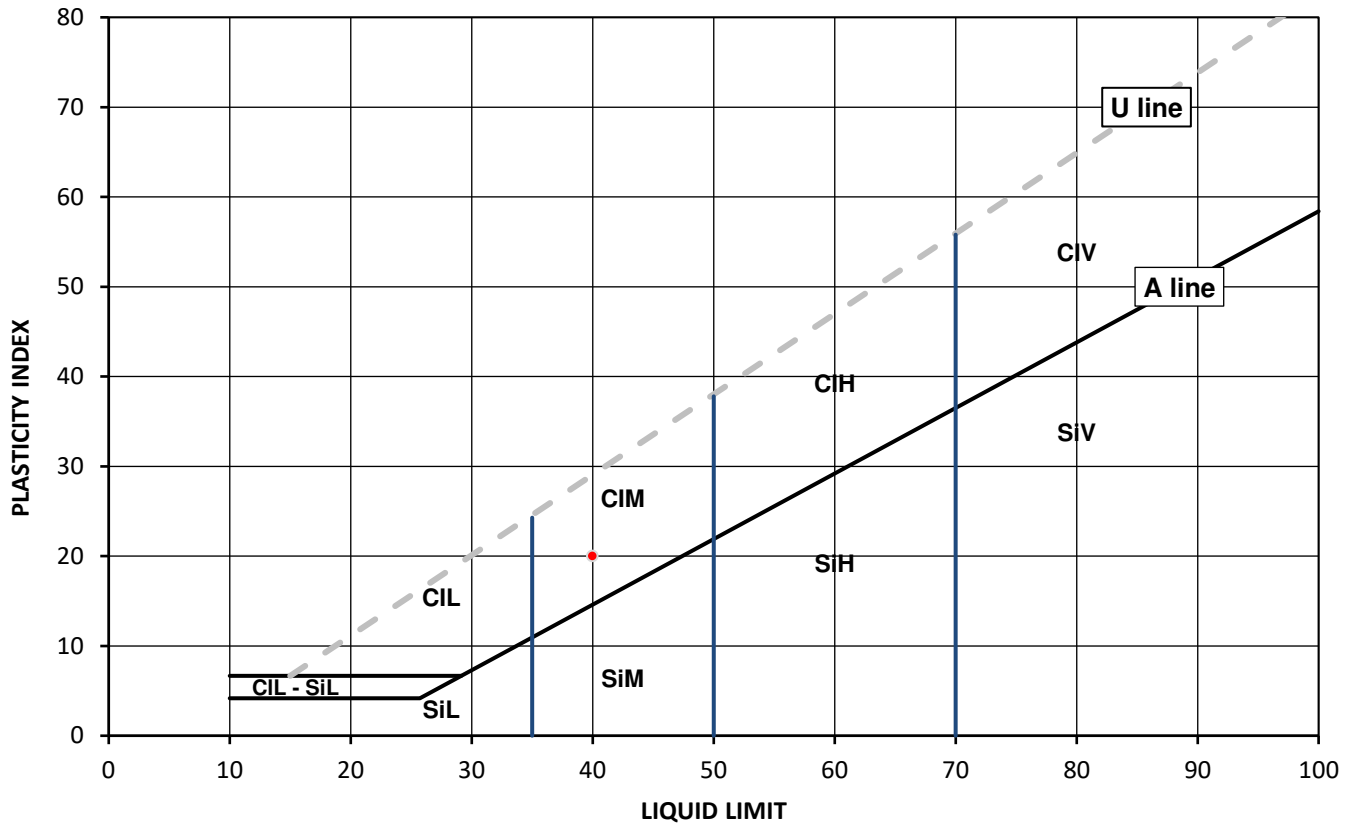
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451943	Depth Top [m]:	2.60
Hole No.:	CP5	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly gravelly sandy CLAY		

Sample Preparation: Tested after >425um removed by hand

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
34	40	20	20	96



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

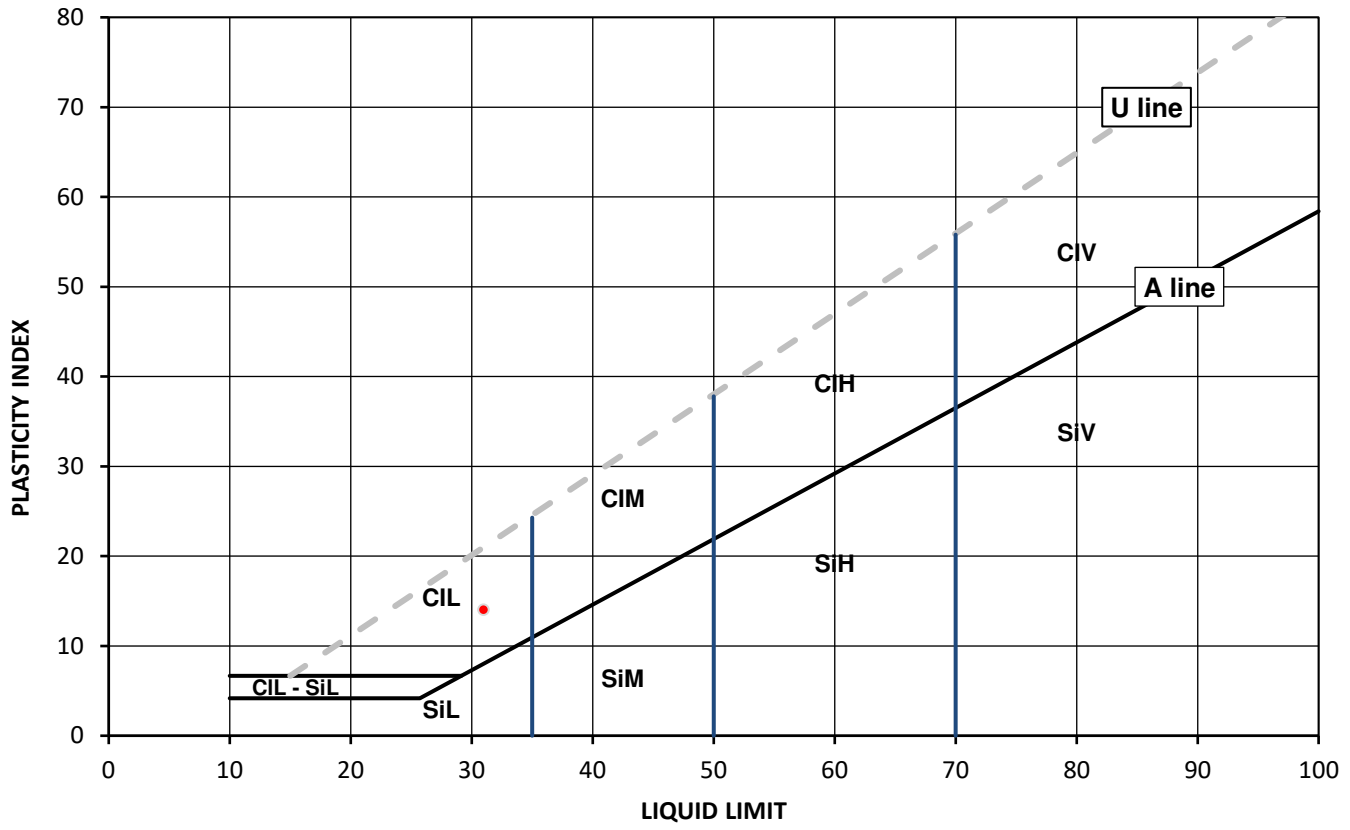
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451946	Depth Top [m]:	9.50
Hole No.:	CP5	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	31	17	14	90



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

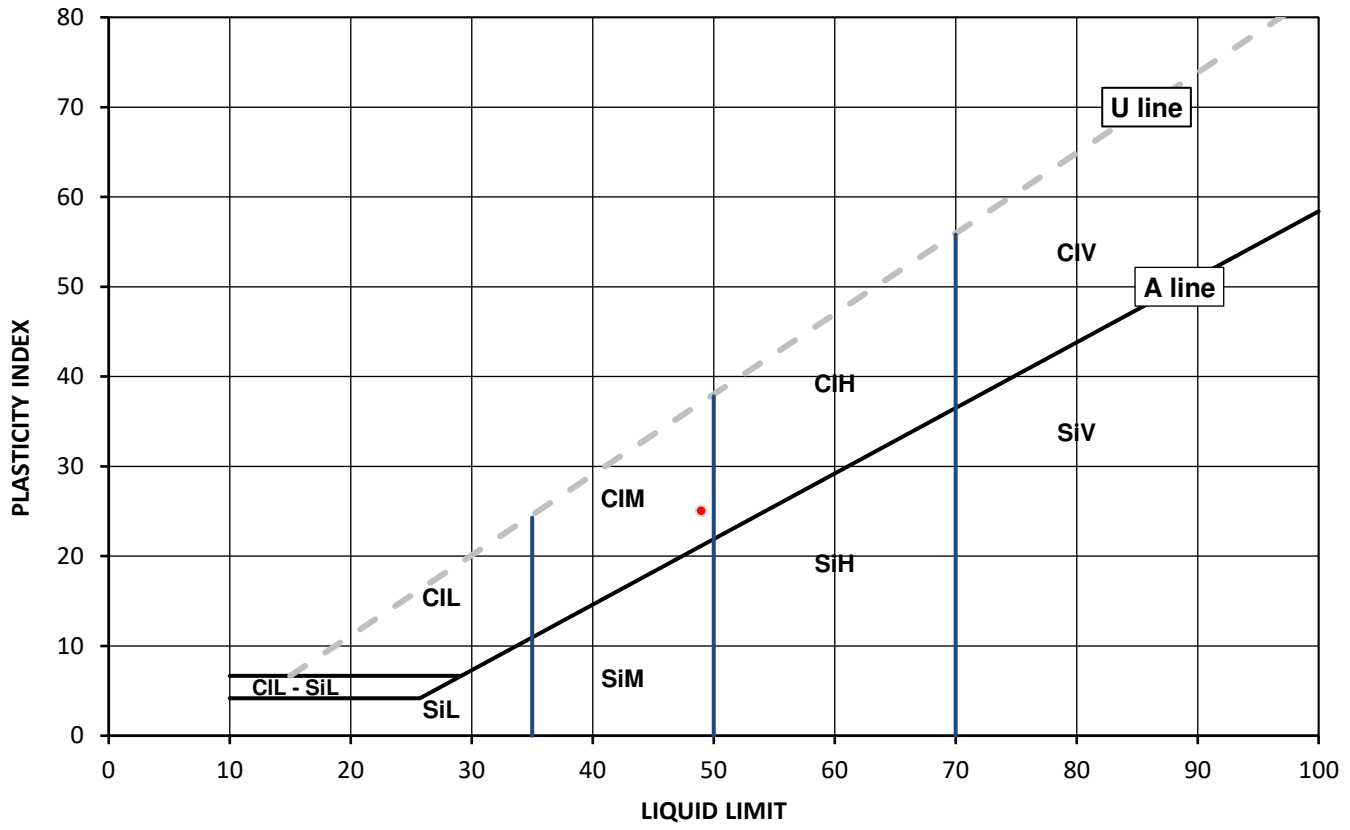
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451947	Depth Top [m]:	0.50
Hole No.:	CP4	Depth Base [m]:	1.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
22	49	24	25	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

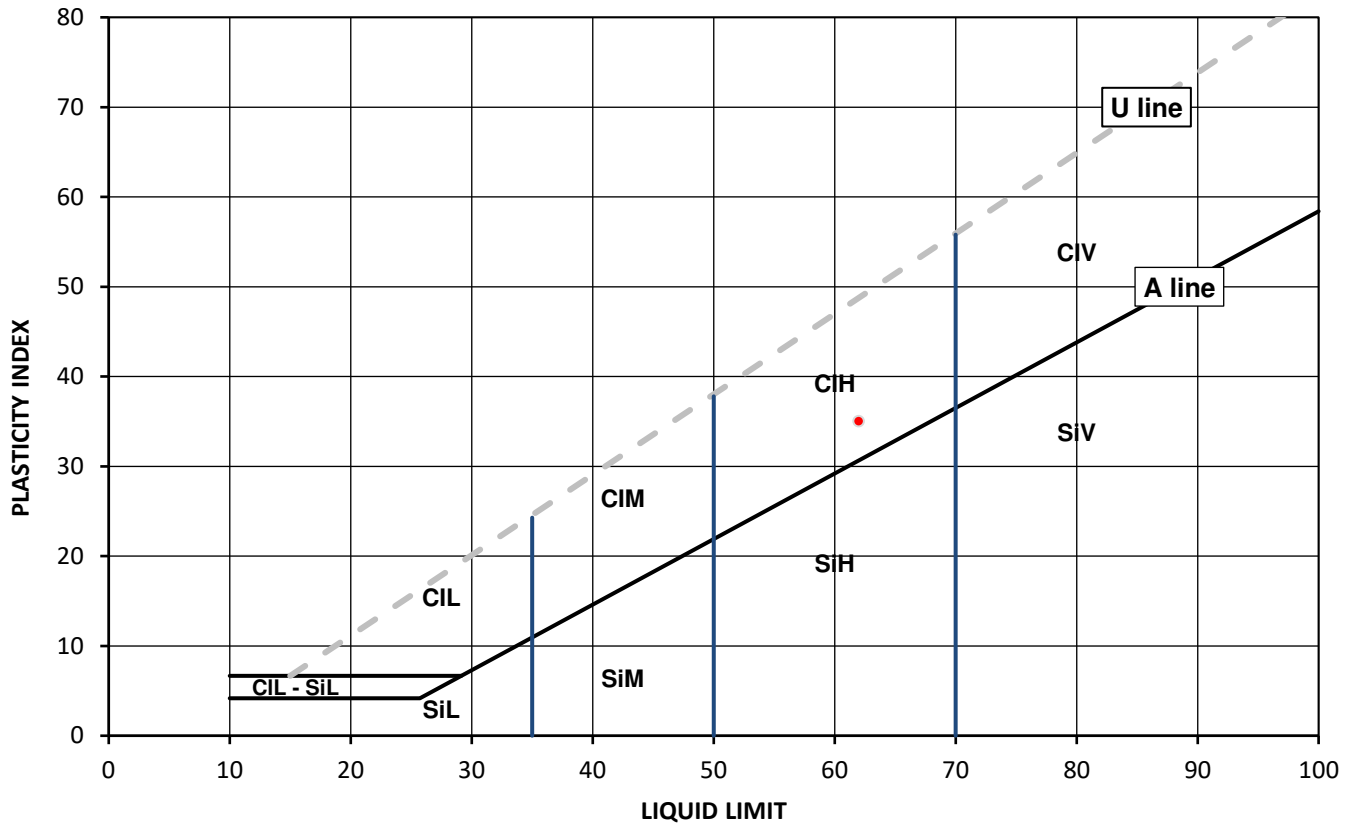
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451948	Depth Top [m]:	1.00
Hole No.:	CP4	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled brownish grey CLAY with rootlets		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
25	62	27	35	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

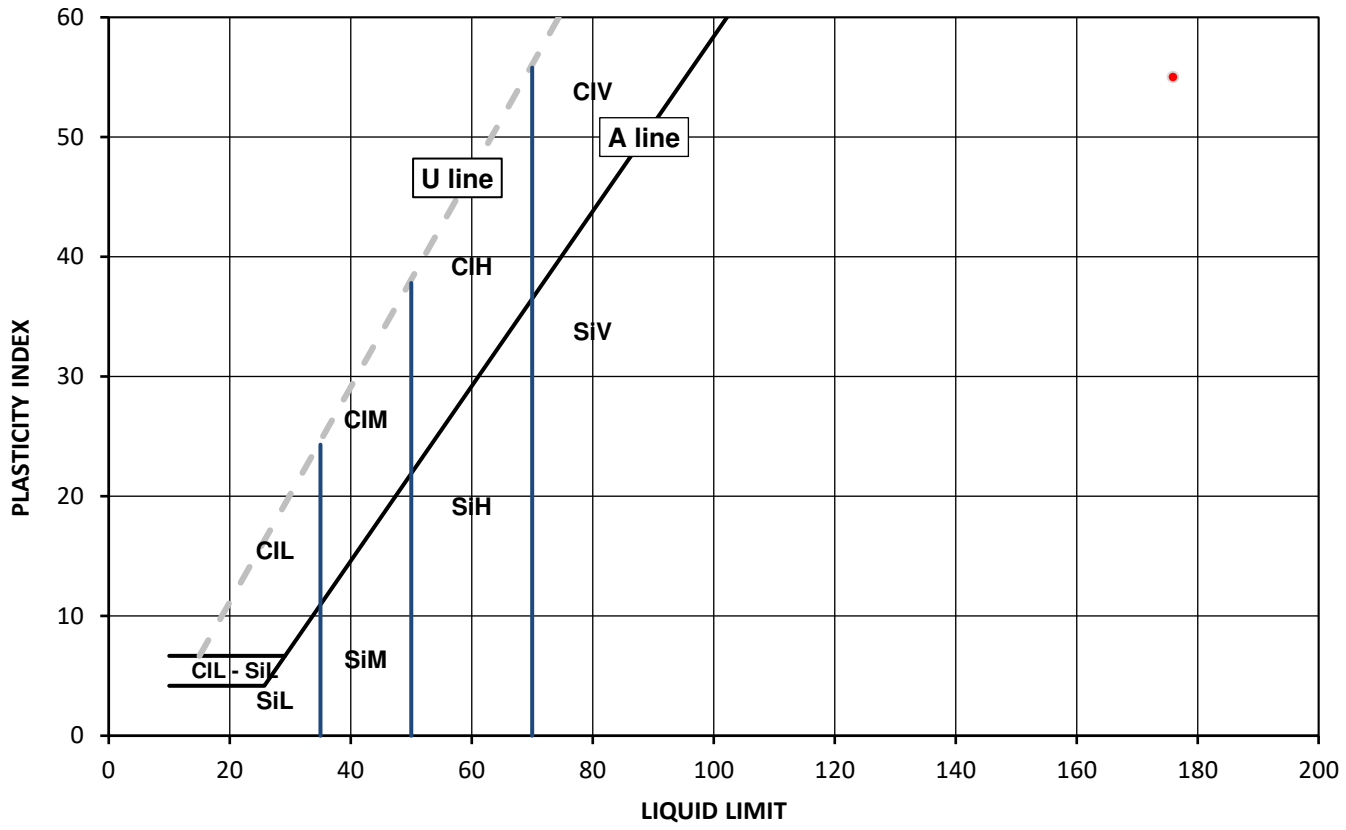
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	14/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451950	Depth Top [m]:	2.00
Hole No.:	CP4	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly clayey PEAT		
Sample Preparation:	Tested in natural condition		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
173	176	121	55	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

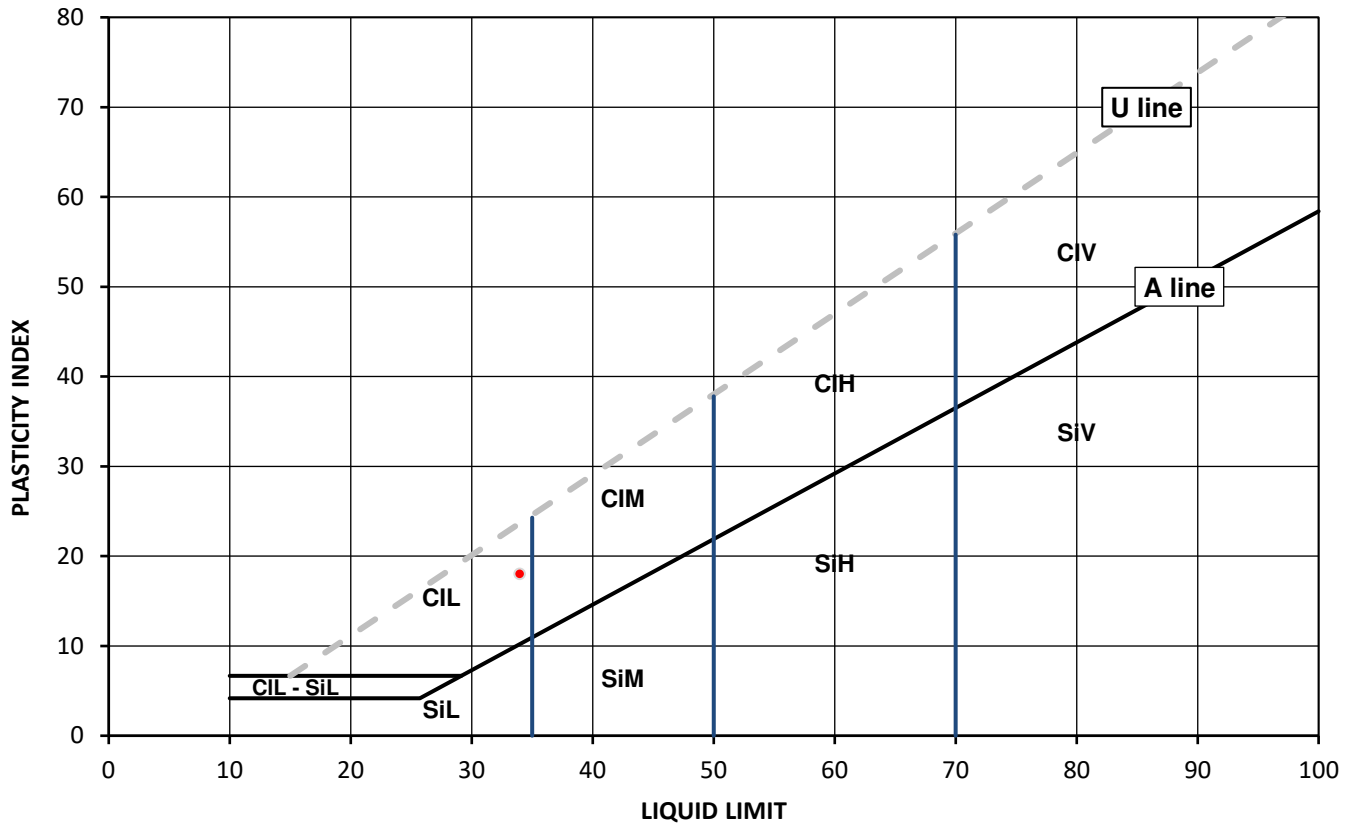
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451954	Depth Top [m]:	8.50
Hole No.:	CP4	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
19	34	16	18	93



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS
Tested in Accordance with:BS 1377-2:1990:Clause 4.4 and 5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

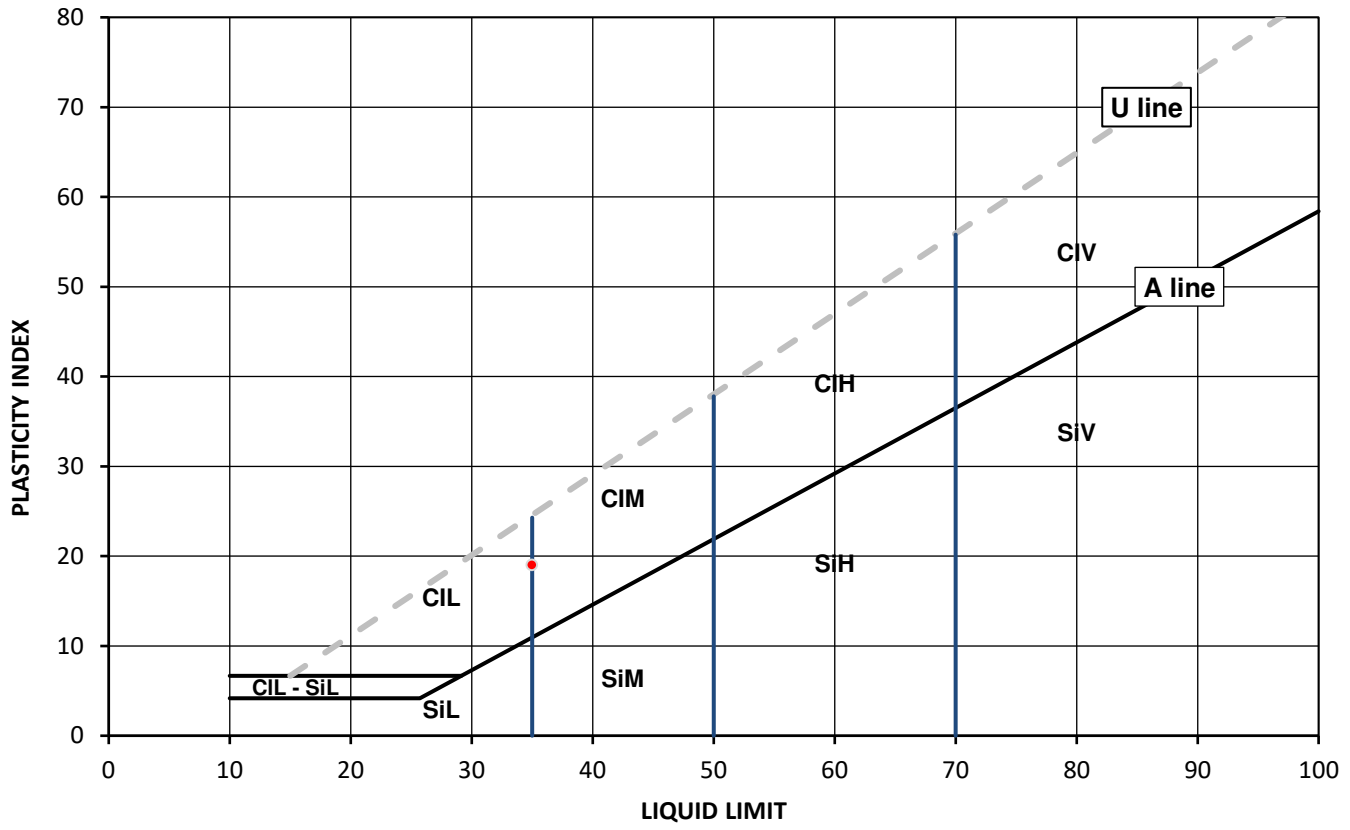
Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451955	Depth Top [m]:	11.50
Hole No.:	CP4	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Greyish brown slightly gravelly sandy CLAY with fragments of chalk		
Sample Preparation:	Tested after washing to remove >425um		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	% Passing 425µm BS Test Sieve
17	35	16	19	83



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 232.12

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Andrew Hare

Site Address: Heckington Fen (Heck Fen)

Client Reference: R22082
Job Number: 22-88646
Date Sampled: 21/09 - 23/09/2022
Date Received: 26/09/2022
Date Tested: 11/10 - 12/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-1 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2451930	CP1	Not Given	1.00	1.45	U	Brownish grey mottled brown CLAY	Atterberg 1 Point	30		100	81	33	48						
2451931	CP1	Not Given	2.00	2.45	U	Grey to black slightly gravelly PEAT	Atterberg 1 Point	179		99	206	112	94						
2451923	CP2	Not Given	0.50	1.00	B	Brown slightly sandy slightly silty CLAY	Atterberg 1 Point	17		100	48	26	22						
2451924	CP2	Not Given	1.00	1.45	U	Brown mottled light brown CLAY	Atterberg 1 Point	36		100	65	29	36						
2451925	CP2	Not Given	2.00	2.45	U	Brown slightly sandy CLAY	Atterberg 1 Point	37		100	54	28	26						
2451929	CP2	Not Given	9.50	Not Given	D	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk	Atterberg 1 Point	17		86	33	17	16						
2451934	CP3	Not Given	1.00	1.45	U	Brown mottled grey CLAY	Atterberg 1 Point	31		100	60	26	34						
2451935	CP3	Not Given	2.00	2.45	U	Brown mottled grey CLAY	Atterberg 1 Point	41		100	64	28	36						
2451947	CP4	Not Given	0.50	1.00	B	Brown slightly sandy CLAY	Atterberg 1 Point	22		100	49	24	25						
2451948	CP4	Not Given	1.00	1.45	U	Brown mottled brownish grey CLAY with rootlets	Atterberg 1 Point	25		100	62	27	35						

Note: # Non accredited; NP - Non plastic

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 234.14

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

Water Content by BS 1377-2:1990: Clause 3.2; Atterberg by BS 1377-2: 1990: Clause 4.3 (4 Point Test), Clause 4.4 (1 Point Test) and 5; PD by BS 1377-2: 1990: Clause 8.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Andrew Hare

Site Address: Heckington Fen (Heck Fen)

Client Reference: R22082
Job Number: 22-88646
Date Sampled: 23/09/2022
Date Received: 26/09/2022
Date Tested: 11/10 - 14/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Water Content BS 1377-2 [W]	Water Content BS EN ISO 17892-1 [W]	Atterberg				Density			Total Porosity#		
		Reference	Depth Top	Depth Base	Type					% Passing 425um	WL	Wp	Ip	bulk	dry	PD			
			m	m				%	%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3	%		
2451950	CP4	Not Given	2.00	2.45	U	Brown slightly clayey PEAT	Atterberg 1 Point	173		100	176	121	55						
2451954	CP4	Not Given	8.50	Not Given	D	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk	Atterberg 1 Point	19		93	34	16	18						
2451955	CP4	Not Given	11.50	Not Given	D	Greyish brown slightly gravelly sandy CLAY with fragments of chalk	Atterberg 1 Point	17		83	35	16	19						
2451939	CP5	Not Given	0.50	1.00	B	Brown slightly sandy CLAY	Atterberg 1 Point	22		100	49	23	26						
2451940	CP5	Not Given	1.00	1.45	U	Brownish grey mottled light grey slightly sandy CLAY	Atterberg 1 Point	23		100	51	26	25						
2451941	CP5	Not Given	1.50	2.00	B	Brown slightly sandy CLAY	Atterberg 1 Point	29		100	56	24	32						
2451942	CP5	Not Given	2.00	2.45	U	Grey to black PEAT	Atterberg 1 Point	106		100	200	94	106						
2451943	CP5	Not Given	2.60	Not Given	D	Brown slightly gravelly sandy CLAY	Atterberg 1 Point	34		96	40	20	20						
2451946	CP5	Not Given	9.50	Not Given	D	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk	Atterberg 1 Point	17		90	31	17	14						

Note: # Non accredited; NP - Non plastic

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 234.14

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Andrew Hare

Site Address: Heckington Fen (Heck Fen)

Client Reference: R22082
Job Number: 22-88646
Date Sampled: 21/09 - 23/09/2022
Date Received: 26/09/2022
Date Tested: 11/10 - 12/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
2451930	CP1	Not Given	1.00	1.45	U	Brownish grey mottled brown CLAY		30	Sample was quartered, oven dried at 106.2 °C			
2451931	CP1	Not Given	2.00	2.45	U	Grey to black slightly gravelly PEAT		179	Sample was quartered, oven dried at 106 °C			
2451923	CP2	Not Given	0.50	1.00	B	Brown slightly sandy slightly silty CLAY		17	Sample was quartered, oven dried at 106 °C			
2451924	CP2	Not Given	1.00	1.45	U	Brown mottled light brown CLAY		36	Sample was quartered, oven dried at 106 °C			
2451925	CP2	Not Given	2.00	2.45	U	Brown slightly sandy CLAY		37	Sample was quartered, oven dried at 106.2 °C			
2451929	CP2	Not Given	9.50	Not Given	D	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk		17	Sample was quartered, oven dried at 106 °C			
2451934	CP3	Not Given	1.00	1.45	U	Brown mottled grey CLAY		31	Sample was quartered, oven dried at 106.2 °C			
2451935	CP3	Not Given	2.00	2.45	U	Brown mottled grey CLAY		41	Sample was quartered, oven dried at 106.2 °C			
2451947	CP4	Not Given	0.50	1.00	B	Brown slightly sandy CLAY		22	Sample was quartered, oven dried at 106 °C			
2451948	CP4	Not Given	1.00	1.45	U	Brown mottled brownish grey CLAY with rootlets		25	Sample was quartered, oven dried at 106 °C			

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 099.16

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS 1377-2: 1990: Clause 3.2

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Andrew Hare

Site Address: Heckington Fen (Heck Fen)

Client Reference: R22082
Job Number: 22-88646
Date Sampled: 23/09/2022
Date Received: 26/09/2022
Date Tested: 11/10 - 14/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC	Sample preparation / Oven temperature at the time of testing			
		Reference	Depth Top m	Depth Base m	Type			%				
2451950	CP4	Not Given	2.00	2.45	U	Brown slightly clayey PEAT		173	Sample was quartered, oven dried at 109 °C			
2451954	CP4	Not Given	8.50	Not Given	D	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk		19	Sample was quartered, oven dried at 106 °C			
2451955	CP4	Not Given	11.50	Not Given	D	Greyish brown slightly gravelly sandy CLAY with fragments of chalk		17	Sample was quartered, oven dried at 106 °C			
2451939	CP5	Not Given	0.50	1.00	B	Brown slightly sandy CLAY		22	Sample was quartered, oven dried at 106 °C			
2451940	CP5	Not Given	1.00	1.45	U	Brownish grey mottled light grey slightly sandy CLAY		23	Sample was quartered, oven dried at 109 °C			
2451941	CP5	Not Given	1.50	2.00	B	Brown slightly sandy CLAY		29	Sample was quartered, oven dried at 106 °C			
2451942	CP5	Not Given	2.00	2.45	U	Grey to black PEAT		106	Sample was quartered, oven dried at 109 °C			
2451943	CP5	Not Given	2.60	Not Given	D	Brown slightly gravelly sandy CLAY		34	Sample was quartered, oven dried at 106 °C			
2451946	CP5	Not Given	9.50	Not Given	D	Brownish grey slightly gravelly very sandy CLAY with fragments of chalk		17	Sample was quartered, oven dried at 106 °C			

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 099.16

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

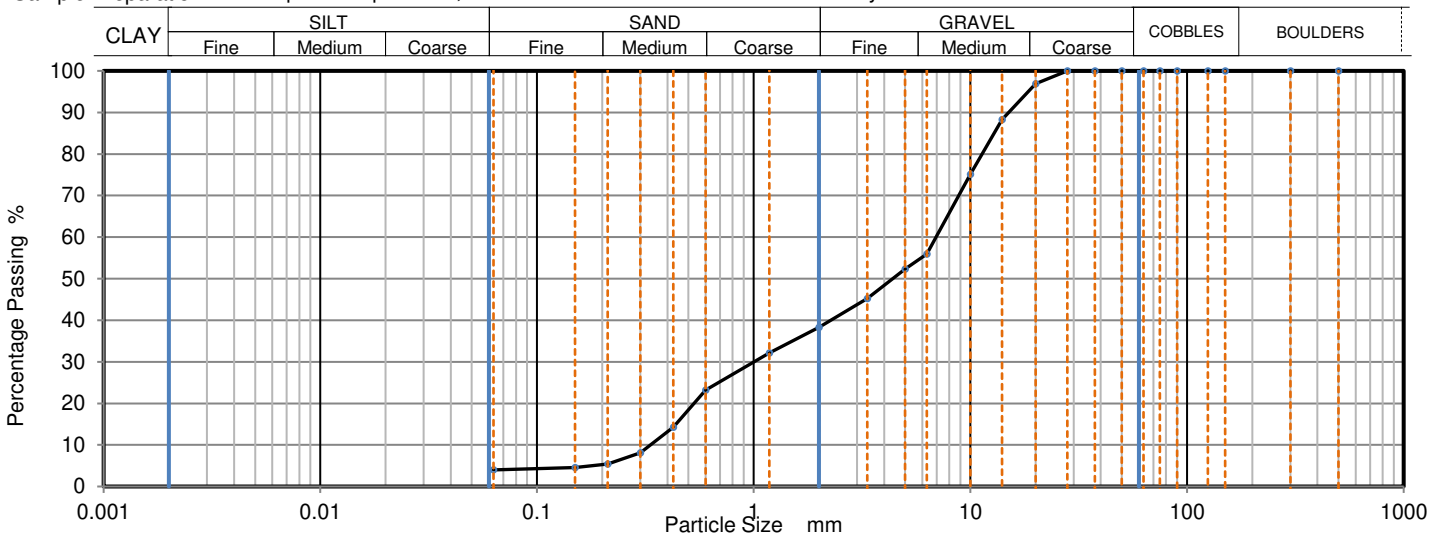
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451926	Depth Top [m]:	4.00
Hole No.:	CP2	Depth Base [m]:	5.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.1 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	97		
14	88		
10	75		
6.3	56		
5	52		
3.35	45		
2	38		
1.18	32		
0.6	23		
0.425	14		
0.3	8		
0.212	5		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	62
Sand	34
Fines <0.063mm	4

Grading Analysis		
D100	mm	28
D60	mm	6.95
D30	mm	1
D10	mm	0.334
Uniformity Coefficient		21
Curvature Coefficient		0.43

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

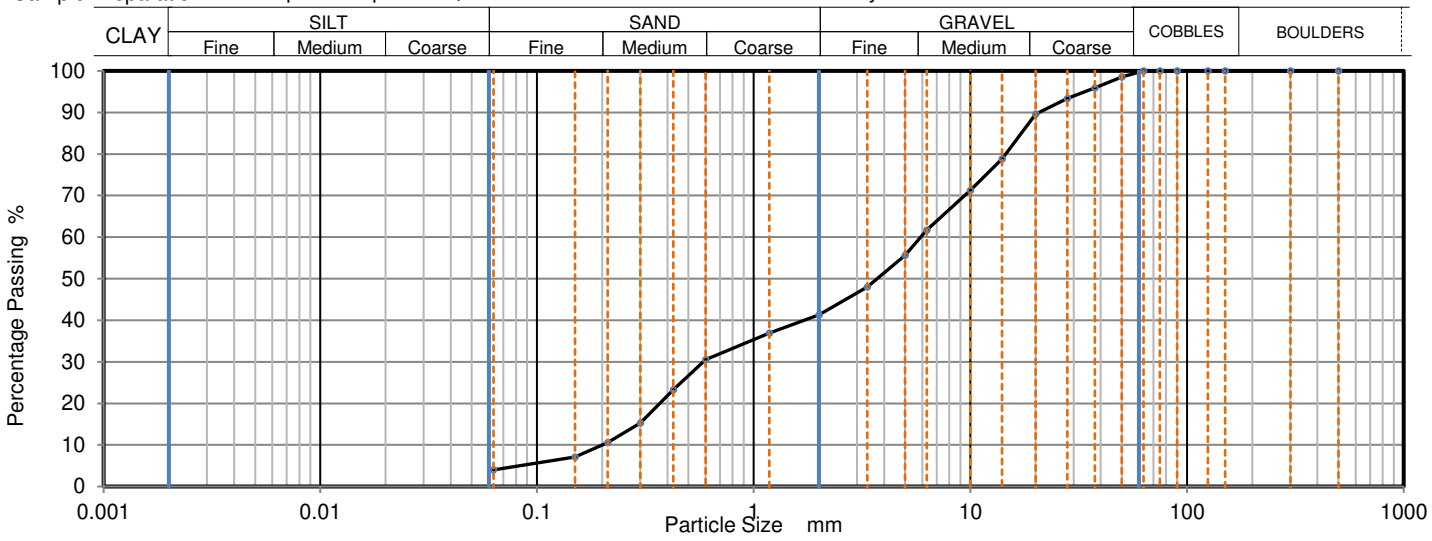
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451927	Depth Top [m]:	5.00
Hole No.:	CP2	Depth Base [m]:	6.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 108.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	99		
37.5	96		
28	93		
20	90		
14	79		
10	71		
6.3	62		
5	56		
3.35	48		
2	41		
1.18	37		
0.6	31		
0.425	23		
0.3	15		
0.212	11		
0.15	7		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	59
Sand	37
Fines <0.063mm	4

Grading Analysis		
D100	mm	63
D60	mm	5.91
D30	mm	0.587
D10	mm	0.2
Uniformity Coefficient		30
Curvature Coefficient		0.29

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

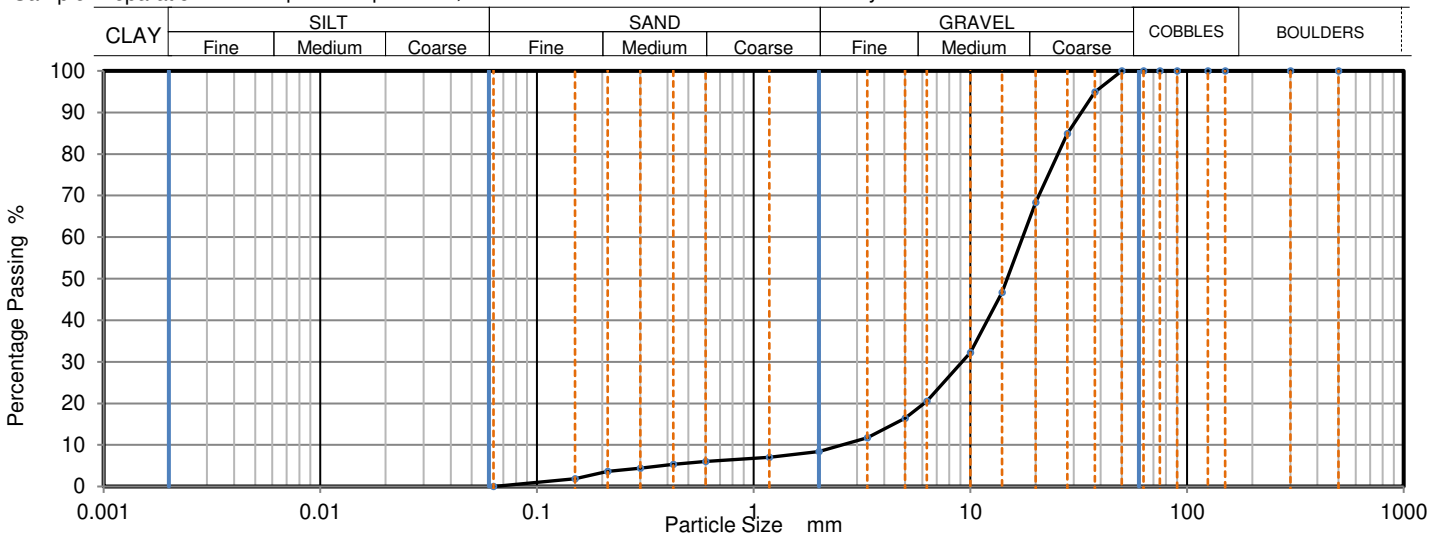
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451928	Depth Top [m]:	7.50
Hole No.:	CP2	Depth Base [m]:	8.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey slightly sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	85		
20	68		
14	47		
10	32		
6.3	21		
5	16		
3.35	12		
2	8		
1.18	7		
0.6	6		
0.425	5		
0.3	4		
0.212	4		
0.15	2		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	92
Sand	7
Fines <0.063mm	1

Grading Analysis		
D100	mm	50
D60	mm	17.4
D30	mm	9.18
D10	mm	2.58
Uniformity Coefficient		6.8
Curvature Coefficient		1.9

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

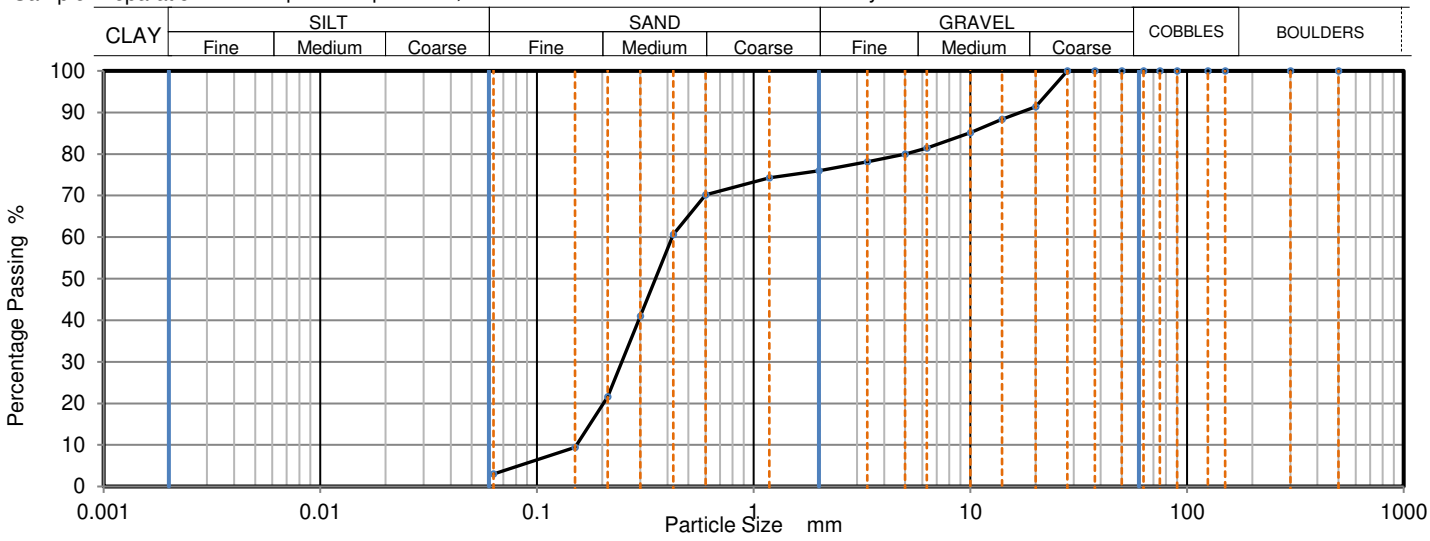
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451932	Depth Top [m]:	4.00
Hole No.:	CP1	Depth Base [m]:	5.00
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown slightly clayey gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	88		
10	85		
6.3	81		
5	80		
3.35	78		
2	76		
1.18	74		
0.6	70		
0.425	61		
0.3	41		
0.212	22		
0.15	9		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	24
Sand	73
Fines <0.063mm	3

Grading Analysis		
D100	mm	28
D60	mm	0.421
D30	mm	0.246
D10	mm	0.153
Uniformity Coefficient		2.8
Curvature Coefficient		0.95

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

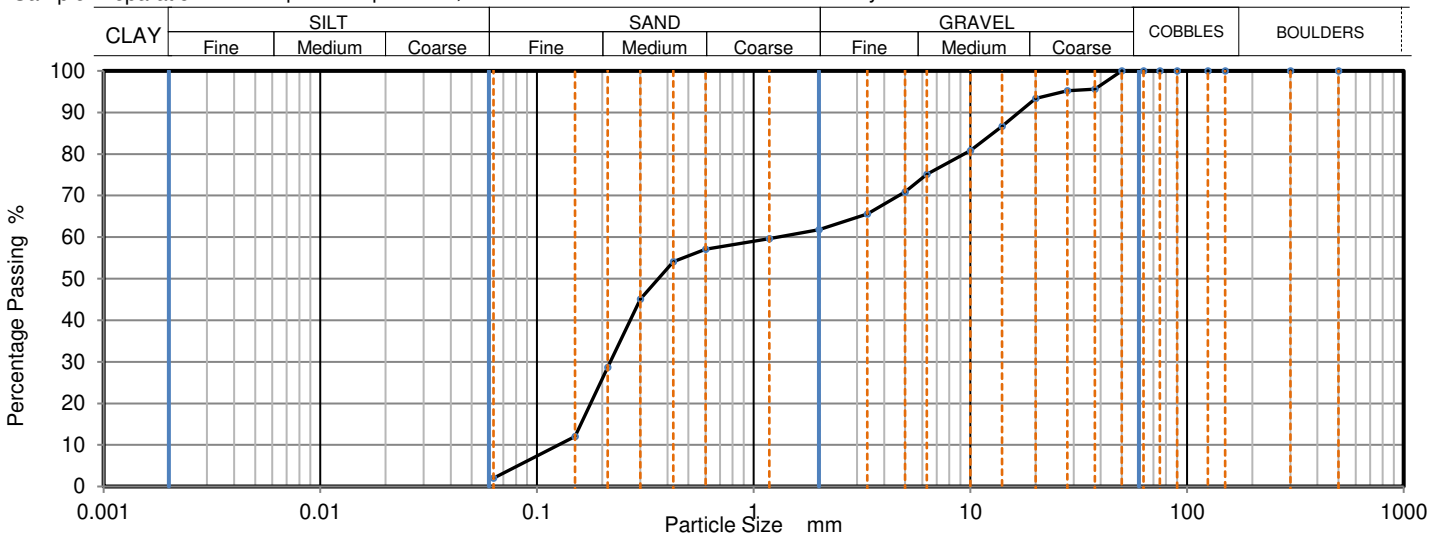
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451933	Depth Top [m]:	7.00
Hole No.:	CP1	Depth Base [m]:	8.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey very gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 108.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	96		
28	95		
20	93		
14	87		
10	81		
6.3	75		
5	71		
3.35	66		
2	62		
1.18	60		
0.6	57		
0.425	54		
0.3	45		
0.212	29		
0.15	12		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	38
Sand	59
Fines <0.063mm	3

Grading Analysis		
D100	mm	50
D60	mm	1.29
D30	mm	0.218
D10	mm	0.124
Uniformity Coefficient		10
Curvature Coefficient		0.3

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

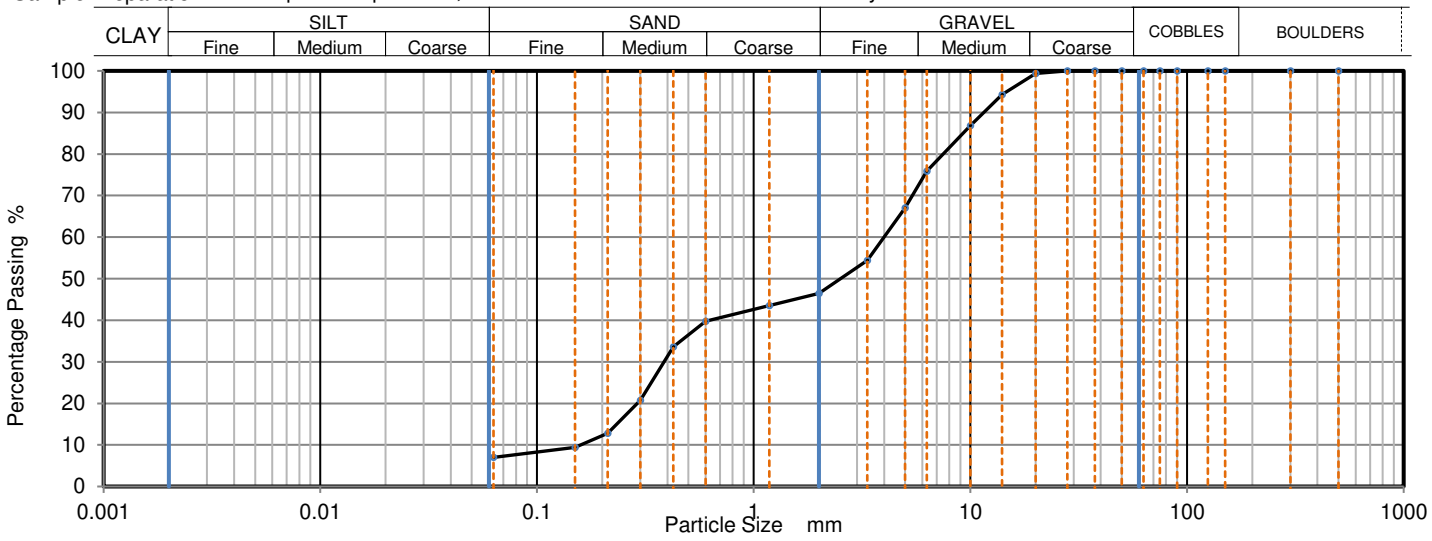
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451936	Depth Top [m]:	3.00
Hole No.:	CP3	Depth Base [m]:	4.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	94		
10	87		
6.3	76		
5	67		
3.35	54		
2	47		
1.18	44		
0.6	40		
0.425	34		
0.3	21		
0.212	13		
0.15	9		
0.063	7		

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	39
Fines <0.063mm	7

Grading Analysis		
D100	mm	28
D60	mm	4
D30	mm	0.386
D10	mm	0.159
Uniformity Coefficient		25
Curvature Coefficient		0.23

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

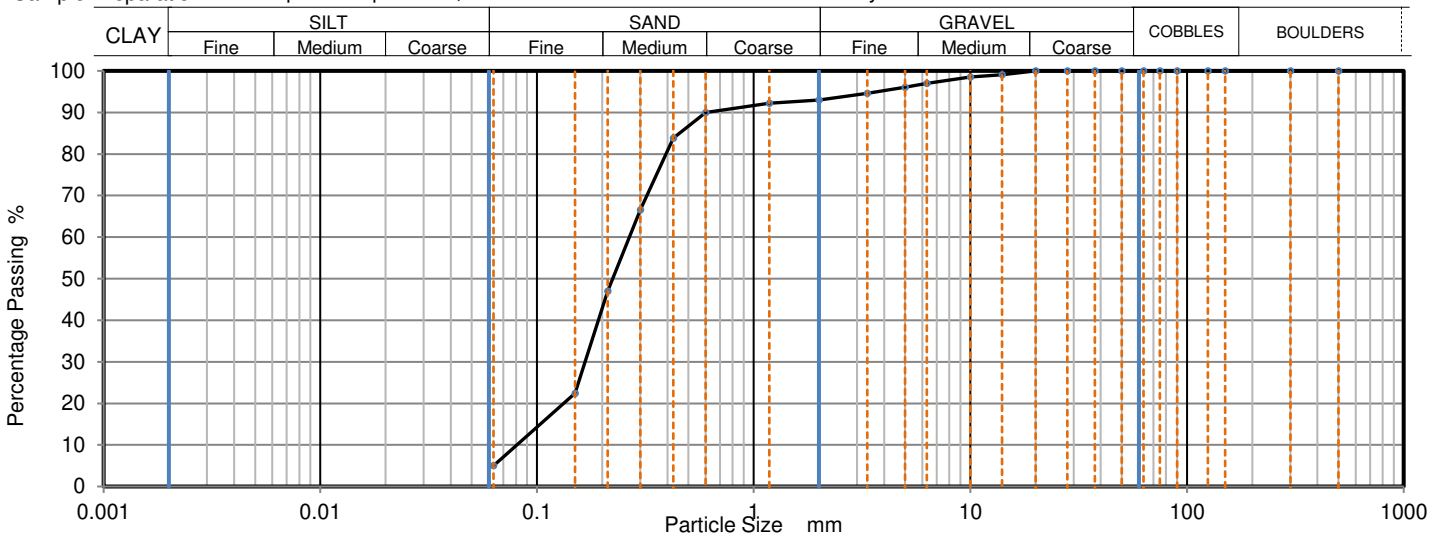
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451937	Depth Top [m]:	5.00
Hole No.:	CP3	Depth Base [m]:	6.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly gravelly slightly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	99		
6.3	97		
5	96		
3.35	95		
2	93		
1.18	92		
0.6	90		
0.425	84		
0.3	67		
0.212	47		
0.15	22		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	7
Sand	88
Fines <0.063mm	5

Grading Analysis		
D100	mm	20
D60	mm	0.267
D30	mm	0.167
D10	mm	0.0805
Uniformity Coefficient		3.3
Curvature Coefficient		1.3

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

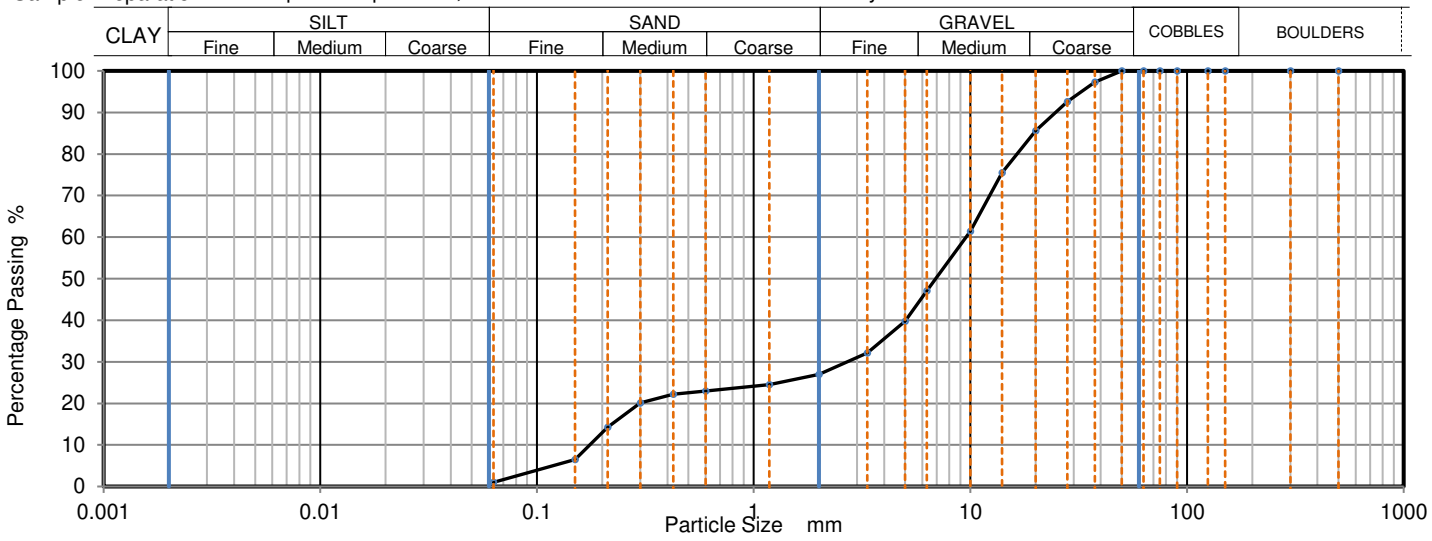
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451938	Depth Top [m]:	9.00
Hole No.:	CP3	Depth Base [m]:	9.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brownish grey sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.2 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	93		
20	86		
14	76		
10	61		
6.3	47		
5	40		
3.35	32		
2	27		
1.18	25		
0.6	23		
0.425	22		
0.3	20		
0.212	14		
0.15	7		
0.063	1		

Sample Proportions	% dry mass
Very coarse	0
Gravel	73
Sand	26
Fines <0.063mm	1

Grading Analysis		
D100	mm	50
D60	mm	9.54
D30	mm	2.71
D10	mm	0.175
Uniformity Coefficient		55
Curvature Coefficient		4.4

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

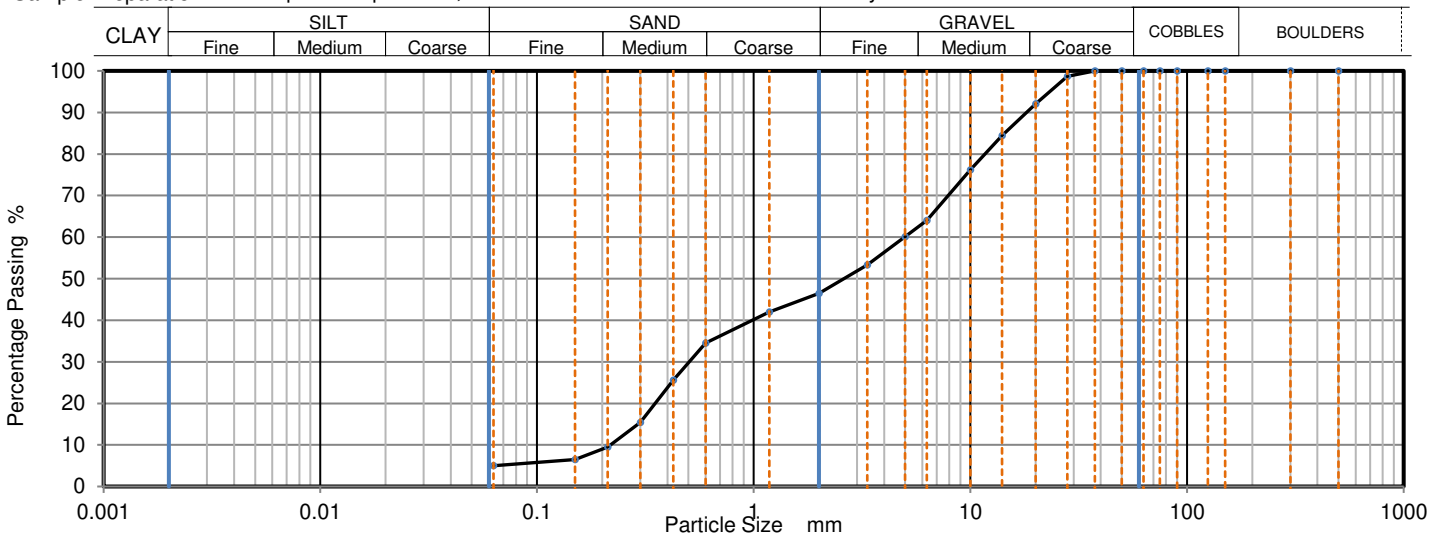
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451944	Depth Top [m]:	3.50
Hole No.:	CP5	Depth Base [m]:	4.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	99		
20	92		
14	84		
10	76		
6.3	64		
5	60		
3.35	53		
2	47		
1.18	42		
0.6	35		
0.425	26		
0.3	15		
0.212	10		
0.15	7		
0.063	5		

Sample Proportions	% dry mass
Very coarse	0
Gravel	54
Sand	41
Fines <0.063mm	5

Grading Analysis		
D100	mm	37.5
D60	mm	4.98
D30	mm	0.503
D10	mm	0.218
Uniformity Coefficient		23
Curvature Coefficient		0.23

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

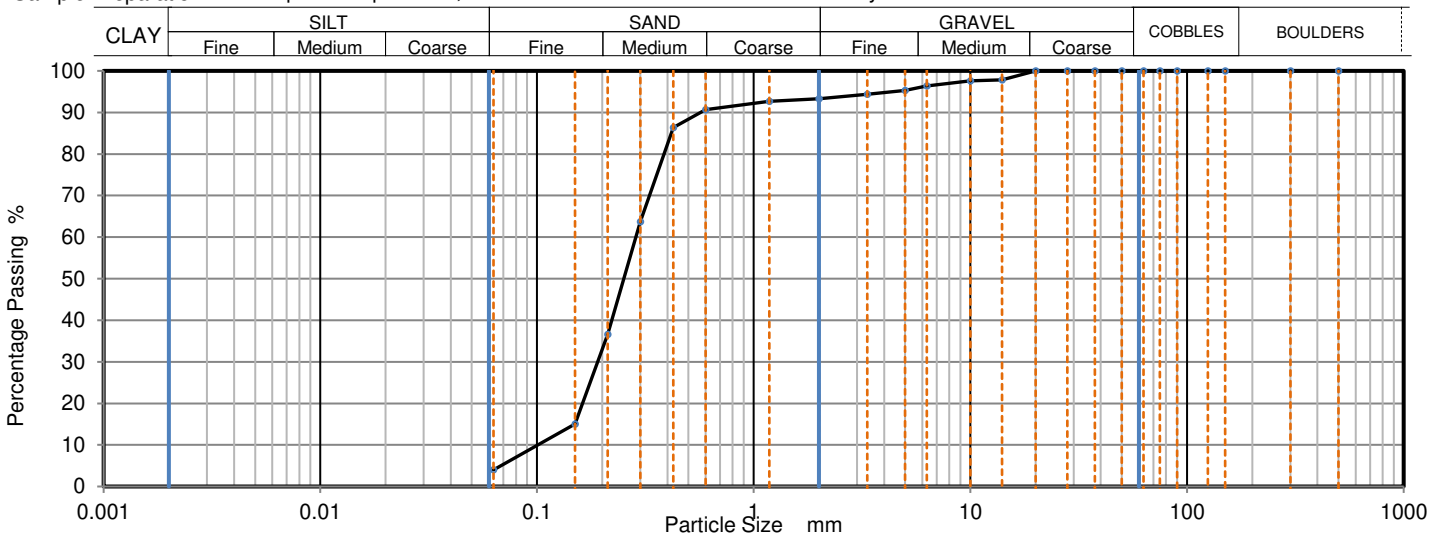
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451945	Depth Top [m]:	5.50
Hole No.:	CP5	Depth Base [m]:	6.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Brown slightly gravelly slightly clayey SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	98		
6.3	96		
5	95		
3.35	94		
2	93		
1.18	93		
0.6	91		
0.425	86		
0.3	64		
0.212	37		
0.15	15		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	7
Sand	89
Fines <0.063mm	4

Grading Analysis		
D100	mm	20
D60	mm	0.286
D30	mm	0.191
D10	mm	0.101
Uniformity Coefficient		2.8
Curvature Coefficient		1.3

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

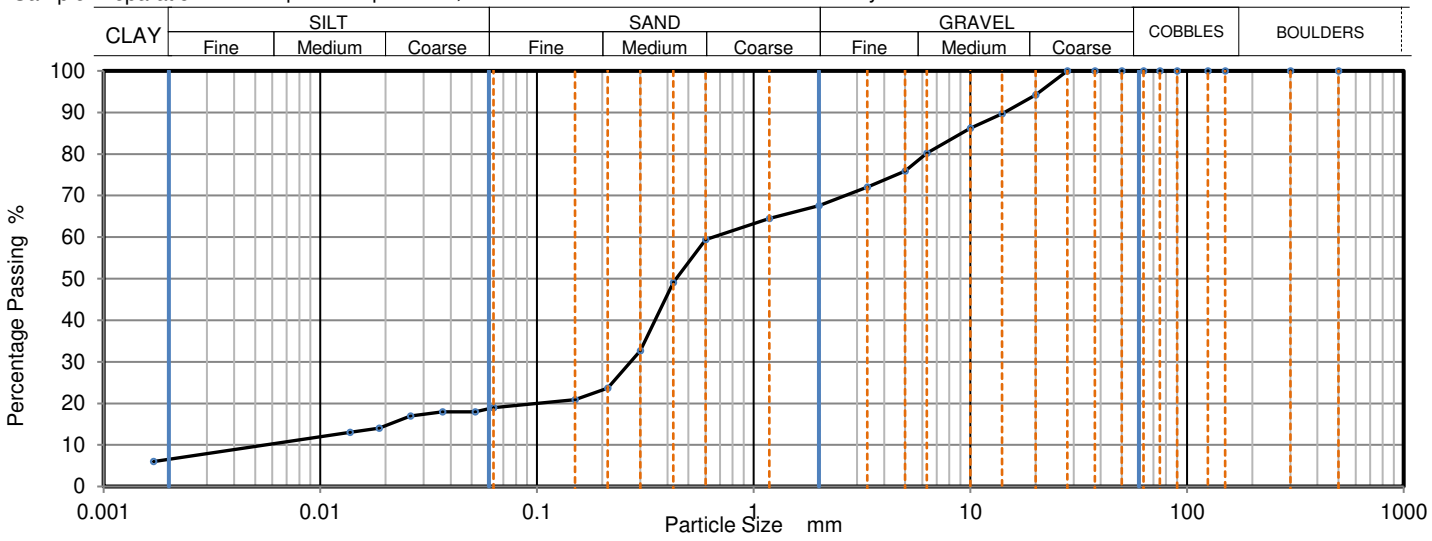
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451951	Depth Top [m]:	2.80
Hole No.:	CP4	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brown silty clayey very gravelly SAND		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100	0.0630	19
300	100	0.0519	18
150	100	0.0367	18
125	100	0.0261	17
90	100	0.0187	14
75	100	0.0137	13
63	100	0.0017	6
50	100		
37.5	100		
28	100		
20	94		
14	90		
10	86		
6.3	80		
5	76		
3.35	72		
2	68		
1.18	65		
0.6	59		
0.425	49		
0.3	33		
0.212	24		
0.15	21		
0.063	19		

Sample Proportions	% dry mass
Very coarse	0
Gravel	32
Sand	48
Silt	13
Clay	7

Grading Analysis		
D100	mm	28
D60	mm	0.65
D30	mm	0.271
D10	mm	0.00542
Uniformity Coefficient		120
Curvature Coefficient		21

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clauses 9.2 and 9.5

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

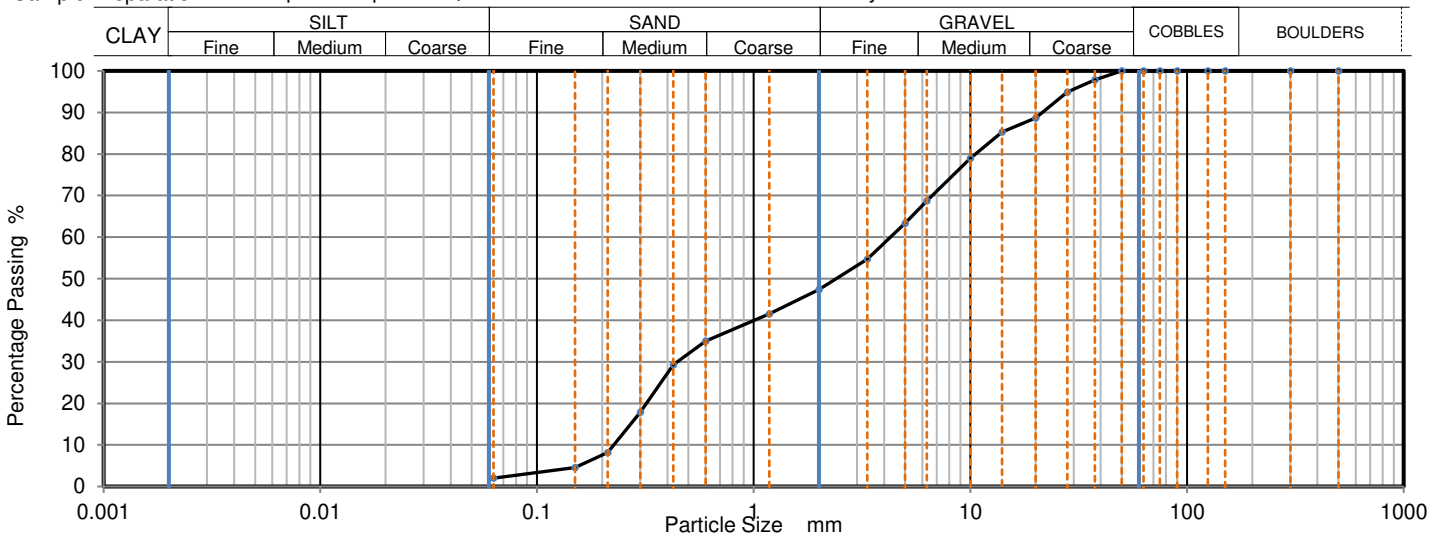
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451952	Depth Top [m]:	4.00
Hole No.:	CP4	Depth Base [m]:	5.00
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 106.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	95		
20	89		
14	85		
10	79		
6.3	69		
5	63		
3.35	55		
2	47		
1.18	42		
0.6	35		
0.425	29		
0.3	18		
0.212	8		
0.15	5		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0
Gravel	53
Sand	45
Fines <0.063mm	2

Grading Analysis		
D100	mm	50
D60	mm	4.29
D30	mm	0.443
D10	mm	0.226
Uniformity Coefficient		19
Curvature Coefficient		0.2

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

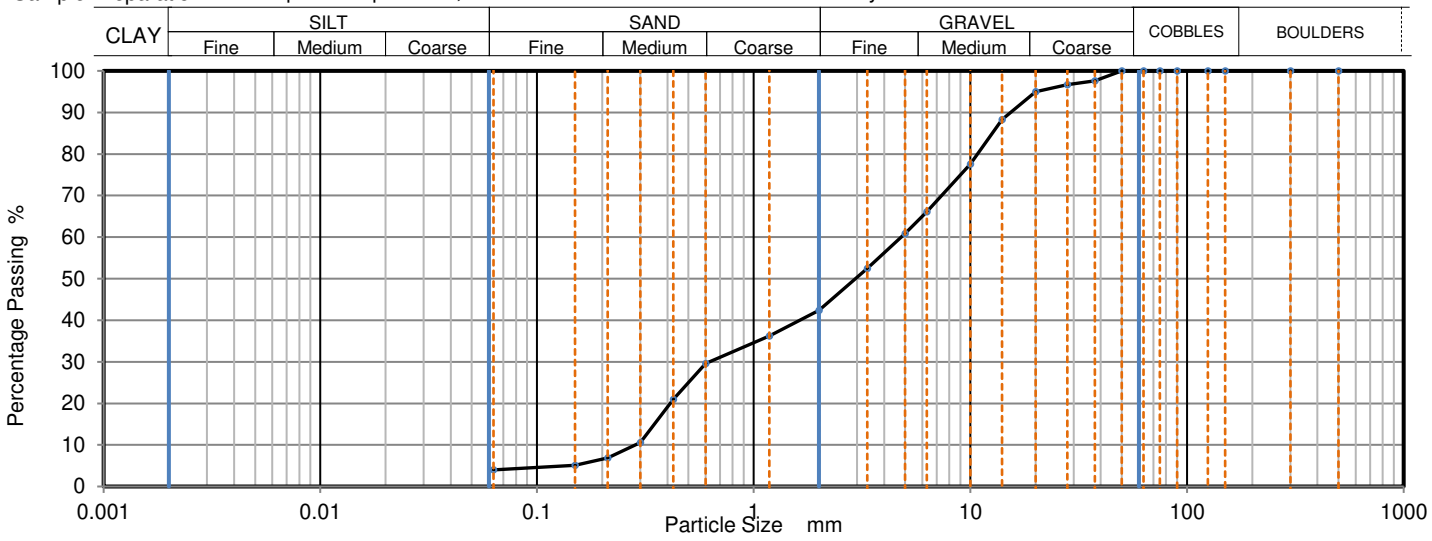
4041

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451953	Depth Top [m]:	6.50
Hole No.:	CP4	Depth Base [m]:	7.50
Sample Reference:	Not Given	Sample Type:	B
Sample Description:	Yellowish brown slightly clayey very sandy GRAVEL		
Sample Preparation:	Sample was quartered, oven dried at 109.0 °C and broken down by hand.		



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
500	100		
300	100		
150	100		
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	98		
28	97		
20	95		
14	88		
10	78		
6.3	66		
5	61		
3.35	53		
2	42		
1.18	36		
0.6	30		
0.425	21		
0.3	11		
0.212	7		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0
Gravel	58
Sand	38
Fines <0.063mm	4

Grading Analysis		
D100	mm	50
D60	mm	4.79
D30	mm	0.626
D10	mm	0.284
Uniformity Coefficient		17
Curvature Coefficient		0.29

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 100.21

SUMMARY REPORT

DETERMINATION OF SHRINKAGE CHARACTERISTICS - LINEAR SHRINKAGE

Tested in Accordance with: BS 1377-2: 1990: Clause 6.5

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING
4041

Environmental Science

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Andrew Hare

Site Address: Heckington Fen (Heck Fen)

Client Reference: R22082
Job Number: 22-88646
Date Sampled: 21/09 - 23/09/2022
Date Received: 26/09/2022
Date Tested: 11/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Material <425µm	Preparation	Linear Shrinkage					
		Reference	Depth Top m	Depth Base m	Type			%		%					
2451923	CP2	Not Given	0.50	1.00	B	Brown slightly sandy slightly silty CLAY		100	Specimen prepared from natural material	12					
2451947	CP4	Not Given	0.50	1.00	B	Brown slightly sandy CLAY		100	Specimen prepared from natural material	11					
2451949	CP4	Not Given	1.50	2.00	B	Brown slightly sandy CLAY		100	Specimen prepared from natural material	14					
2451939	CP5	Not Given	0.50	1.00	B	Brown slightly sandy CLAY		100	Specimen prepared from natural material	11					
2451941	CP5	Not Given	1.50	2.00	B	Brown slightly sandy CLAY		100	Specimen prepared from natural material	14					

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 103.14

SUMMARY REPORT

DETERMINATION OF BULK DENSITY - LINEAR MEASUREMENT METHOD

Tested in Accordance with: BS EN ISO 17892-2: 2014: Clause 5.1

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

4041

Client: Grange Geo Consulting Ltd

Client Address: 43 Winchilsea Avenue, Newark, Notts, NG24 4AD

Contact: Andrew Hare

Site Address: Heckington Fen (Heck Fen)

Client Reference: R22082
Job Number: 22-88646
Date Sampled: 21/09 - 23/09/2022
Date Received: 26/09/2022
Date Tested: 11/10 - 14/10/2022
Sampled By: Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	Bulk density	Dry density	WC	Preparation		
		Reference	Depth Top m	Depth Base m	Type			Mg/m3	Mg/m3	%			
2451930	CP1	Not Given	1.00	1.45	U	Brownish grey mottled brown CLAY		1.82	1.40	30.2			
2451931	CP1	Not Given	2.00	2.45	U	Grey to black slightly gravelly PEAT		1.22	0.44	179			
2451924	CP2	Not Given	1.00	1.45	U	Brown mottled light brown CLAY		1.73	1.27	36.1			
2451925	CP2	Not Given	2.00	2.45	U	Brown slightly sandy CLAY		1.82	1.33	37.4			
2451934	CP3	Not Given	1.00	1.45	U	Brown mottled grey CLAY		1.75	1.33	31.0			
2451935	CP3	Not Given	2.00	2.45	U	Brown mottled grey CLAY		1.82	1.29	41.2			
2451948	CP4	Not Given	1.00	1.45	U	Brown mottled brownish grey CLAY with rootlets		1.83	1.46	25.3			
2451950	CP4	Not Given	2.00	2.45	U	Brown slightly clayey PEAT		1.56	0.57	173			
2451940	CP5	Not Given	1.00	1.45	U	Brownish grey mottled light grey slightly sandy CLAY		1.83	1.49	23.0			
2451942	CP5	Not Given	2.00	2.45	U	Grey to black PEAT		1.28	0.62	106			

Note: WC - Water Content

Comments:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 166.13

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

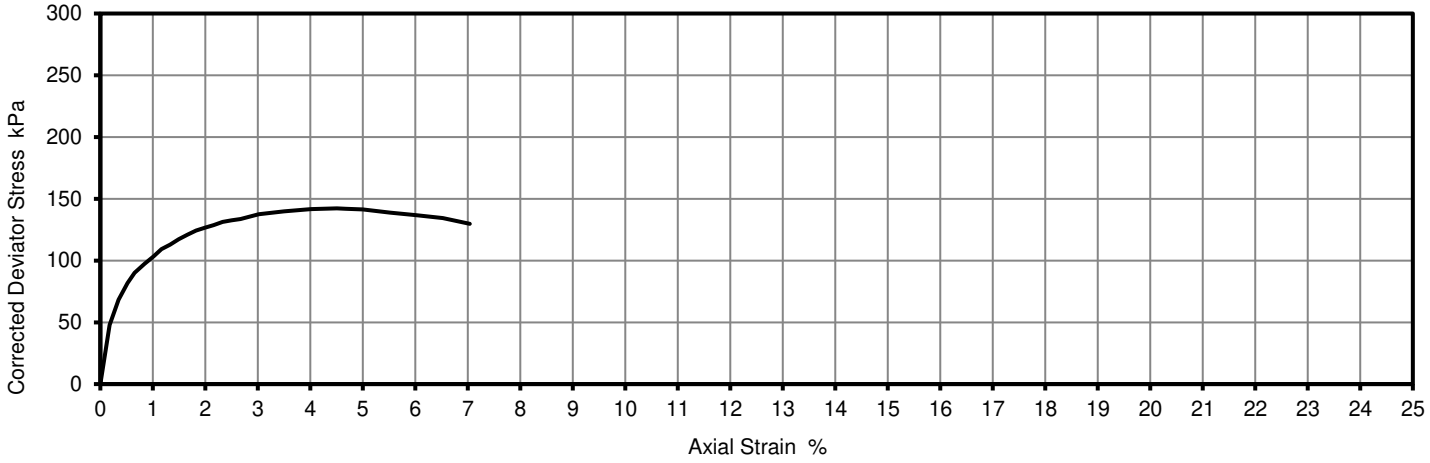
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

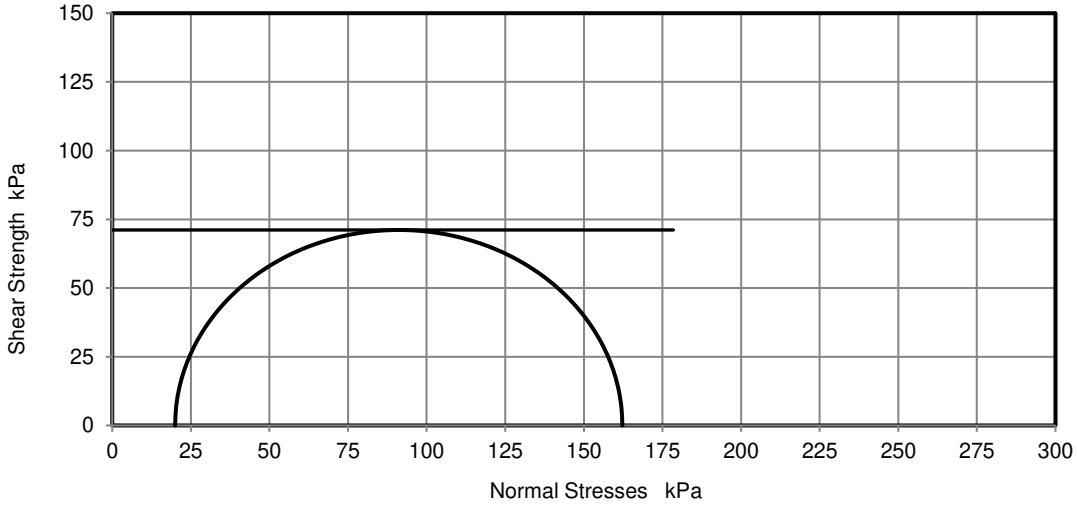
Laboratory Reference:	2451924	Depth Top [m]:	1.00
Hole No.:	CP2	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled light brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

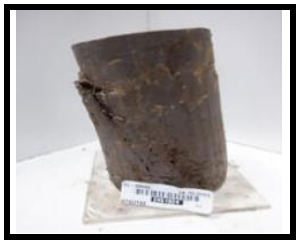
Test Number	1		Rate of Strain	2.00	%/min
Length	140.54	mm	Cell Pressure	20	kPa
Diameter	69.08	mm	Axial Strain at failure	4.5	%
Bulk Density	1.73	Mg/m3	Deviator Stress, (σ1 - σ3)f	142	kPa
Moisture Content	36	%	Undrained Shear Strength, cu	71	kPa ½(σ1 - σ3)f
Dry Density	1.27	Mg/m3	Mode of Failure	Brittle	
Membrane Correction	0.43	kPa	Membrane thickness	0.24	mm

Deviator Stress v Axial Strain

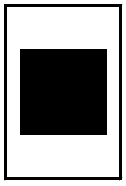


Mohr Circles





Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

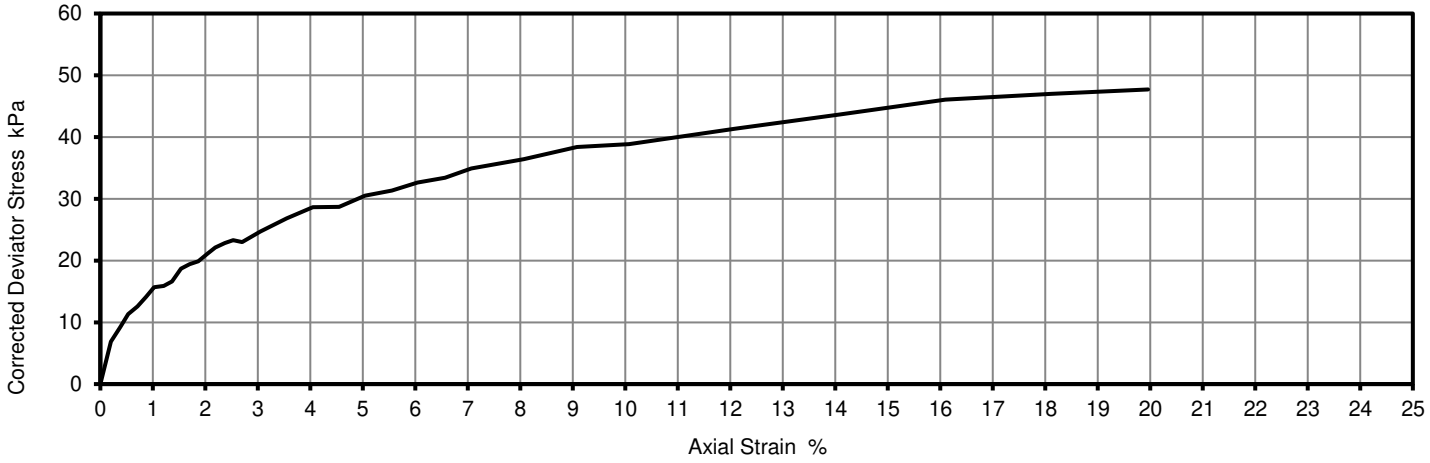
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

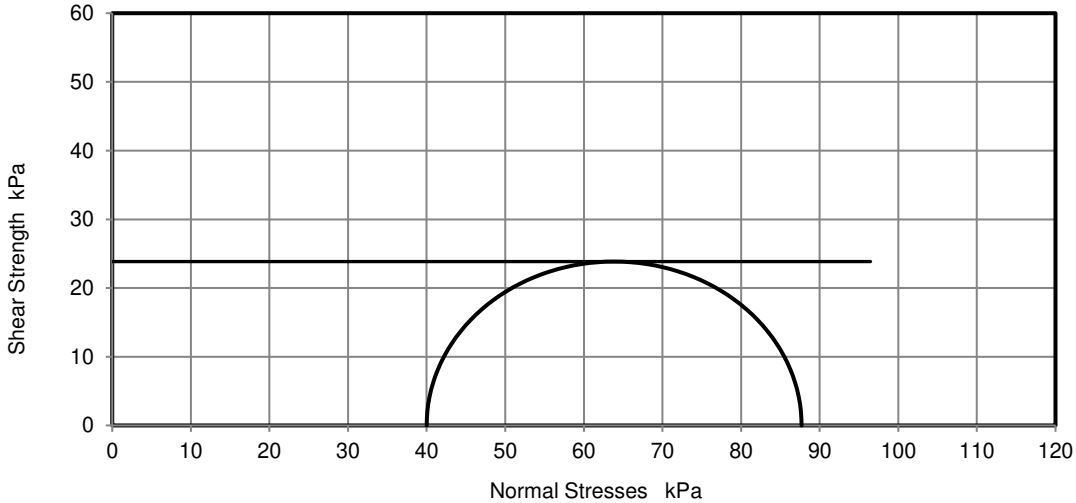
Laboratory Reference:	2451925	Depth Top [m]:	2.00
Hole No.:	CP2	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly sandy CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	141.21	mm	Cell Pressure	40	kPa
Diameter	69.22	mm	Axial Strain at failure	20.0	%
Bulk Density	1.82	Mg/m3	Deviator Stress, (σ1 - σ3)f	48	kPa
Moisture Content	37	%	Undrained Shear Strength, cu	24	kPa ½(σ1 - σ3)f
Dry Density	1.33	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.44	kPa	Membrane thickness	0.26	mm

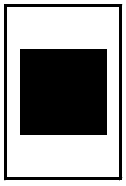
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

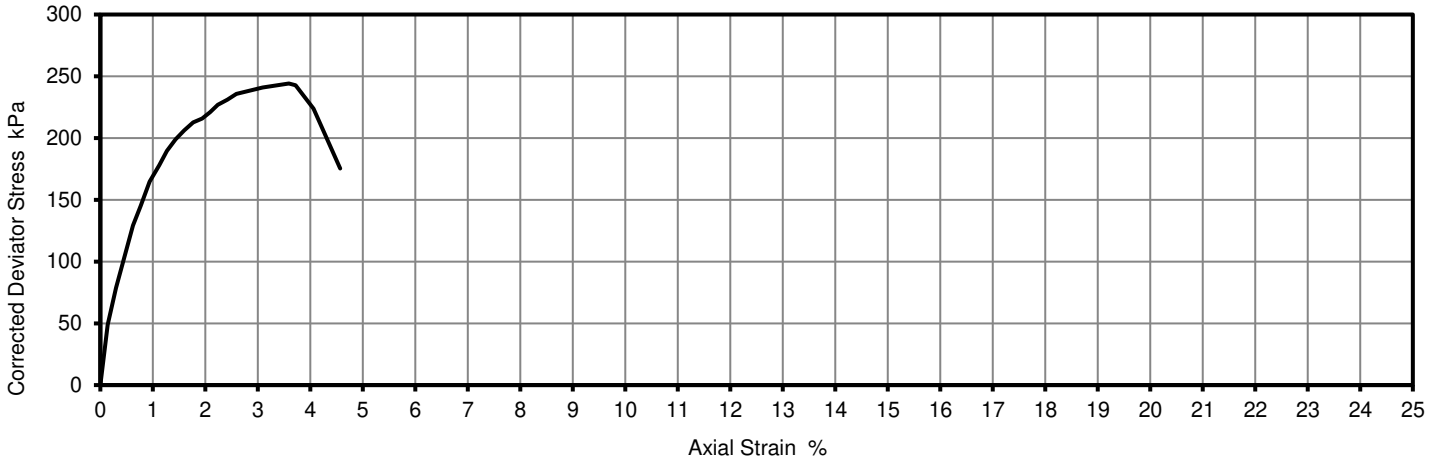
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

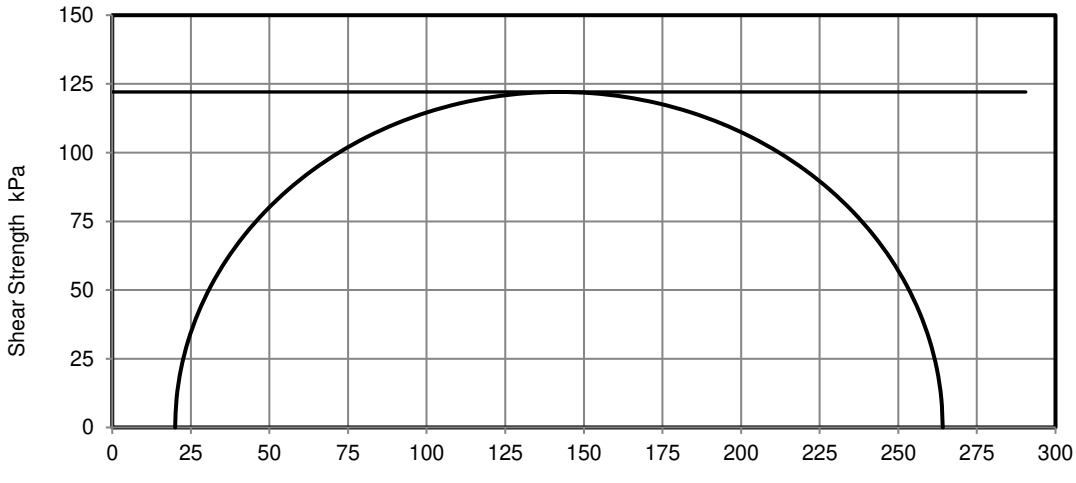
Laboratory Reference:	2451930	Depth Top [m]:	1.00
Hole No.:	CP1	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brownish grey mottled brown CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	100.04	mm	Cell Pressure	20	kPa
Diameter	49.39	mm	Axial Strain at failure	3.6	%
Bulk Density	1.82	Mg/m3	Deviator Stress, (σ1 - σ3)f	244	kPa
Moisture Content	30	%	Undrained Shear Strength, cu	122	kPa ½(σ1 - σ3)f
Dry Density	1.40	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.46	kPa	Membrane thickness	0.23	mm

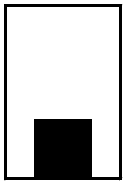
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Environmental Science

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

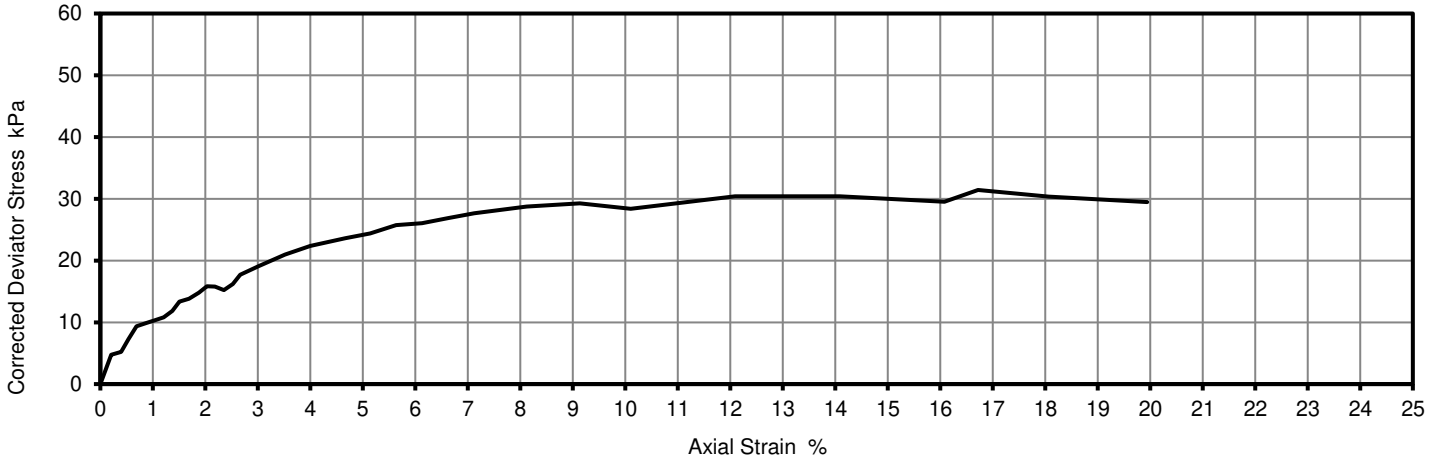
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

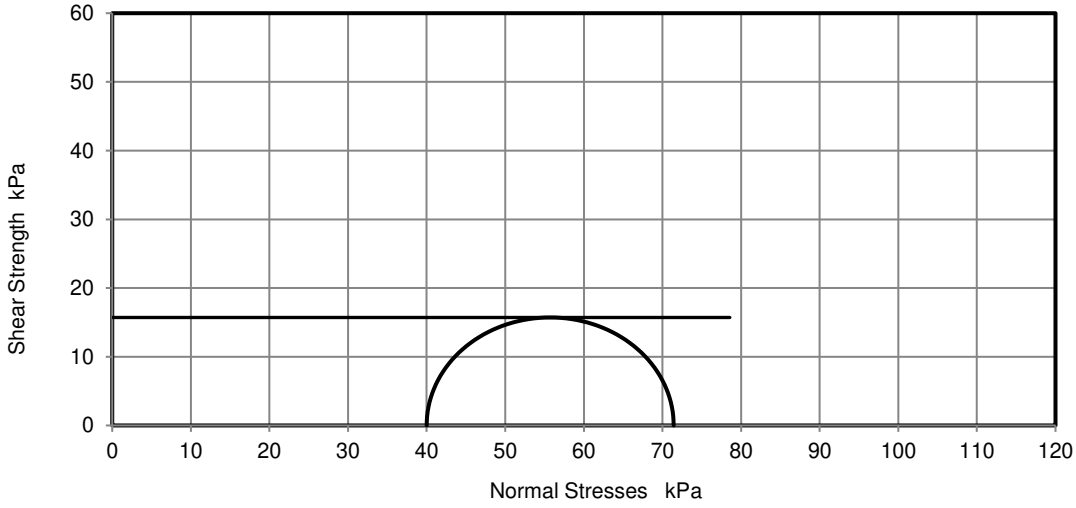
Laboratory Reference:	2451931	Depth Top [m]:	2.00
Hole No.:	CP1	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to black slightly gravelly PEAT		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	102.96	mm	Cell Pressure	40	kPa
Diameter	49.01	mm	Axial Strain at failure	16.7	%
Bulk Density	1.22	Mg/m3	Deviator Stress, (σ1 - σ3)f	31	kPa
Moisture Content	179	%	Undrained Shear Strength, cu	16	kPa ½(σ1 - σ3)f
Dry Density	0.44	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.69	kPa	Membrane thickness	0.25	mm

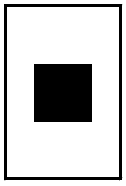
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	22/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

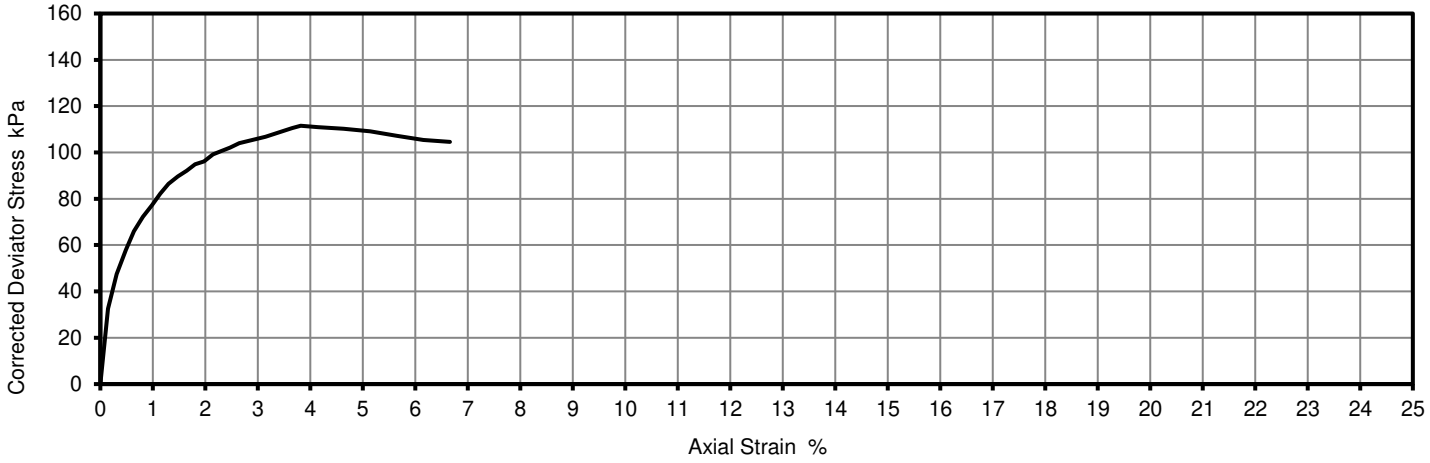
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

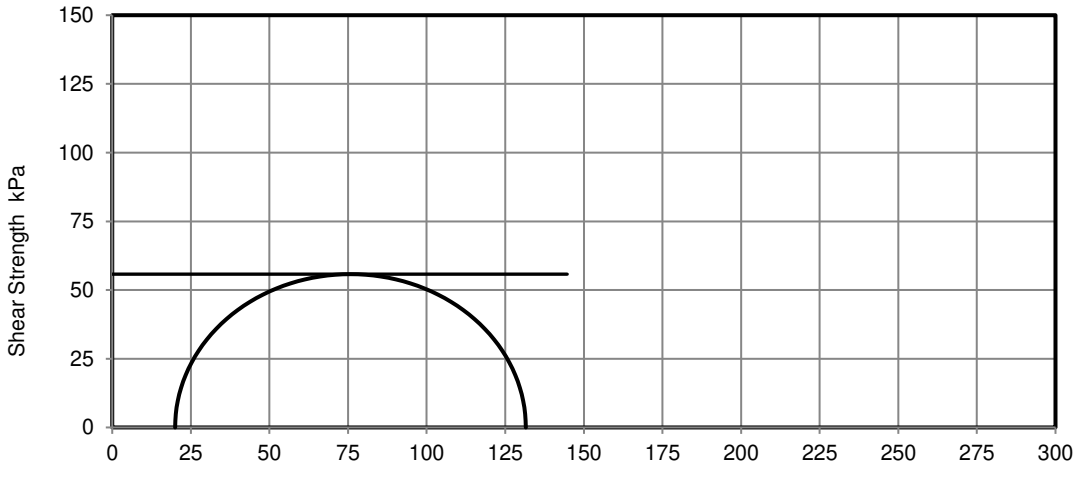
Laboratory Reference:	2451934	Depth Top [m]:	1.00
Hole No.:	CP3	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled grey CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	141.76	mm	Cell Pressure	20	kPa
Diameter	69.30	mm	Axial Strain at failure	3.8	%
Bulk Density	1.75	Mg/m3	Deviator Stress, (σ1 - σ3)f	112	kPa
Moisture Content	31	%	Undrained Shear Strength, cu	56	kPa ½(σ1 - σ3)f
Dry Density	1.33	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.41	kPa	Membrane thickness	0.27	mm

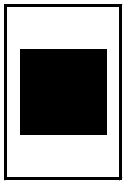
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	11/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

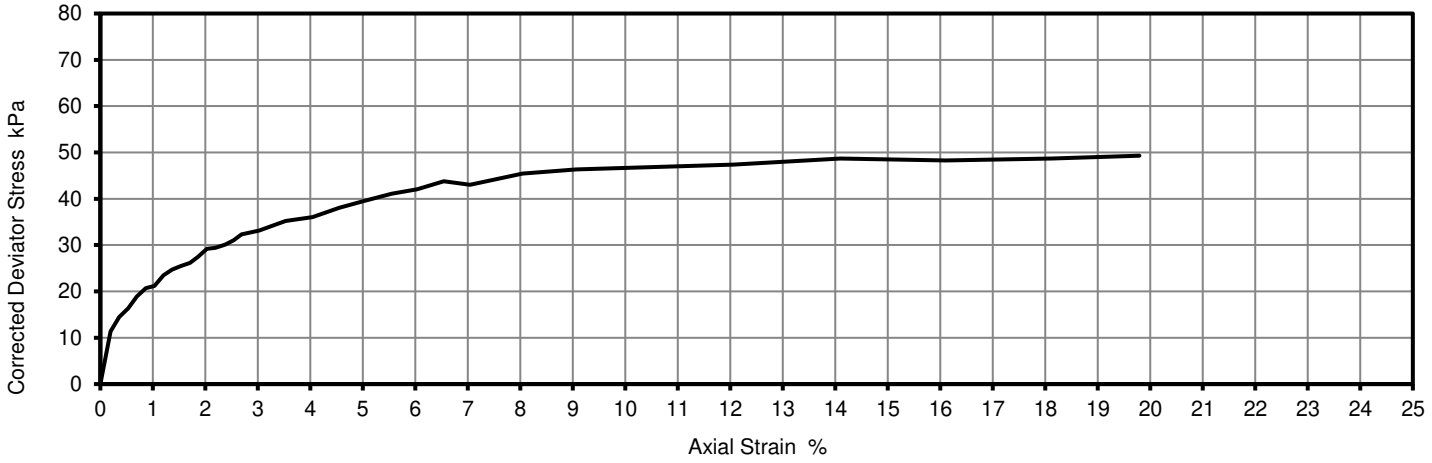
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

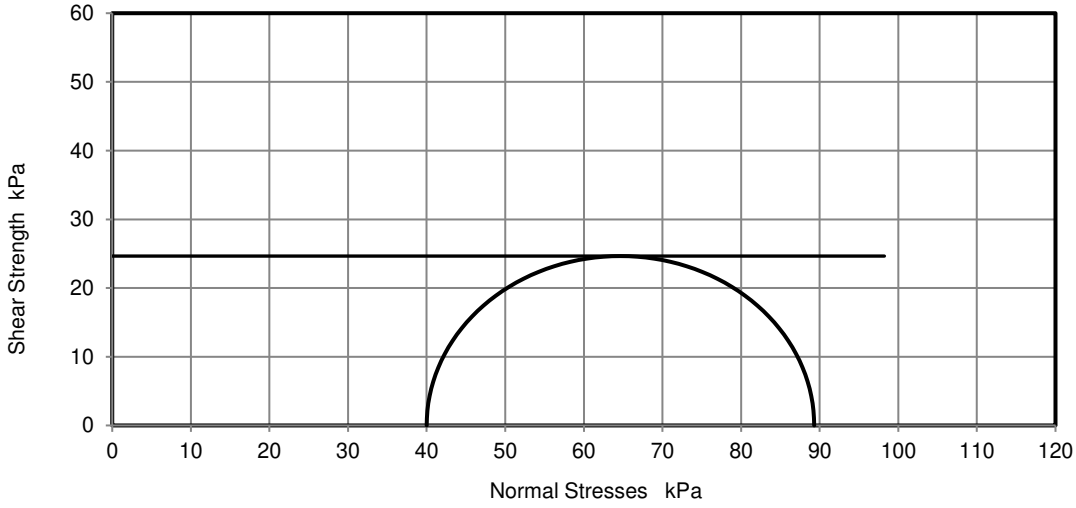
Laboratory Reference:	2451935	Depth Top [m]:	2.00
Hole No.:	CP3	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled grey CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	140.11	mm	Cell Pressure	40	kPa
Diameter	69.25	mm	Axial Strain at failure	19.8	%
Bulk Density	1.82	Mg/m3	Deviator Stress, (σ1 - σ3)f	49	kPa
Moisture Content	41	%	Undrained Shear Strength, cu	25	kPa ½(σ1 - σ3)f
Dry Density	1.29	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.38	kPa	Membrane thickness	0.25	mm

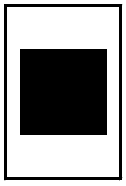
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

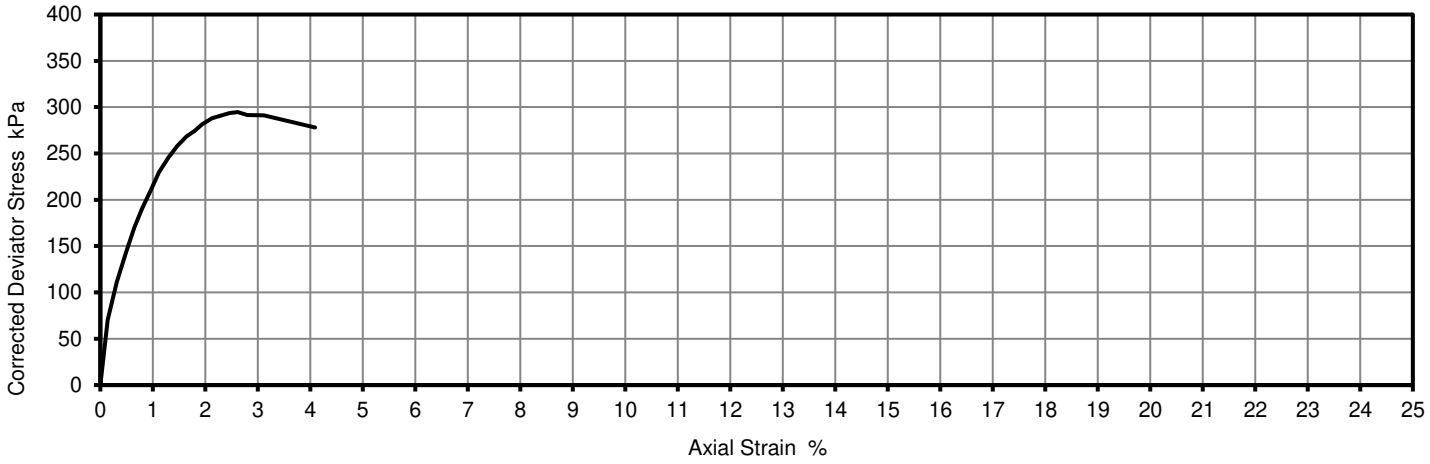
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

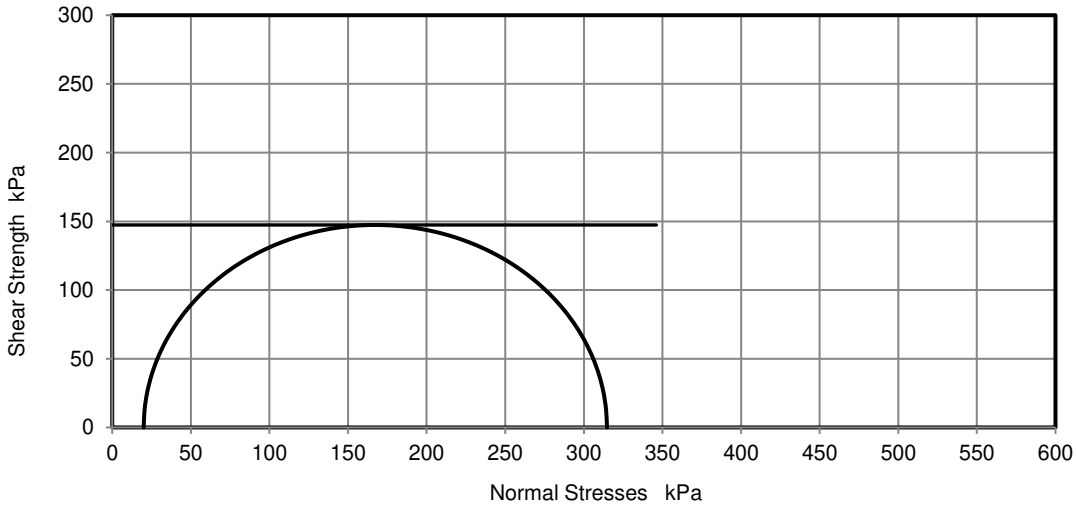
Laboratory Reference:	2451940	Depth Top [m]:	1.00
Hole No.:	CP5	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brownish grey mottled light grey slightly sandy CLAY		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	100.47	mm	Cell Pressure	20	kPa
Diameter	49.54	mm	Axial Strain at failure	2.6	%
Bulk Density	1.83	Mg/m3	Deviator Stress, (σ1 - σ3)f	295	kPa
Moisture Content	23	%	Undrained Shear Strength, cu	147	kPa ½(σ1 - σ3)f
Dry Density	1.49	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.35	kPa	Membrane thickness	0.24	mm

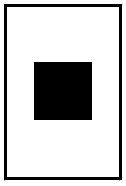
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

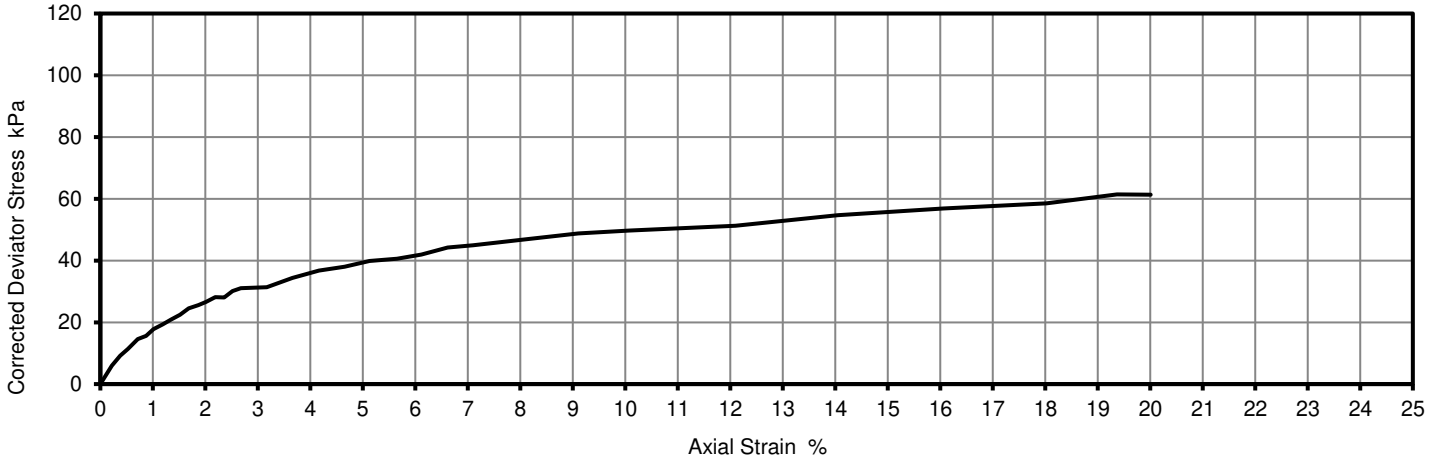
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

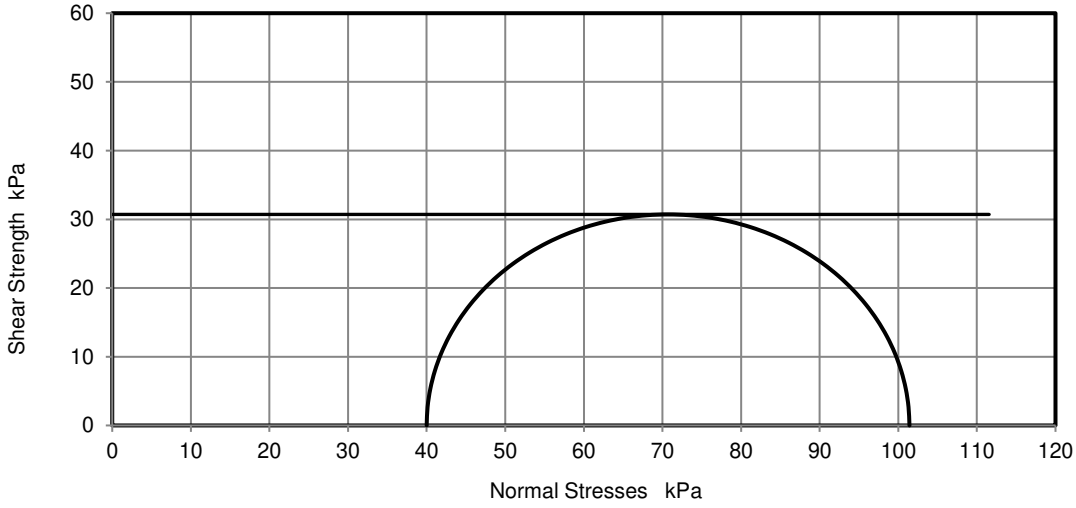
Laboratory Reference:	2451942	Depth Top [m]:	2.00
Hole No.:	CP5	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to black PEAT		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	100.87	mm	Cell Pressure	40	kPa
Diameter	48.23	mm	Axial Strain at failure	19.4	%
Bulk Density	1.28	Mg/m3	Deviator Stress, (σ1 - σ3)f	61	kPa
Moisture Content	106	%	Undrained Shear Strength, cu	31	kPa ½(σ1 - σ3)f
Dry Density	0.62	Mg/m3	Mode of Failure	Compound	
Membrane Correction	1.71	kPa	Membrane thickness	0.22	mm

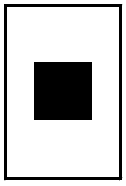
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

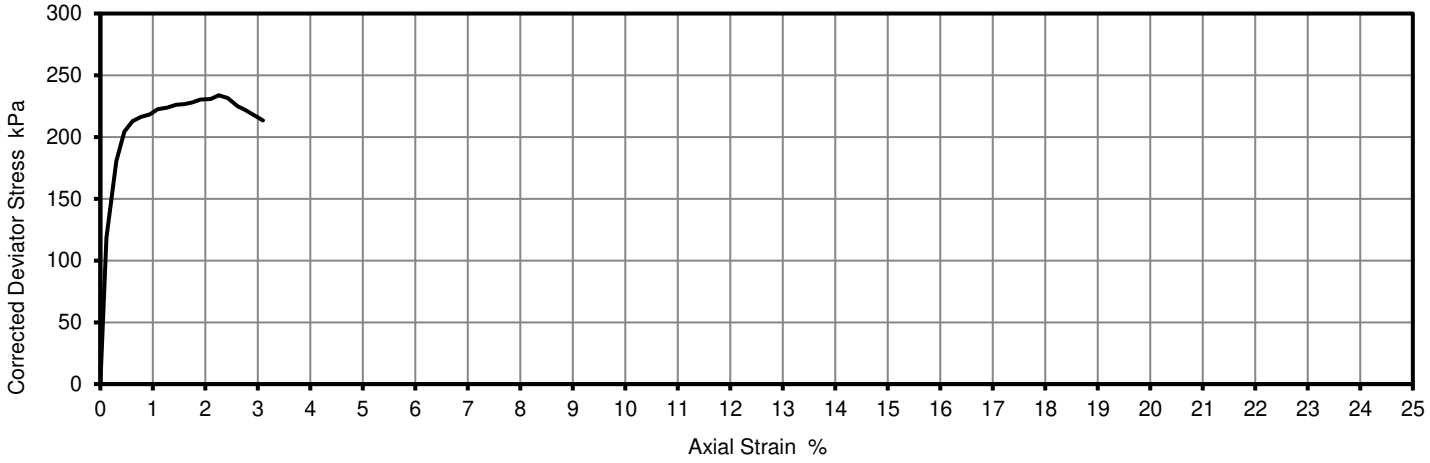
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

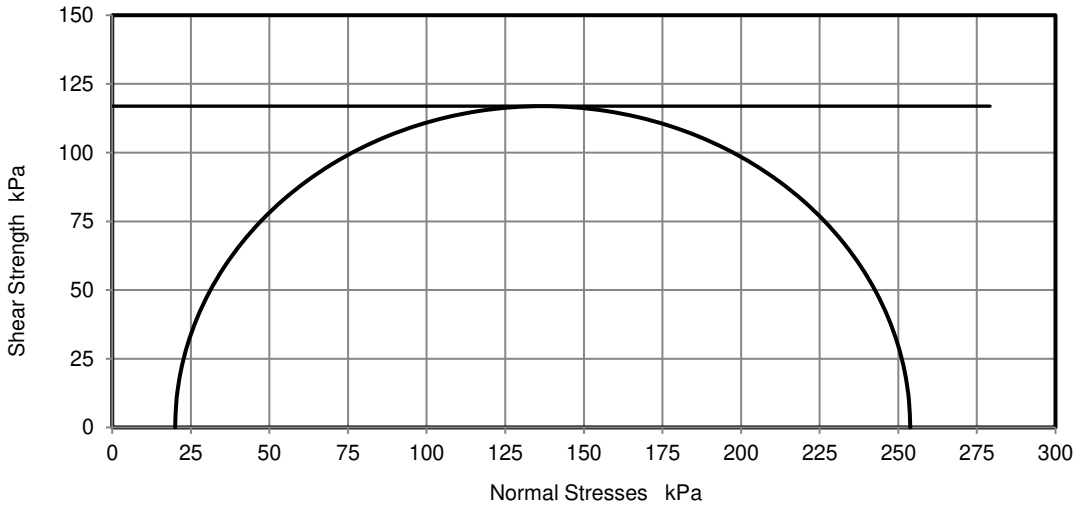
Laboratory Reference:	2451948	Depth Top [m]:	1.00
Hole No.:	CP4	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled brownish grey CLAY with rootlets		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	2.00	%/min
Length	76.18	mm	Cell Pressure	20	kPa
Diameter	37.67	mm	Axial Strain at failure	2.3	%
Bulk Density	1.83	Mg/m3	Deviator Stress, (σ1 - σ3)f	234	kPa
Moisture Content	25	%	Undrained Shear Strength, cu	117	kPa ½(σ1 - σ3)f
Dry Density	1.46	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.33	kPa	Membrane thickness	0.20	mm

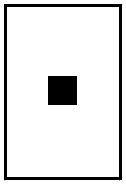
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION WITHOUT MEASUREMENT OF PORE PRESSURE

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

Tested in Accordance with: BS 1377-7: 1990: Clause 8

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	23/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	14/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

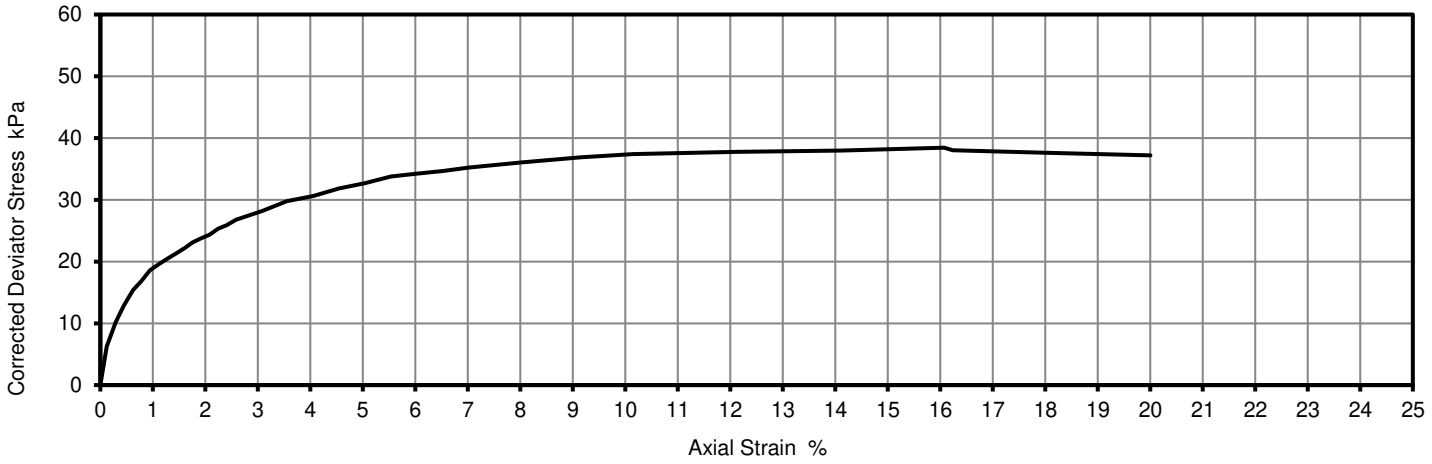
Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

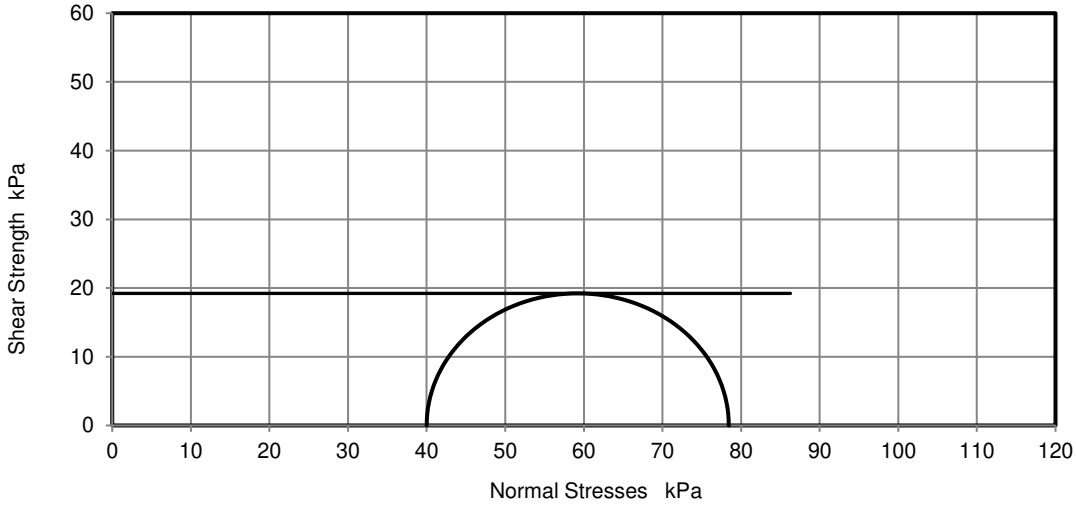
Laboratory Reference:	2451950	Depth Top [m]:	2.00
Hole No.:	CP4	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly clayey PEAT		
Sample Preparation:	Sample prepared in accordance with BS 1377-1:2016 Clause 9.1.1.		

Test Number	1		Rate of Strain	1.96	%/min
Length	203.68	mm	Cell Pressure	40	kPa
Diameter	101.67	mm	Axial Strain at failure	16.1	%
Bulk Density	1.56	Mg/m3	Deviator Stress, (σ1 - σ3)f	38	kPa
Moisture Content	173	%	Undrained Shear Strength, cu	19	kPa ½(σ1 - σ3)f
Dry Density	0.57	Mg/m3	Mode of Failure	Compound	
Membrane Correction	0.95	kPa	Membrane thickness	0.30	mm

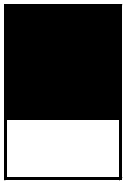
Deviator Stress v Axial Strain



Mohr Circles



Position within sample



Note: Deviator stress corrected for area change and membrane effects. Mohr circles and their interpretation is not covered by BS1377. This is provided for information only.

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 184.12

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

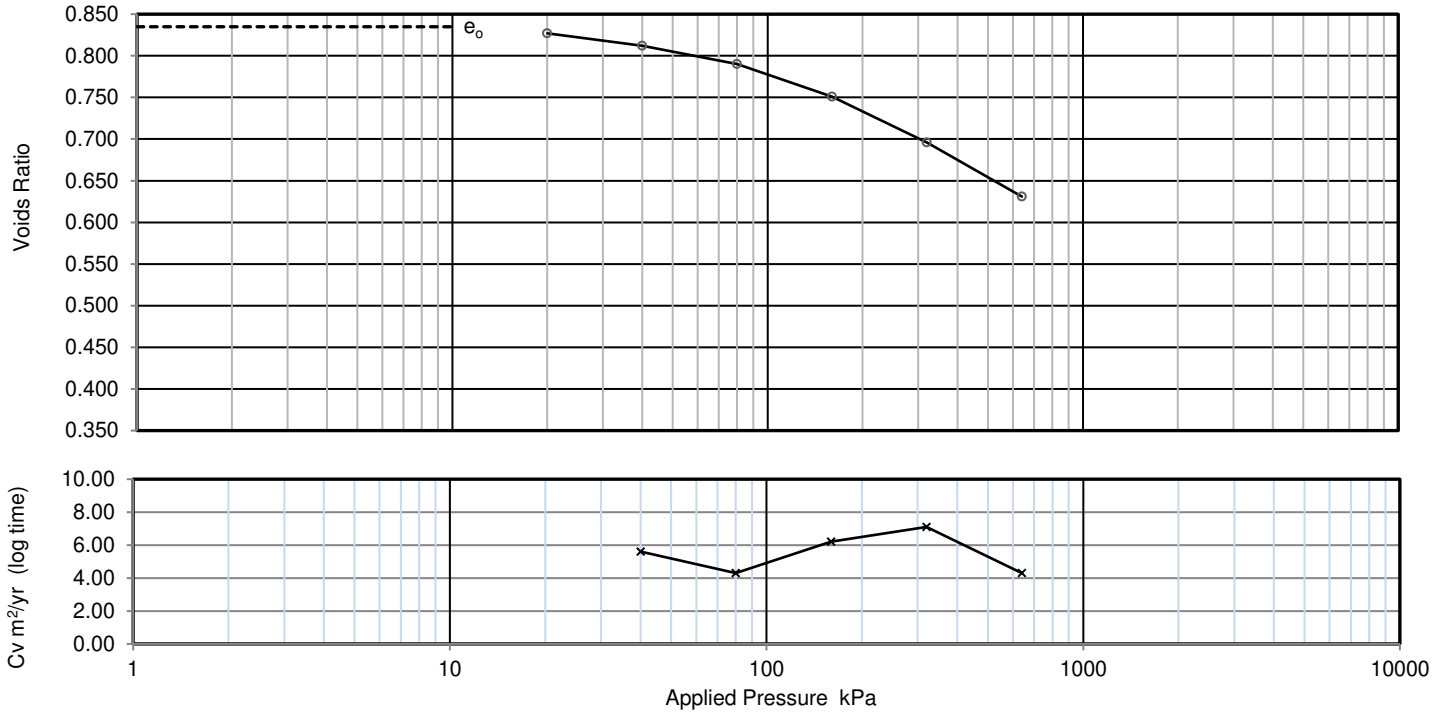
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	13/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451924	Depth Top [m]:	1.00
Hole No.:	CP2	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled light brown CLAY		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	0.835	-	-	-	-
20	0.827	0.23	N/A	N/A	N/A
40	0.812	0.39	5.6	5.6	0.00047
80	0.790	0.31	4.3	4.5	0.0012
160	0.751	0.27	6.2	6	0.0019
320	0.696	0.2	7.1	7.4	0.0026
640	0.631	0.12	4.3	6.7	0.0025

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.02	-	mm
Height	20.03	17.81	mm
Moisture Content	28	27	%
Bulk density	1.85	2.06	Mg/m3
Dry density	1.44	1.62	Mg/m3
Voids Ratio	0.835	0.631	
Saturation	89	113	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks: Swelling - Stage 1

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

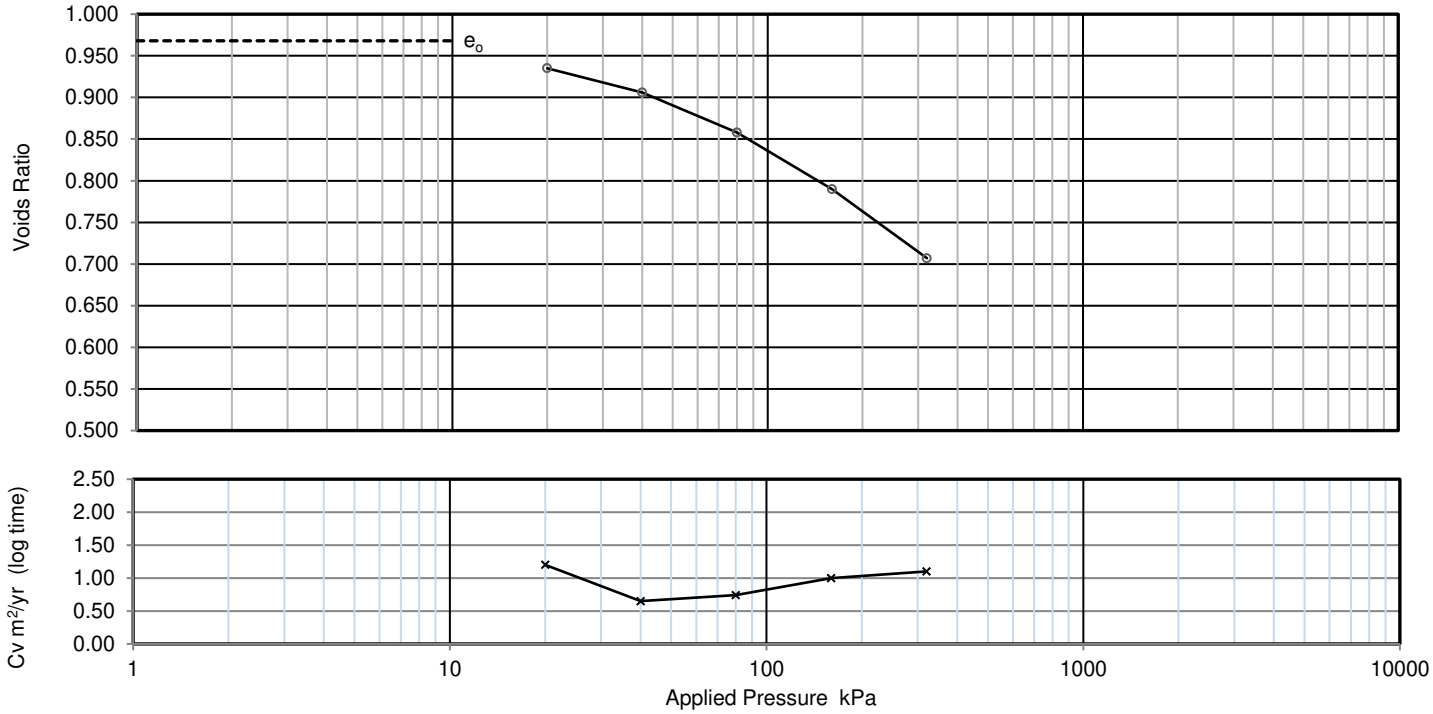
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451925	Depth Top [m]:	2.00
Hole No.:	CP2	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown slightly sandy CLAY		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	0.968	-	-	-	-
20	0.935	0.83	1.2	3.8	0.0018
40	0.906	0.76	0.65	1.3	0.003
80	0.858	0.63	0.74	1.1	0.0025
160	0.790	0.45	1	1.3	0.0038
320	0.707	0.29	1.1	1.7	0.0032

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.00	-	mm
Height	20.00	17.35	mm
Moisture Content	36	32	%
Bulk density	1.83	2.04	Mg/m3
Dry density	1.35	1.55	Mg/m3
Voids Ratio	0.968	0.707	
Saturation	98	119	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

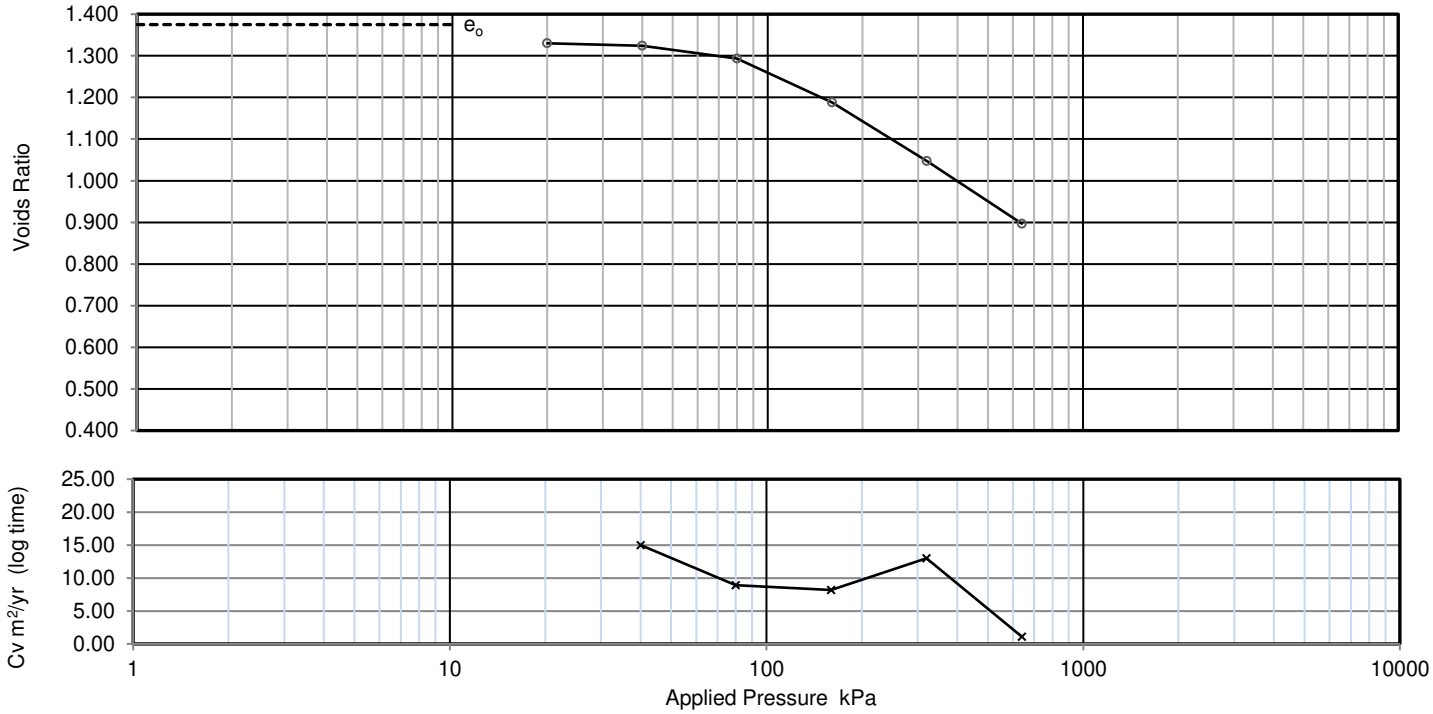
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	13/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451930	Depth Top [m]:	1.00
Hole No.:	CP1	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brownish grey mottled brown CLAY		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	1.375	-	-	-	-
20	1.330	0.95	N/A	N/A	N/A
40	1.324	0.12	15	16	N/A
80	1.293	0.34	8.9	9.5	0.002
160	1.188	0.57	8.2	5.9	0.0044
320	1.047	0.4	13	14	0.005
640	0.897	0.23	1.1	1.5	0.005

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.00	-	mm
Height	20.10	16.06	mm
Moisture Content	41	42	%
Bulk density	1.57	1.98	Mg/m3
Dry density	1.12	1.40	Mg/m3
Voids Ratio	1.375	0.897	
Saturation	79	124	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks: Swelling - Stage 1

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

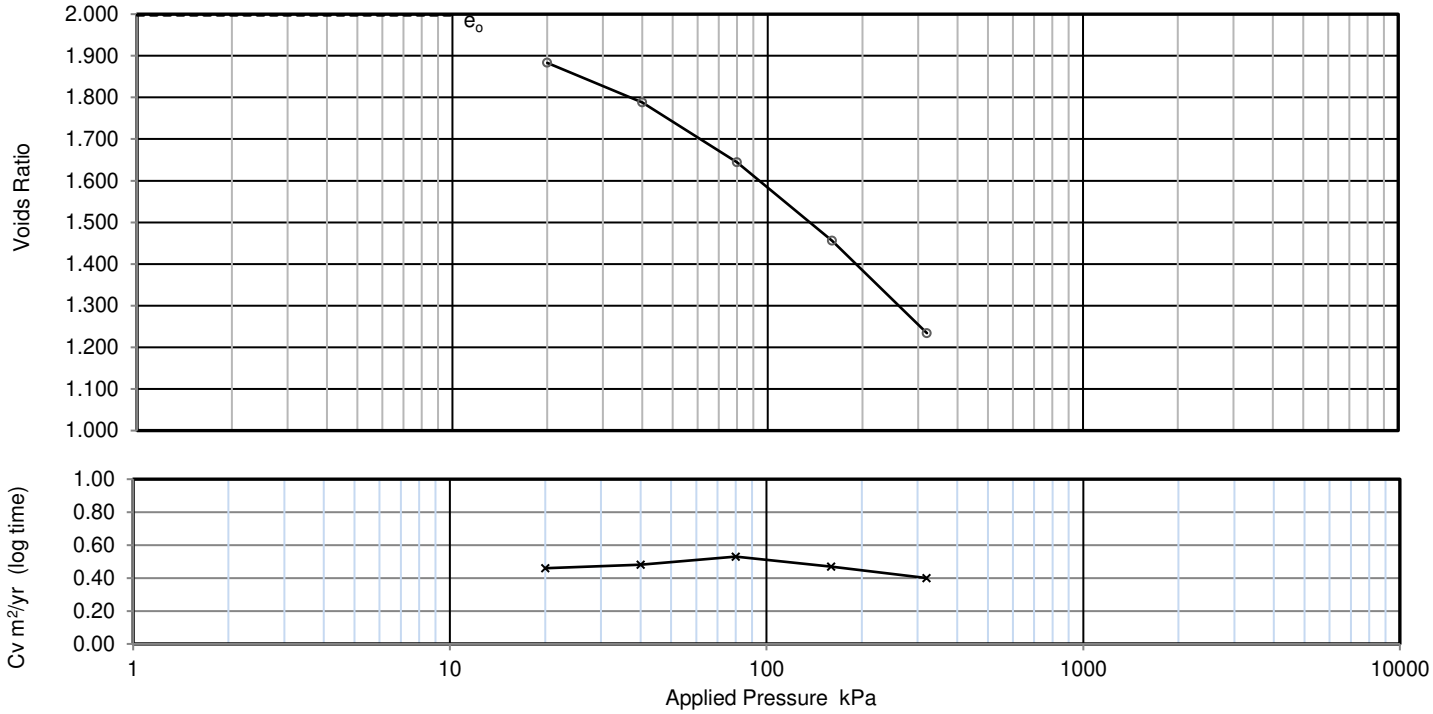
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	21/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451931	Depth Top [m]:	2.00
Hole No.:	CP1	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to black slightly gravelly PEAT		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	1.998	-	-	-	-
20	1.883	1.9	0.46	0.58	0.005
40	1.788	1.6	0.48	0.58	0.0078
80	1.644	1.3	0.53	0.67	0.01
160	1.456	0.89	0.47	0.63	0.013
320	1.234	0.57	0.4	0.54	0.012

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.10	-	mm
Height	20.10	14.98	mm
Moisture Content	70	56	%
Bulk density	1.50	1.85	Mg/m3
Dry density	0.88	1.19	Mg/m3
Voids Ratio	1.998	1.234	
Saturation	92	120	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

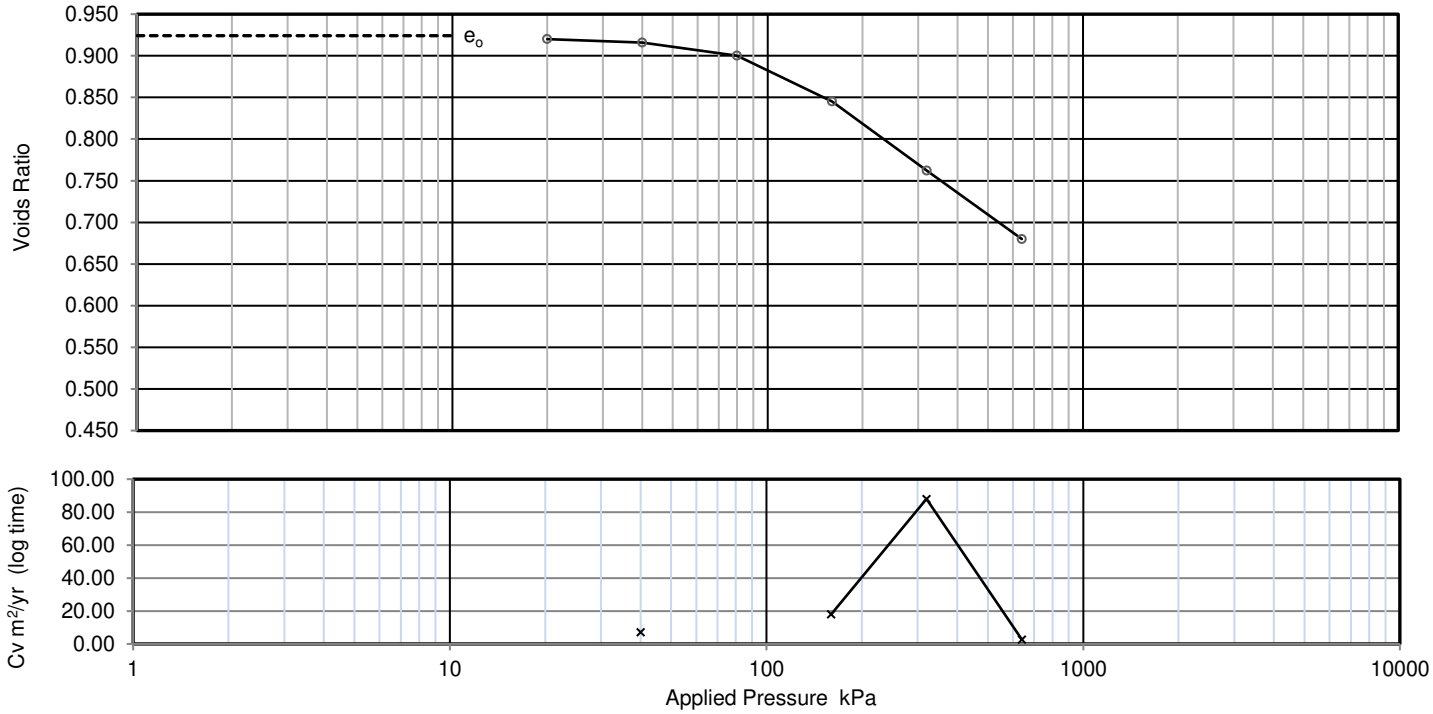
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	22/09/2022
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	13/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451934	Depth Top [m]:	1.00
Hole No.:	CP3	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled grey CLAY		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	0.924	-	-	-	-
20	0.920	0.11	N/A	N/A	N/A
40	0.916	0.11	7.1	8.1	N/A
80	0.900	0.21	N/A	12	0.0013
160	0.845	0.36	18	29	0.0016
320	0.762	0.28	N/A	36	0.0025
640	0.680	0.14	2.7	4.8	0.0025

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.02	-	mm
Height	20.10	17.55	mm
Moisture Content	29	27	%
Bulk density	1.78	2.00	Mg/m3
Dry density	1.38	1.58	Mg/m3
Voids Ratio	0.924	0.680	
Saturation	83	103	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks: Swelling - Stage 1

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

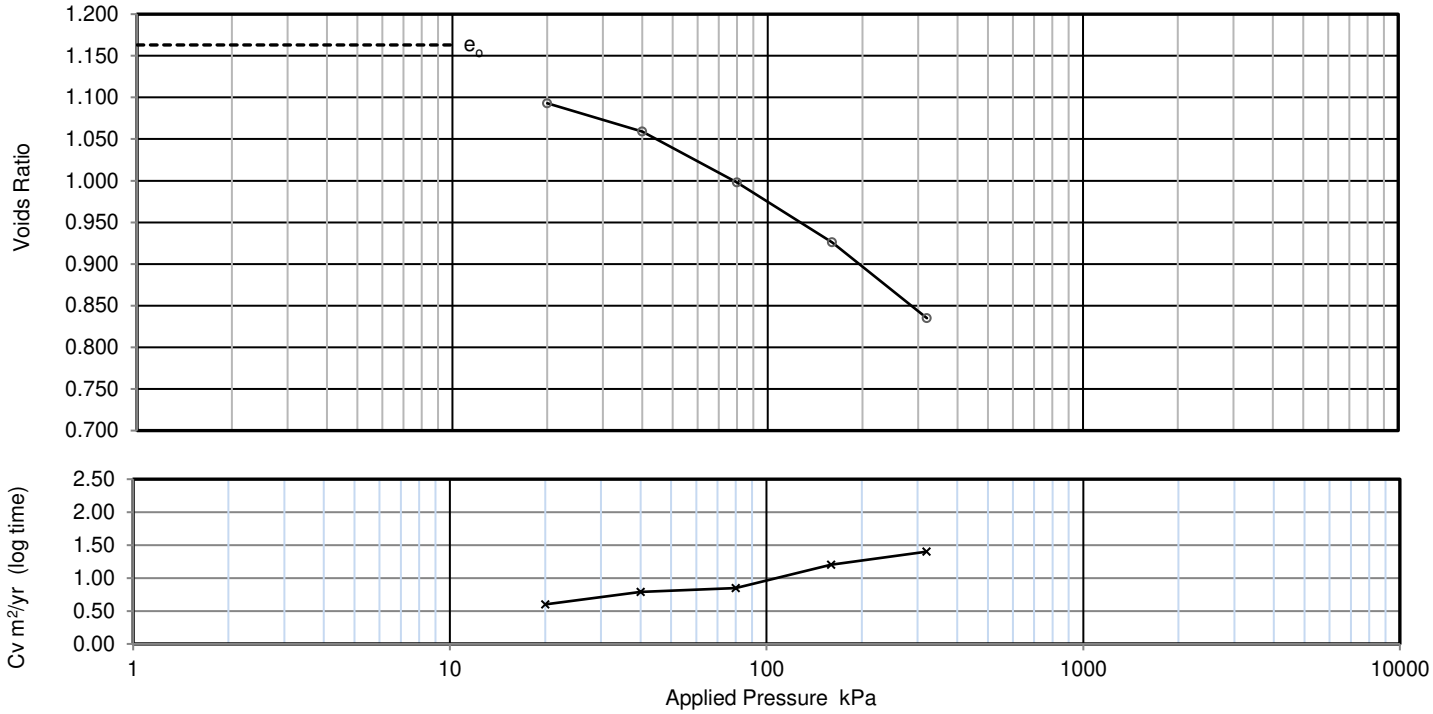
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	12/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451935	Depth Top [m]:	2.00
Hole No.:	CP3	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled grey CLAY		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	1.163	-	-	-	-
20	1.093	1.6	0.6	0.73	0.00098
40	1.059	0.81	0.79	0.65	0.0022
80	0.998	0.73	0.85	0.94	0.0025
160	0.926	0.45	1.2	1.3	0.0032
320	0.835	0.3	1.4	1.4	0.0044

Preparation

Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.00	-	mm
Height	20.00	16.97	mm
Moisture Content	47	37	%
Bulk density	1.80	1.97	Mg/m3
Dry density	1.23	1.44	Mg/m3
Voids Ratio	1.163	0.835	
Saturation	107	117	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

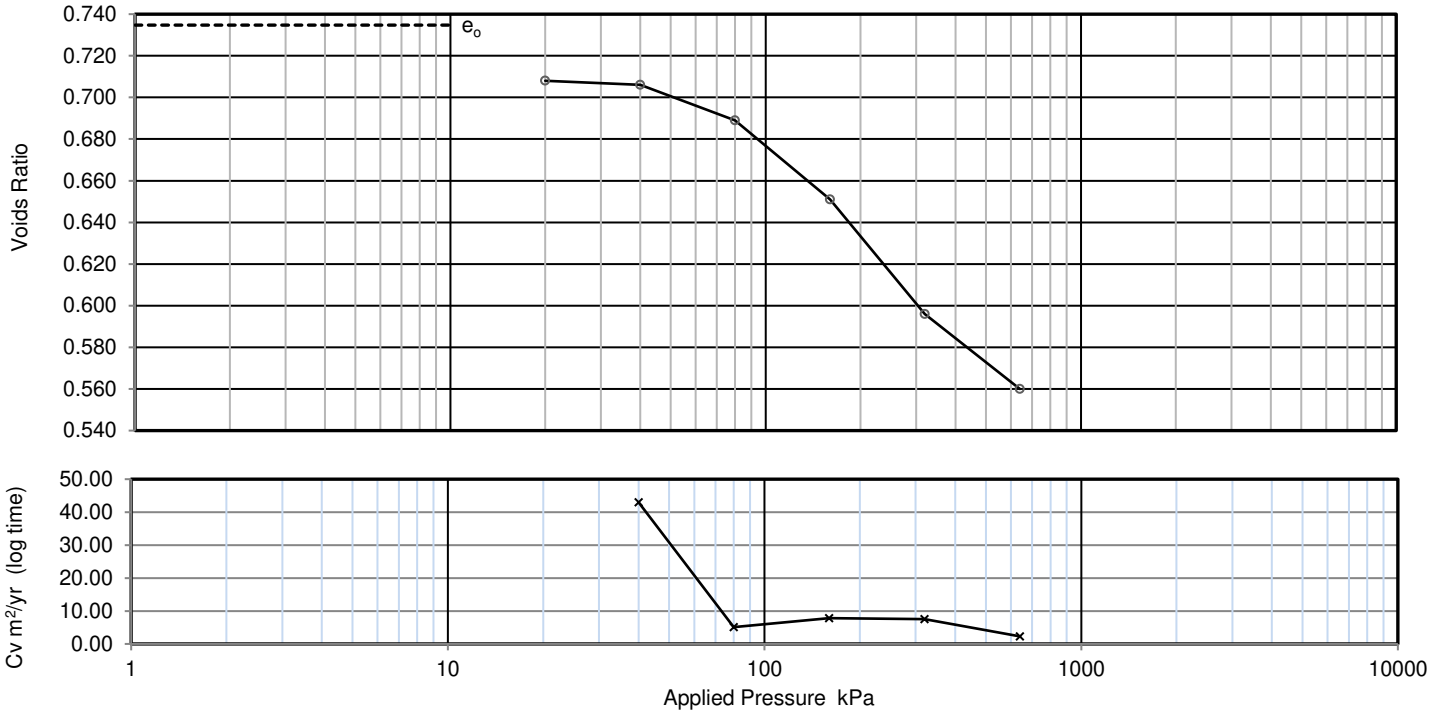
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	13/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451940	Depth Top [m]:	1.00
Hole No.:	CP5	Depth Base [m]:	1.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brownish grey mottled light grey slightly sandy CLAY		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	0.735	-	-	-	-
20	0.708	0.02	N/A	N/A	N/A
40	0.706	0.067	43	7.1	0.00021
80	0.689	0.24	5.1	6.8	0.0013
160	0.651	0.28	7.8	8.9	0.0019
320	0.596	0.21	7.5	6.8	0.0029
640	0.560	0.12	2.3	2.8	0.0026

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.00	-	mm
Height	20.10	18.08	mm
Moisture Content	22	23	%
Bulk density	1.86	2.08	Mg/m3
Dry density	1.53	1.70	Mg/m3
Voids Ratio	0.735	0.560	
Saturation	78	107	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks: Swelling - Stage 1

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

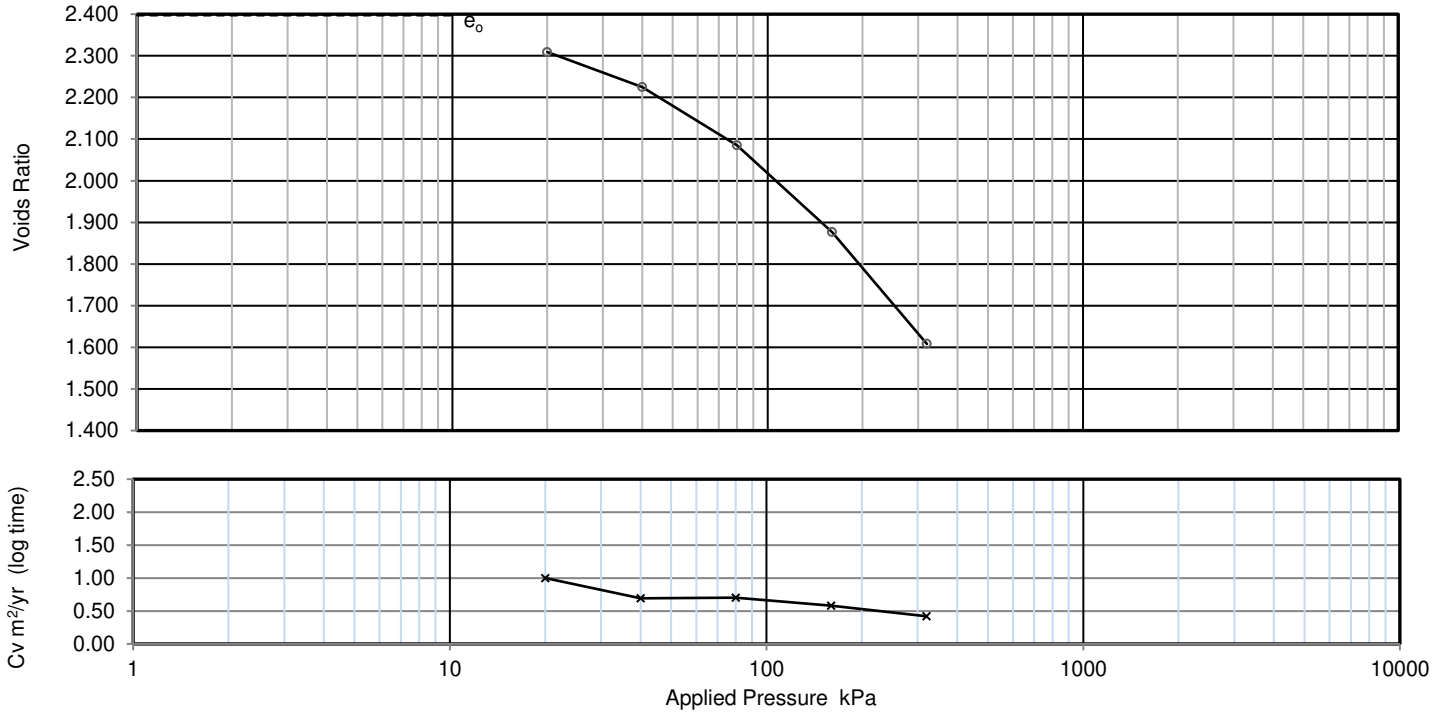
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	13/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451942	Depth Top [m]:	2.00
Hole No.:	CP5	Depth Base [m]:	2.45
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Grey to black PEAT		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	2.398	-	-	-	-
20	2.309	1.3	1	1.3	0.0036
40	2.225	1.3	0.69	0.78	0.0057
80	2.085	1.1	0.7	0.89	0.0082
160	1.877	0.84	0.58	0.65	0.011
320	1.608	0.58	0.42	0.62	0.01

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.08	-	mm
Height	20.03	15.37	mm
Moisture Content	87	67	%
Bulk density	1.46	1.69	Mg/m3
Dry density	0.78	1.02	Mg/m3
Voids Ratio	2.398	1.608	
Saturation	96	110	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks:

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

TEST CERTIFICATE

DETERMINATION OF THE ONE-DIMENSIONAL CONSOLIDATION PROPERTIES

Tested in Accordance with: BS 1377-5:1990: Clause 3

i2 Analytical Ltd
Unit 8 Harrowden Road
Brackmills Industrial Estate
Northampton NN4 7EB

UKAS TESTING 4041

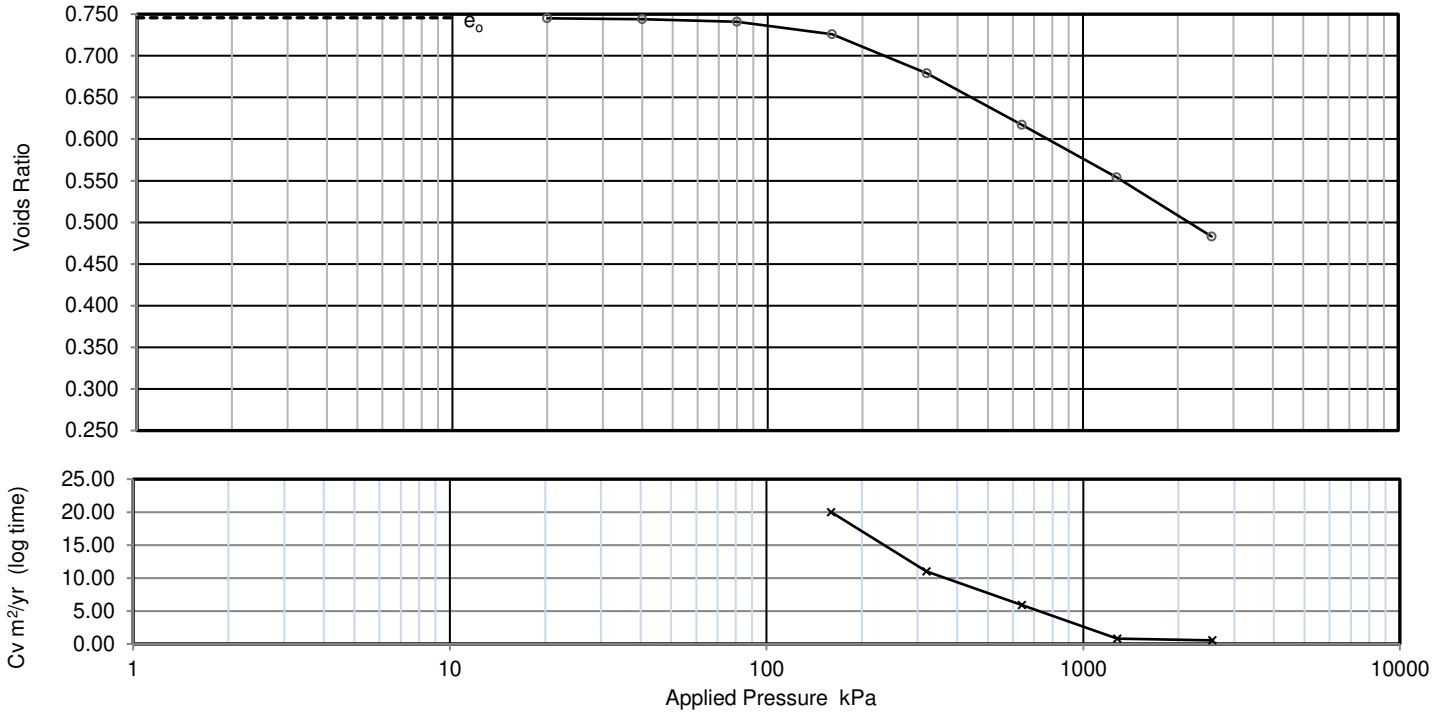
Environmental Science

Client:	Grange Geo Consulting Ltd	Client Reference:	R22082
Client Address:	43 Winchilsea Avenue, Newark, Notts, NG24 4AD	Job Number:	22-88646
		Date Sampled:	Not Given
		Date Received:	26/09/2022
Contact:	Andrew Hare	Date Tested:	19/10/2022
Site Address:	Heckington Fen (Heck Fen)	Sampled By:	Not Given

Testing carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	2451948_1	Depth Top [m]:	1.00
Hole No.:	CP4	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	U
Sample Description:	Brown mottled brownish grey CLAY with rootlets		



Applied Pressure kPa	Voids ratio	Mv m2/MN	Cv (t50, log) m2/yr	Cv (t90, root m2/yr	Csec
0	0.746	-	-	-	-
20	0.745	0.01	N/A	N/A	N/A
40	0.744	0.03	N/A	N/A	N/A
80	0.741	0.045	N/A	N/A	N/A
160	0.726	0.11	20	19	0.00051
320	0.679	0.17	11	9.2	0.0011
640	0.617	0.12	5.9	7.6	0.0019
1 280	0.554	0.061	0.8	0.56	0.0031
2 560	0.483	0.035	0.54	0.48	0.0031

Preparation: Carried out on top of U100

Index tests

Orientation of the sample	Vertical		
Particle density	assumed	2.65	Mg/m3
Liquid limit	N/A		%
Plastic limit	N/A		%

Specimen details	Initial	Final	
Diameter	50.00	-	mm
Height	20.00	16.99	mm
Moisture Content	24	22	%
Bulk density	1.89	2.18	Mg/m3
Dry density	1.52	1.79	Mg/m3
Voids Ratio	0.746	0.483	
Saturation	87	120	%
Avg. temperature for test	22.0		°C
Swelling Pressure	Not measured		kPa
Settlement on saturation			%
Total test time	5		days

Note: Cv corrected to 20°C

Remarks: Swelling - Stage 1,2,3

Signed: [redacted]

Katarzyna Koziel
Technical Reviewer
for and on behalf of i2 Analytical Ltd

Date Reported: 24/10/2022

GF 172.16

Andrew Hare
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Notts
NG24 4AD

e: andrew.hare@grangegeo.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

[redacted]

e: reception@i2analytical.com

Analytical Report Number : 22-88652

Project / Site name:	Heckington Fen (Heck Fen)	**Samples received on:**	26/09/2022
Your job number:	R22082	**Samples instructed on/ Analysis started on:**	27/09/2022
Your order number:		**Analysis completed by:**	13/10/2022
Report Issue Number:	1	**Report issued on:**	13/10/2022
Samples Analysed:	13 soil samples		

Signed: [redacted]

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-88652
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2451982	2451983	2451984	2451985	2451986
Sample Reference				CP2	CP2	CP2	CP2	CP1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.50-1.00	2.00-2.45	4.00-5.00	9.50	1.00-1.45
Date Sampled				21/09/2022	21/09/2022	21/09/2022	21/09/2022	21/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	33	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	11	28	10	12	22
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.3	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8	5.2	8.4	8.7	7.6
Total Sulphate as SO4	%	0.005	MCERTS	0.05	1.42	0.044	0.061	1.04
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.031	5.8	0.11	0.26	3.7
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	8.1	75	12	270	15
Total Sulphur	%	0.005	MCERTS	0.037	3.81	0.032	0.435	0.49
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	3.5	< 2.0	< 2.0	< 2.0	2.8

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	10	1400	12	49	450
Magnesium (leachate equivalent)	mg/l	2.5	NONE	5	710	6	25	220

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-88652
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2451987	2451988	2451989	2451990	2451991
Sample Reference				CP1	CP1	CP3	CP3	CP5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.45	4.00-5.00	1.00-1.45	2.00-2.45	0.50-1.00
Date Sampled				21/09/2022	21/09/2022	22/09/2022	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	52	13	22	26	16
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.2	8.2	7.3	6.9
Total Sulphate as SO4	%	0.005	MCERTS	0.104	0.046	0.077	0.928	0.096
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.24	0.15	0.21	1.8	0.15
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	2.9	19	1.3	7.2	11
Total Sulphur	%	0.005	MCERTS	0.054	0.034	0.062	0.454	0.053
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	5.7

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	26	22	12	91	21
Magnesium (leachate equivalent)	mg/l	2.5	NONE	13	11	5.9	45	11

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-88652
Project / Site name: Heckington Fen (Heck Fen)

Lab Sample Number				2451992	2451993	2451994
Sample Reference				CP5	CP4	CP4
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				1.50-2.00	0.50-1.00	1.50-2.00
Date Sampled				Deviating	23/09/2022	23/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	21	14	20
Total mass of sample received	kg	0.001	NONE	0.4	0.4	0.4

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.6	7.7	8
Total Sulphate as SO4	%	0.005	MCERTS	0.244	0.065	0.101
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1	0.073	0.35
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	7	17	29
Total Sulphur	%	0.005	MCERTS	0.082	0.047	0.059
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	4.1	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	79	17	59
Magnesium (leachate equivalent)	mg/l	2.5	NONE	40	8.3	29

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-88652
Project / Site name: Heckington Fen (Heck Fen)

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2451982	CP2	None Supplied	0.50-1.00	Brown clay and loam with vegetation and gravel
2451983	CP2	None Supplied	2.00-2.45	Brown sandy clay with gravel.
2451984	CP2	None Supplied	4.00-5.00	Brown gravelly sand with stones.
2451985	CP2	None Supplied	9.5	Grey clay with gravel.
2451986	CP1	None Supplied	1.00-1.45	Brown sandy clay with gravel.
2451987	CP1	None Supplied	2.00-2.45	Brown sandy clay with gravel.
2451988	CP1	None Supplied	4.00-5.00	Brown sand with gravel.
2451989	CP3	None Supplied	1.00-1.45	Brown sandy clay with gravel.
2451990	CP3	None Supplied	2.00-2.45	Brown sandy clay with gravel.
2451991	CP5	None Supplied	0.50-1.00	Brown loam and clay with vegetation and gravel
2451992	CP5	None Supplied	1.50-2.00	Brown clay and loam with gravel.
2451993	CP4	None Supplied	0.50-1.00	Brown clay and loam with gravel and vegetation.
2451994	CP4	None Supplied	1.50-2.00	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 22-88652
Project / Site name: Heckington Fen (Heck Fen)

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS

For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Sample Deviation Report

Analytical Report Number : 22-88652
Project / Site name: Heckington Fen (Heck Fen)

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
CP3	None Supplied	S	2451990	a	None Supplied	None Supplied	None Supplied
CP5	None Supplied	S	2451991	a	None Supplied	None Supplied	None Supplied
CP5	None Supplied	S	2451992	a	None Supplied	None Supplied	None Supplied

Steve Woodall
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Notts
NG24 4AD

e: steve@grangegeo.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

[redacted]
e: reception@i2analytical.com

Analytical Report Number : 22-87292

Project / Site name:	Heckington Fen	**Samples received on:**	29/09/2022
Your job number:	R22082	**Samples instructed on/ Analysis started on:**	29/09/2022
Your order number:		**Analysis completed by:**	13/10/2022
Report Issue Number:	1	**Report issued on:**	13/10/2022
Samples Analysed:	8 soil samples		

[redacted]
Signe

Dominika Warjan
Junior Reporting Specialist
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 22-87292
Project / Site name: Heckington Fen

Lab Sample Number				2443556	2443557	2443558	2443559	2443903
Sample Reference				WS13	WS9	WS28	WS41	WS6
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.00-4.00	4.00-5.00	1.50-1.80	1.10-1.30	1.15-2.00
Date Sampled				26/09/2022	27/09/2022	28/09/2022	28/09/2022	21/09/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	15	14	27	21	25
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5	0.5	0.5

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.6	8.5	8.2	8.2
Total Sulphate as SO4	%	0.005	MCERTS	0.087	0.101	0.06	0.057	0.043
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.34	0.4	0.15	0.04	0.055
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	120	220	3	4.7	3.6
Total Sulphur	%	0.005	MCERTS	0.06	0.078	0.037	0.03	0.032
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	< 2.0	< 2.0	< 2.0	4.4

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	28	28	18	6.6	22
Magnesium (leachate equivalent)	mg/l	2.5	NONE	14	14	9.2	3.3	11

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-87292
Project / Site name: Heckington Fen

Lab Sample Number				2443904	2443905	2449668
Sample Reference				WS27	WS37	WS2
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				2.00-2.65	1.00-1.50	3.30-4.60
Date Sampled				22/09/2022	23/09/2022	26/09/2022
Time Taken				None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**			
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	19	25	15
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.5	8.2	8
Total Sulphate as SO4	%	0.005	MCERTS	0.096	0.085	0.104
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.37	0.23	0.26
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	12	20	5.1
Total Sulphur	%	0.005	MCERTS	0.066	0.045	0.059
Water Soluble Nitrate (2:1) as N (leachate equivalent)	mg/l	2	NONE	< 2.0	2.1	< 2.0

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	87	42	25
Magnesium (leachate equivalent)	mg/l	2.5	NONE	44	21	13

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-87292
Project / Site name: Heckington Fen

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
2443556	WS13	None Supplied	3.00-4.00	Brown clay with gravel.
2443557	WS9	None Supplied	4.00-5.00	Brown clay and sand with gravel.
2443558	WS28	None Supplied	1.50-1.80	Brown clay and sand.
2443559	WS41	None Supplied	1.10-1.30	Brown clay and sand.
2443903	WS6	None Supplied	1.15-2.00	Brown sandy clay.
2443904	WS27	None Supplied	2.00-2.65	Brown sandy clay.
2443905	WS37	None Supplied	1.00-1.50	Brown clay with vegetation.
2449668	WS2	None Supplied	3.30-4.60	Light brown sand.

Analytical Report Number : 22-87292
Project / Site name: Heckington Fen

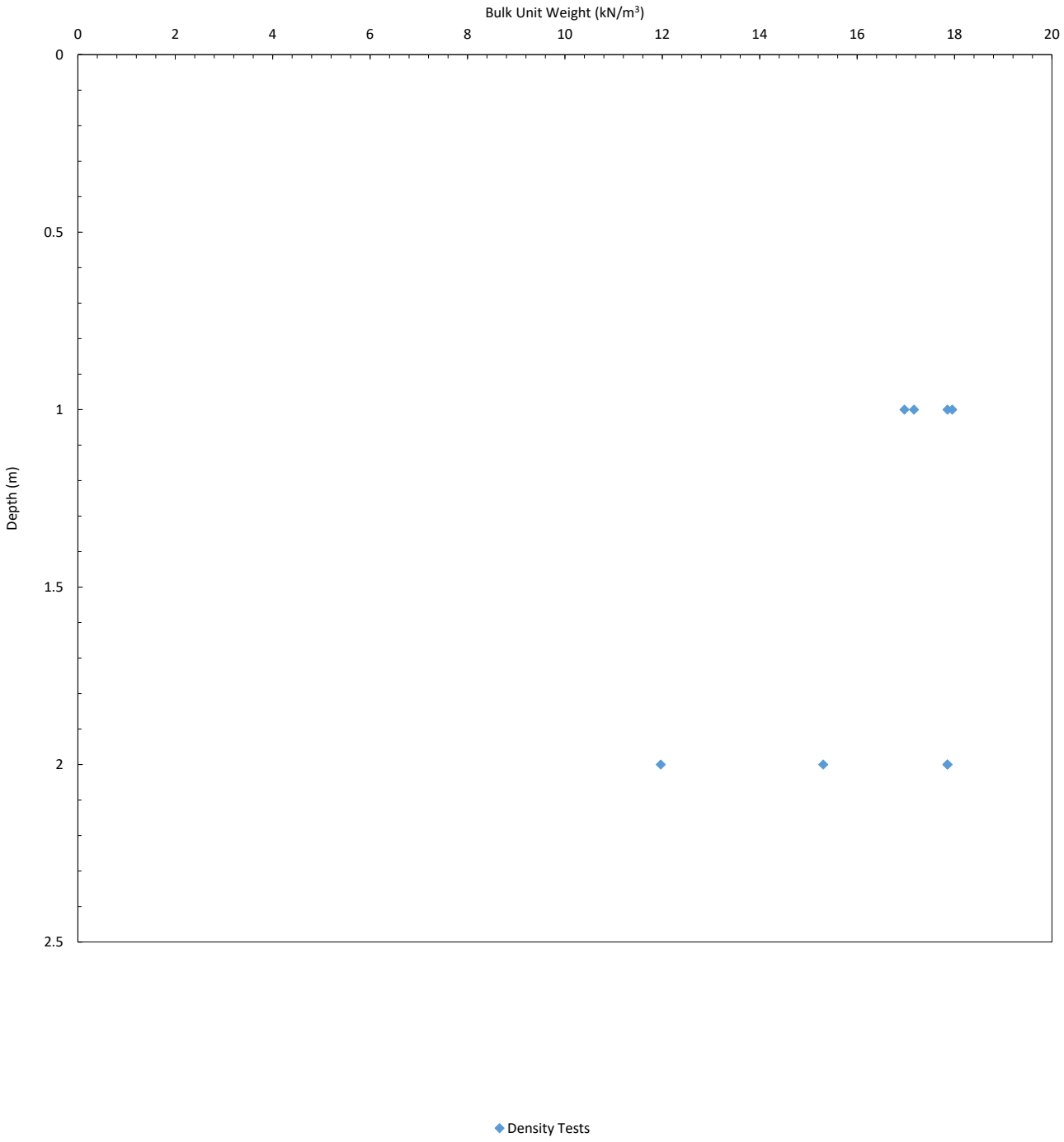
Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Total Sulphur in soil as %	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
Water Soluble Nitrate (2:1) as N in soil	Determination of nitrate by reaction with sodium salicylate and colorimetry.	In-house method based on Examination of Water and Wastewatern & Polish Standard Method PN-82/C-04579.08, 2:1 extraction.	L078-PL	W	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In house method.	L082-PL	D	MCERTS

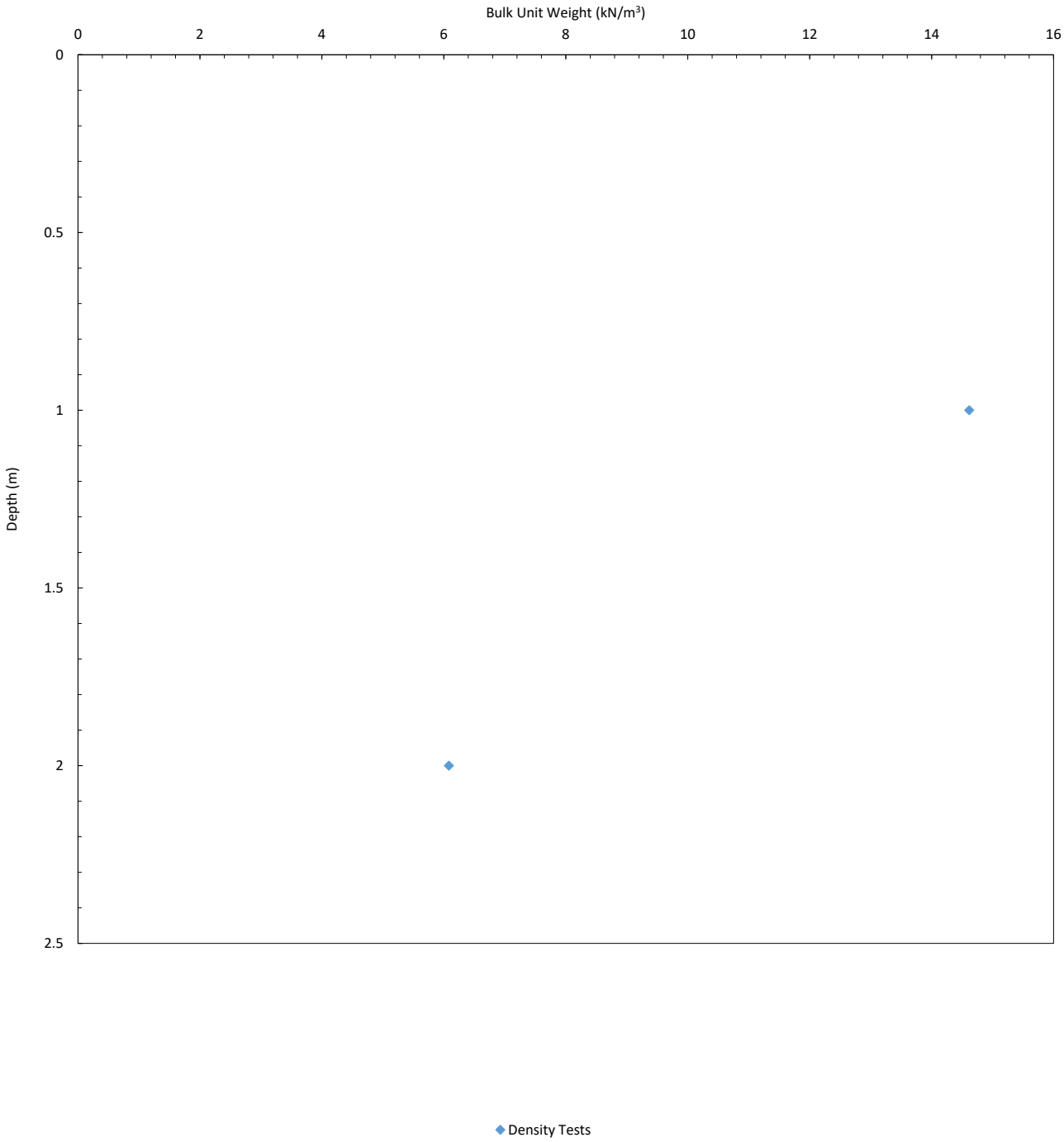
For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL or B' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix G

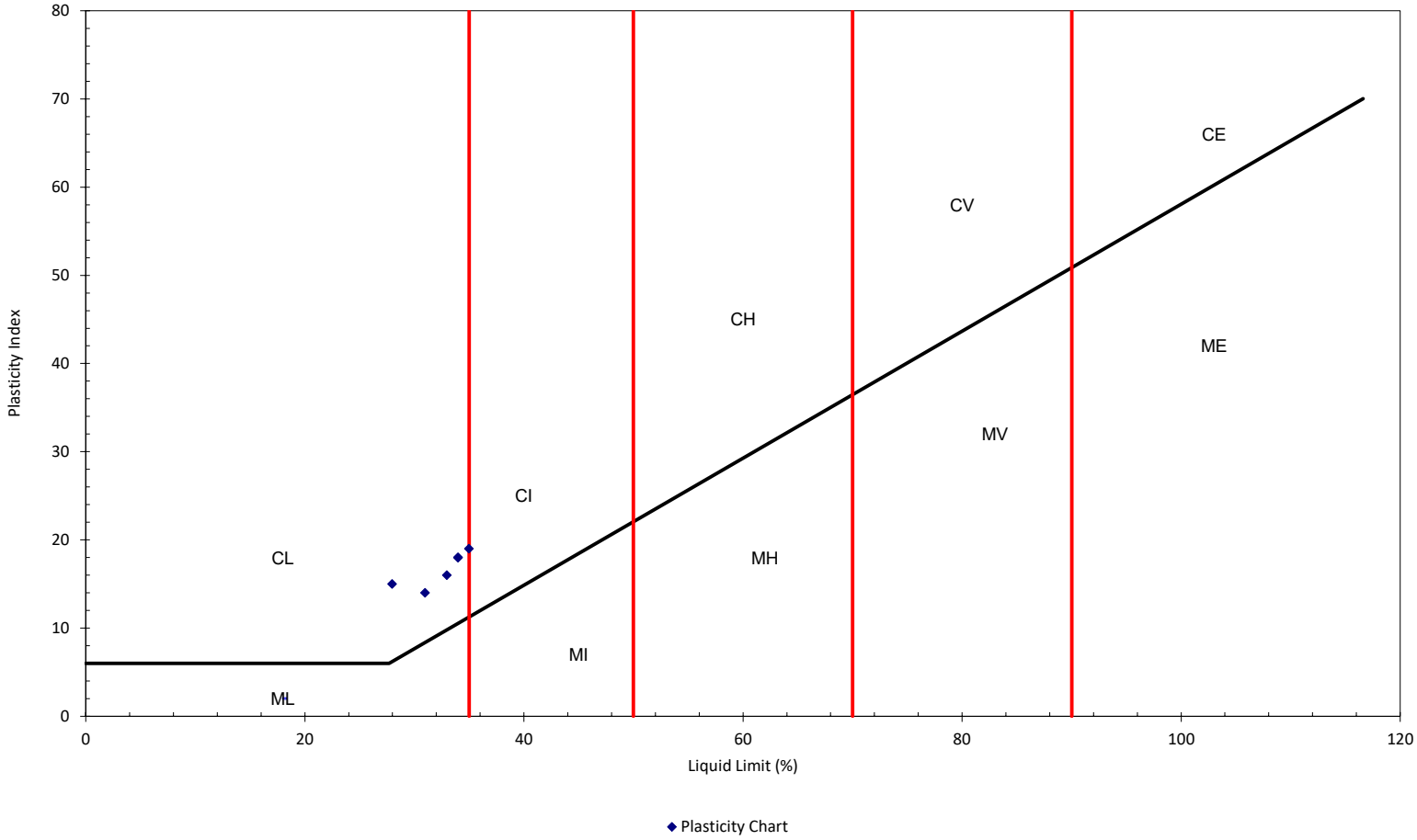
FIGURES SUPPORTING ADOPTED ENGINEERING PROPERTIES



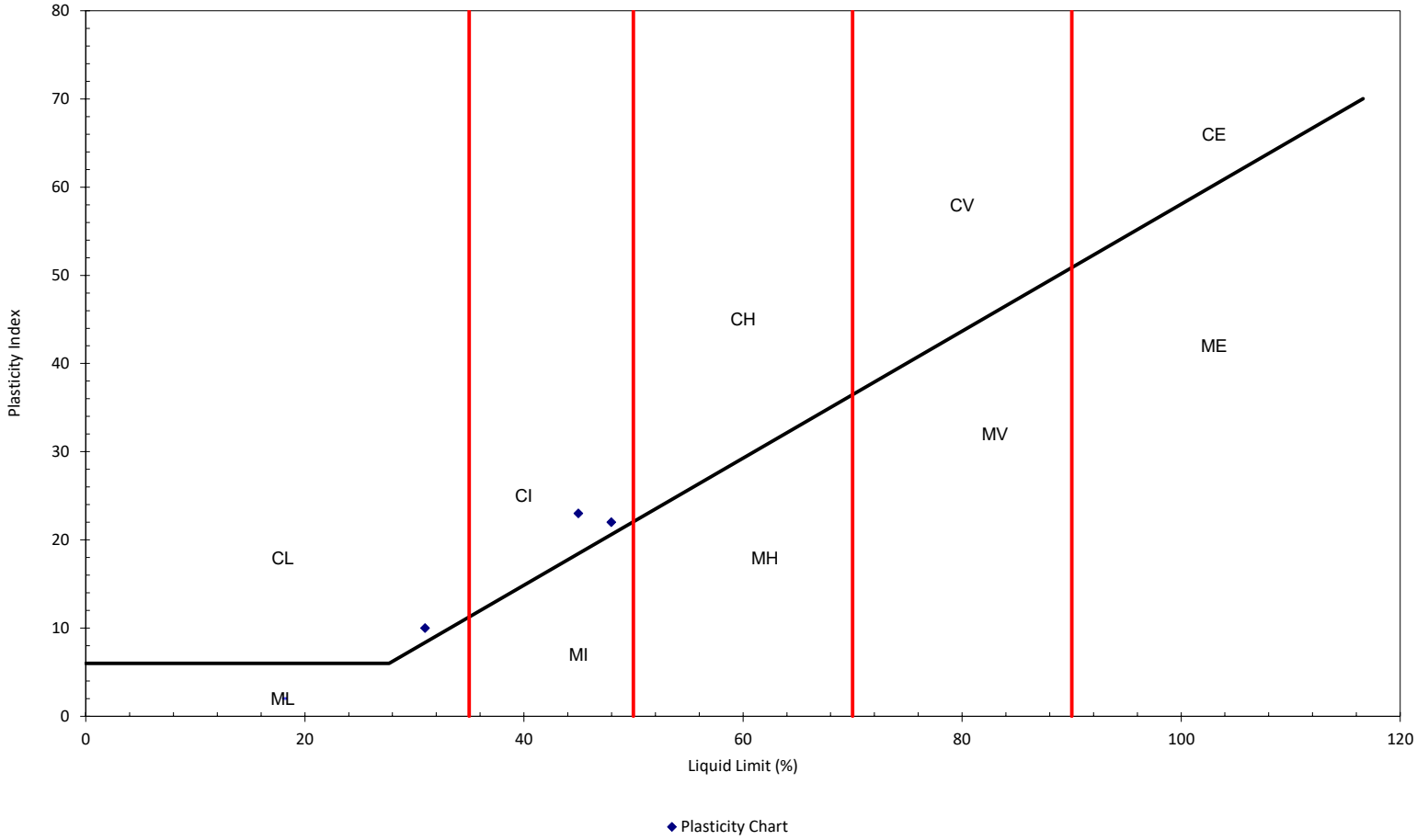
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Bulk Density vs. Depth Tidal Flat Deposits**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**1.1**



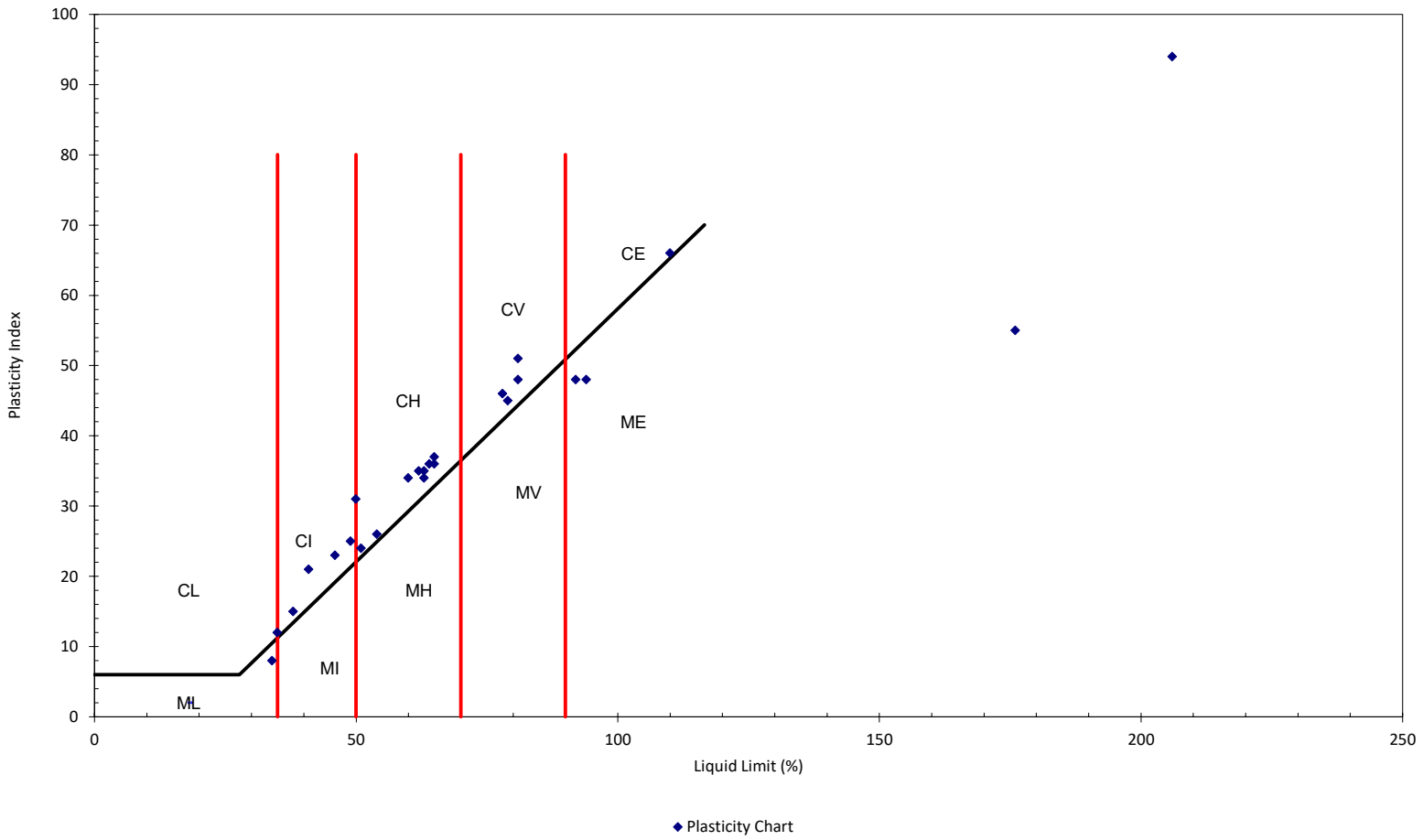
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Bulk Density vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**1.2**



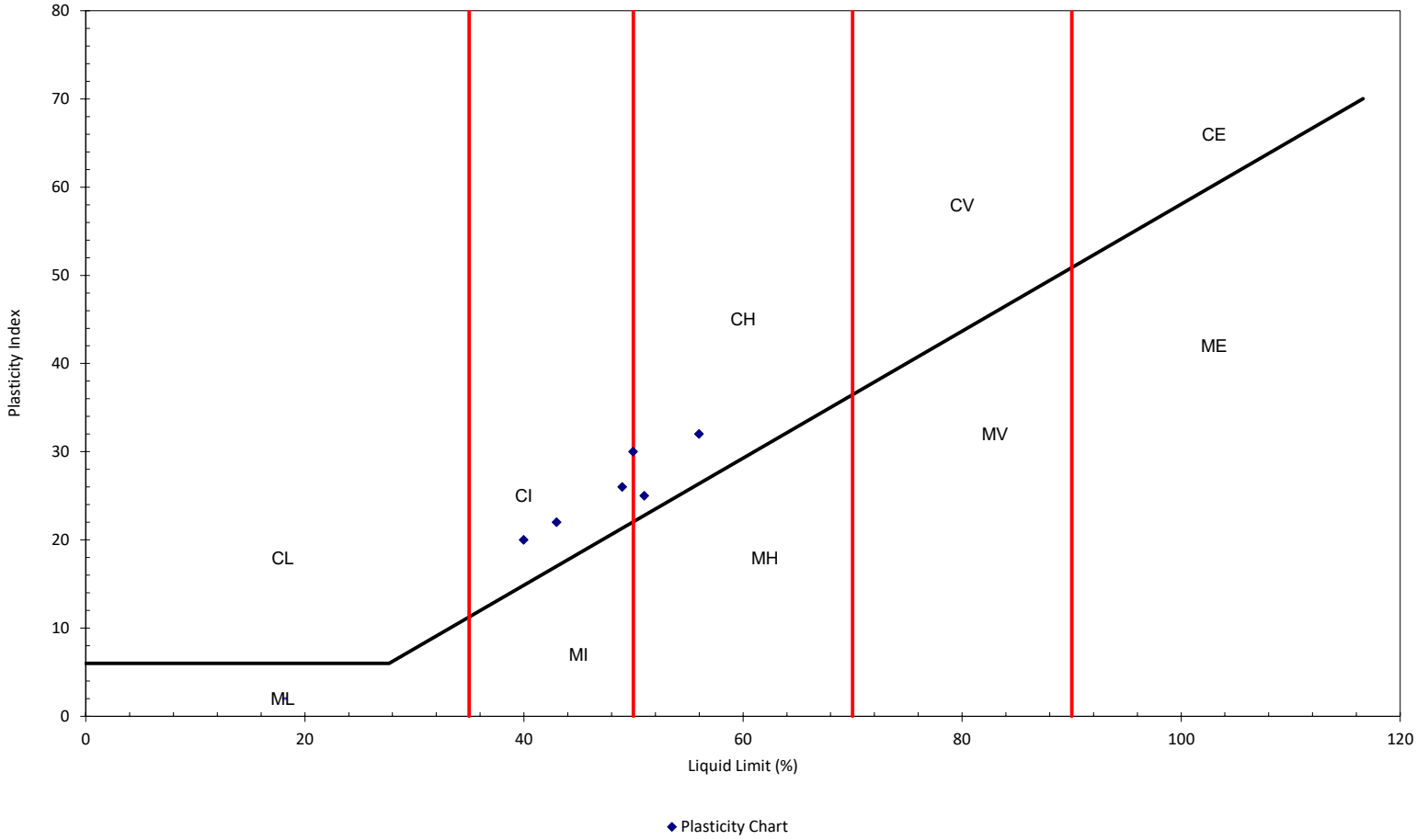
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Plasticity Chart Glacial Till**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**2.1**



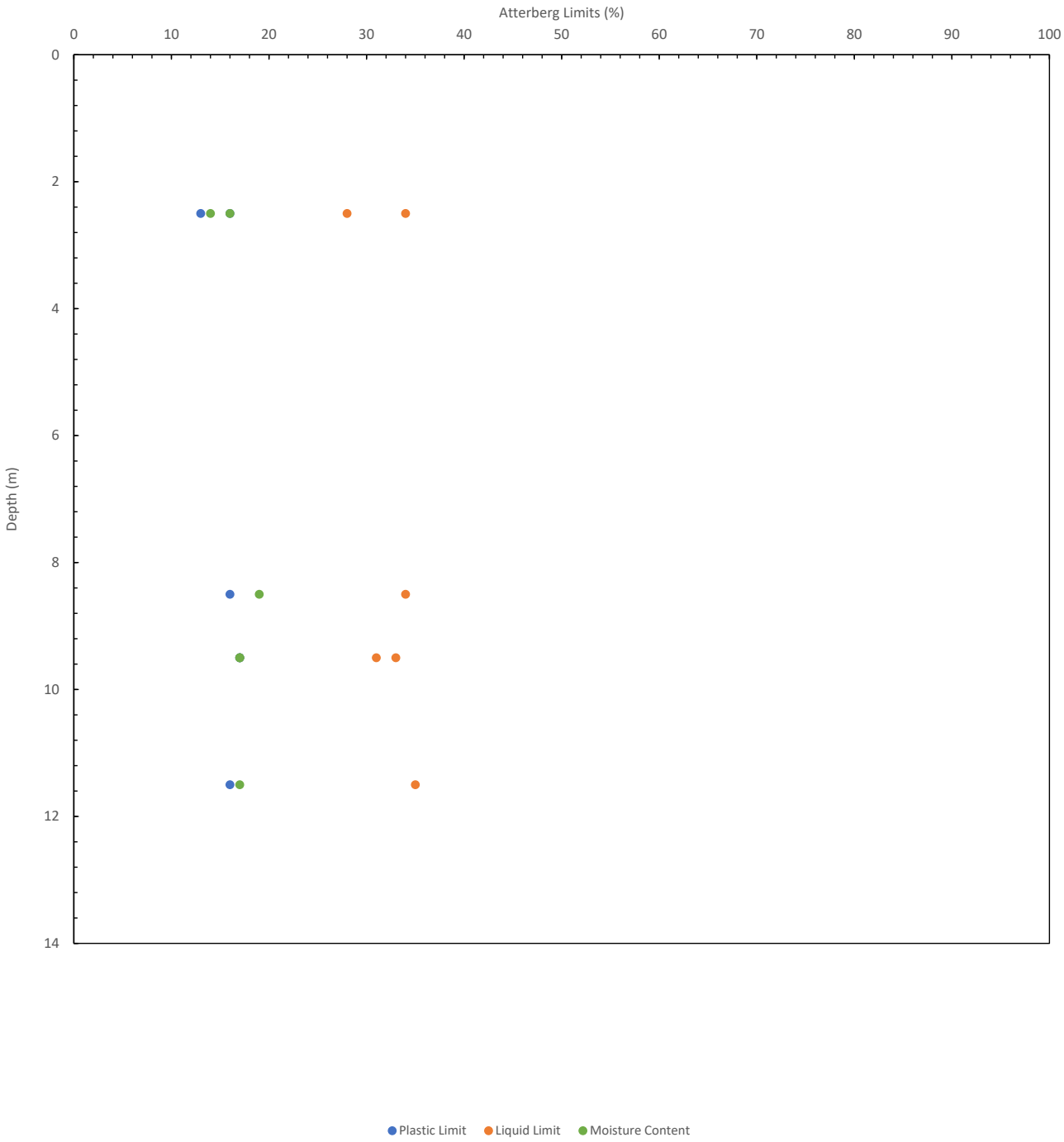
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Plasticity Chart Made Ground**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**2.2**



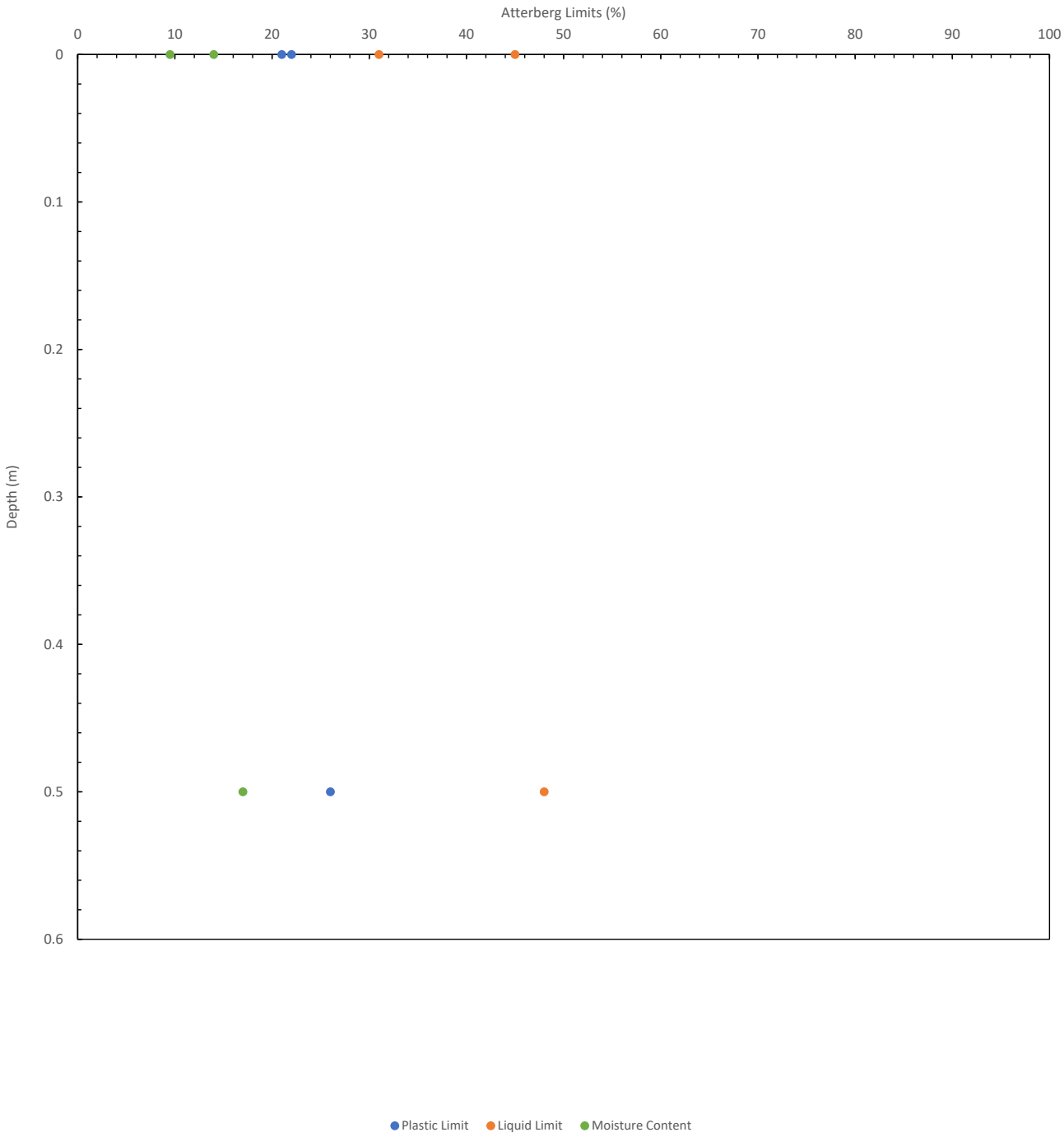
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Plasticity Chart Tidal Flat Deposits (Cohesive)**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**2.3**



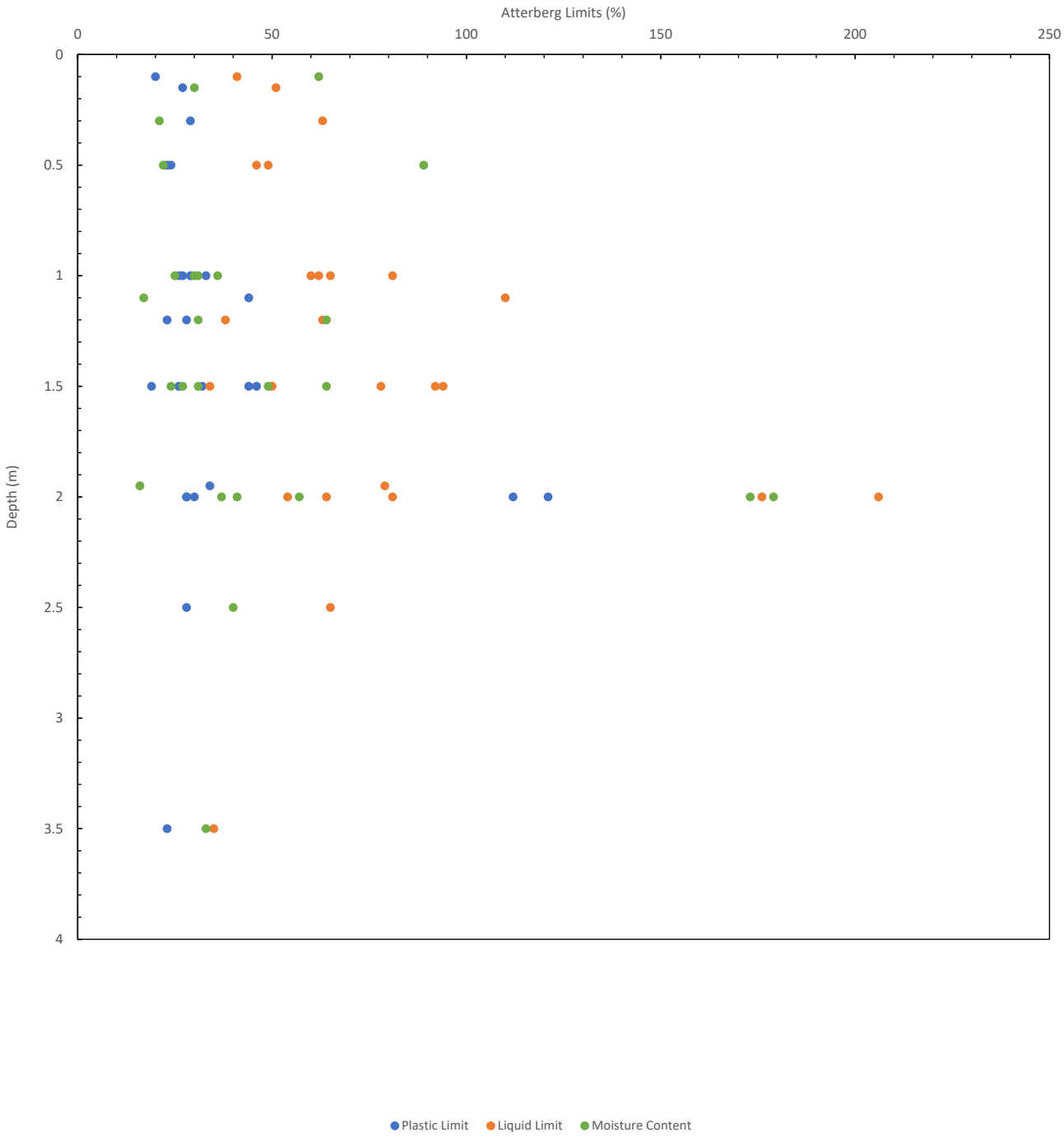
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Plasticity Chart Tidal Flat Deposits (Granular)**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**2.4**



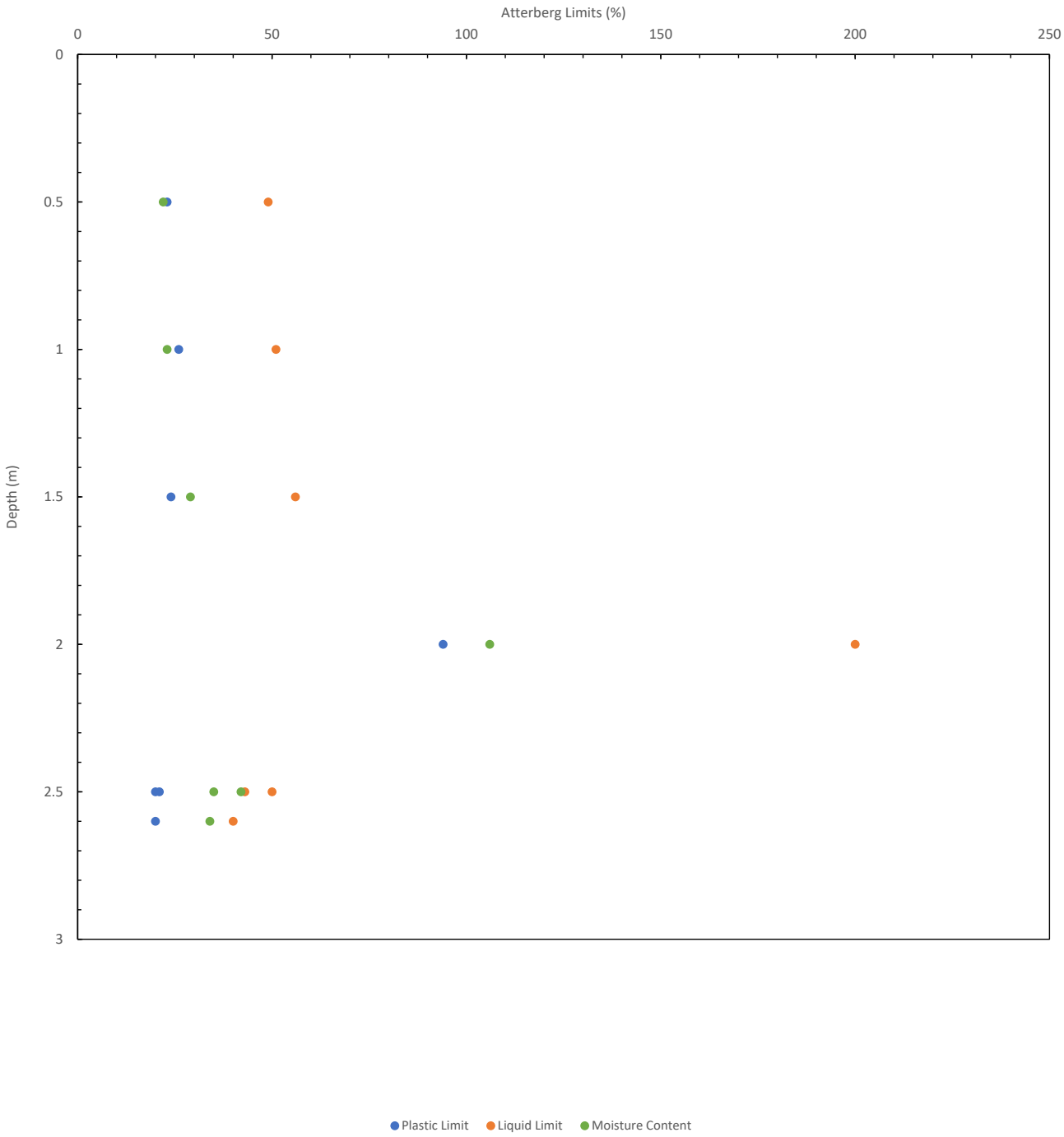
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plastic Limit, Liquid Limit and Moisture Content vs. Depth Glacial Till**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**3.1**



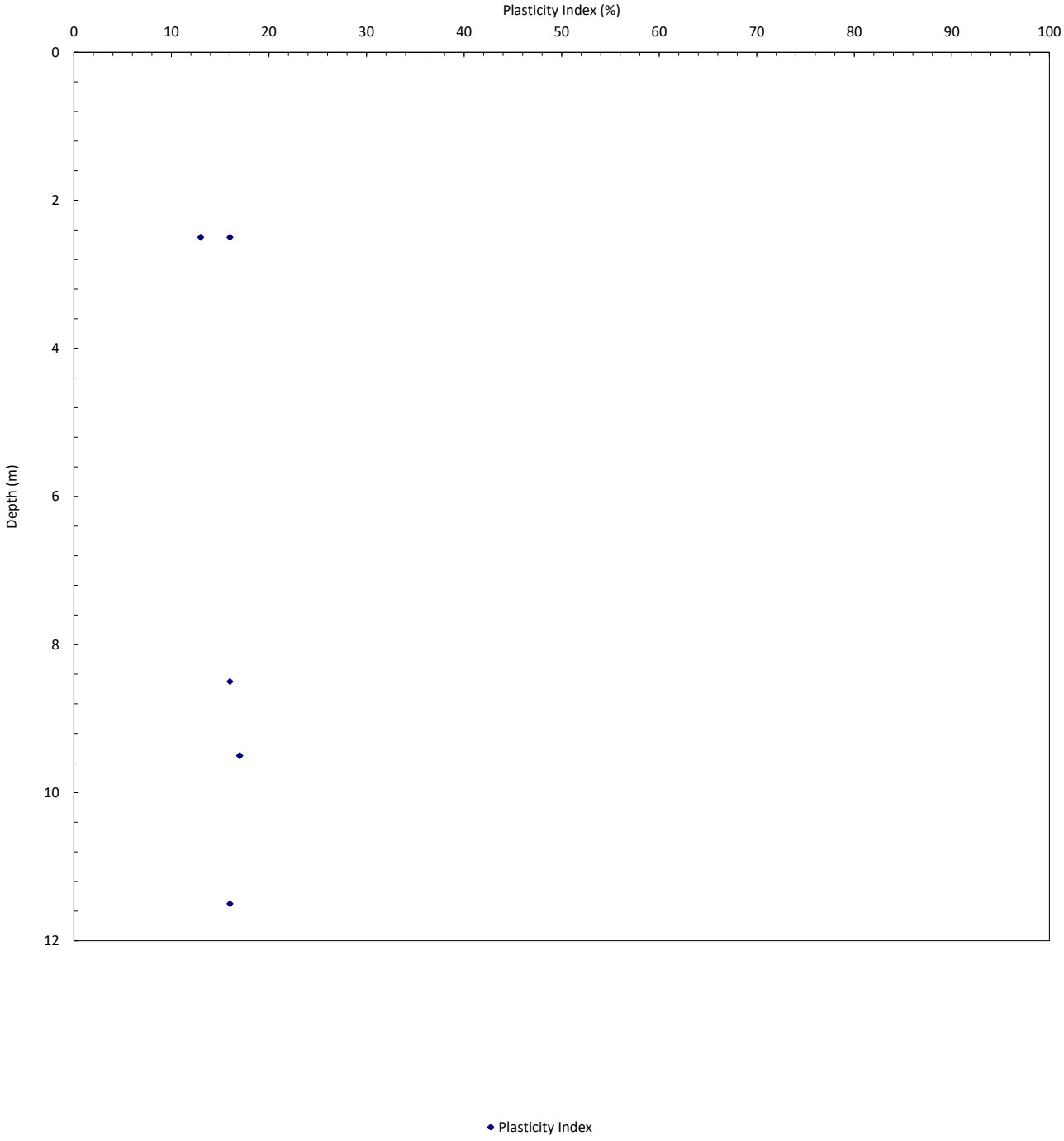
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plastic Limit, Liquid Limit and Moisture Content vs. Depth Made Ground**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**3.2**



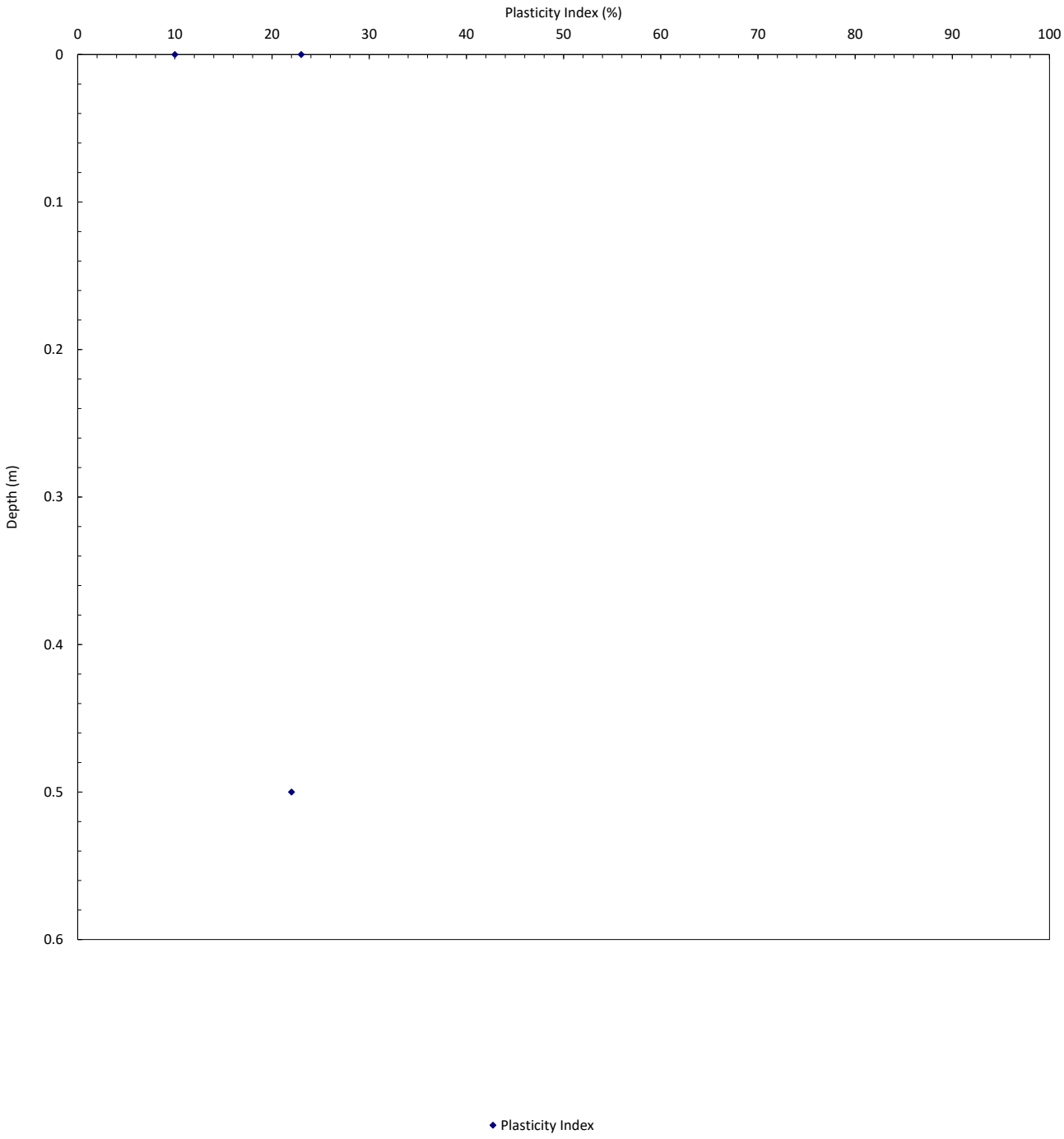
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plastic Limit, Liquid Limit and Moisture Content vs. Depth Tidal Flat Deposits**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**3.3**



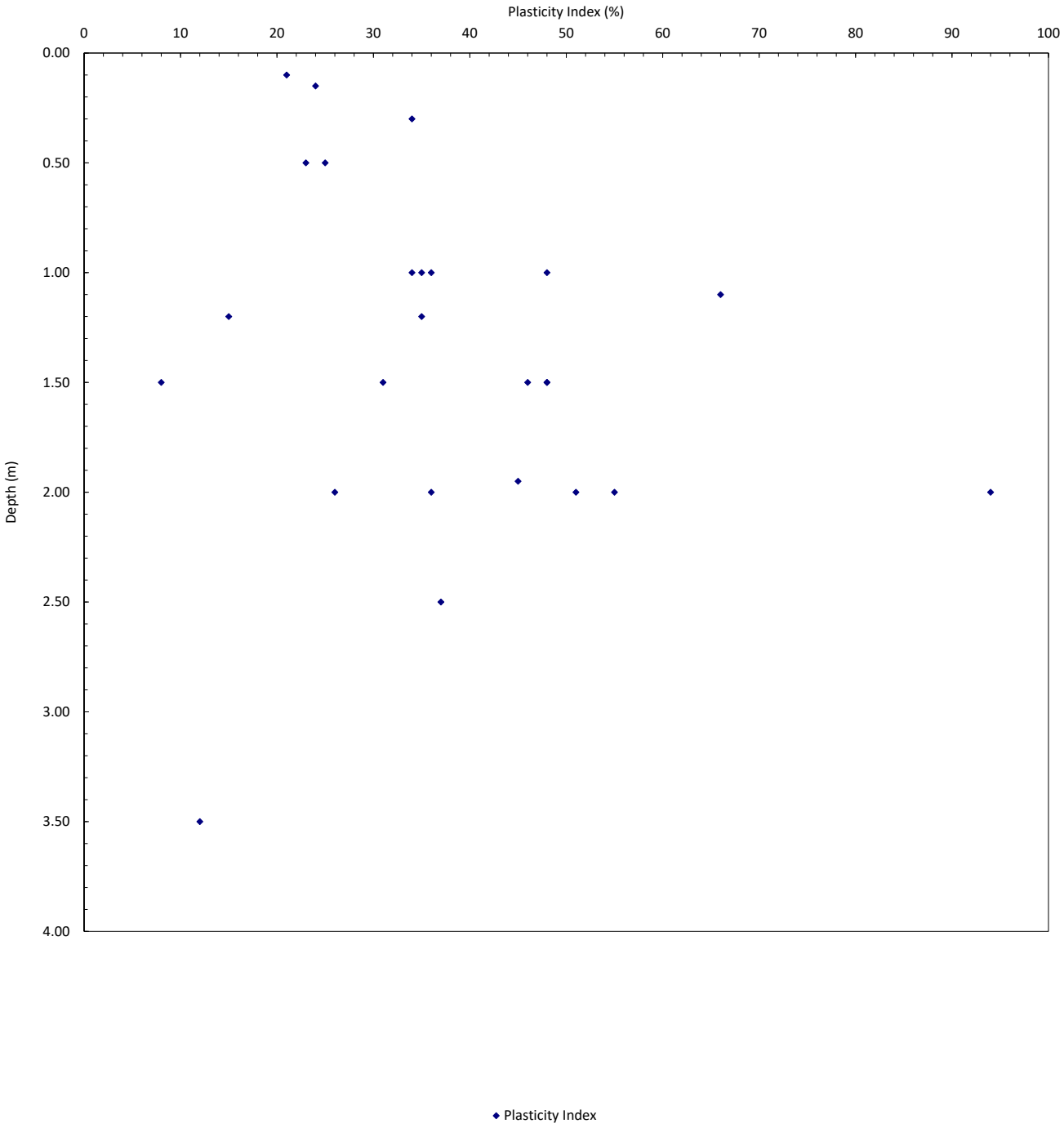
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plastic Limit, Liquid Limit and Moisture Content vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**3.4**



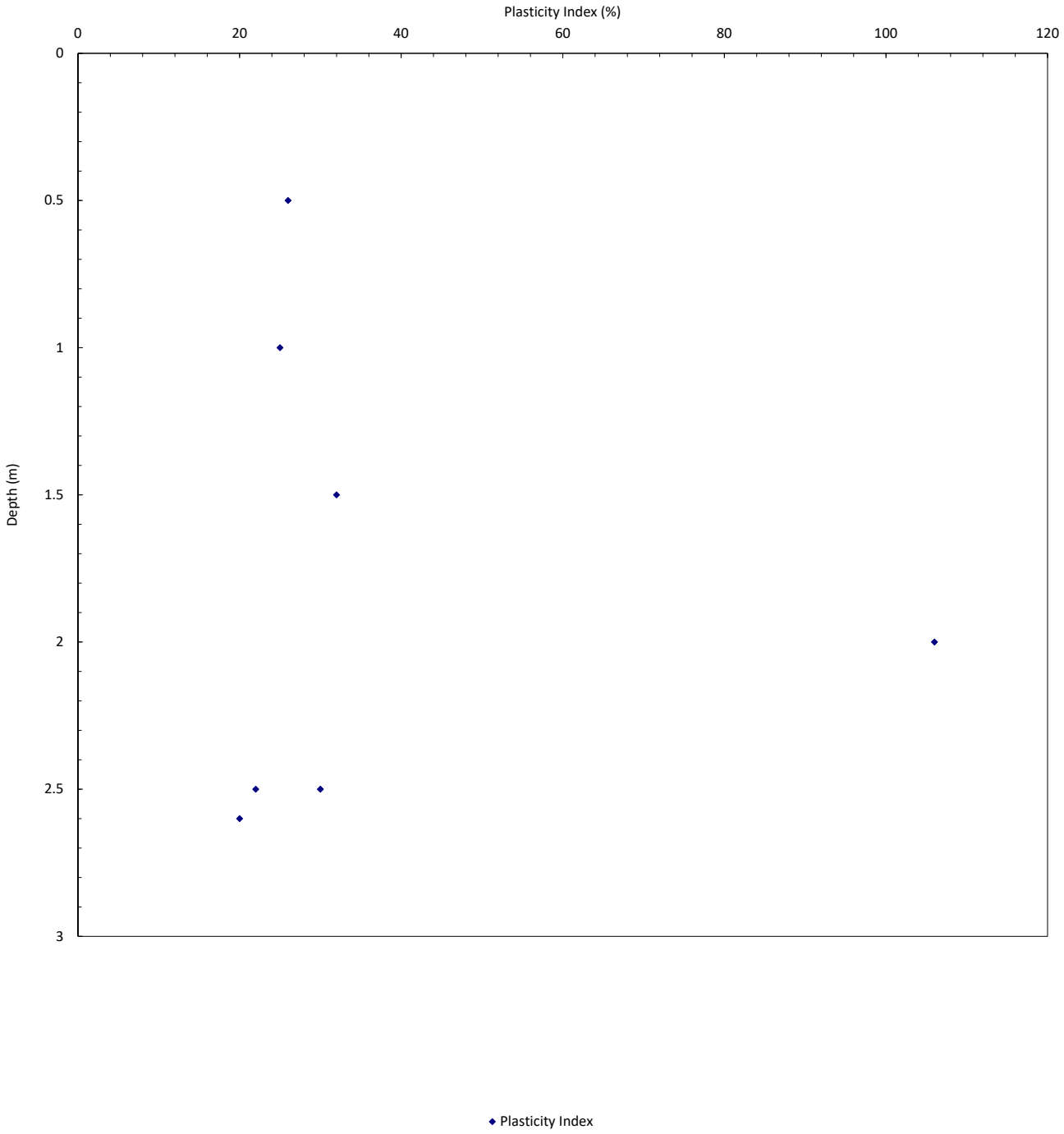
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plasticity Index vs. Depth Glacial Till**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**4.1**



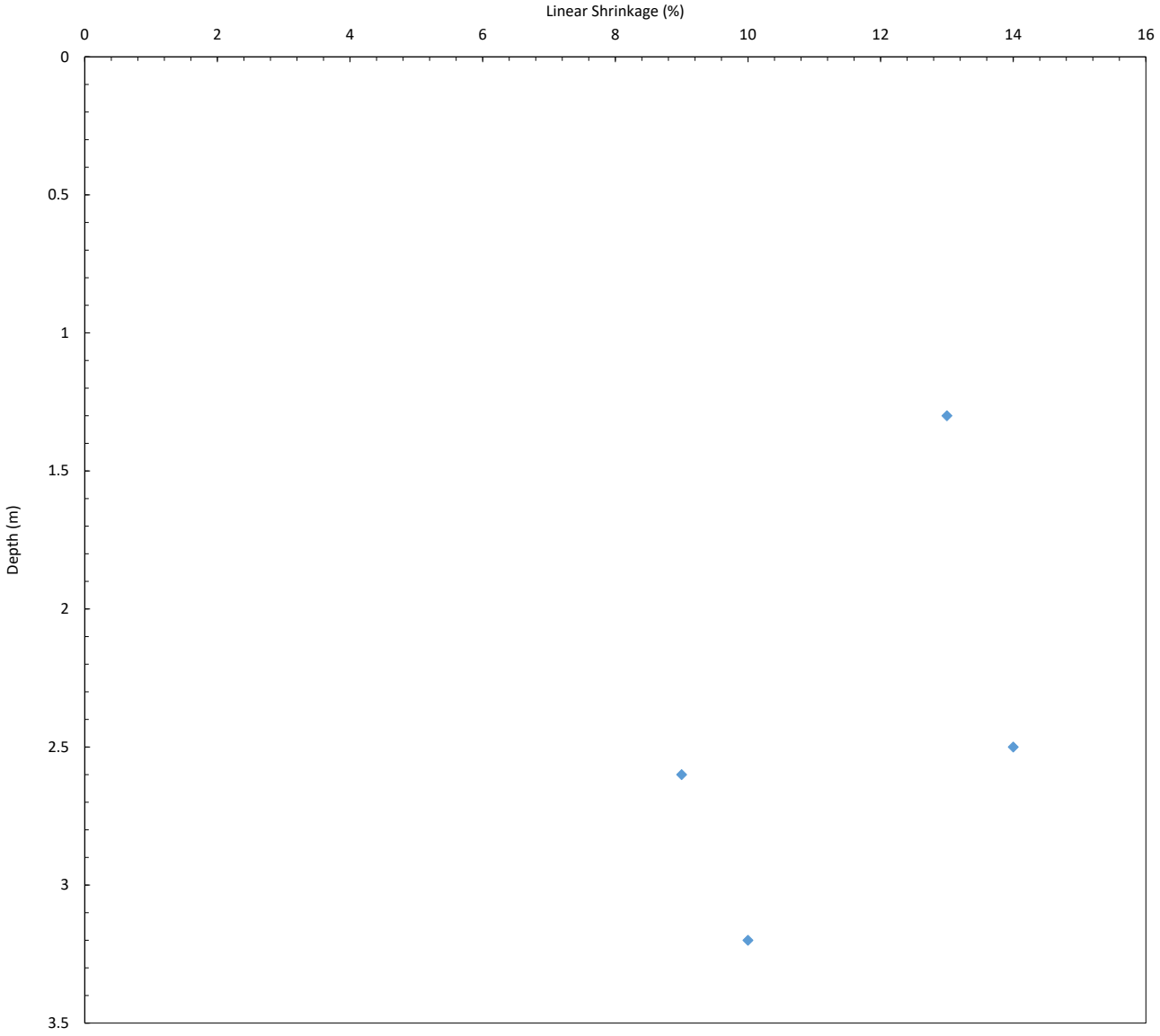
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plasticity Index vs. Depth Made Ground**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**4.2**



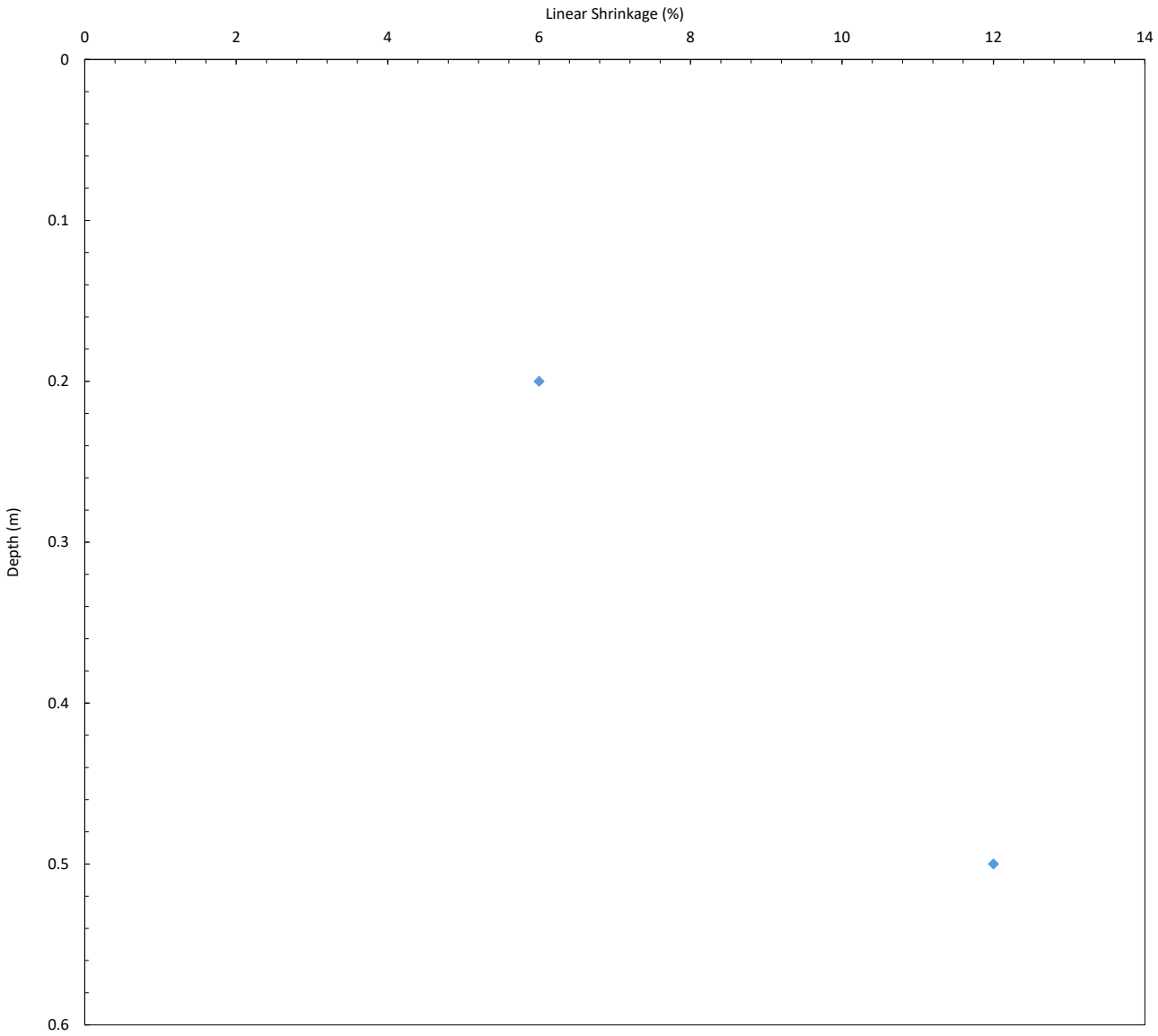
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plasticity Index vs. Depth Tidal Flat Deposits**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**4.3**



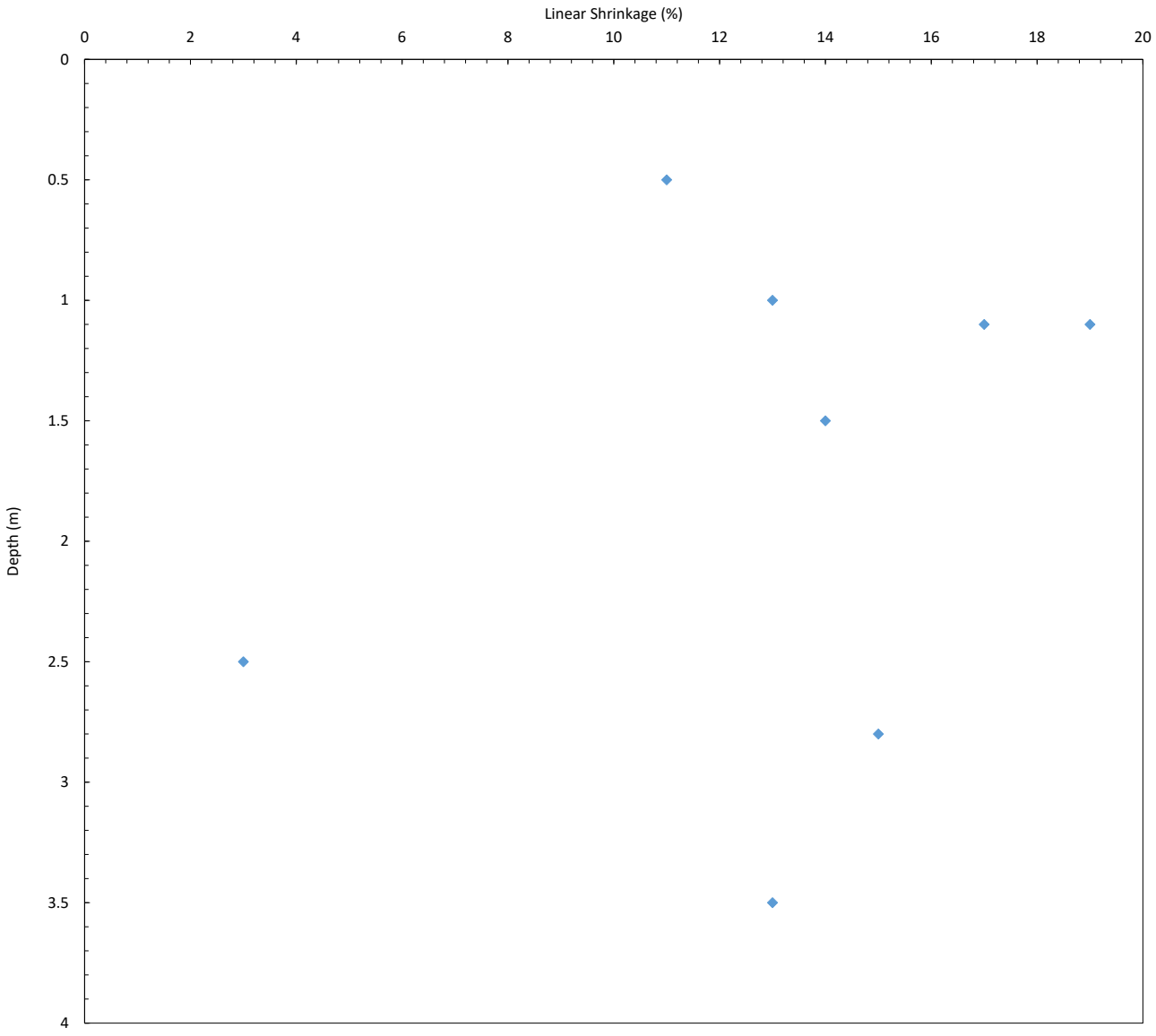
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Plasticity Index vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**4.4**



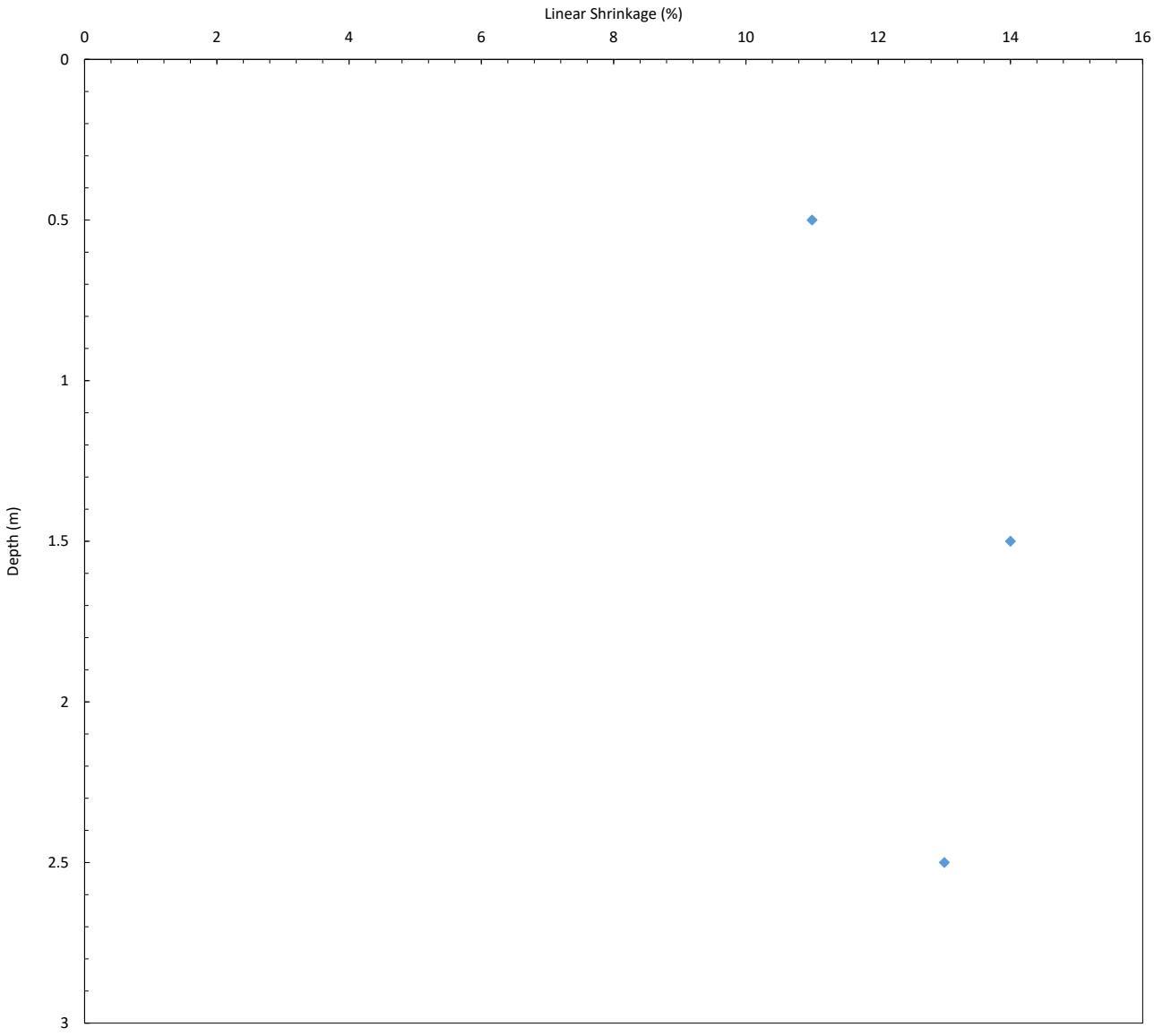
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Linear Shrinakge vs. Depth Glacial Till**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**5.1**



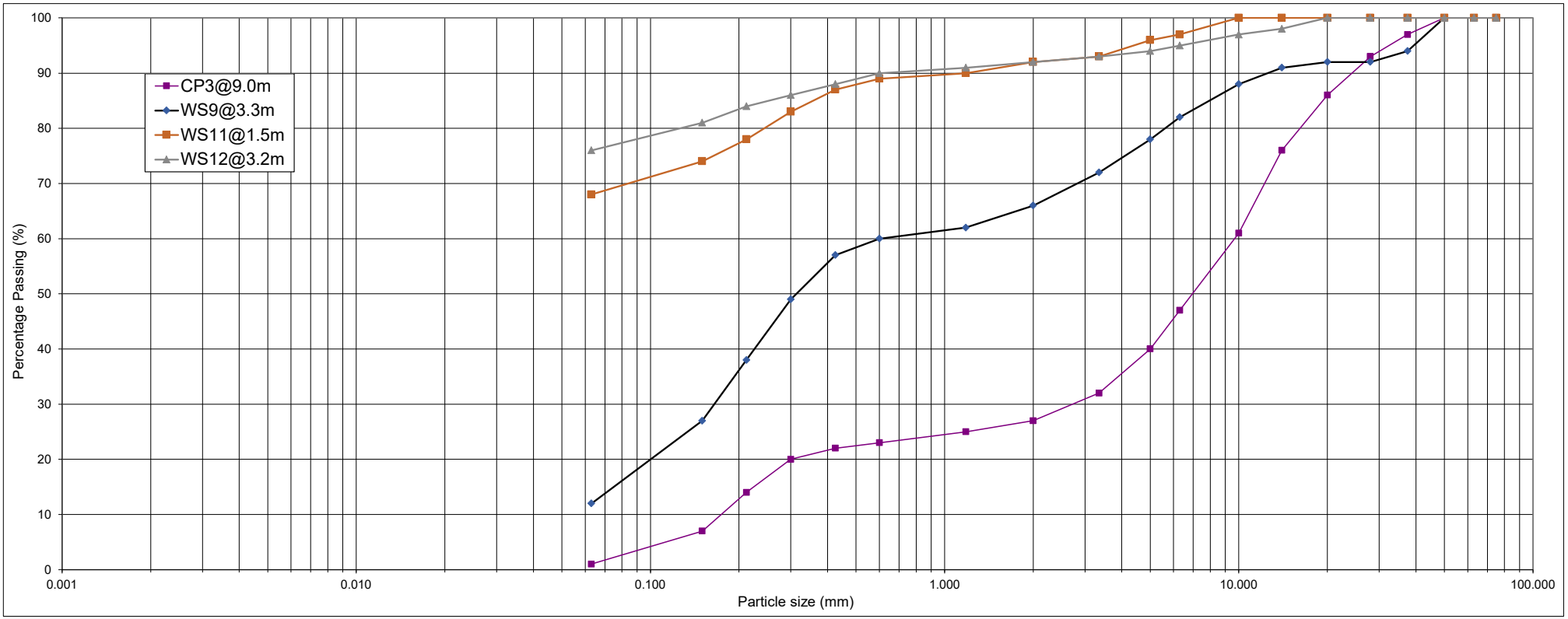
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Linear Shrinakge vs. Depth Made Ground**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**5.2**



Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Linear Shrinakge vs. Depth Tidal Flat Deposits**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**5.3**

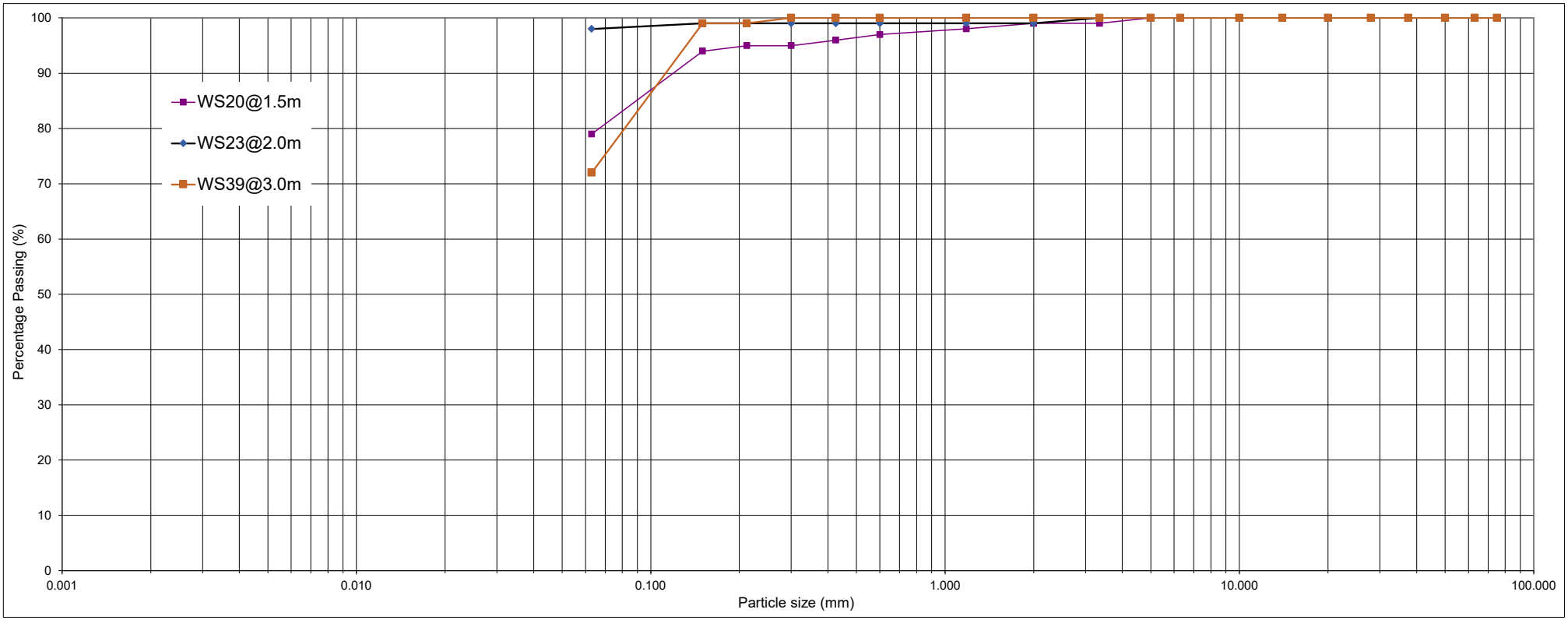


Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Linear Shrinakge vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**5.4**



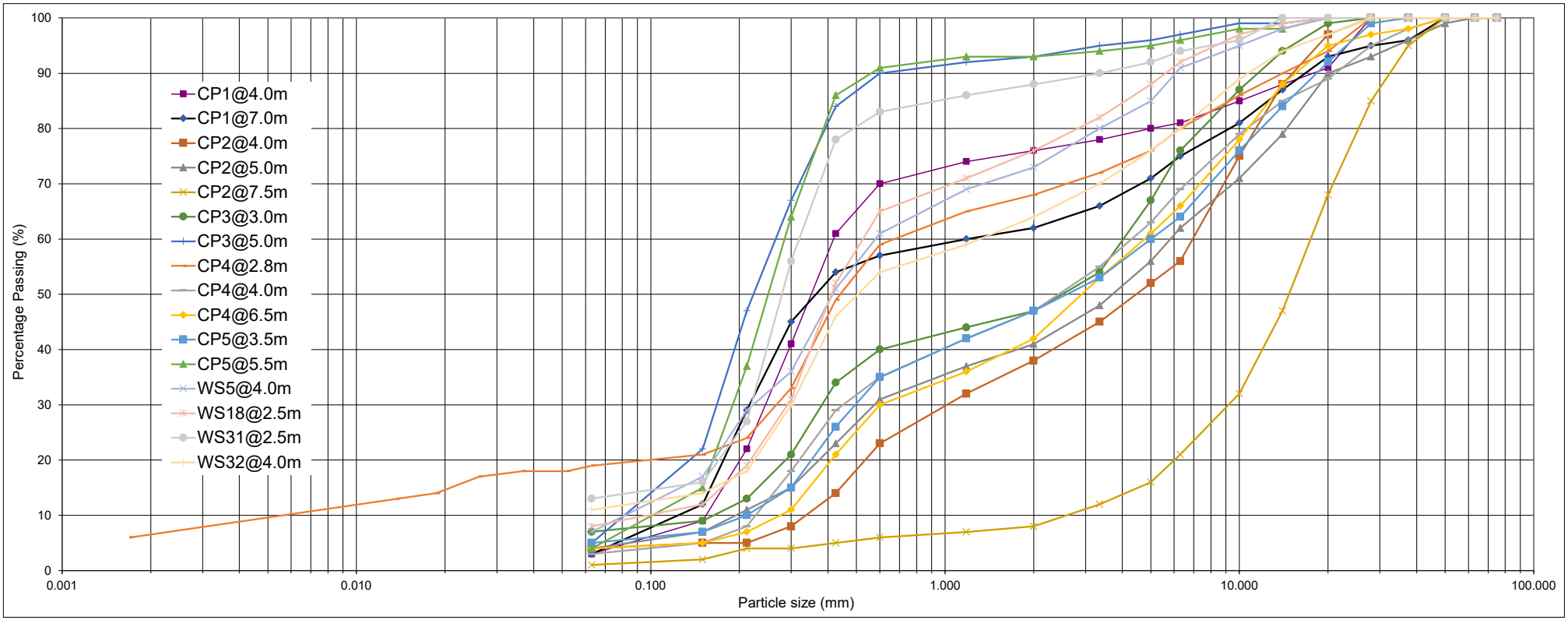
CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	

Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Particle Size Distribution Curve Glacial Till**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**6.1**



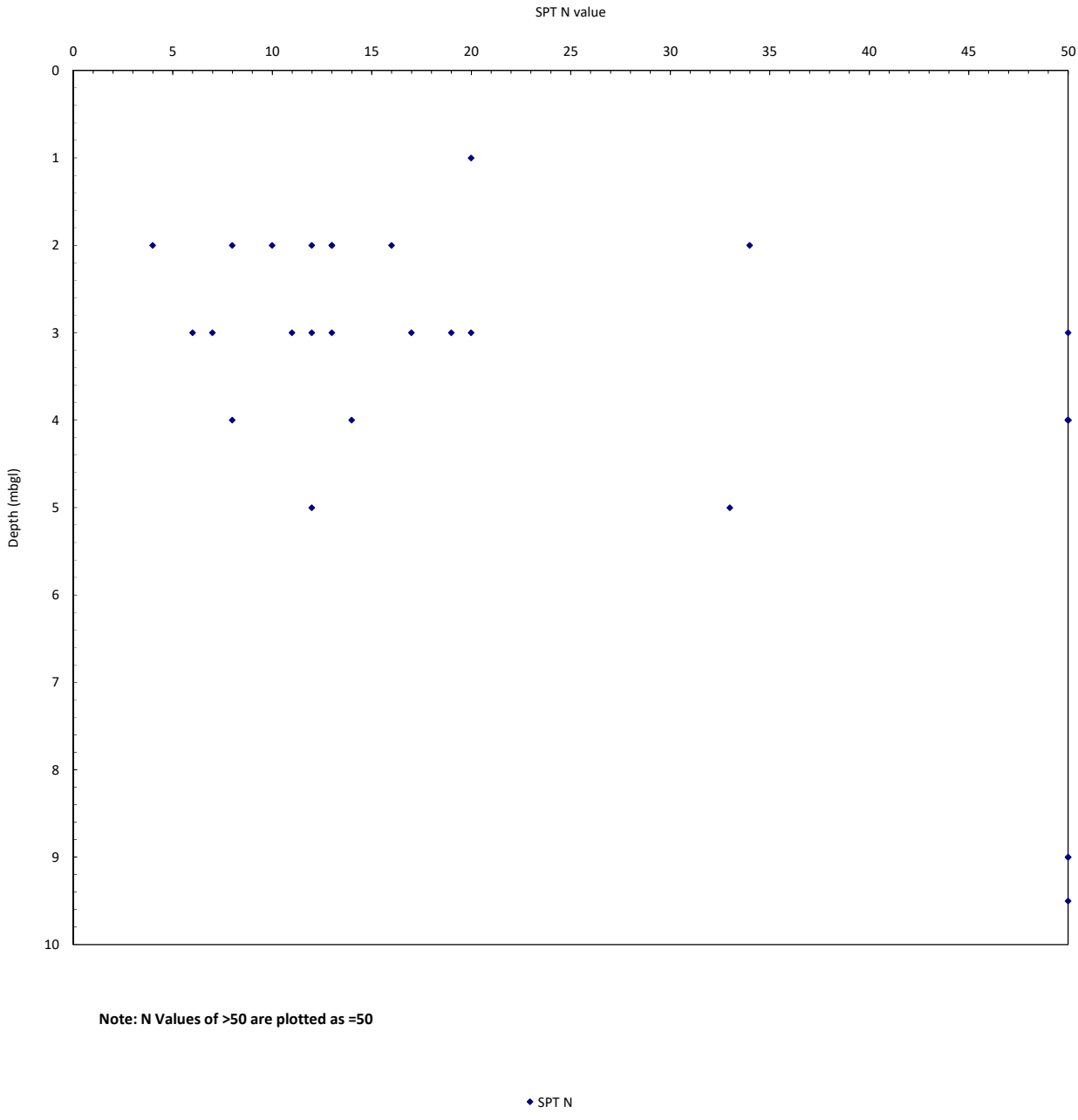
CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	

Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Particle Size Distribution Curve Tidal Flat Deposits**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**6.2**



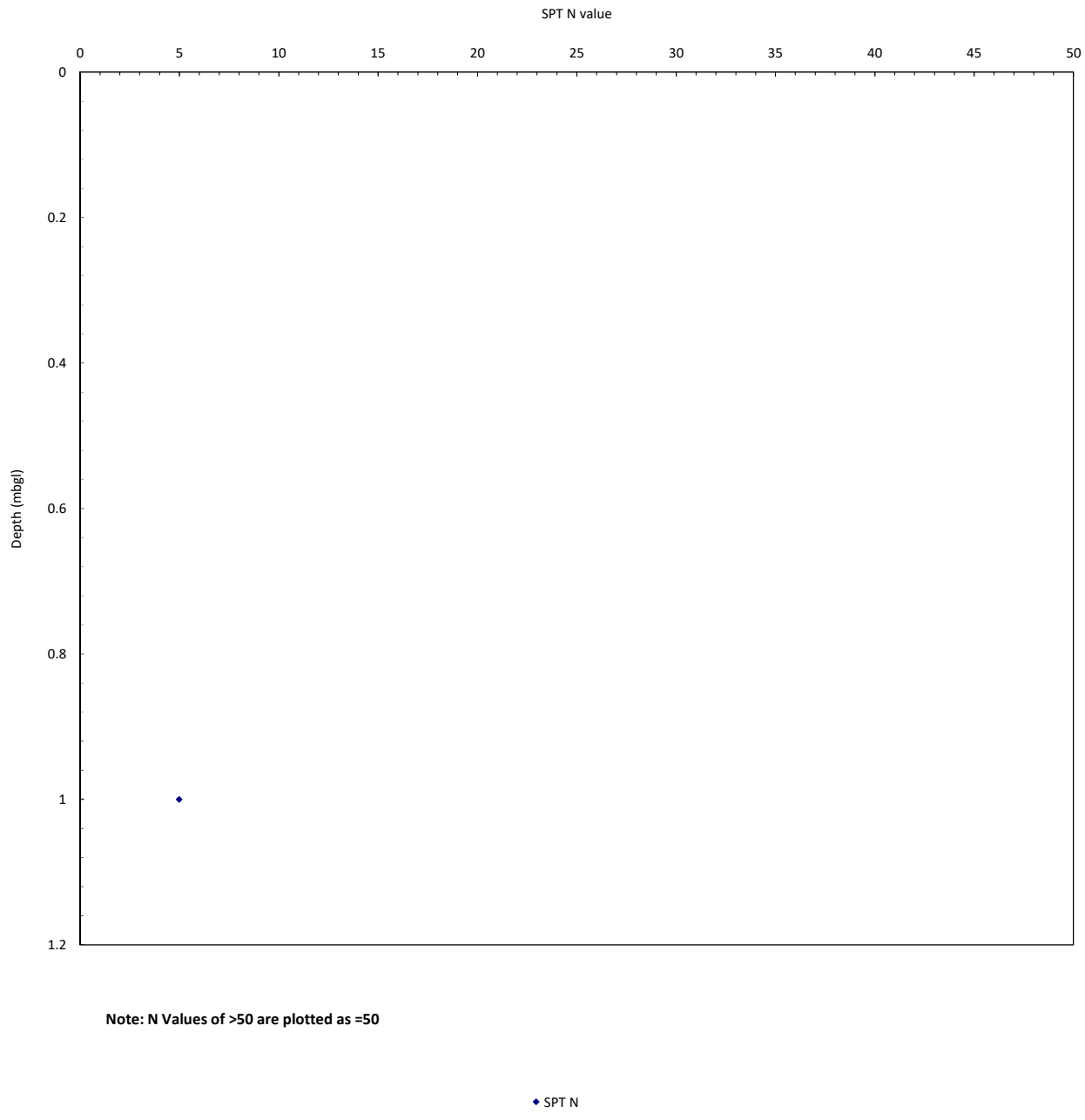
CLAY	SILT			SAND			GRAVEL			COBBLES
	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	

Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title:	**Particle Size Distribution Curve Tidal Flat Deposits (Granular)**
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**6.3**



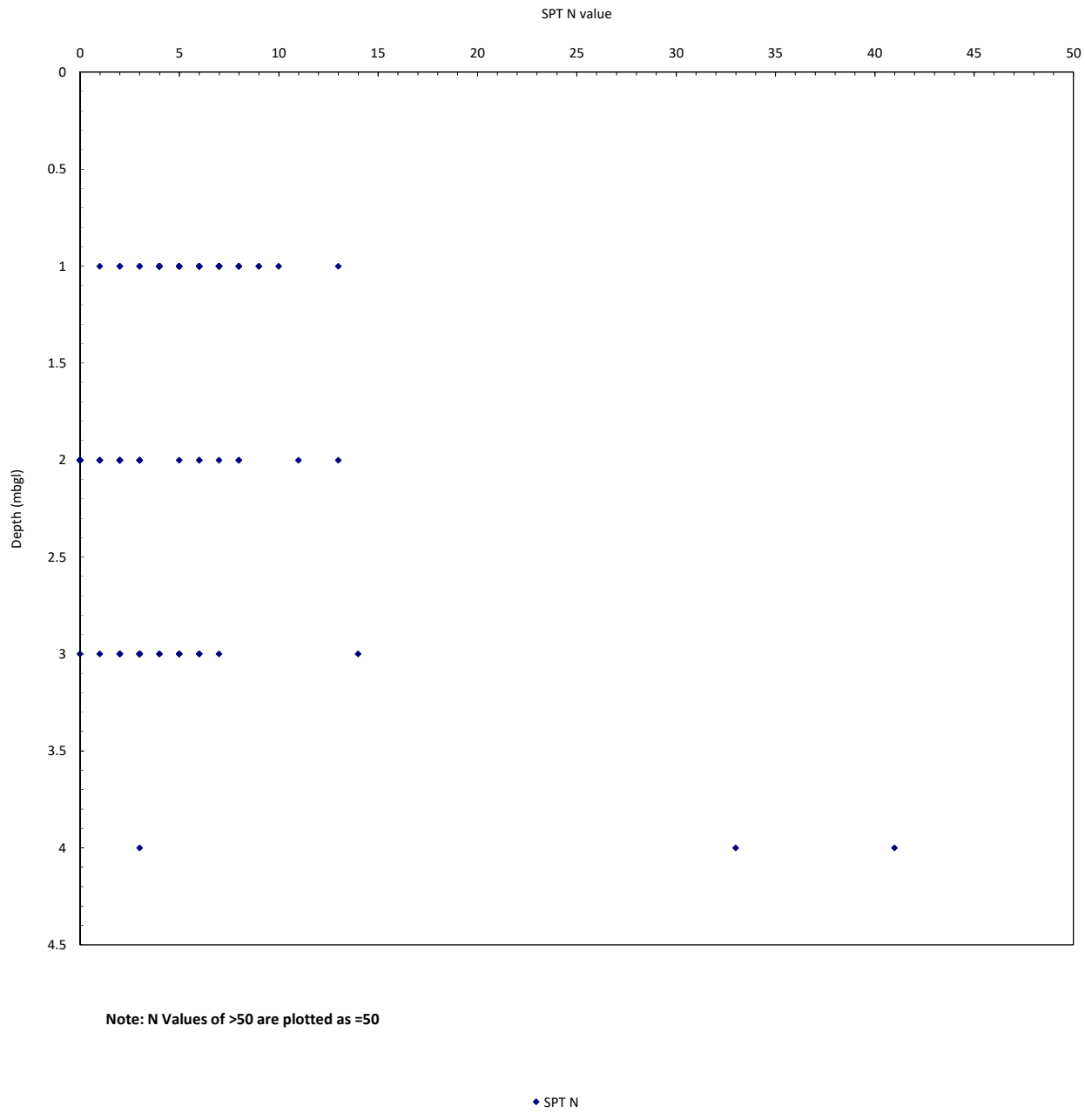
Note: N Values of >50 are plotted as =50

Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **SPT N vs. Depth Glacial Till**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**7.1**



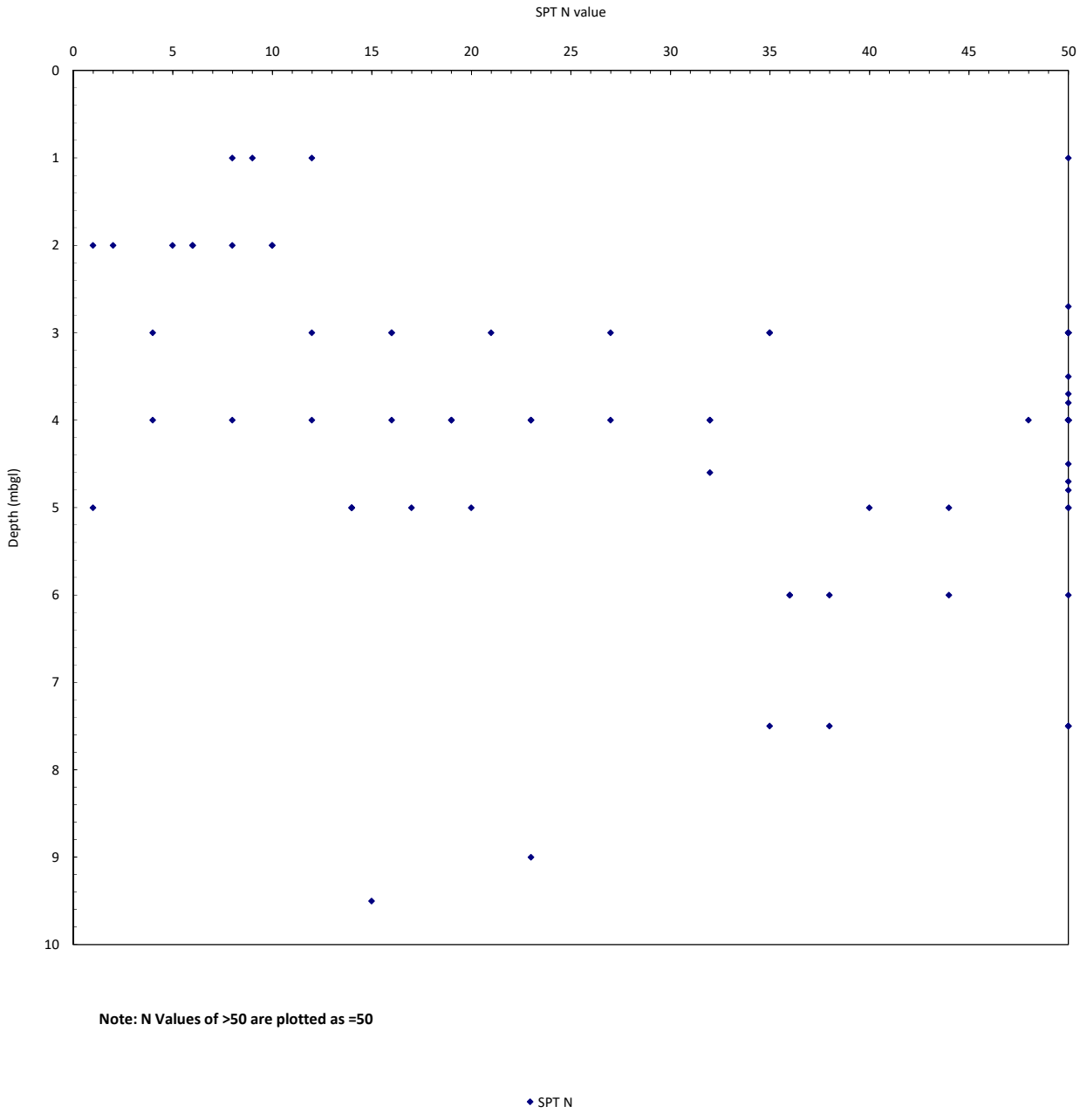
Note: N Values of >50 are plotted as =50

Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **SPT N vs. Depth Made Ground**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**7.2**



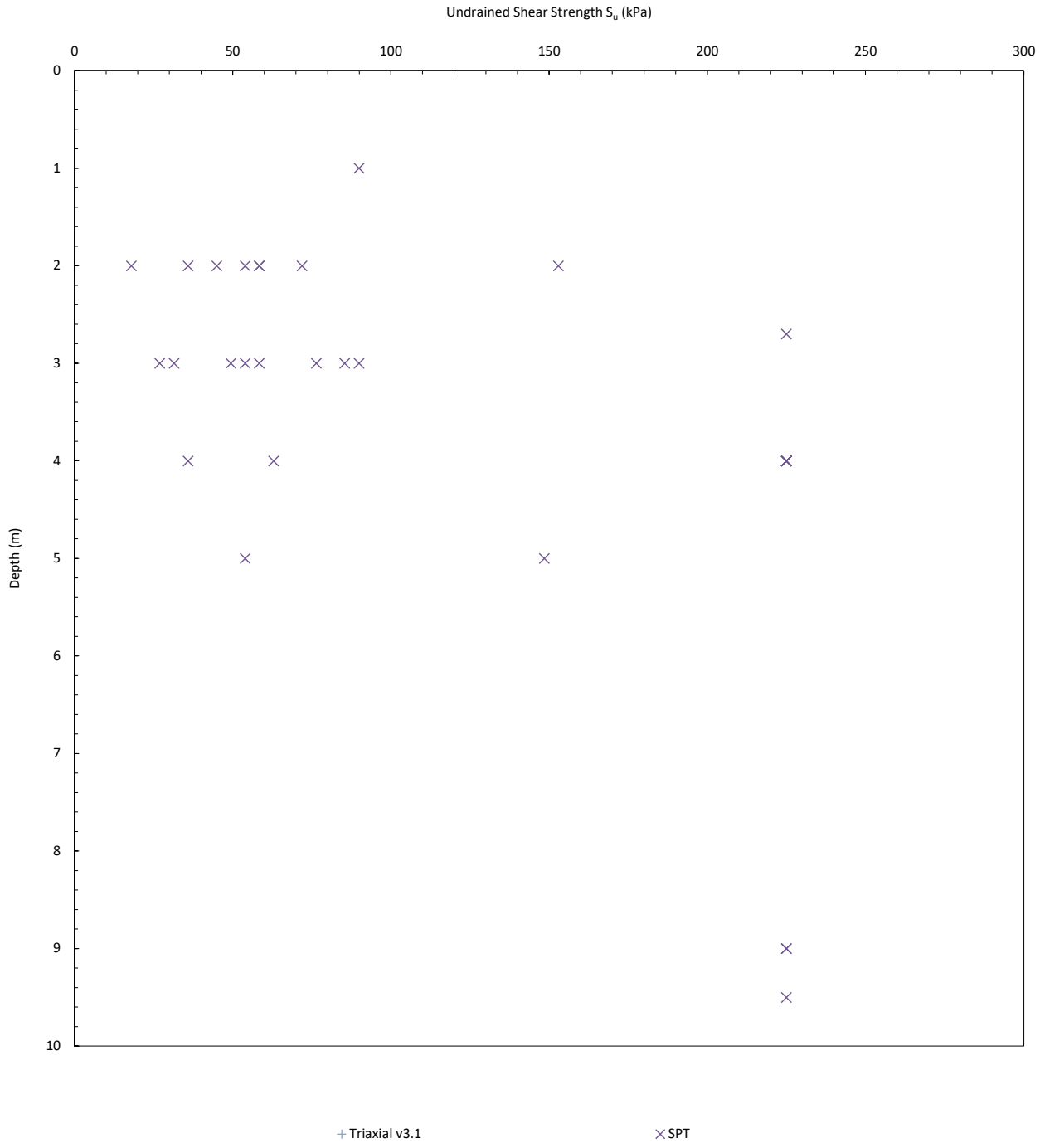
Note: N Values of >50 are plotted as =50

Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **SPT N vs. Depth Tidal Flat Deposits**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**7.3**

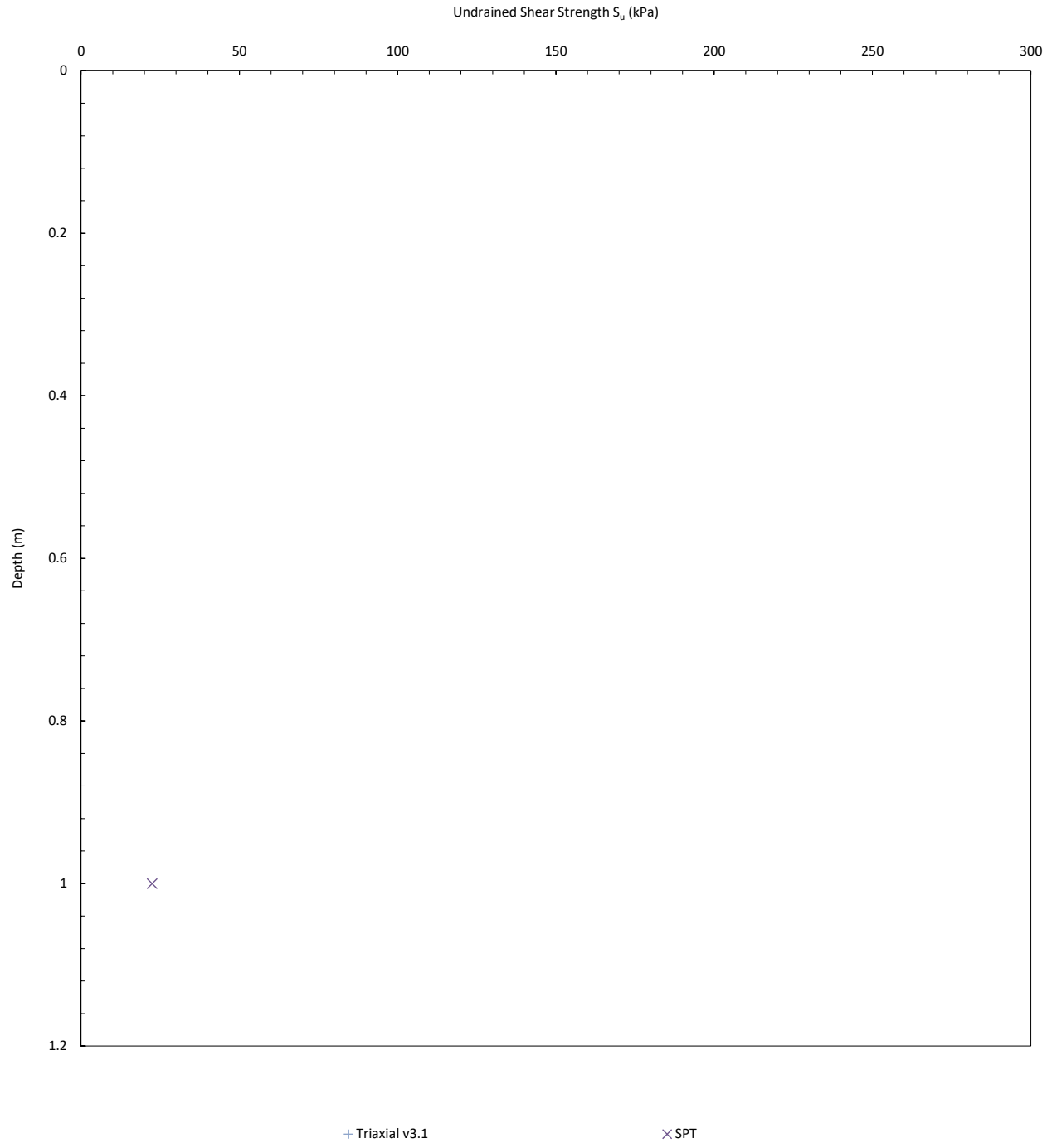


Note: N Values of >50 are plotted as =50

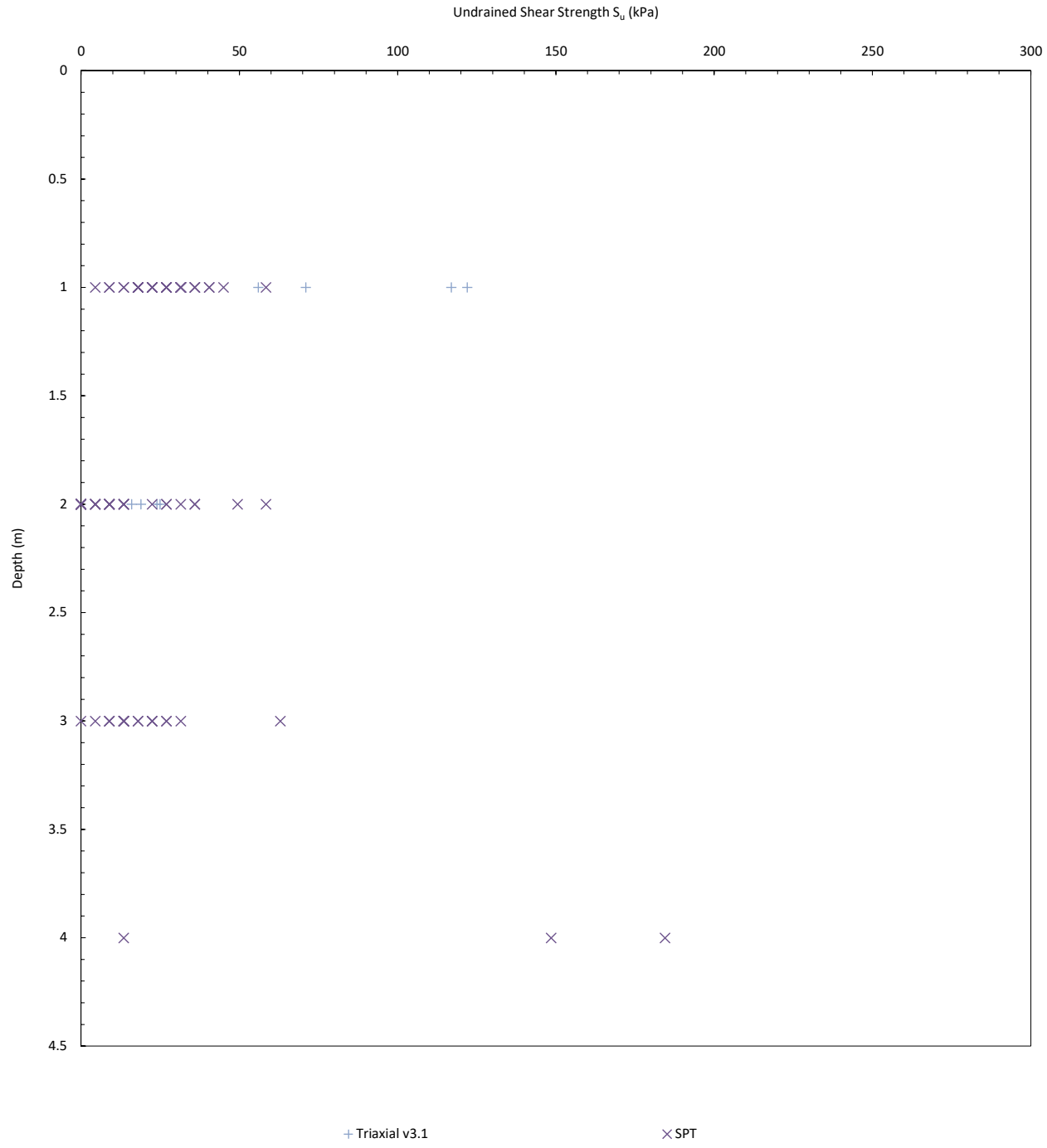
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **SPT N vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**7.4**



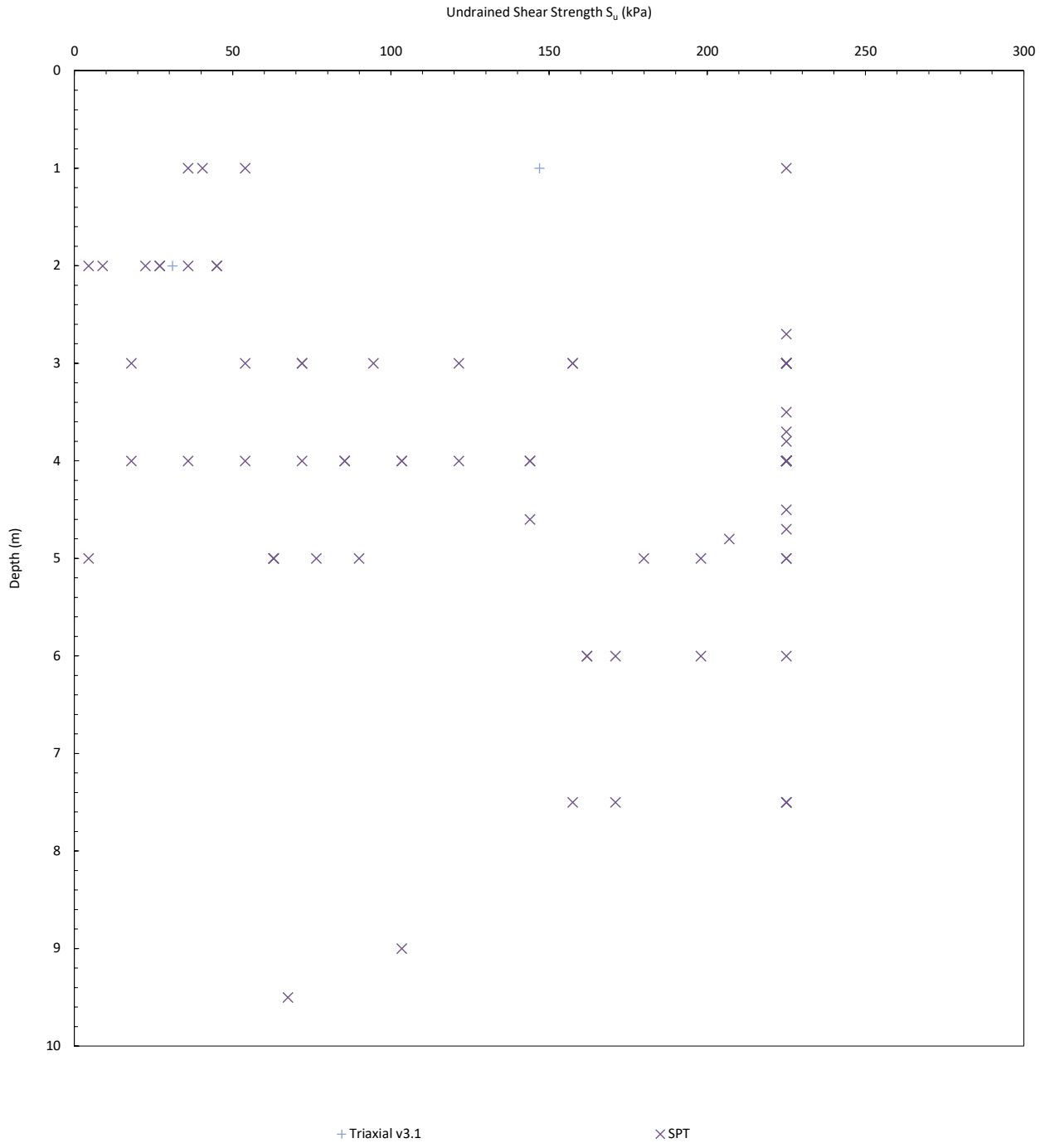
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Undrained Shear Strength vs. Depth Glacial Till**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**8.1**



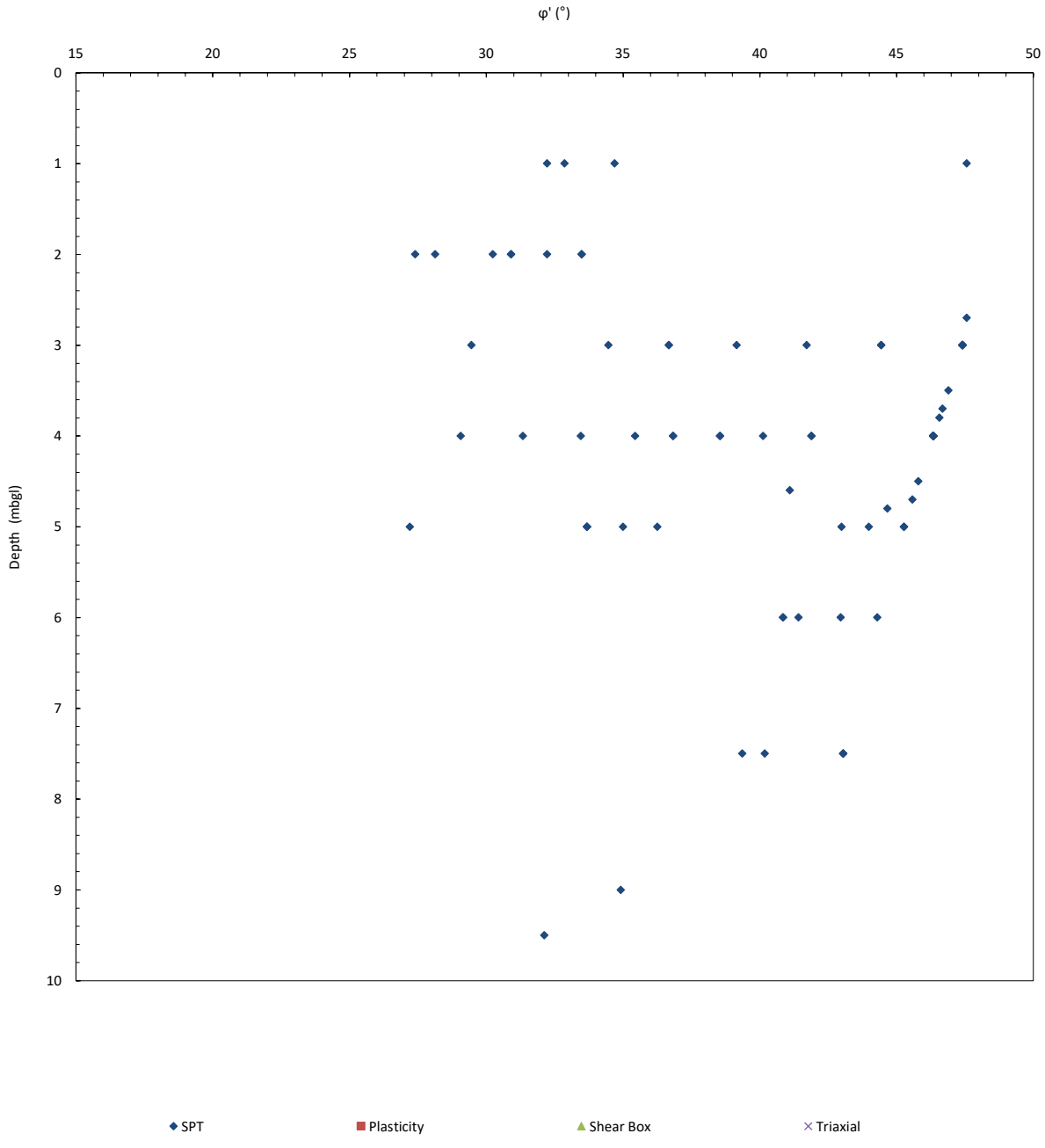
Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Undrained Shear Strength vs. Depth Made Ground**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**8.2**



Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Undrained Shear Strength vs. Depth Tidal Flat Deposits**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**8.3**



Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **Undrained Shear Strength vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**8.4**



Grange Geo Geotechnical & Environmental Specialists	Client: **Ecotricity (Heck Fen Solar) Limited**	Title: **ϕ' vs. Depth Tidal Flat Deposits (Granular)**	
	Project: **Heckington Fen Solar Farm, Heckington Fen, Sleaford, Lincolnshire, N34 9NB**	Report No.:	
		Figure No.:	**9.1**

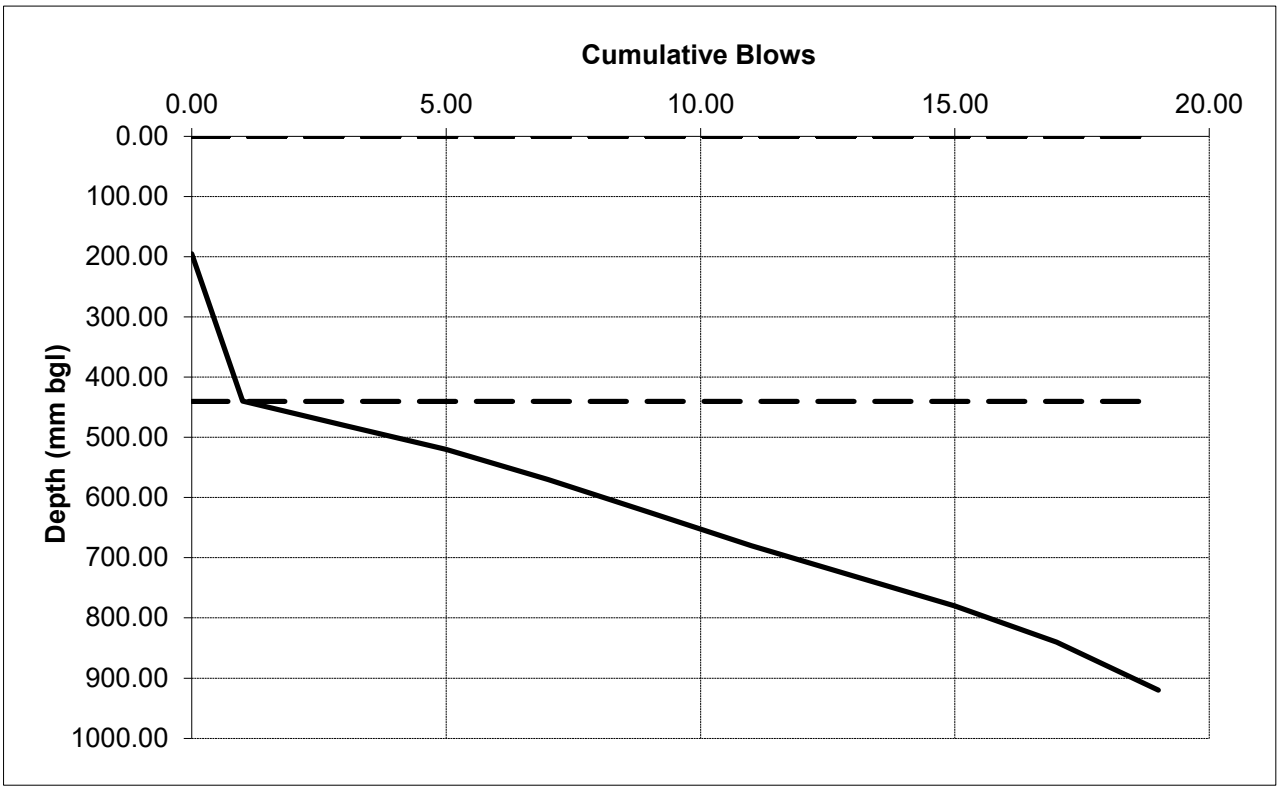
Appendix H

CBR TEST CERTIFICATES

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR1**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	195
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	1	1	245	440	**0.9**
2	18	19	480	920	**9.4**

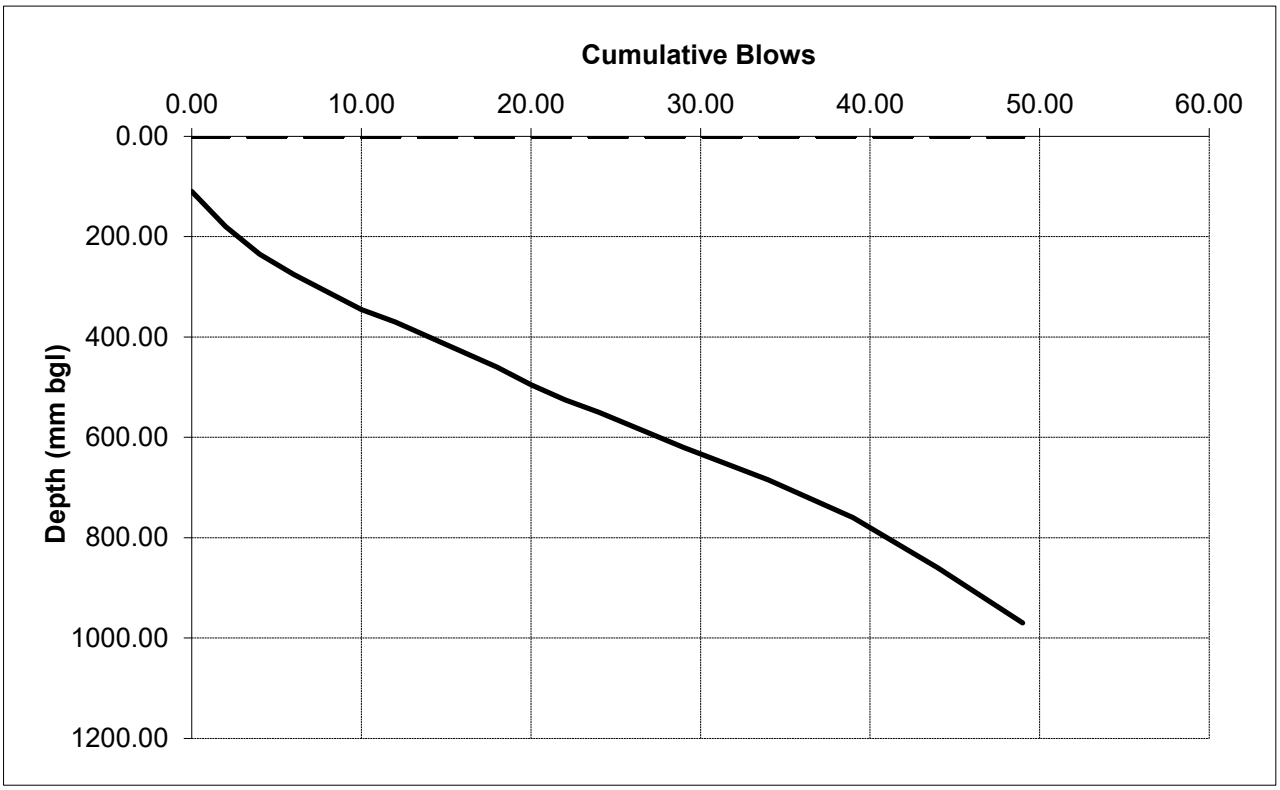


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR2**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	110
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	49	49	860	970	**14.6**

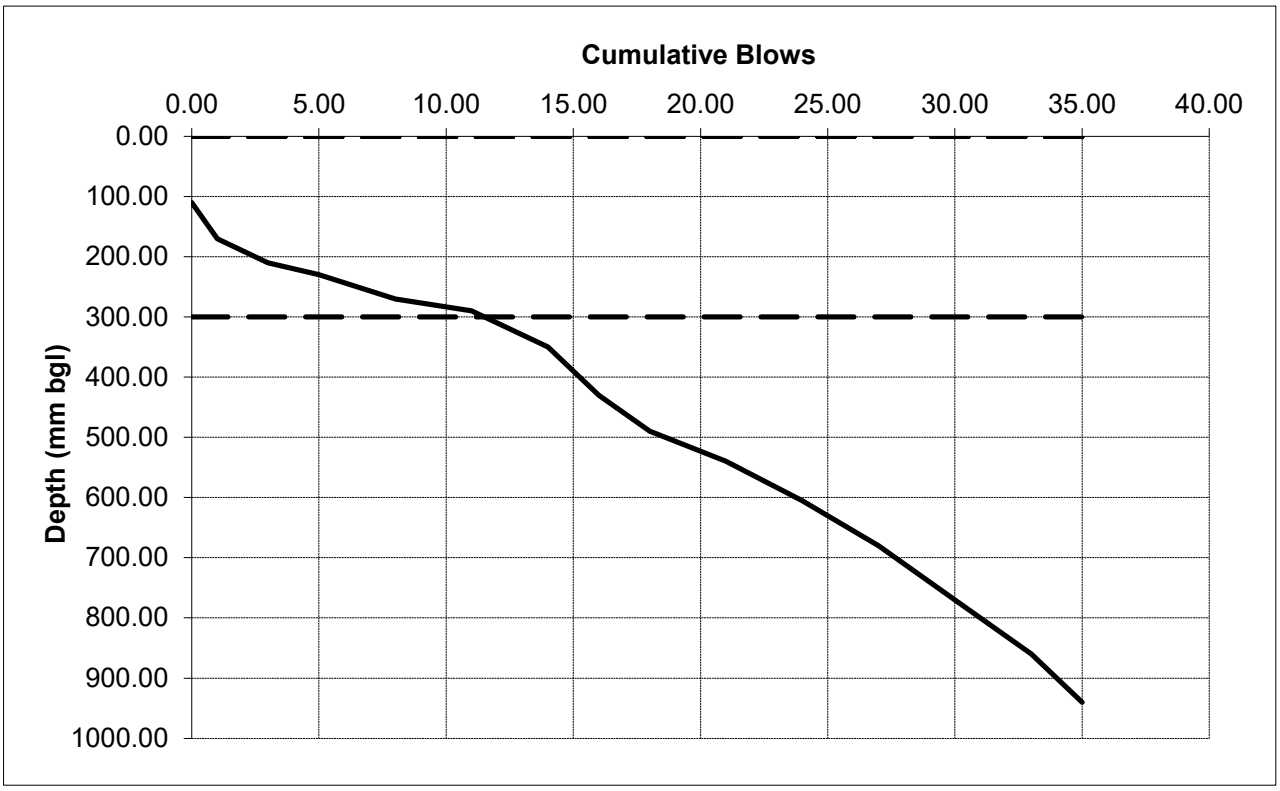


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR3**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	110
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	11	11	190	300	**14.9**
2	24	35	640	940	**9.4**

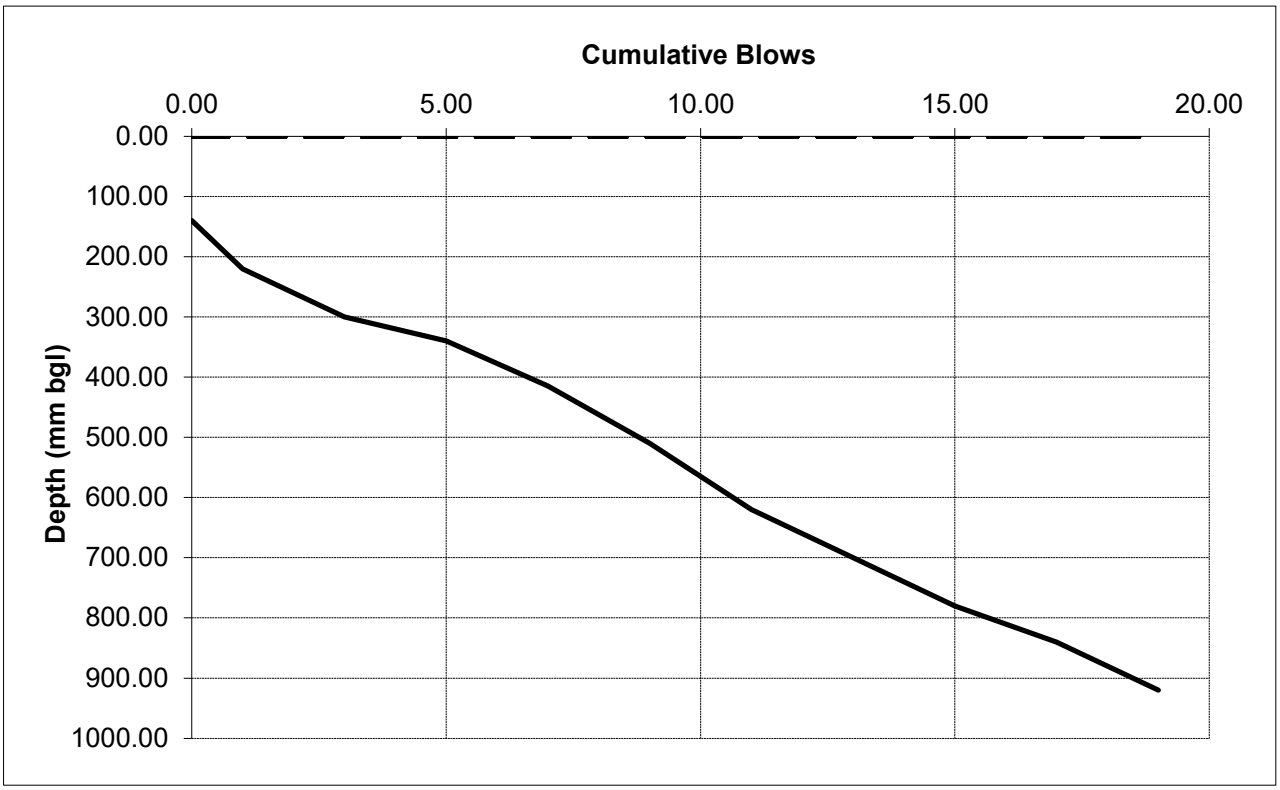


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR4**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	140
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	17	17	760	900	**5.4**

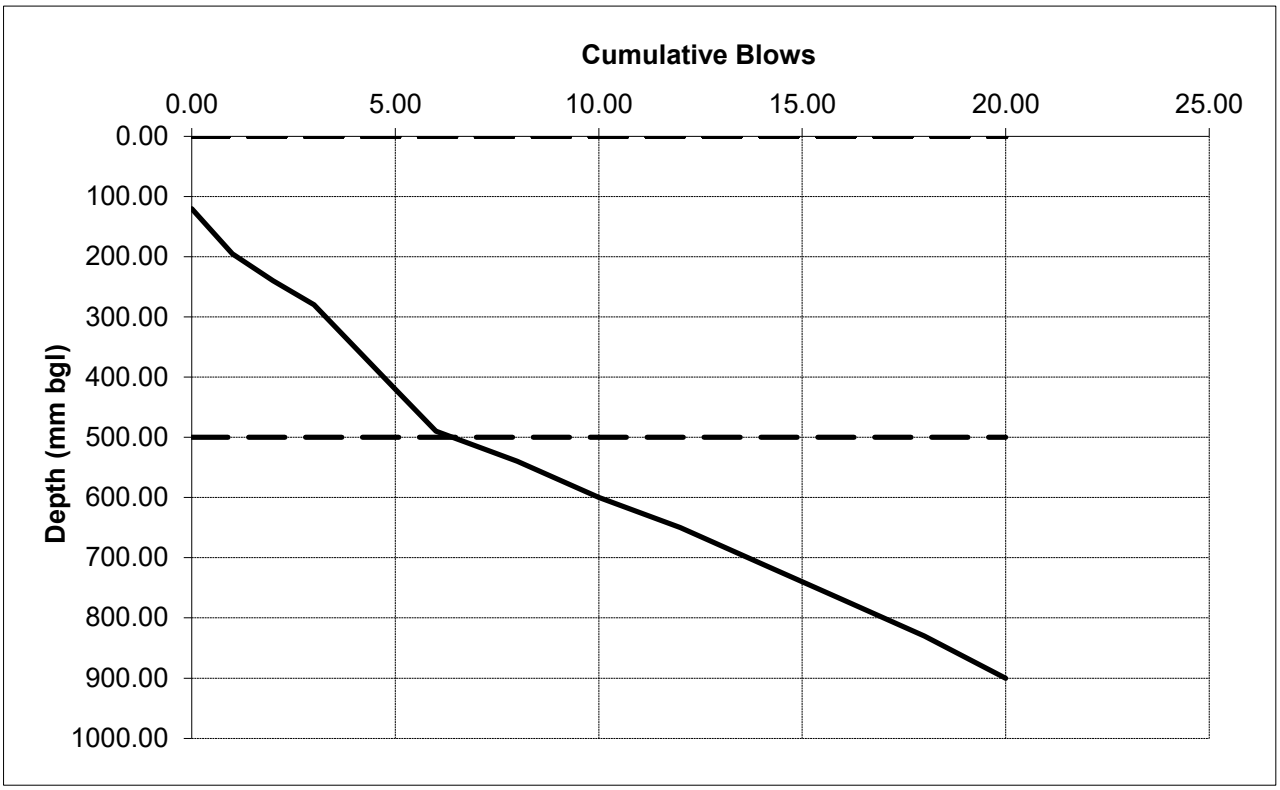


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR5**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	6	6	380	500	**3.8**
2	14	20	400	900	**8.7**

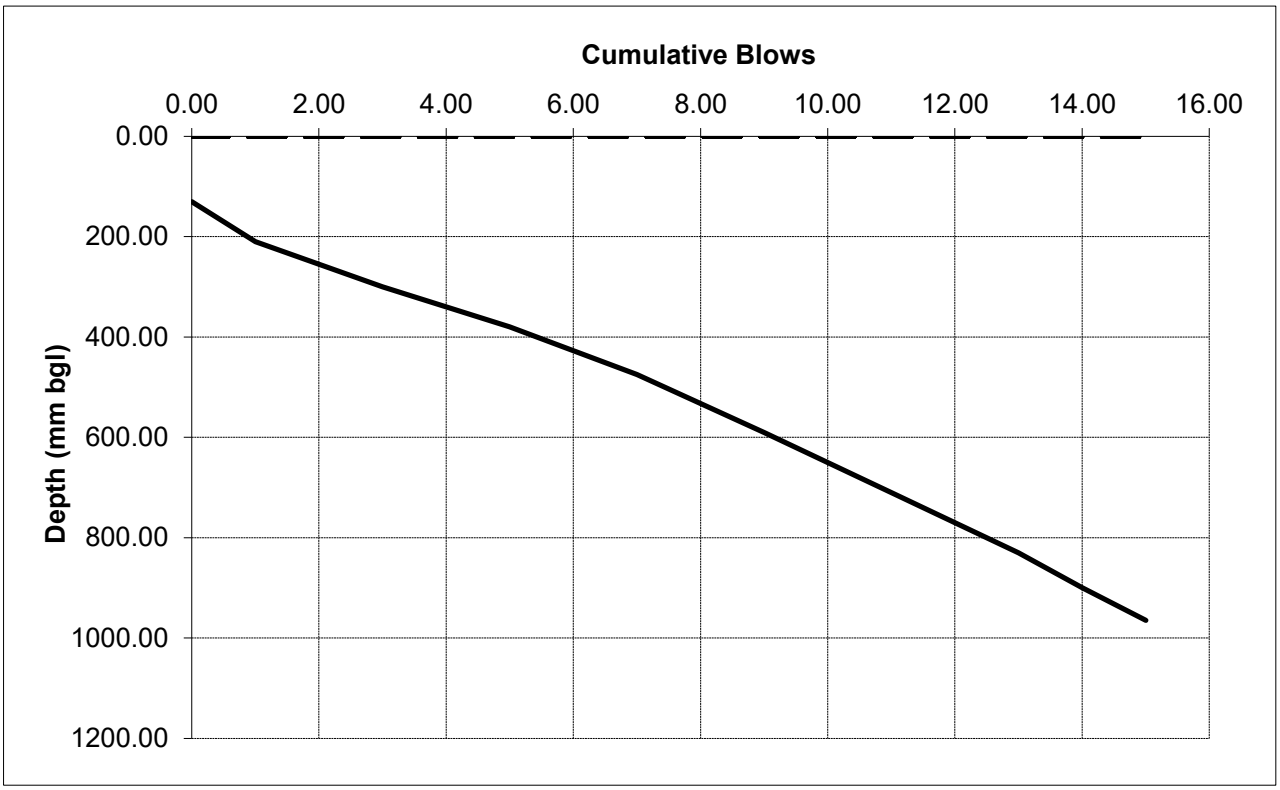


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR6**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	14	14	830	960	**4.0**

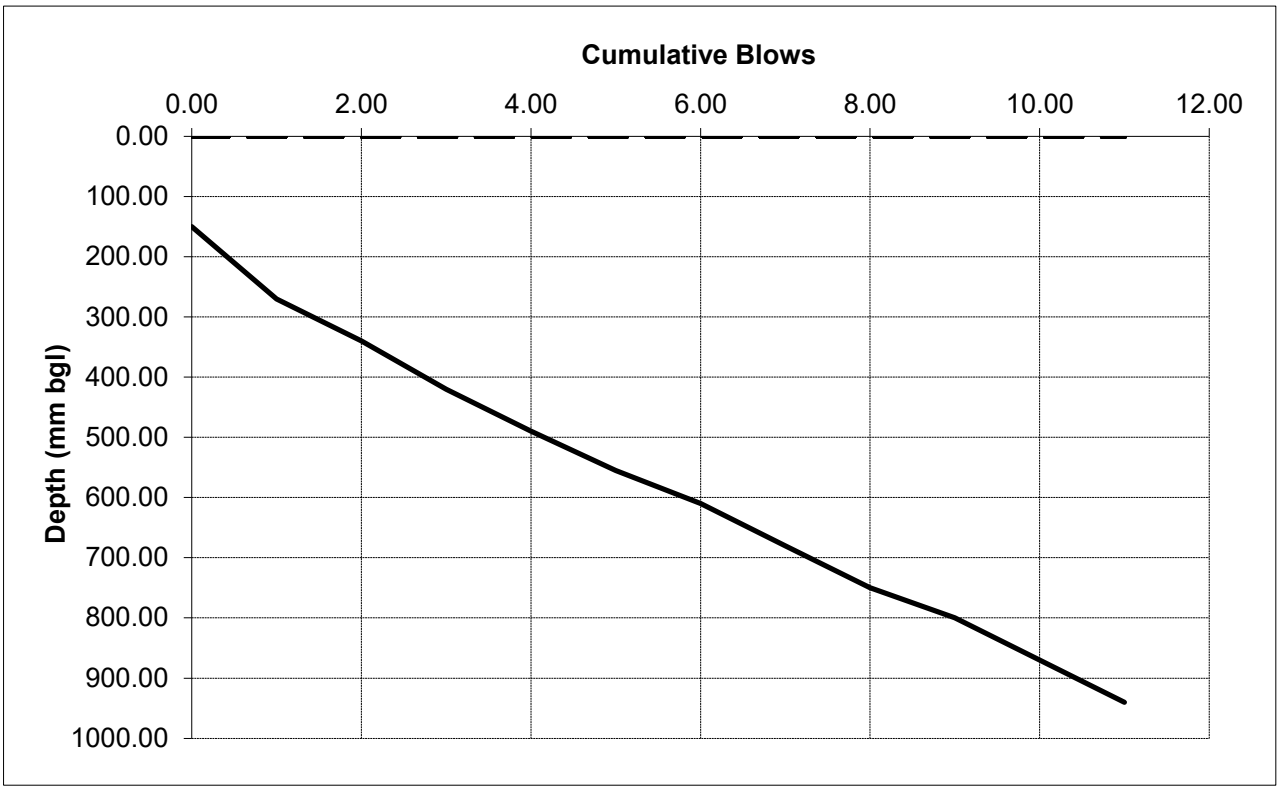


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR7**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	150
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	11	11	790	940	**3.3**

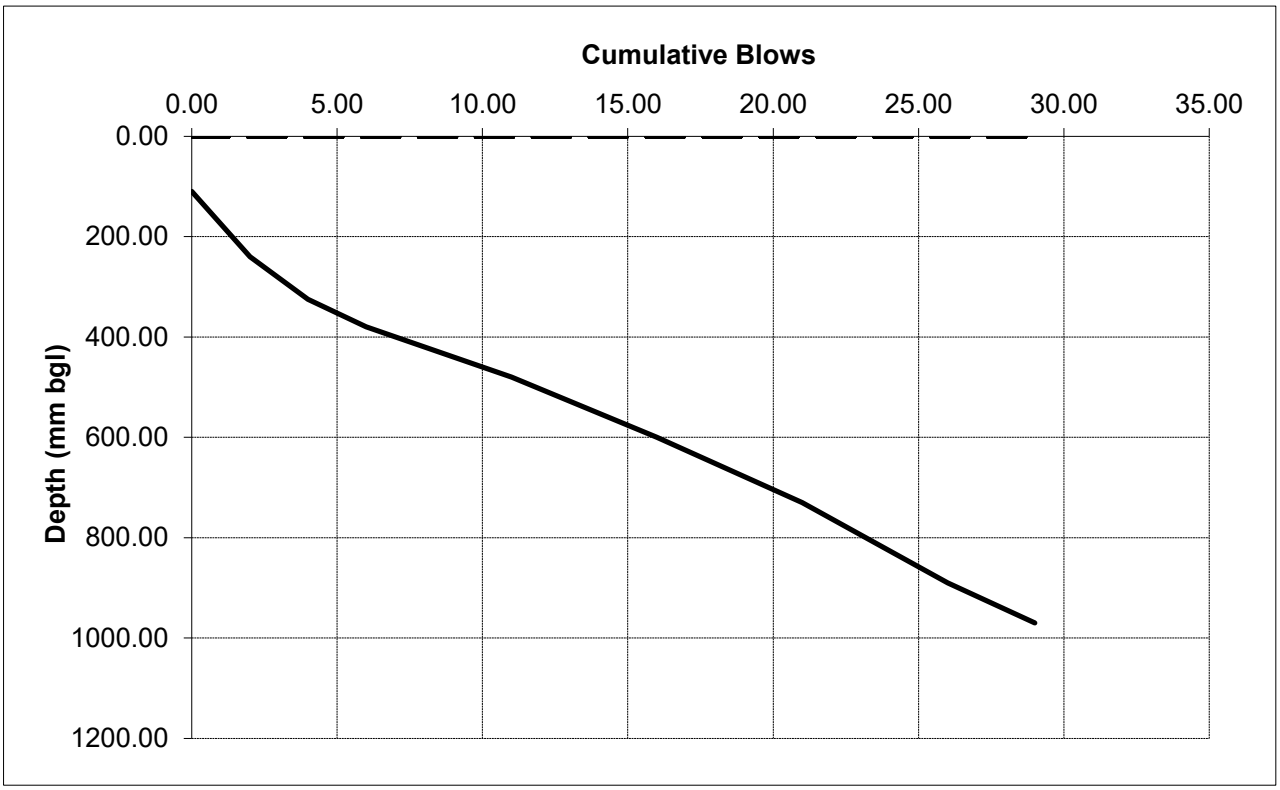


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR8**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	110
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	29	29	860	970	**8.4**

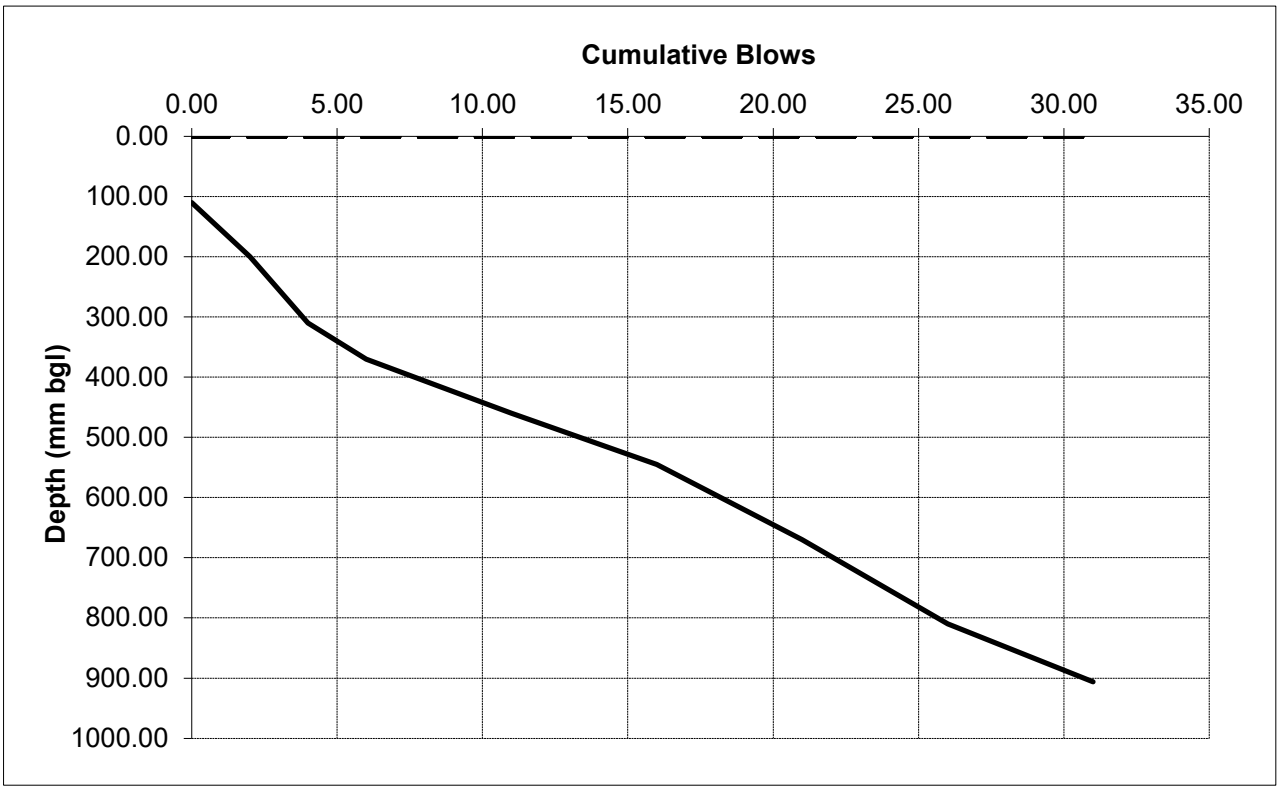


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR9**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	110
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	31	31	860	970	**9.0**

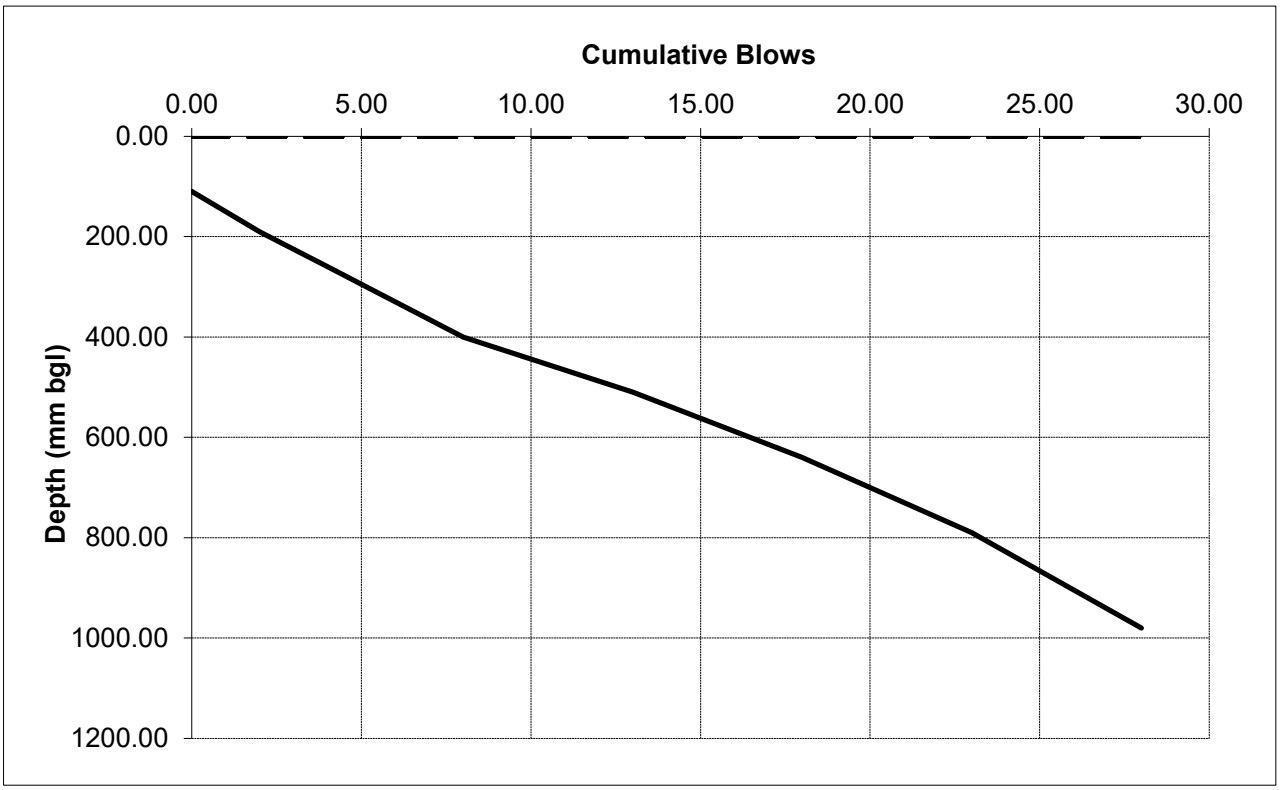


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR10**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	110
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	23	23	860	970	**6.6**

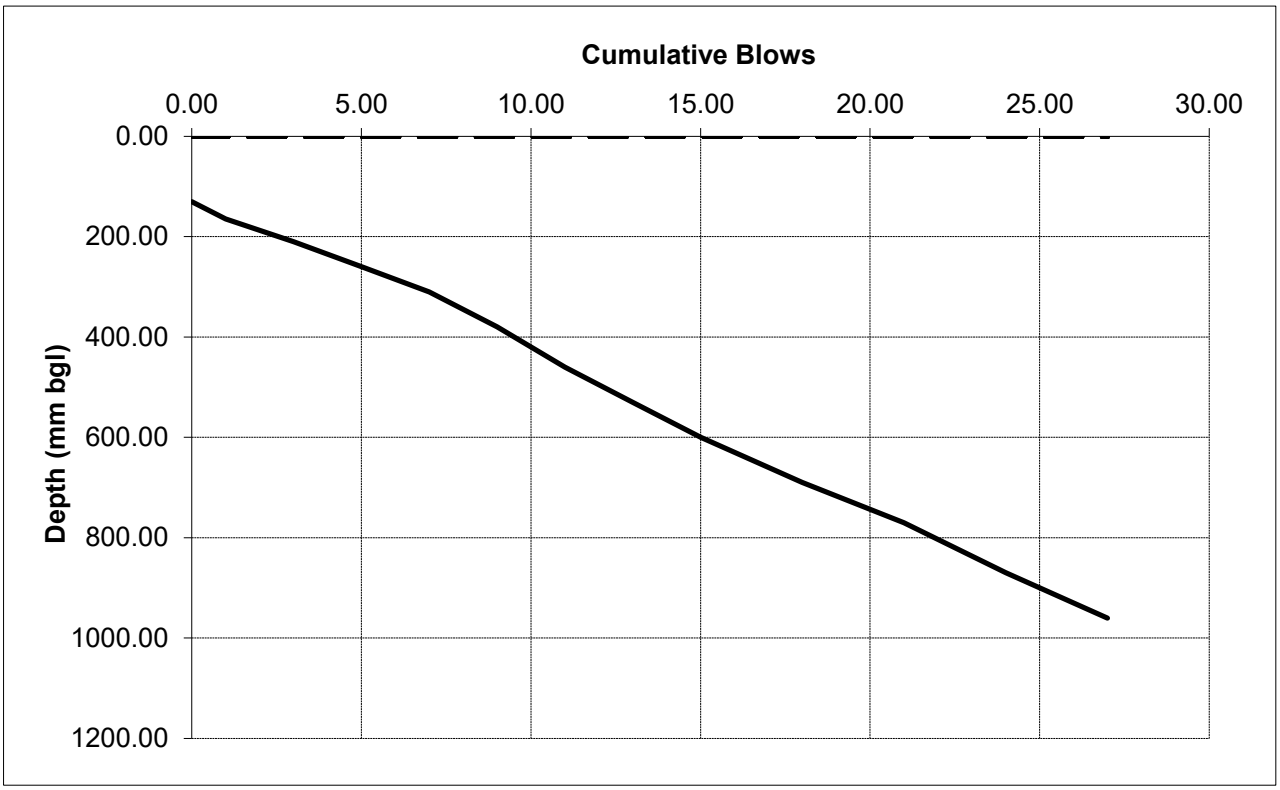


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR11**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	27	27	830	960	**8.1**

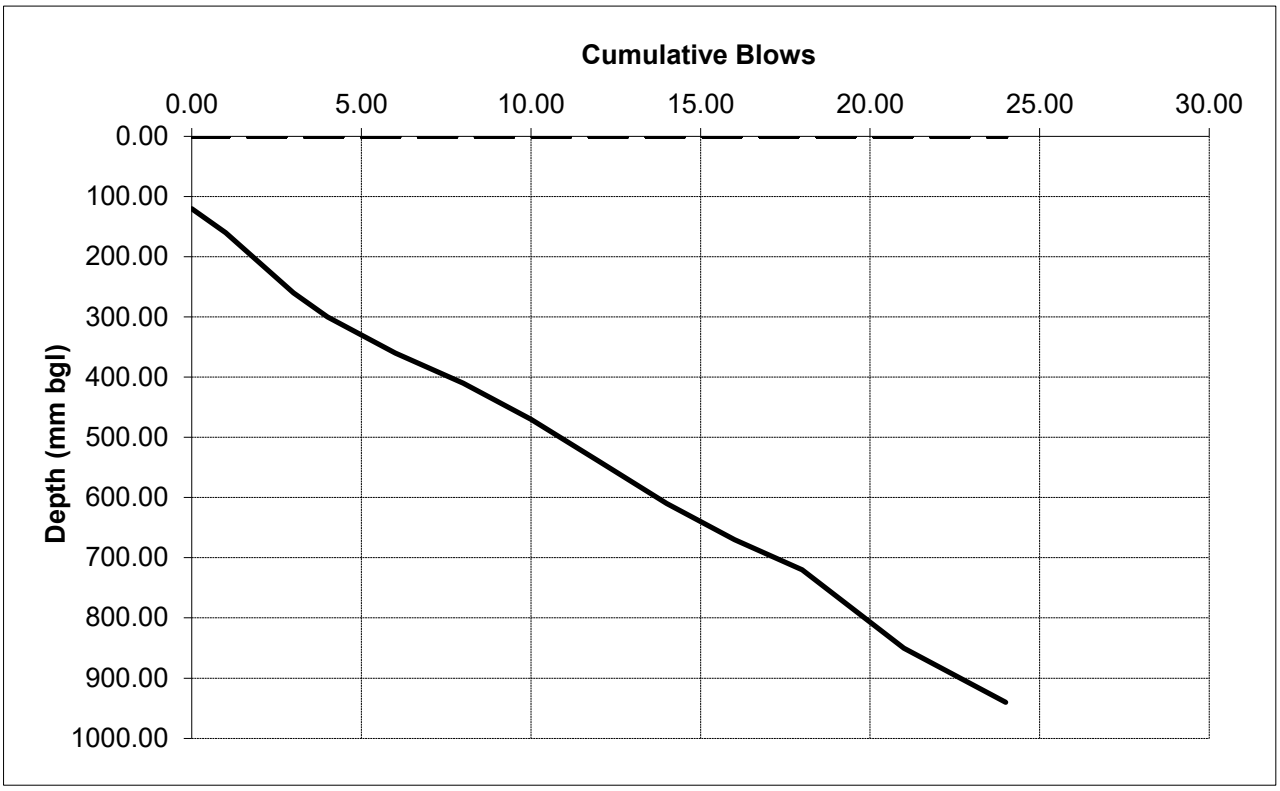


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR12**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	18	18	630	750	**7.0**

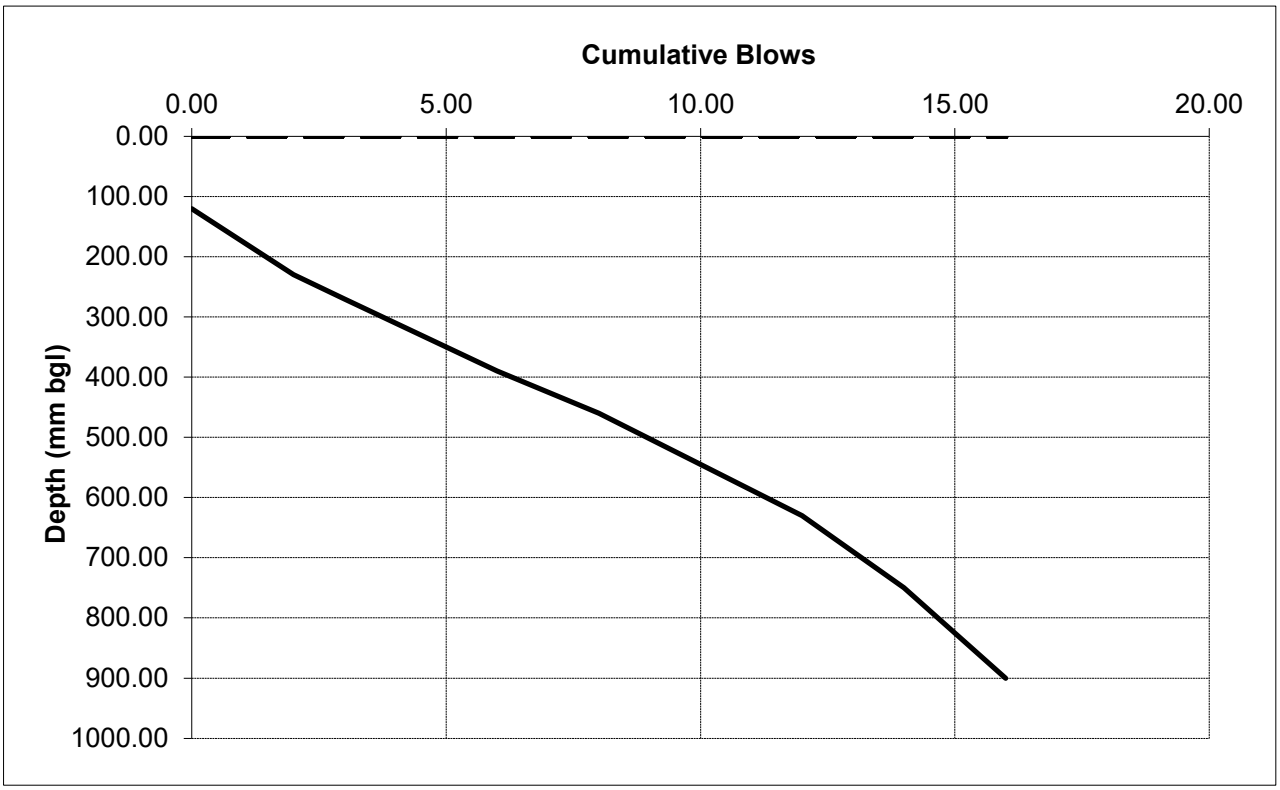


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR13**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	16	16	780	900	**5.0**

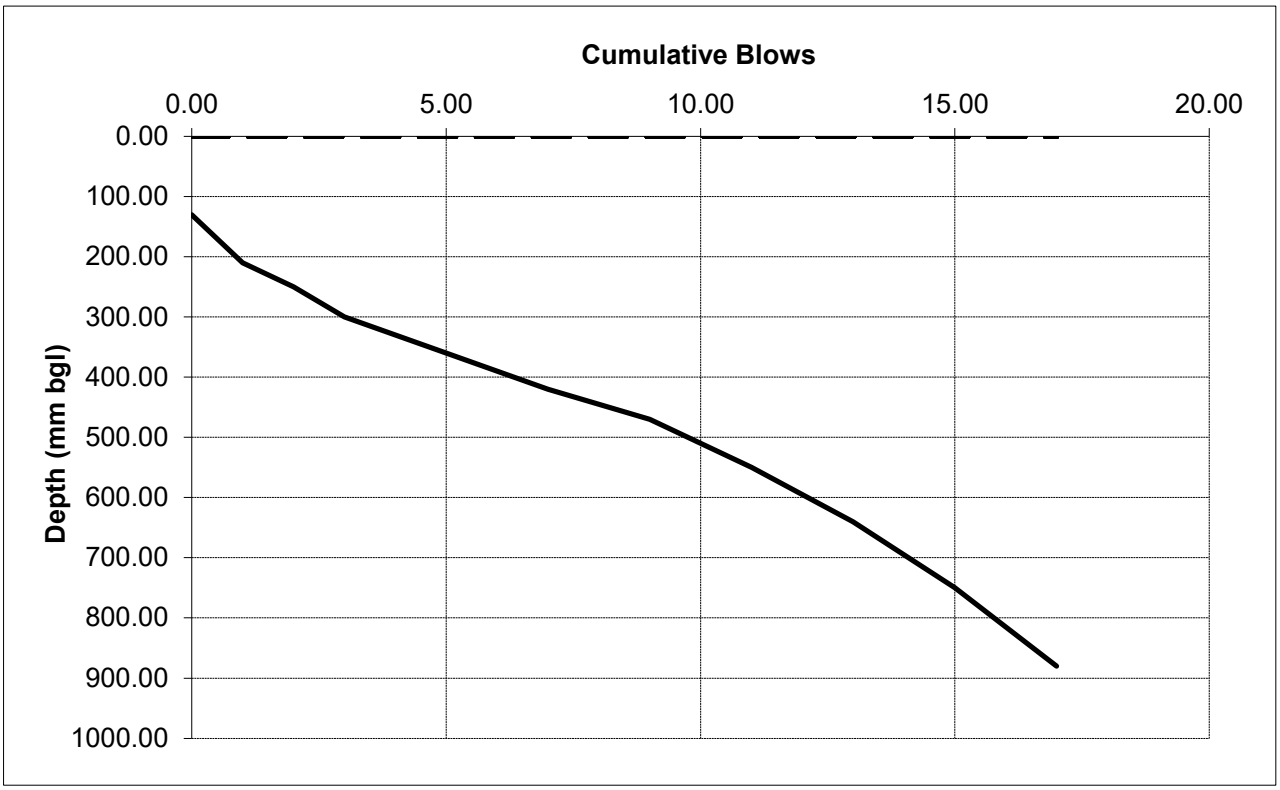


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR14**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	17	17	750	880	**5.5**

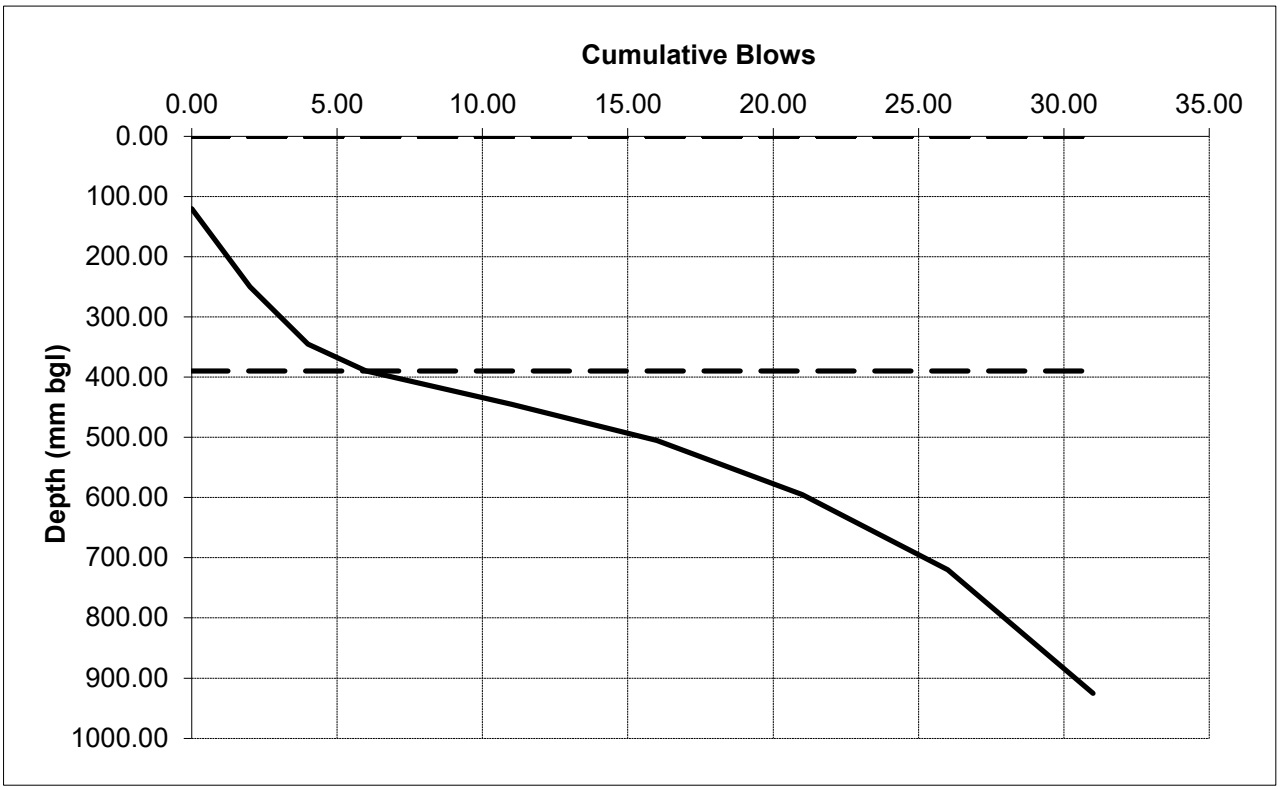


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR15**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	6	6	270	390	**5.4**
2	25	31	535	925	**11.9**

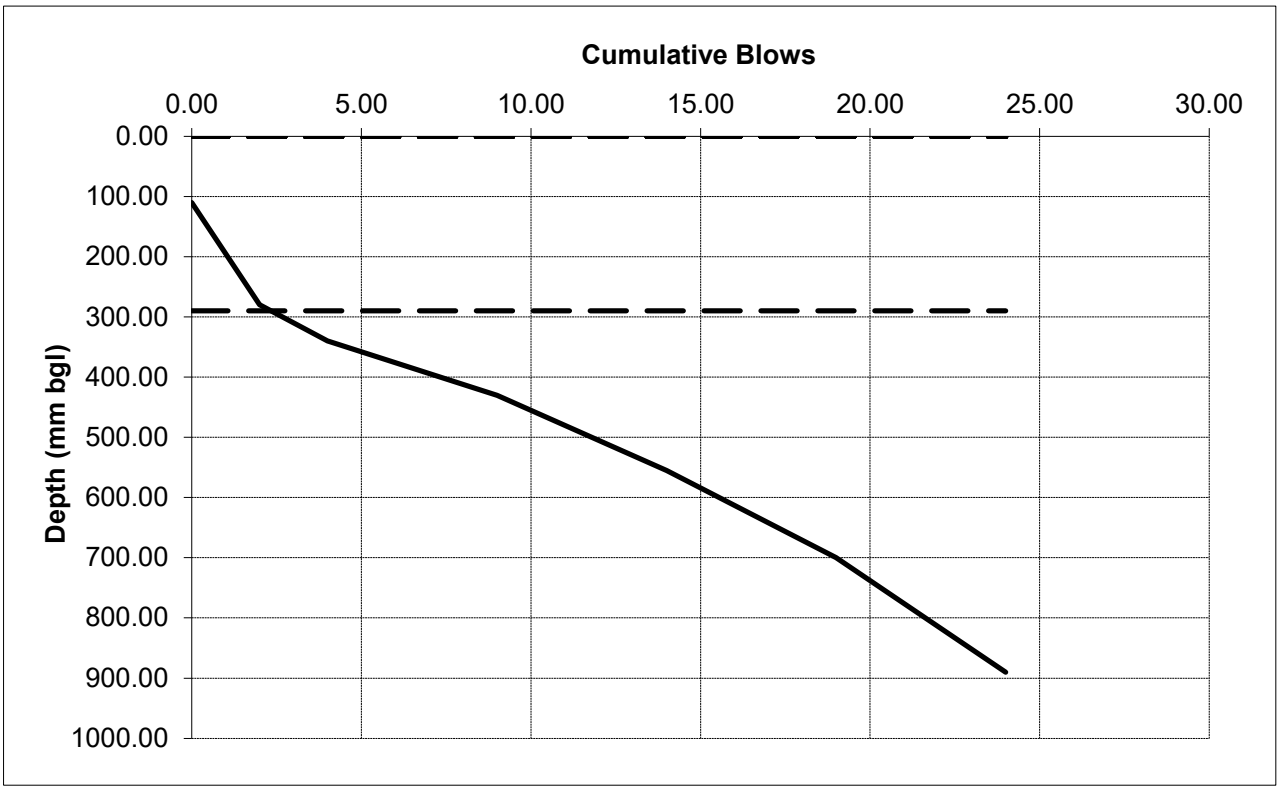


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR16**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	110
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	2	2	180	290	**2.6**
2	22	24	600	890	**9.2**

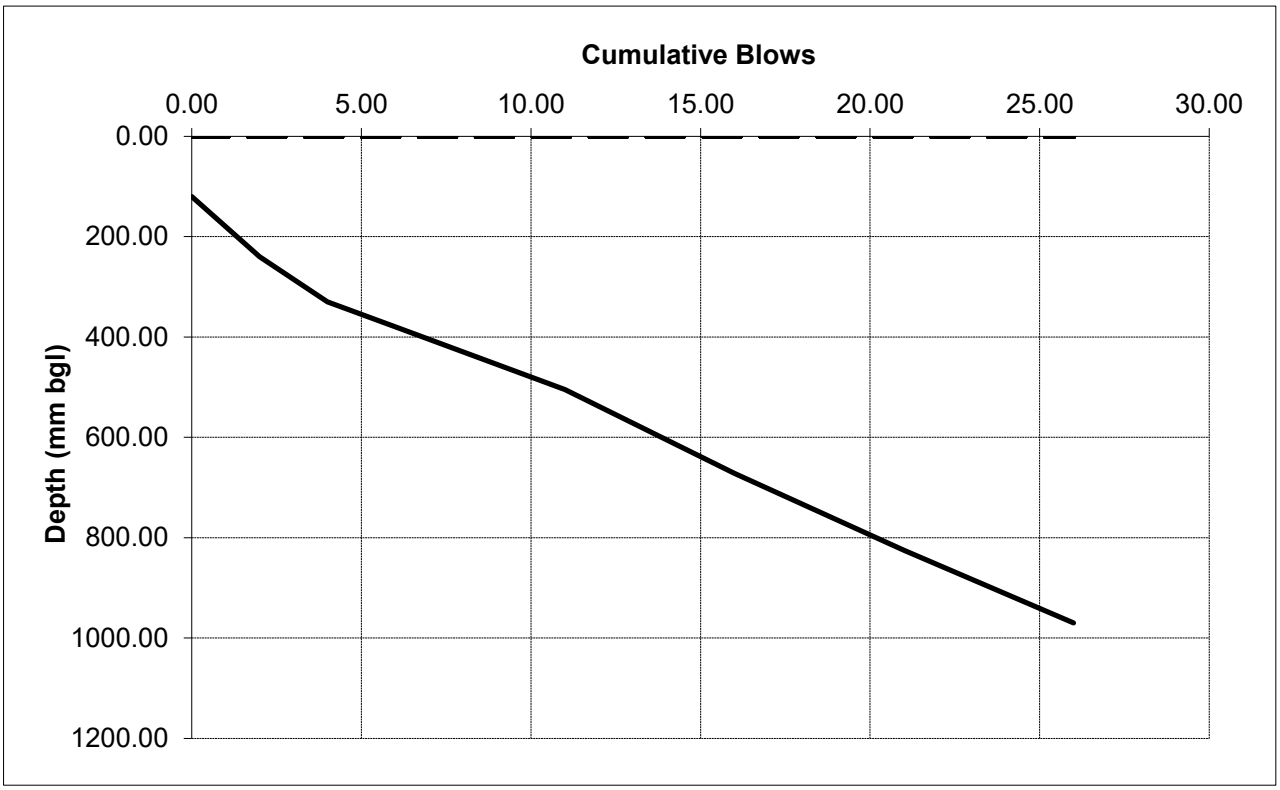


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR17**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	26	26	850	970	**7.6**

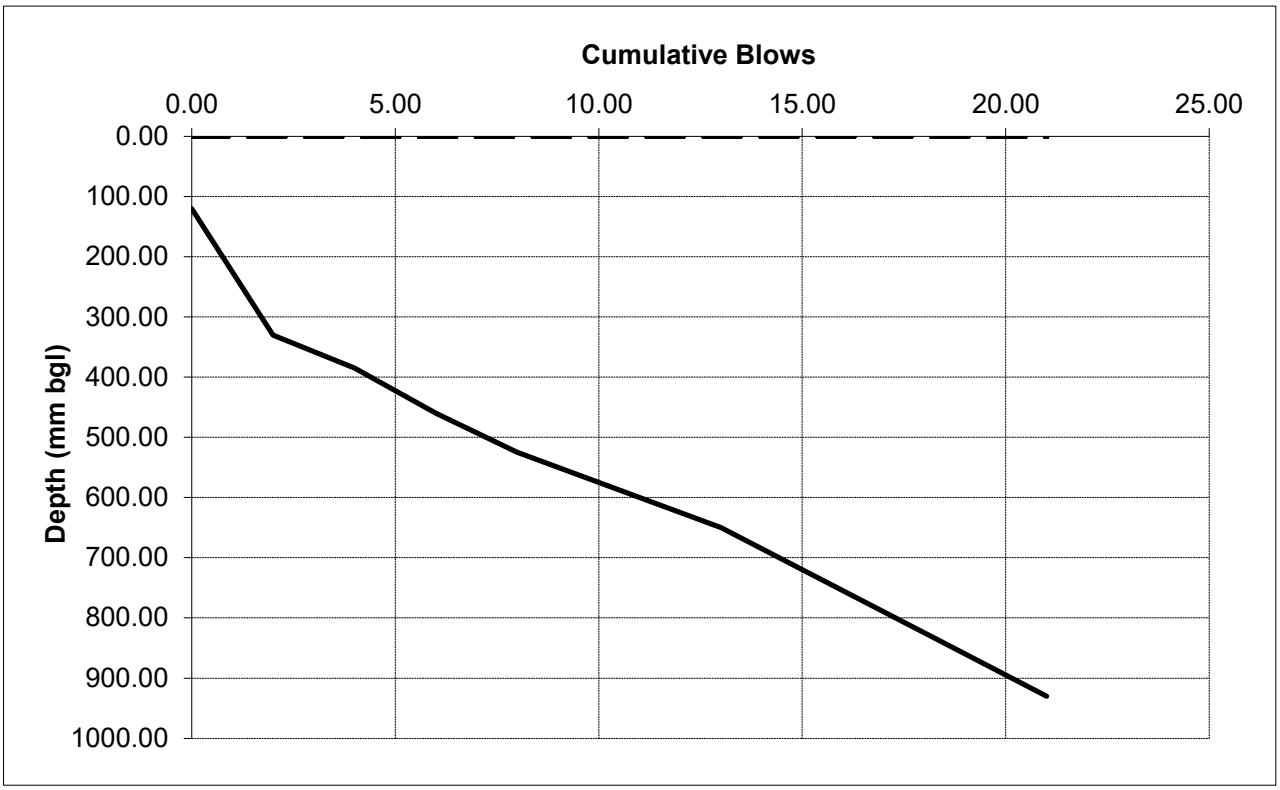


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR18**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	21	21	810	930	**6.4**

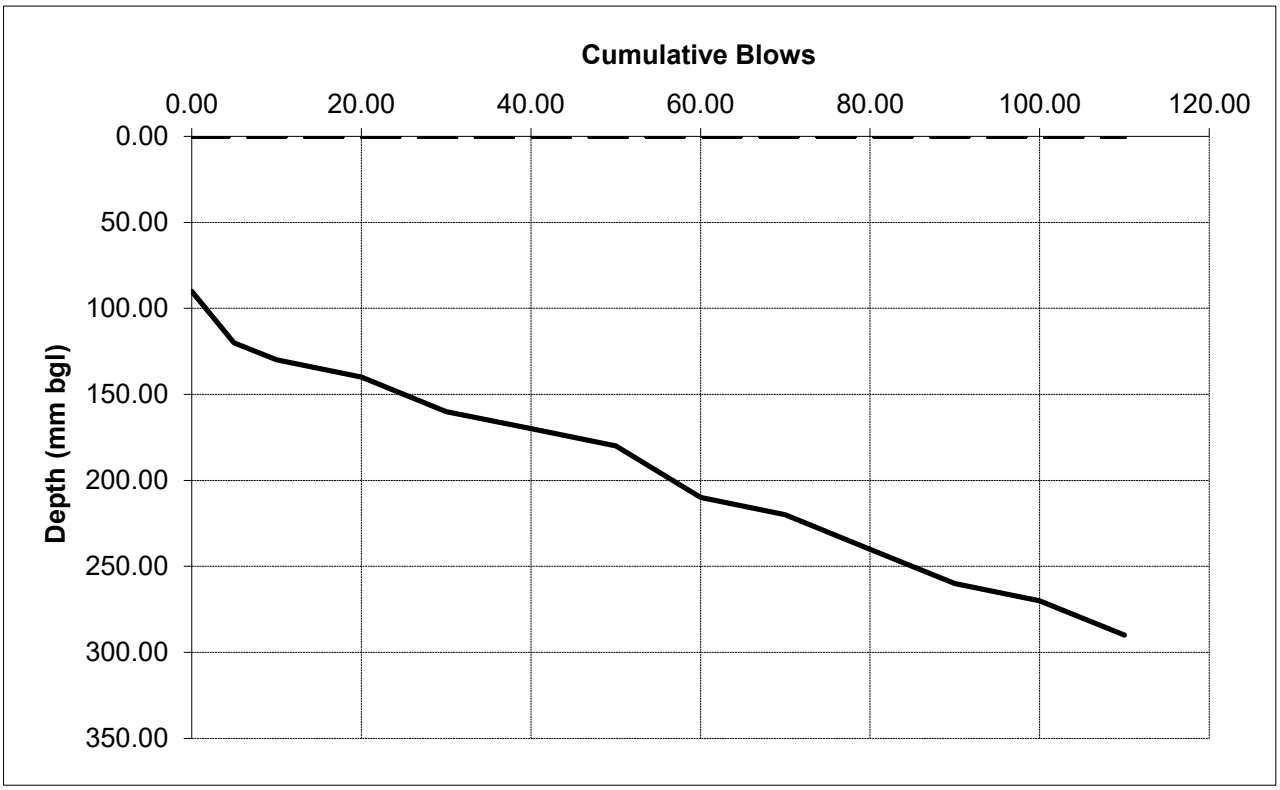


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR19**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Through existing road
START DEPTH (mm bgl)	90
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	110	110	200	290	**>100**

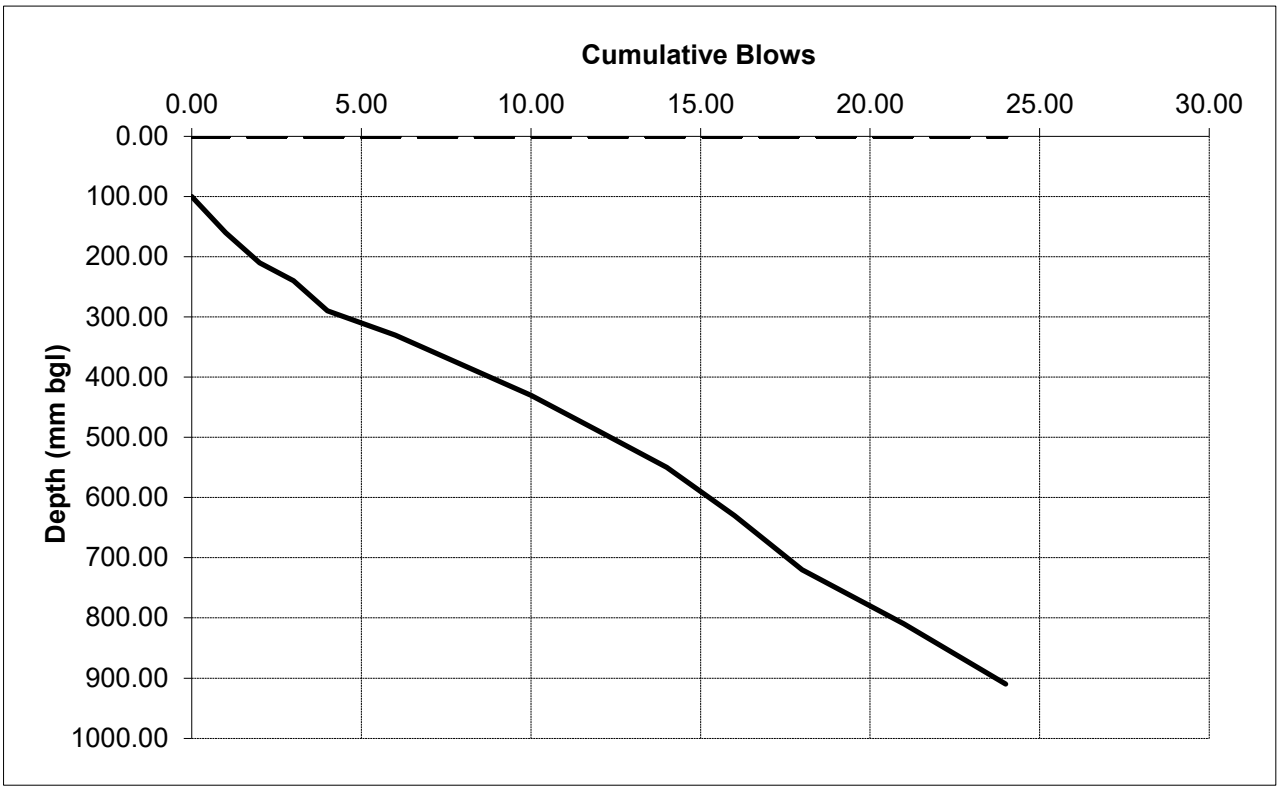


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR20**
DATE	29-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	100
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	18	18	650	750	**6.8**

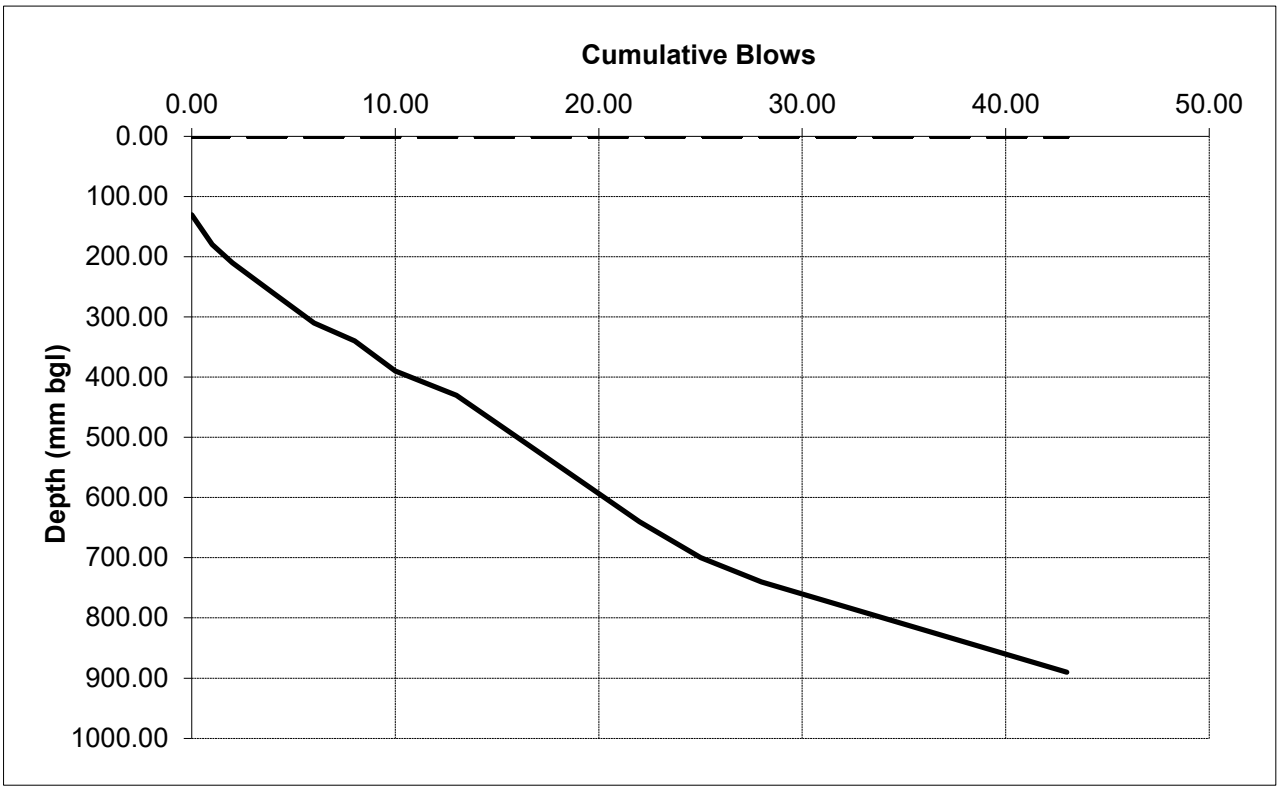


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR21**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	43	43	760	890	**14.5**

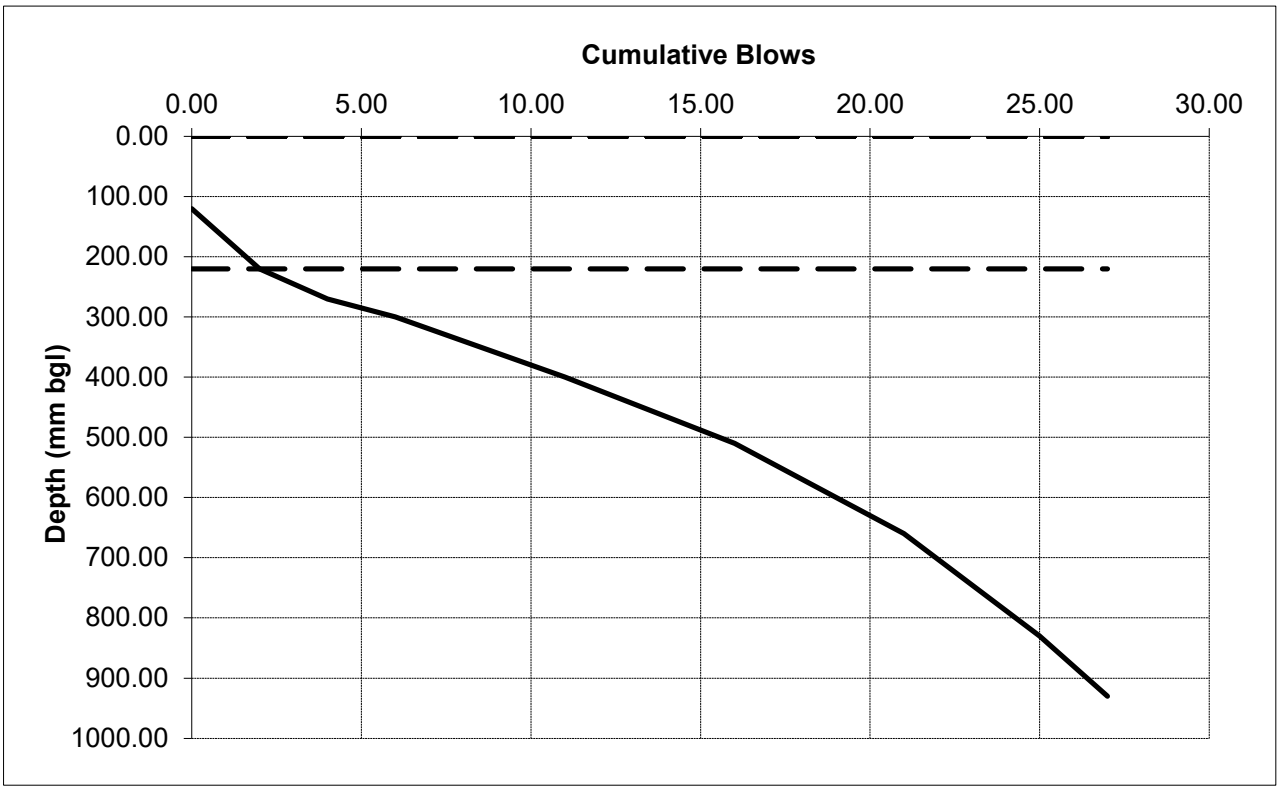


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR22**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	2	2	100	220	**4.8**
2	25	27	710	930	**8.8**

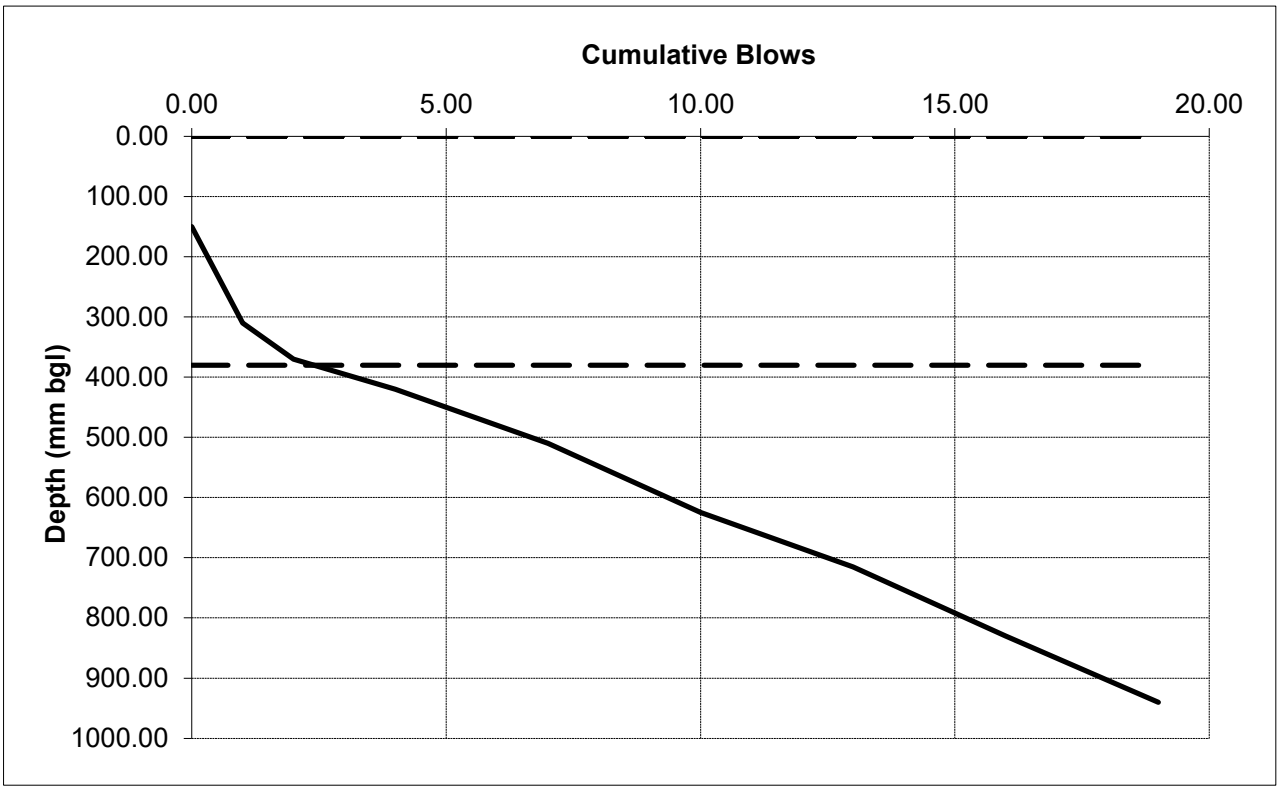


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR23**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	150
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	2	2	230	380	**2.0**
2	17	19	560	940	**7.5**

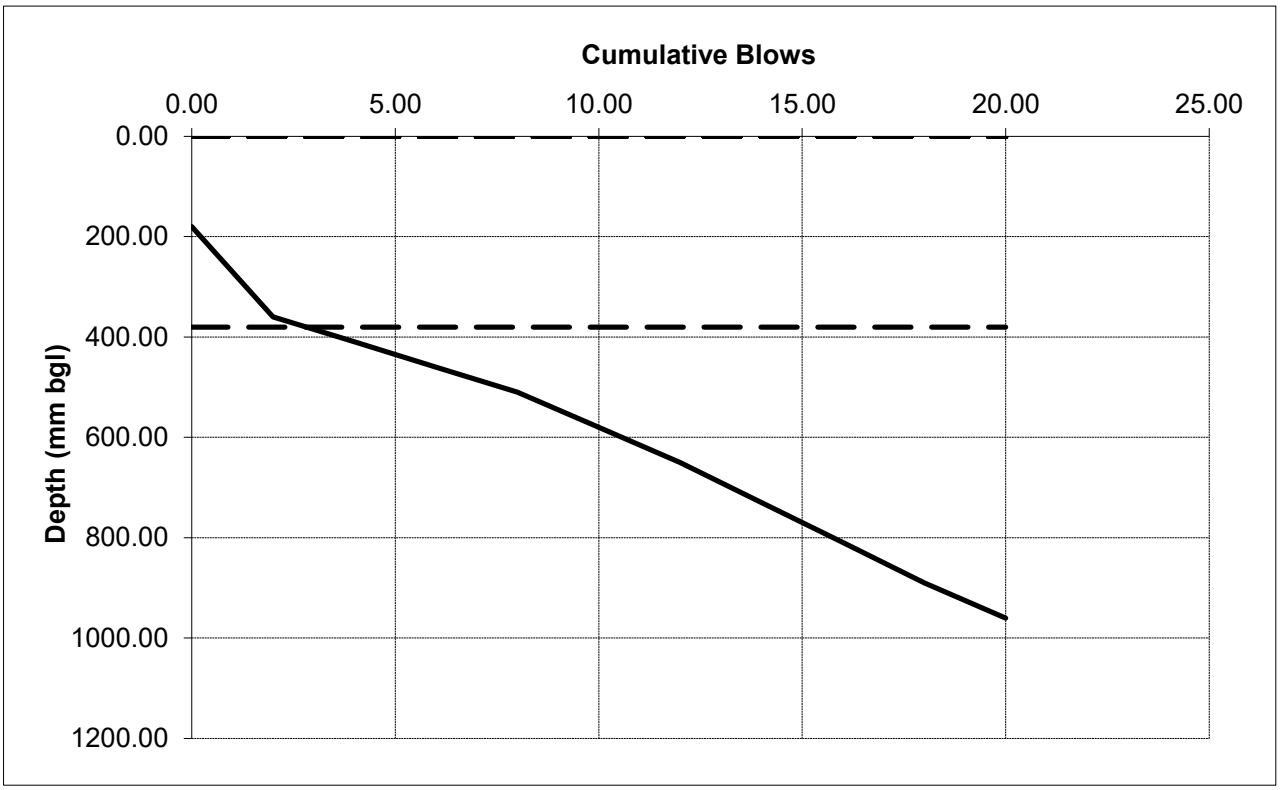


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR24**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	180
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	2	2	200	380	**2.3**
2	16	18	560	940	**7.0**

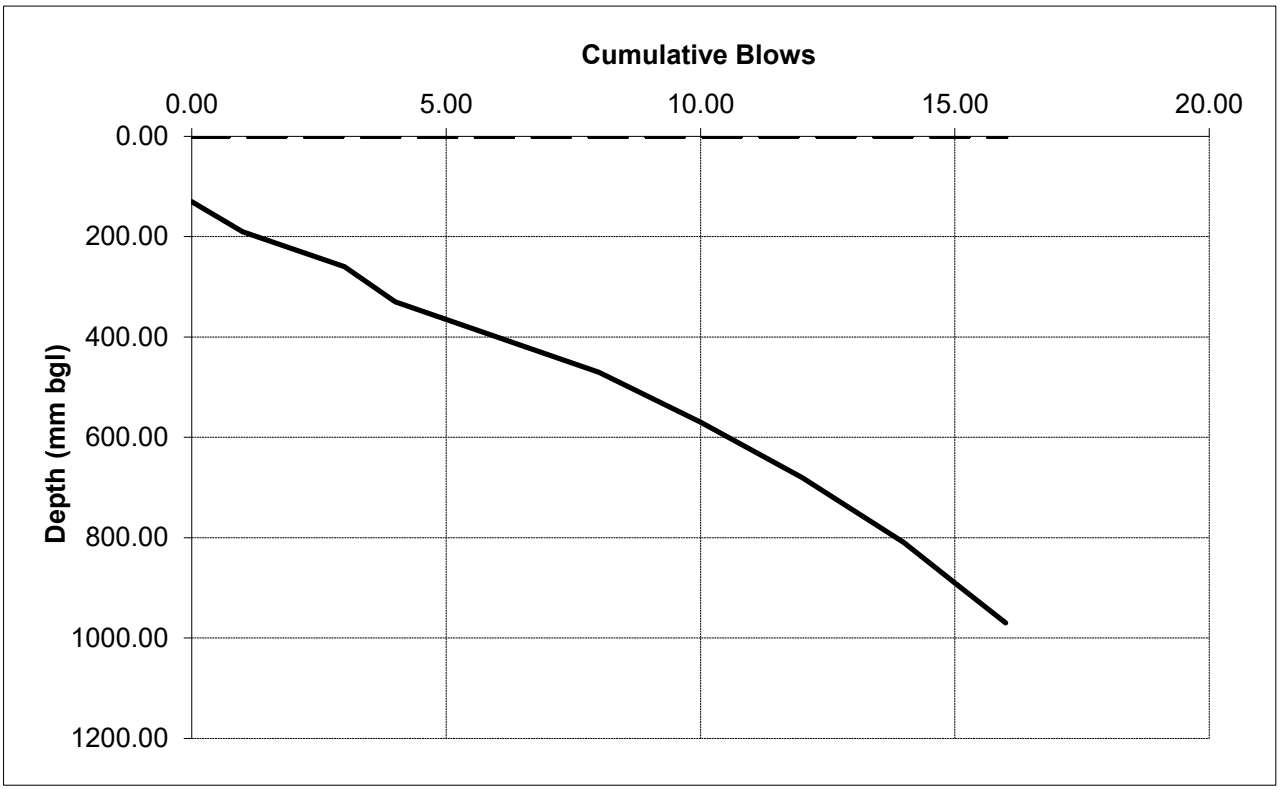


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR25**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	16	16	840	970	**4.6**

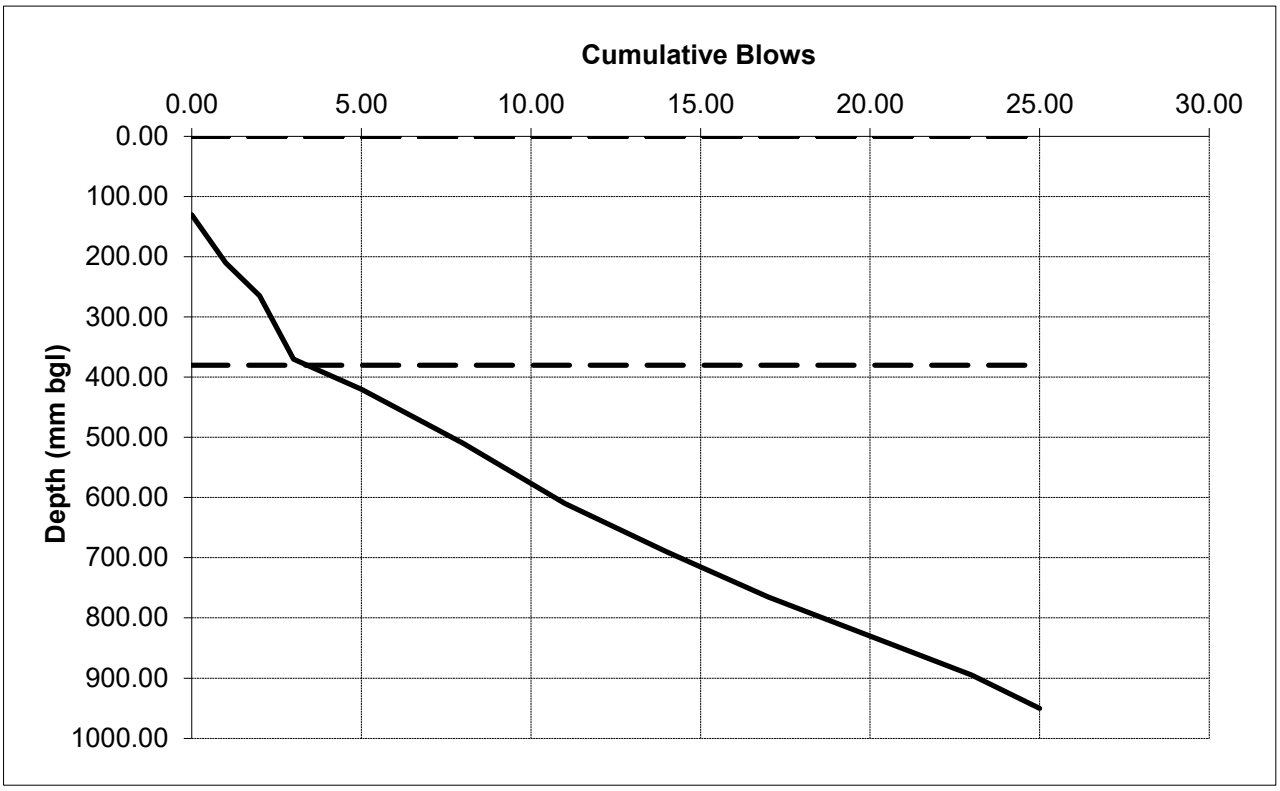


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR26**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	3	3	250	380	**2.8**
2	22	25	570	950	**9.7**

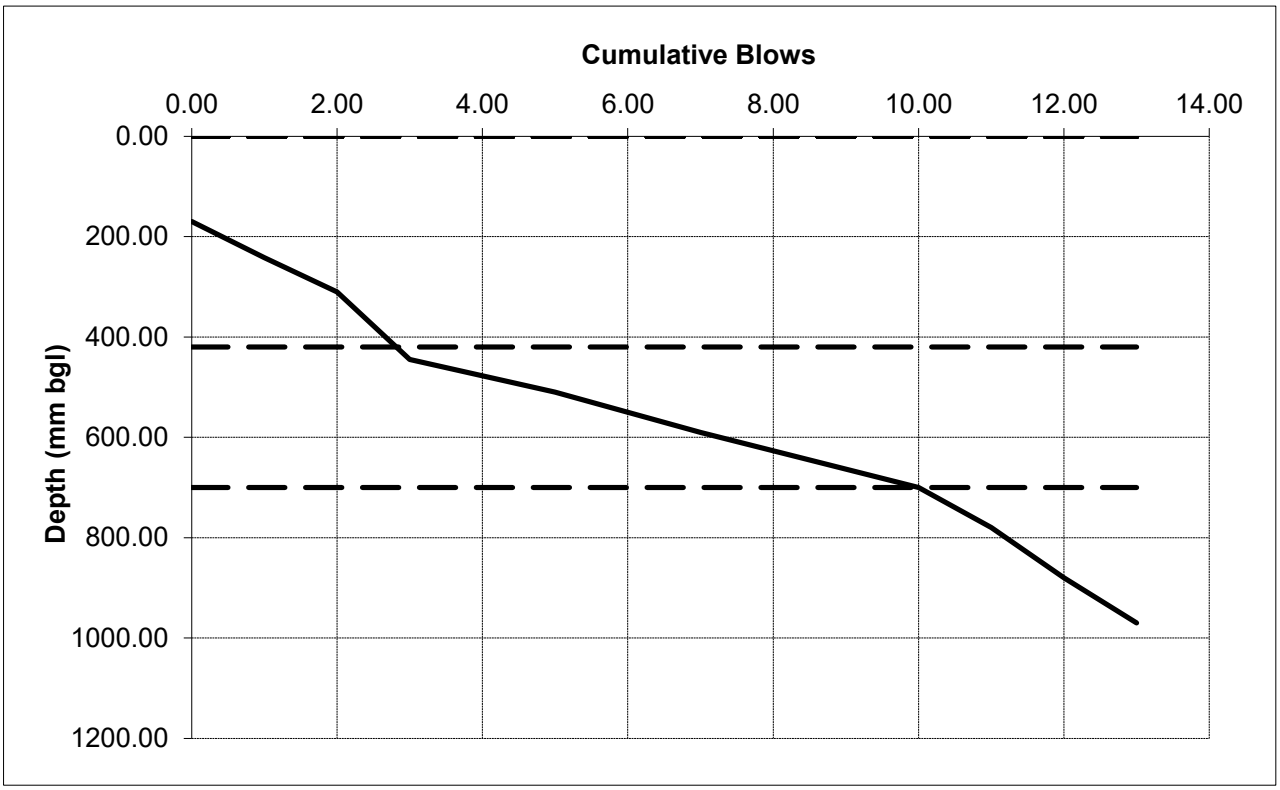


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR27**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	170
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	2	2	250	420	**1.8**
2	8	10	280	700	**7.0**
3	3	13	270	970	**2.6**

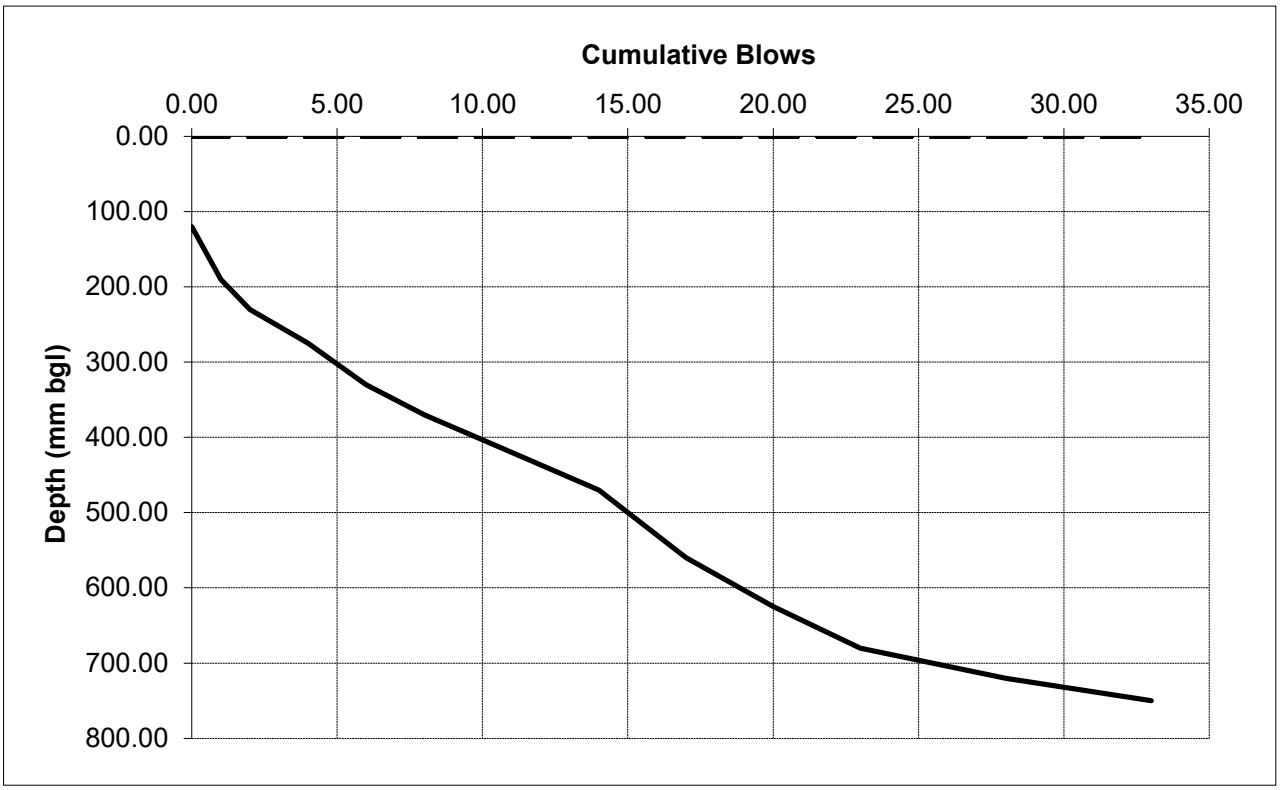


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR28**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	120
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	33	33	630	750	**13.4**

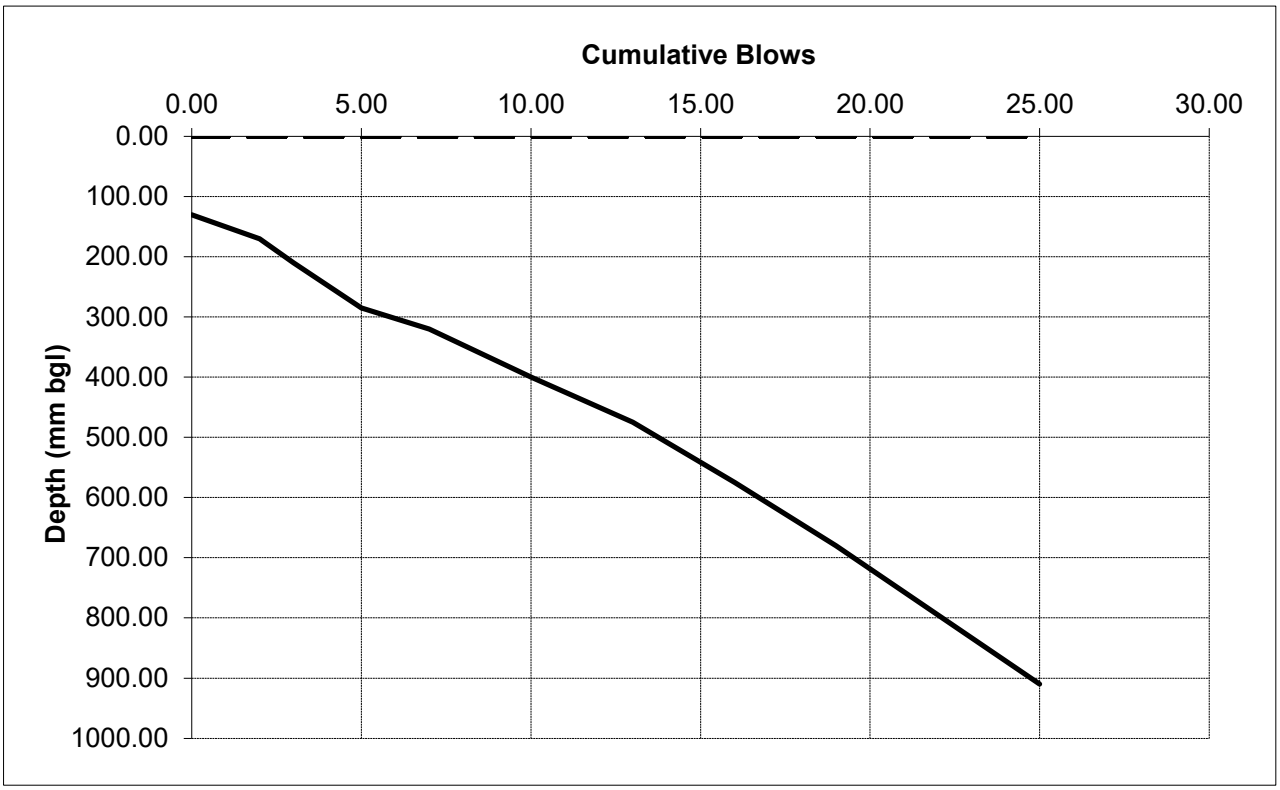


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR29**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	25	25	780	910	**8.0**

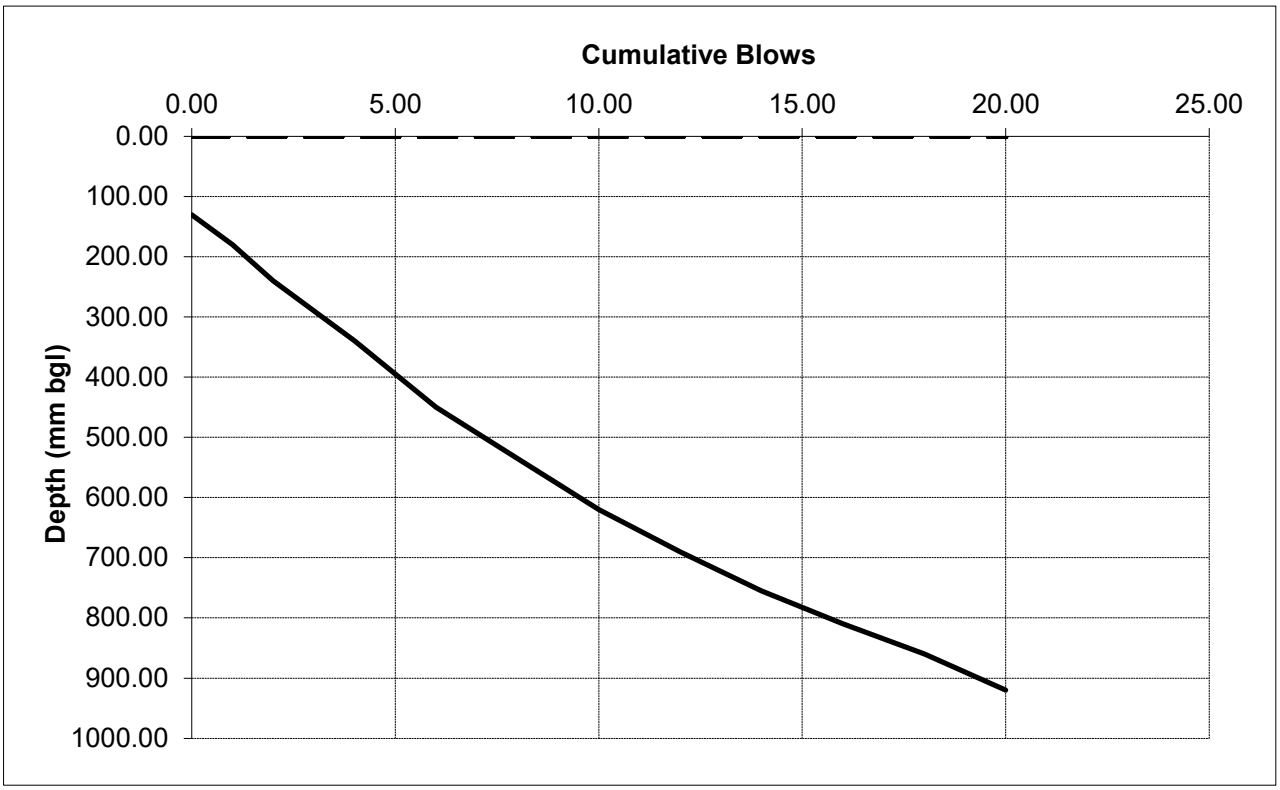


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR30**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	20	20	790	920	**6.2**

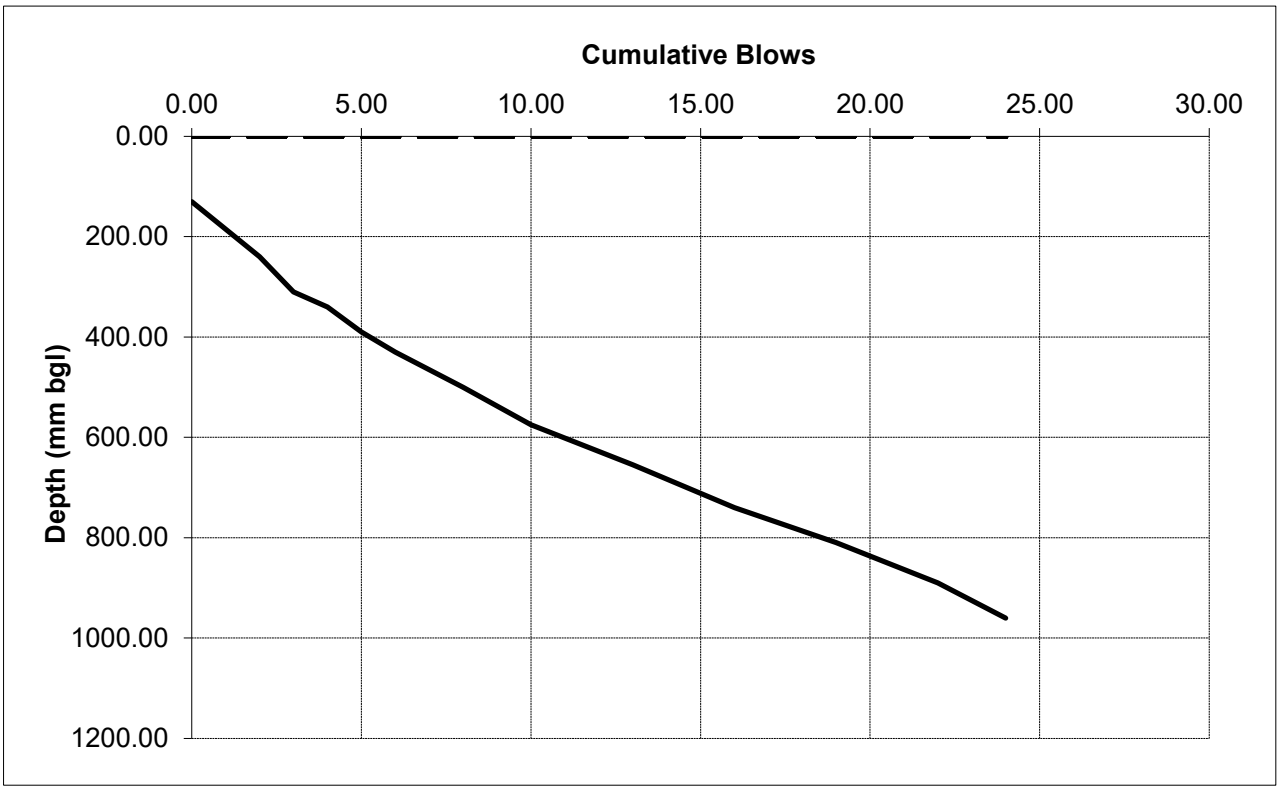


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR31**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	130
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	24	24	830	960	**7.1**

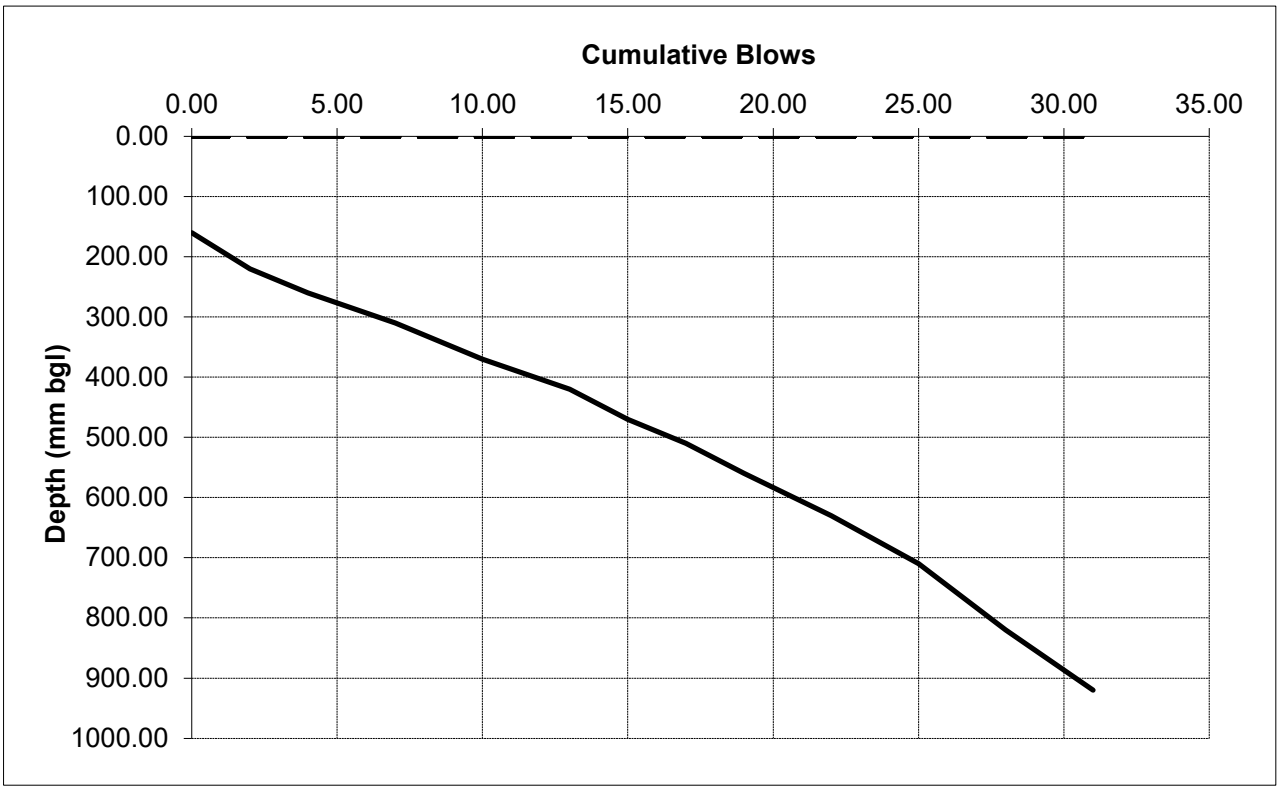


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR32**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	160
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	31	31	760	920	**10.3**

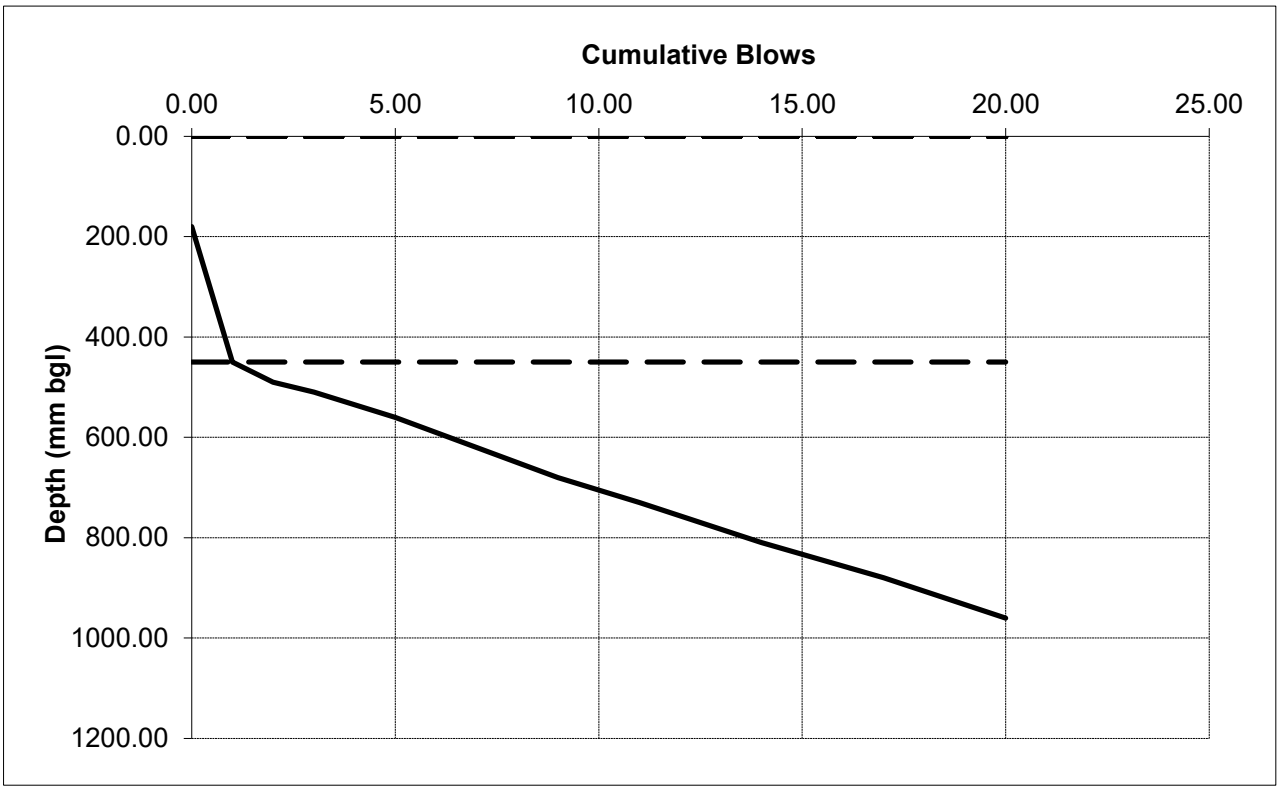


CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Dynamic Cone Penetrometer

PROJECT NUMBER	**R22082**
PROJECT TITLE	**Heck Fen**
TEST REFERENCE	**CBR33**
DATE	28-Sep-22
MATERIAL/ STRATA TYPE	Silt/Clay
START DEPTH (mm bgl)	180
WEATHER/ GROUND CONDITION	Dry

Layer	Blows	Cumulative Blows	Layer Thickness (mm)	Total Depth (mm bgl)	CBR (%)
1	1	1	270	450	**0.8**
2	19	20	510	960	**9.3**



CBR Interpretation based on the TRL Equation: Log10(CBR) = 2.480 - [1.057 x Log 10(DCP Strength)]

Appendix I

GRANGE GEOCONSULTING PHASE 1 DESK STUDY

Heckington Solar Farm, Heckington Fen, Sleaford, Lincolnshire, NG34 9NB

Phase 1 Geoenvironmental Desk Study

Report on Behalf of:

Ecotricity (Heck Fen Solar) Ltd.

August 2022

Final Report

R22082

Issued by:
Grange GeoConsulting Limited
43 Winchilsea Avenue
Newark on Trent
Nottinghamshire
NG24 4AD

Telephone: [redacted]

Client:
Ecotricity (Heck Fen Solar) Ltd.

Project:
Heckington Solar Farm, Heckington Fen, Sleaford, Lincolnshire NG34 9NB

Title:
Phase 1 Geoenvironmental Desk Study

Status:
Final Report

Date:
August 2022

Document Production Record

Issue Number:	Name	Signature
1	Steve Woodall (BSc FGS MCIWEM)	[redacted]

Document Revision Record

Issue number	Date	Revision Details
1	23rd August 2022	Original issue

Grange GeoConsulting Limited has prepared this report in accordance with the instructions of the Client, Ecotricity (Heck Fen Solar) Ltd. for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

CONTENTS

1.0 INTRODUCTION 1
2.0 PHASE 1 DESK STUDY 5
3.0 PRELIMINARY RISK ASSESSMENT AND EXPOSURE MODEL 13
4.0 GEOTECHNICAL HAZARD IDENTIFICATION 22
5.0 CONCLUSIONS AND RECOMMENDATIONS 23
6.0 REFERENCES 25

APPENDICES

Appendix A: DRAWINGS
Appendix B: SITE WALKOVER PHOTOGRAPHS
Appendix C: DESK STUDY RESEARCH INFORMATION
Appendix D: ZETICA UXB PLAN
Appendix E: FLOOD MODEL OUTPUT

EXECUTIVE SUMMARY

Purpose of this report	Phase 1 Geoenvironmental Desk Study
Client	Ecotricity (Heck Fen Solar) Ltd.
Site name	Heckington Solar Farm, Heckington Fen, Sleaford, Lincolnshire
Site Location	The site is irregular in shape, and occupies an area of approximately 583 hectares. The site is situated approximately 11km west of Boston, and 12km east of Sleaford. The approximate postcode for the site is NG34 9NB, and the approximate National Grid Reference is 520560, 347800
Current Land Use	At the time of the investigation, the majority of the site was under agricultural cultivation, and comprised a number of large agricultural field units, accessible from one of a number of formal roads and informal access tracks which cross the site. Crab Lane, and associated secondary access tracks allow access to field units across the west and north-west of the site from Sidebar Lane (B1395) located off site to the west. Six Hundreds Drove, and associated tracks allow access onto the east and centre of the site from the A17, which delineates part of the southern site boundary. The remainder of the field units, predominantly situated toward the centre of the site, are accessible via other fields at gated entry points along connecting field margins. Drainage ditches, forming an interconnected drainage network were situated along the edges of many of the cultivated fields. A number of these ditches contained standing water at the time of the investigation. Two farm complexes were noted within, or partially within the site boundary. One such farm comprises a series of large agricultural buildings and an associated farmhouse situated toward the east of the site adjacent Six Hundreds Drove. The remaining farm complex (referred to as Elm Grange Farm), approximately half of which is situated within the proposed development area, is situated toward the south-western periphery of the site. Other notable features identified within the site boundary during the site walkover include; agricultural compounds, some of which contain small or medium sized agricultural buildings, and/or are used as storage areas for agricultural products (including hay bales), small, managed areas of woodland, and individual residential properties (predominantly located along the southern and western site boundaries.
Proposed Development	It is understood that the proposed development would comprise the creation of a new energy park, involving the construction of approximately 781,000 solar panels, with associated invertors, substations, and maintenance tracks. Existing drainage and access infrastructure is to be retained. The main electrical substation for the facility will be constructed toward the south-east of the site, with access from Six Hundreds Drove. Two smaller secondary substation complexes will be constructed close to the centre of the site. Existing on-site agricultural buildings/farm complexes will also be retained.
Site History	The earliest available OS map (1874) records the site to be predominantly agricultural. The field units, drainage and access infrastructure was largely as present. The farm complex situated toward the east of the site had been constructed, inclusive of the existing residential component, however the large agricultural building was not shown. A series of smaller buildings and outbuildings were instead noted at the facility. Two water pumps were noted within the complex. Three additional farmyards, with associated buildings were noted toward the centre and north-east of the site, within areas currently used for agricultural storage. Pumps were noted adjacent each of the structures. An additional relatively large farm (Six Hundreds Farm) was situated toward the south-east of the site, within an area The agricultural fields to the south of the site were arranged so as to retain peripheral wooded areas, managed so as to create diamond shaped woodland stands. Several small ponds were noted within the field units in this area, and localised outbuildings referred to as sheepfolds were also present, indicating livestock pasture. A drainage pump and sluice were noted toward the north-east of the site, close to the point at which the channels flow into Holland Dike. The farm complex currently situated toward the south-west had been constructed by this time, however the complement of buildings within the complex were significantly different to those presently visible. No further changes were noted on available historical mapping, however no mapping more recent than 1955 was obtainable using available sources.

Unexploded Ordnance	The site is within an area with a 'low' bomb risk. This is likely to be due to its rural location away from obvious targets including military infrastructure or heavy industry. Further action to mitigate the risk is considered prudent by Zetica, although not essential. General awareness of the potential for UXO is recommended during development, but no further measures are anticipated.
Geology and Radon	No areas of Made Ground have been recorded by Envirocheck, or the BGS on, or in the vicinity of the site. Despite this, due to current and historical agricultural activity, which is likely to result in artificial turbation (ploughing/rotivation) of the near surface, nominal thicknesses of Made Ground are considered likely to be present. The site is underlain by superficial Tidal Flat Deposits, described as consolidated soft silty clay, containing layers of peat, sand, and basal gravels. Tidal Flat deposits have therefore been recorded to depths at, or in excess of between 2.44m and 4.1m bgl in the vicinity of the site. The solid geology (bedrock) underlying the eastern half of the site is recorded by the BGS to comprise strata from the Ampthill Clay Formation typically recorded to comprise smooth or slightly silty mudstone with grey argillaceous limestone nodules. This unit is estimated by the BGS to be up to 90m in thickness locally. Underlying the west of the site are solid strata from the West Walton Formation, described by the BGS as comprising calcareous mudstones, silty mudstone, and siltstones, with subordinate fine-grained sandstones and argillaceous limestone or siltstone nodules. The unit is estimated to exhibit a thickness of up to 20m locally and an approximate dip of 5 degrees to the east. A fault is shown by the BGS extending onto the southern section of the site from the west. The fault runs west to east through the region, and terminates close to the centre point of the site. The site is within a Lower Probability Radon Area (with less than 1% of homes estimated to be at or above the Action Level). Radon protection measures are therefore unlikely to be required in the construction of new buildings in this area.
Mining and Mineral Extraction	According to the Envirocheck Report the site is not located within an area that 'might be affected by coal mining activity'. According to Envirocheck, no hazards associated with 'non-coal' mining are recorded within the vicinity of the site. There are no man-made or natural mining cavities recorded within 500m of the site. No BGS recorded mineral sites have been identified by Envirocheck within 500m.
Hydrogeology	The superficial Tidal Flat Deposits, and solid geology from the Ampthill Clay and West Walton Formations which underlie the site have been classified as Unproductive units. Groundwater below the site is considered by Envirocheck to exhibit 'unproductive' vulnerability (unproductive bedrock aquifer, unproductive superficial aquifer), but high pollutant (transmission) speed as a result of fracture porosity. Superficial recharge is estimated to be low. Envirocheck do not record a significant risk relating to the presence of soluble rocks at the site. Three groundwater discharge consents have been recorded by Envirocheck within 250m of the site. Two private/domestic wastewater treatment facilities (likely associated with a residential property) situated 84m east/south-east, and 139m south of the site were authorised to discharge 'to land', and to an unspecified watercourse. The nature of these discharges has not been unrecorded. License to discharge was revoked on 1st October 1996, and 17th March 1992 respectively. St John the Baptist Church, located 219m south of the site held authorisation for the discharge of soakaway drainage. The nature of the discharge is unrecorded, however assumed to be surface water drainage. The consent was revoked on 1st October 1996. One groundwater abstraction consent has been issued within 250m of the site. Abstraction from a point located approximately 45m west of the site is authorised in perpetuity for domestic and agricultural use. The geological unit associated with this abstraction is recorded to comprise 'fluvial sands and gravels'. It is considered unlikely based on BGS records that this unit underlies the site. The site is not located within a groundwater Source Protection Zone (SPZ). No SPZs have been recorded within 500m of the site.
Hydrology	Numerous artificially navigated drainage ditches, forming an interconnected drainage network have been identified across the site, forming the field boundaries of many of the cultivated fields. Several of these ditches (such as Skerth Drain), have been identified and designated as formal watercourses. Other on-site channels, whilst not formally designated or named,

	connect directly to such channels, either within or outwith the site boundary. The ditches situated within the site boundary, including a larger channel referred to as Labour in Vain, flow into channelised watercourses located along the northern (Head Dike), and eastern (Holland Dike) boundaries. A number of these watercourses (including Labour in Vain, which extends off site to the south) in turn flow into the South Forty Foot Drain, one of the principal local watercourses, which flows west to east through the region, passing the south of the site at a distance of approximately 1.5km. Holland Dike flows south to north, joining Head Dike, before flowing south-east toward a confluence with Hammond Beck (synonymous with the South Forty Foot Drain) approximately 2.2km south-east of the site. No river quality data has been provided by the Environment Agency with respect to watercourses in the vicinity (1km) of the site. Five surface water discharge consents have been recorded by Envirocheck within 250m of the site, two of which are positioned within the existing site boundary. One surface water abstraction consent has been issued within 250m of the site. R Mablethorpe and Son are authorised to abstract water from a point located approximately 13m north of the site for use in direct spray irrigation. This authorisation us understood to be active. The site is not located within a surface water Source Protection Zone (SPZ). No SPZs have been recorded within 500m of the site. No Integrated Pollution Control (IPC), or Integrated Pollution Prevention and Control (IPPC) consents have been issued within 500m of the site. Four Local Authority Pollution Prevention and Control (LAPPC) consents have been identified by Envirocheck within 500m of the site. One pollution incident has been recorded by Envirocheck within 500m of the site. This incident occurred within a field unit situated close to the centre of the development area on 20th June 1997, and involved the release of kerosene fuel oil. The event was designated Category 3 (minor incident) status by the Environment Agency. No 'substantiated' pollution incidents have been identified in the vicinity of the site (within 500m).
Flood Risk	The site is recorded within the Envirocheck Report as possessing potential for groundwater flooding to occur at the surface. The majority of the site is situated within a Zone 2 and Zone 3 floodplain, representing a risk of flooding and extreme fluvial flooding equivalent to a frequency of 1:100 to 1:1000 (Zone 2) and 1:100 or greater (Zone 3) without defences. The site is not understood to benefit from flood defences and there are no flood water storage areas in the vicinity of the site. A flood risk assessment has been produced for the site in June 2022 by JBA Consulting in support of an Environmental Impact Assessment. The FRA included flood modelling, which concluded that maximum flood levels across the central and northern sections of the site could potentially reach an elevation of 1.951m AOD, and across the south-east, flood levels could reach 1.858m AOD. Fluvial flooding was not anticipated across the southern, south-eastern, and south-western peripheries of the site. The breach point, with respect to flooding was anticipated to be the north-eastern corner of the site, and the principal flood risk was associated with Head Dike, located immediately beyond the northern site boundary. No further consideration of flood risk is given in this report. Specialist flood risk advice should be sought with regards to drainage and flooding.
Waste Management	No historical landfills, Environment Agency registered landfills, BGS recorded Landfills, or registered waste treatment, transfer or disposal sites have been recorded by Envirocheck within 500m of the site. No Registered Radioactive Substances records have been recorded by the Environment Agency/Envirocheck within 500m of the site. No records of explosive sites, planning hazardous substance consents or enforcements, Control of Major Accident Hazards (COMAH) or Notification of Installations Handling Hazardous Substances (NIHHS) sites have been identified within 1km of the site.
Geotechnical Hazards	Potential geotechnical hazards have been identified by Envirocheck during the Phase 1 Desk Study. These issues are presented below:

	• Envirocheck record a 'moderate' risk relating to the presence of compressible ground and running sand hazards the site (potentially associated with the superficial Tidal Flat deposits recorded by the BGS to underlie the site).
Preliminary Risk Assessment	Based on historic and contemporary activity undertaken at, and in the area surrounding the site, the overall risk to human health and controlled waters from land contamination is considered **Low.** This designation is based on the proposed redevelopment of the site involving the construction of a new energy park. The site is considered to be suitable for its intended end use.
Further Work	Further intrusive investigation of the site is not considered necessary at this stage, unless required to confirm the geotechnical characteristics of soils for purposes of building/foundation design. Whilst no further works are considered necessary, a number of precautionary recommendations have been made. • Should a site investigation be undertaken for purposes of geotechnical evaluation, it is recommended that these works also involve confirmation of the assumptions made within the Conceptual Site Model, inclusive of ground conditions, groundwater characteristics, and the contaminative status of soils and stockpiled soils at the site. • It is recommended that during any groundworks, appropriately licenced contractors should be appointed, PPE/RPE should be worn as necessary by groundworkers, and a safe system of work is established prior to commencement. • A watching brief should be maintained for contamination throughout the duration of the proposed development. In the event that any unforeseen gross or widespread contamination is encountered on site (i.e., hydrocarbons, ash, asbestos etc). • Specialist contractors should be employed as necessary to advise on the management of unexpected contamination.

This Executive Summary forms part of Grange GeoConsulting Limited report number R22082/001 (Issue 1) and should not be used as a separate document.

1.0 INTRODUCTION

1.1 Terms of Reference

It is currently proposed by the Client, Ecotricity (Heck Fen Solar) Ltd. to construct a solar power generation facility (Energy Park) at Heckington Fen, Lincolnshire, approximately 11km west of Boston, and 12km east of Sleaford. The approximate postcode for the site is NG34 9NB, and the approximate National Grid Reference is 520560, 347800. A Site Location Plan (Drawing R22069-DWG1) is presented in Appendix A.

The site is irregular in shape, and occupies an area of approximately 583 hectares. Topographically, the site is relatively flat, but exhibits a slight slope toward the north and north-east. The elevation of the site varies between 0.77m Above Ordnance Datum (AOD) close to the northern boundary, and 3.3m AOD along the southern boundary.

A site walkover (inclusive of a drone survey) was undertaken on the 10th August 2022 in order to support the investigation. The findings have been incorporated into the following description of the site. Photographs taken during the site walkover are included as Appendix B.

At the time of the investigation, the majority of the site was under agricultural cultivation (predominantly wheat), and comprised a number of large agricultural field units, accessible from one of a number of formal roads and informal access tracks which cross the site. Crab Lane, and associated secondary access tracks, allow access to field units across the west and north-west of the site from Sidebar Lane (B1395) located off site to the west. Six Hundreds Drove, and associated tracks allow access onto the east and centre of the site from the A17, which delineates part of the southern site boundary. The remainder of the field units, predominantly situated toward the centre of the site, are accessible via other fields at gated entry points along connecting field margins.

Drainage ditches, forming an interconnected drainage network were situated along the edges of many of the cultivated fields. A number of these ditches contained standing water at the time of the investigation. These ditches, including a larger channel referred to as Labour in Vain, flow into channelised watercourses located along the northern (Head Dike), and eastern (Holland Dike) boundaries.

Two farm complexes were noted within, or partially within the site boundary. One such farm comprises a series of large agricultural buildings and an associated farmhouse situated toward the east of the site adjacent Six Hundreds Drove. The eastern farm complex comprised four large agricultural buildings of steel frame, cement, and steel sheet construction, and two smaller brick structures clustered around an informal yard area with a compacted earth and managed grass substrate. Four large propane tanks were noted adjacent the largest and (what appeared to be) the most recently constructed of the buildings. Two the buildings were openly accessible, however at the time of the investigation, no equipment or materials were present. The remaining two agricultural buildings could not be accessed during the site walkover.

The brick structures, which may have historically been used as residences or to house livestock were single storey, with pitched tile and cement sheet roofing. These buildings appeared to be derelict at the time of the investigation. The interior of the structures could not

be accessed during the investigation. North of the agricultural buildings, and west of the brick structures was an area of land in which a large (estimated 1,200m^3) stockpile of soil was present. The origin of the stockpiled soils could not be confirmed, and no corresponding excavations were identified during the site walkover.

The remaining farm complex (referred to as Elm Grange Farm), approximately half of which is situated within the proposed development area, is situated toward the south-western periphery of the site. A number of large agricultural buildings associated with this complex are within the site boundary. The remainder of the complex, including the residential component of the farm are situated off site to the south. During the site walkover, this farm complex was inspected. The on-site component of the farm comprised a large, single-storey agricultural building of brick construction with a pitched cement sheet roof, cement sheet eaves, and plastic guttering and downpipes. The cement sheeting which comprised the eaves and roof appeared locally damaged. The presence of asbestos within these materials was considered likely. Access into the building was not possible during the walkover.

Adjacent the large agricultural building, and situated (on-site) close to the southern site boundary were two linear single-storey sheds aligned approximately east to west, and accessible from an unsealed internal access track. The eastern building, which was of blockwork, concrete frame, and cement sheet construction, was open along the eastern elevation. At the time of the investigation the majority of this building was empty, however a piece of tractor mounted agricultural equipment was present close to the building entrance. The interior floor appeared to comprise open ground or a compacted gravel substrate. The cement sheeting used in construction of the roof appeared to be in reasonably good condition, however localised exterior damage was noted.

The western building, which was of similar construction to the other buildings within the complex was open along the long (southern) elevation, and internally subdivided into individual sheds. A number of the sheds contained agricultural equipment and trailers which appeared in good condition. A large stack of wooden pallets was noted within one of the central bays. Toward the east of the shed was a pallet containing approximately 200No. 5lt and 10lt containers of ‘Entargo’ and ‘Stabilan 750’. The majority of the containers were retained on a wooden pallet, within their original delivery packaging. No spillages were noted at the base of the pallet. The substrate below the containers comprised open ground/compacted gravel. No bunding was noted.

Entargo is a systemic carboxamide based fungicide (provided in suspension with propane-1,2-diol), which is used to control diseases in wheat and barley crops. Stabilan 750 is an organic chloride salt (Chlormequat chloride) which is used as a plant growth regulator.

North of the sheds, and also situated within the proposed development boundary was a large (equivalent two-storey) agricultural structure of blockwork and cement sheet construction. The cement sheeting, used as part of the pitched/sloping roof, and exterior cladding was considered likely to contain asbestos, and, though in reasonable condition, was locally slightly damaged. No access into the interior of this structure was possible during the site walkover. A metal skip containing domestic refuse and an empty, discarded oil drum (est. 25lt), was noted adjacent the north-eastern corner of the building.

It is understood that the farming complex toward the south-west of the site is located in a section of the development site in which no significant construction or demolition works are proposed.

Other notable features identified within the site boundary during the site walkover include; agricultural compounds, some of which contain small or medium sized agricultural buildings, and/or are used as storage areas for agricultural products (including hay bales), small, managed areas of woodland, and individual residential properties (predominantly located along the southern and western site boundaries.

The area surrounding the site was predominantly agricultural in character, however sporadic commercial facilities have been identified on available mapping. Two petrol filling stations are recorded approximately 20m and 100m south of the site, respectively, with access from the A17. A vehicle repair facility (Wilson Prestige Vehicle Repairs Ltd.) is also situated immediately south of the site.

It is understood that the proposed development would comprise the creation of a new energy park, involving the construction of approximately 781,000 solar panels, with associated invertors, substations, and maintenance tracks. Existing drainage and access infrastructure is to be retained. The main electrical substation for the facility will be constructed toward the south-east of the site, with access from Six Hundreds Drove. Two smaller secondary substation complexes will be constructed close to the centre of the site. Existing on-site agricultural buildings/farm complexes will also be retained. The maximum generation capacity of the solar facility will be approximately 424,000kVA.

1.2 Objectives

The overall objectives of the work undertaken were; to produce a Desk Study and Preliminary Risk Assessment with regard to the site, to inform the Client of the ground conditions and any potential environmental or geotechnical risks associated with the development.

1.3 Scope of Works

Authorisation to proceed with this report was given by Ecotricity (Heck Fen Solar) Ltd. in July 2022. The scope of works was outlined by Grange GeoConsulting Limited in a fee proposal for a Phase 1 investigation, addressed to the Client on the 26th June 2022.

The scope of the Phase 1 component of this investigation is summarised below.

- A site walkover by a Grange GeoConsulting Ltd representative.
- A review of topographical, geological, and hydrogeological maps.
- A review of historical site maps to identify any former potentially contaminative uses of the site and the areas surrounding it, and an assessment of the potential contaminants associated with those uses.

- Purchase and review of a Landmark Information Group Envirocheck Report for the site to identify any local landfill sites, pollution incidents etc. which may have had the potential to impact the site.

- Formulation of a Conceptual Site Model including the clear and tabulated identification of potential pollution linkages.

- A Qualitative Risk Assessment.

- A review of the indicative geological conditions and their potential effects on foundation design and possible impacts during construction.

1.4 Limitations

This report is based upon information obtained from third party sources, together with observations from the site walkover. The third-party data has been accepted at face value and has not been independently verified. Grange GeoConsulting Ltd can therefore give no warranty, representation, or assurance as to the accuracy or completeness of such information.

This report has been prepared for the sole internal use and reliance of the Client, Ecotricity (Heck Fen Solar) Ltd. and shall not be relied upon by other parties without the express written authority of Grange GeoConsulting Ltd. If an unauthorised third party comes into possession of this report, then they rely on it at their own risk.

2.0 PHASE 1 DESK STUDY

2.1 General

Several desk study sources have been used to assemble the following information, including a Landmark Information Group Envirocheck Report for the site (reference 299645546_1_1) which is presented in Appendix C. Other publicly available information has been utilised, including Google Earth and internet search engines. A site walkover has also been undertaken to supplement this desk-based review.

2.2 Site History

Detailed maps and aerial photographs of the site and surrounding area are limited, presumably due to the rural location. Mapping dated 1888 to 1955 have been obtained (at scales of 1:2,500, 1:10,560, and 1:25,000), and reviewed. This review has been undertaken to identify any former land uses on-site and within the surrounding area that may have geotechnical or geo-environmental implications for the proposed development. The findings are summarised in Table 2.1. No mapping more recent than 1955 is obtainable using available sources.

Table 2.1: Key Features from Historical Mapping

Map date and Scale	Key on-site features	Key off-site features
1888 to 1889 (1:2,500 and 1:10,560)	The site was predominantly agricultural by this time. The field units, drainage and access infrastructure was largely as present. The farm complex situated toward the east of the site had been constructed, inclusive of the existing residential component, however the large agricultural building was not shown. A series of smaller buildings and outbuildings were instead noted at the facility. Two water pumps were noted within the complex. Three additional farmyards, with associated buildings were noted toward the centre and north-east of the site, within areas currently used for agricultural storage. Pumps were noted adjacent each of the structures. An additional relatively large farm (Six Hundreds Farm) was situated toward the south-east of the site, within an area The agricultural fields to the south of the site were arranged so as to retain peripheral wooded areas, managed so as to create diamond shaped woodland stands. Several small ponds were noted within the field units in this area, and localised outbuildings referred to as sheepfolds were also present, indicating livestock pasture. A drainage pump and sluice is noted toward the north-east of the site, close to the point at which the channels flow into Holland Dike. The farm complex currently situated toward the south-west had been constructed by this time, however the complement of buildings within the complex were significantly different to those presently visible.	The area surrounding the site was largely agricultural in character. The majority of the drainage channels and transport infrastructure had been constructed and were as present. A small blacksmith (smithy) was located approximately 5m south of the site, beyond the road currently referred to as the A17, but was at this time unnamed. A large manor house (Park House) and associated grounds were recorded approximately 10m south of the site. A small 'reservoir' is noted within the grounds. No significant industrial activity was noted in the vicinity of the site at this time.

Map date and Scale	Key on-site features	Key off-site features
1903 to 1906 (1:2,500 and 1:10,560)	No significant on-site changes were noted.	No significant changes were noted.
1947 to 1950 (1:10,560)	No significant on-site changes were noted.	Sporadic and small-scale residential development appeared to have taken place along the road situated immediately south of the site (A17), particularly in the vicinity of Park House. In addition, a second small smithy was by this time shown approximately 100m south-east of the site. A series of large structures had been constructed beyond the south-western corner of the site, south of, and with access from the A17. The nature of these structures is not recorded, however given their position agricultural storage buildings would appear most likely.
1955 (1:25,000)	No significant on-site changes were noted. (Detail Limited due to map scale)	The blacksmith facilities to the south of the site were no longer shown, however this may be a result of the small map scale. Park House and grounds are no longer shown. The area appears to have undergone agricultural redevelopment. Each of the on-site farms remained present at this time, including Six Hundreds Farm.

2.3 Unexploded Ordnance

In general accordance with CIRIA report C681 (Stone *et al* 2009), a non-UXO specialist screening exercise has been carried out for the site.

The Zetica bomb risk map for Wickford indicates that the site is within an area with a 'low' bomb risk. This is likely to be due to its predominantly rural Lincolnshire location.

Further action to mitigate the risk is considered prudent by Zetica, although not essential. General awareness of the potential for UXO should be maintained during the development, but no further measures are anticipated. A copy of the map is presented in Appendix D.

2.4 Geology

No areas of Made Ground have been recorded by Envirocheck, or the BGS on, or in the vicinity of the site. Despite this, due to current and historical agricultural activity, which is likely to result in artificial turbation (ploughing/rotivation) of the near surface, nominal thicknesses of Made Ground are considered likely to be present.

Geological mapping published by the British Geological Survey (BGS) for the area indicates the site to be underlain by superficial Tidal Flat Deposits. These materials are typically described as consolidated soft silty clay, containing layers of peat, sand, and basal gravels.

A borehole record provided by the BGS for an excavation undertaken immediately south of the site recorded 'silt' to a depth of 2.44m, underlain by 'sand and gravel' to approximately 3.7m bgl. These strata appear consistent with Tidal Flat Deposits (inclusive of basal gravel).

An additional borehole scan, associated with an excavation located approximately 1.5km east of the site (TF24SW2) proved tidal flat deposits consisting of 2.59m (8'6") of grey clay, underlain by black silt to a depth of 4.1m. This was underlain by gravel which resulted in the termination of the borehole.

Tidal Flat deposits have therefore been recorded to depths at, or in excess of between 2.44m and 4.1m bgl in the vicinity of the site.

The solid geology (bedrock) underlying the eastern half of the site is recorded by the BGS to comprise strata from the Ampthill Clay Formation of Jurassic age (157 to 163 million years). The horizons within this unit are typically recorded to comprise smooth or slightly silty mudstone with grey argillaceous limestone nodules. This unit is estimated by the BGS to be up to 90m in thickness locally.

Underlying the west of the site, according to the BGS are solid strata from the West Walton Formation, of Jurassic age (157 million years). The West Walton Formation is described by the BGS as comprising calcareous mudstones, silty mudstone, and siltstones, with subordinate fine-grained sandstones and argillaceous limestone or siltstone nodules. The unit is estimated to exhibit a thickness of up to 20m locally and an approximate dip of 5 degrees to the east.

Based on mapping published by the BGS, the Ampthill Clay Formation conformably overlies the West Walton Formation

A fault is shown by the BGS extending onto the southern section of the site from the west. The fault runs west to east through the region, and terminates close to the centre point of the site.

2.5 Mining and Mineral Extraction

According to the Envirocheck Report the site is not located within an area that 'might be affected by coal mining activity'.

According to Envirocheck, no hazards associated with 'non-coal' mining are recorded within the vicinity of the site.

The Envirocheck report has not identified any man-made, mining, or natural cavities within 500m of the site.

No BGS recorded mineral sites have been identified by Envirocheck on-site, or within 500m.

2.6 Ground Stability

The potential ground stability hazards associated with the geology at the site, as outlined in the Envirocheck Report, have been summarised below:

- Collapsible Ground – No Hazard
- Compressible Ground – Moderate
- Ground Dissolution – No Hazard
- Landslide Ground Instability – Very Low
- Running Sand –Moderate
- Shrinking or Swelling Clay – Low

It is anticipated that the moderate risk attributed to compressible ground and running sand hazards may be associated with the presence of superficial Tidal Flat deposits at the site.

2.7 Radon

The Indicative Atlas of Radon for England and Wales and the Envirocheck Report indicate that the site is within a Lower Probability Radon Area (with less than 1% of homes estimated to be at or above the Action Level). Therefore, the BGS and the Building Research Establishment Radon Guidance Document indicate basic radon protection measures are unlikely to be required in the construction of new homes or buildings on site.

2.8 Hydrogeology

Both the superficial Tidal Flat Deposits, and solid geology from the Ampthill Clay and West Walton Formations which underlie the site have been classified as Unproductive units. These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river/lake/wetland baseflow.

Groundwater below the site is considered by Envirocheck to exhibit 'unproductive' vulnerability (unproductive bedrock aquifer, unproductive superficial aquifer), but high pollutant (transmission) speed as a result of fracture porosity. Superficial recharge is estimated to be low. Envirocheck do not record a significant risk relating to the presence of soluble rocks at the site.

Whilst the storage and transmission of significant groundwater is considered unlikely, due to the unproductive and predominantly cohesive character of the underlying geology, the presence of sand, or basal gravel within the Tidal Flat deposits is likely to result in the localised presence of perched groundwater. Such groundwater is likely to be laterally discontinuous,

and is considered unlikely to be hydraulically connected to regional groundwater aquifers or surface waters.

Three groundwater discharge consents have been recorded by Envirocheck within 250m of the site. Two private/domestic wastewater treatment facilities (likely associated with a residential property) situated 84m east/south-east, and 139m south of the site were authorised to discharge 'to land', and to an unspecified watercourse. The nature of these discharges has not been unrecorded. License to discharge was revoked on 1st October 1996, and 17th March 1992 respectively.

St John the Baptist Church, located 219m south of the site held authorisation for the discharge of soakaway drainage. The nature of the discharge is unrecorded, however assumed to be surface water drainage. The consent was revoked on 1st October 1996.

One groundwater abstraction consent has been issued within 250m of the site. Abstraction from a point located approximately 45m west of the site is authorised in perpetuity for domestic and agricultural use. The geological unit associated with this abstraction is recorded to comprise 'fluvial sands and gravels'. It is considered unlikely based on BGS records that this unit underlies the site.

The site is not located within a groundwater Source Protection Zone (SPZ). No SPZs have been recorded within 500m of the site.

No Water Industry Act referrals have been recorded with respect to groundwater discharges within 1km.

2.9 Hydrology

Numerous artificially navigated drainage ditches, forming an interconnected drainage network have been identified across the site, forming the field boundaries of many of the cultivated fields. Several of these ditches (such as Skerth Drain), have been identified and designated as formal watercourses. Other on-site channels, whilst not formally designated or named, connect directly to such channels, either within or outwith the site boundary. The ditches situated within the site boundary, including a larger channel referred to as Labour in Vain, flow into channelised watercourses located along the northern (Head Dike), and eastern (Holland Dike) boundaries. A number of these watercourses (including Labour in Vain, which extends off site to the south) in turn flow into the South Forty Foot Drain, one of the principal local watercourses, which flows west to east through the region, passing the south of the site at a distance of approximately 1.5km. Holland Dike flows south to north, joining Head Dike, before flowing south-east toward a confluence with Hammond Beck (synonymous with the South Forty Foot Drain) approximately 2.2km south-east of the site.

It is understood that a number of the internal drainage ditches are maintained by Black Sluice Internal Drainage Board, and that water levels within the network is managed by pumping to an adjacent watercourse (Head Dike) using equipment situated toward the north-eastern periphery of the site.

No river quality data has been provided by the Environment Agency with respect to watercourses in the vicinity (1km) of the site.

Five surface water discharge consents have been recorded by Envirocheck within 250m of the site, two of which are positioned within the existing site boundary. The first of the on-site consents is held by Mark Andrew Interiors Ltd, for the discharge of sewage (final treated effluent) from a domestic property. The receiving water is recorded to be a tributary of the south forty-foot drain. This consent is positioned within the on-site component of Elm Grange Farm and is understood to be active. Another authorisation recorded within the site boundary is held by North Kesteven District Council, enabling the discharge of sewage (final treated effluent) to Skerth Drain, Heckington Fen, a watercourse which crosses the southern section of the site.

A discharge consent associated with the off-site portion of Elm Grange Farm (Approximately 10m south of the site) authorises the discharge of surface water (drainage) to a surface water receptor. The receiving water is not specified, or is unknown. The consent remains active.

A discharge consent, positioned by Envirocheck approximately 74m south of the site, is held by a domestic property and authorises the discharge of sewage (final treated effluent) to a culverted watercourse (Black Sluice).The authorisation is understood to be active.

Multiple domestic properties located approximately 184m south of the site hold joint authorisation for the discharge of sewage (final treated effluent) to a surface watercourse referred to as 'Dyke north of Park House'. The consent remains active.

One surface water abstraction consent has been issued within 250m of the site. R Mablethorpe and Son are authorised to abstract water from a point located approximately 13m north of the site for use in direct spray irrigation. This authorisation us understood to be active.

The site is not located within a surface water Source Protection Zone (SPZ). No SPZs have been recorded within 500m of the site.

No Integrated Pollution Control (IPC), or Integrated Pollution Prevention and Control (IPPC) consents have been issued within 500m of the site.

Four Local Authority Pollution Prevention and Control (LAPPC) consents have been identified by Envirocheck within 500m of the site. Two service stations, both referred to as 'Four Winds Service Station', situated approximately 53m and 230m south of the site respectively, and serving the eastbound and westbound carriageways of the A17, are authorised to operate as petrol filling stations (PG1/14). The consents were first issued on 1st January 2007 and are understood to remain active. An additional facility, identified as De Rodes Self Service Station, and located 272m south of the site is authorised to operate as a petrol filling station (PG1/14). Consent to operate was issued on 1st January 2007. This facility is understood to remain active. Two duplicate records relating to this facility have been reported by Envirocheck.

One pollution incident has been recorded by Envirocheck within 500m of the site. This incident occurred within a field unit situated close to the centre of the development area on 20th June 1997, and involved the release of kerosene fuel oil. The event was designated Category 3 (minor incident) status by the Environment Agency. No 'substantiated' pollution incidents have been identified in the vicinity of the site (within 500m).

There are no records of enforcement and prohibition notices or prosecutions relating to authorised processes listed within 500m of the site within the Envirocheck Report.

No Water Industry Act referrals have been recorded with respect to discharges to surface water receptors within 500m.

2.10 Flood Risk

The site is recorded within the Envirocheck Report as possessing potential for groundwater flooding to occur at the surface.

The majority of the site is situated within a Zone 2 and Zone 3 floodplain, representing a risk of flooding and extreme fluvial flooding equivalent to a frequency of 1:100 to 1:1000 (Zone 2) and 1:100 or greater (Zone 3) without defences. The site is not understood to benefit from flood defences and there are no flood water storage areas in the vicinity of the site.

A flood risk assessment has been produced for the site in June 2022 by JBA Consulting in support of an Environmental Impact Assessment. The FRA included flood modelling, which concluded that maximum flood levels across the central and northern sections of the site could potentially reach an elevation of 1.951m AOD, and across the south-east, flood levels could reach 1.858m AOD. Fluvial flooding was not anticipated across the southern, south-eastern, and south-western peripheries of the site. The breach point, with respect to flooding was anticipated to be the north-eastern corner of the site, and the principal flood risk was associated with Head Dike, located immediately beyond the northern site boundary.

A copy of the flood model output is included as Appendix E. Further detail with respect to flood risk is available within the Environmental Impact Assessment produced in June 2022.

No further consideration of flood risk is given in this report.

2.11 Waste Management and Hazardous Substances

No historical landfills, Environment Agency registered landfills, BGS recorded Landfills, or registered waste treatment, transfer or disposal sites have been recorded by Envirocheck within 500m of the site.

No Registered Radioactive Substances records have been recorded by the Environment Agency/Envirocheck within 500m of the site.

No records of explosive sites, planning hazardous substance consents or enforcements, Control of Major Accident Hazards (COMAH) or Notification of Installations Handling Hazardous Substances (NIHHS) sites have been identified within 1km of the site.

2.12 Contemporary Trade Directories

Three active, and seven inactive Contemporary Trade Directory Entries have been identified by Envirocheck within 250m of the site.

The three active entries refer to Petrol Filling Stations located 43m, 56m, and 57m south of the site, respectively.

Inactive entries recorded include; petrol filling stations (23m, 52m and 59m south), blind, awning and canopy manufacture and sales (27m south), a car dealership (32m south), cabinet manufacture (58m south) and boatbuilding and repair (74m south).

A gas pipeline is recorded by Envirocheck crossing the site. This infrastructure is understood to comprise a subsurface 900mm diameter pipe which runs approximately north to south through the centre of the site. The location of the gas pipeline is shown in a site layout drawing produced by Ethical Power Ltd. (Drawing ref. EP-1456-GA-01 dated 18th July 2022) and presented in Appendix A. Information regarding the pressure of this pipeline has not been provided. It is understood that the proposed development will not require a diversion, and that pipework will remain unaltered.

2.13 Sensitive Land Uses

During the site walkover, no significant or sensitive ecological receptors were identified on site and no evidence of invasive weeds, including Japanese Knotweed, was observed. Although a visual inspection was carried out, this does not represent a full invasive weeds survey and as such may need to be carried out by a specialist at a later date (if one has not already taken place).

The site is located within an area designated by the Environment Agency as a surface water Nitrate Vulnerable Zone (NVZ), and referred to as 'Black Sluice idb, draining to the South Forty Foot Drain NVZ'.

No Sites of Special Scientific Interest (SSSI), green belt areas, National Parks, Ancient Woodland, or Areas Outstanding Natural Beauty (AONB) have been recorded within 500m of the site.

3.0 PRELIMINARY RISK ASSESSMENT AND EXPOSURE MODEL

A Conceptual Model represents the possible relationships between potential contaminant sources, pathways, and receptors in line with the Statutory Guidance to Part 2a of the Environmental Protection Act 1990. The following Preliminary Risk Assessment is based on the results of the Desk Study and the site walkover.

3.1 Potential Contamination Sources and Contaminants of Concern

On-site

Potential contaminant sources identified at the site are outlined below:

- Use of the site for agricultural purposes has predominated since at least 1888. As a result, whilst the potential severity and scale of associated contamination is considered to be relatively limited, pesticides/herbicides use throughout the agricultural portion of the site is considered possible. A site walkover has identified agricultural chemicals ('Entargo' and 'Stabilan 750') within the farming complex situated toward the south-west of the site. Entargo is a systemic carboxamide based fungicide (provided in suspension with propane-1,2-diol), which is used to control diseases in wheat and barley crops. Stabilan 750 is an organic chloride salt (Chlormequat chloride) which is used as a plant growth regulator. These chemicals were stored within a weatherproof structure, however were not bunded, and were situated on bare ground. On this basis it is considered possible that contamination associated with these chemicals may be present both within the farm complex, and at lower concentrations across agricultural sections of the site due to diffuse application to crops.
- Due to the size of the individual field units present, agriculture is likely to have been mechanised, particularly during later years. Localised contamination due to fuel or oil leaks associated with mechanised agriculture is considered possible. Potential contaminants of concern could include hydrocarbons (TPH, PAHs, fuel, and lubricant oils), BTEX, and MTBE.
- Based on the historical course of development (inclusive of agricultural use and the presence of farming infrastructure across the east and south-west of the site) it is considered possible that a nominal thickness of Made Ground may be present. Depending on type and origin it is considered possible that this Made Ground may be contaminative.
- A pollution incident is recorded to have occurred within a field unit situated close to the centre of the development area on 20th June 1997. This incident involved the release of kerosene fuel oil. The event was designated Category 3 (minor incident) status by the Environment Agency.
- A large soil stockpile has been identified within a farmyard complex situated toward the east of the site. This stockpile was not covered, and was placed on open ground. The provenance of this material is unknown. Depending on the origin and composition of material comprising this stockpile, and in the absence of further information, it is considered possible that the stockpile could be contaminated.
- Due to the age and condition of several of the existing on-site structures identified during the site walkover, and in particular the farm buildings toward the south-west of the site

which possessed cement sheet roofing and cladding, the presence of structural asbestos containing materials is considered likely. It is understood that no existing buildings will be demolished as part of the proposed development.

Off-site

The site is located within a predominantly rural area situated approximately mid-way between the towns of Boston and Sleaford, Lincolnshire. The area surrounding the site has been predominantly agricultural for the majority of recent recorded history. Local industrial use is limited and small scale, however a number of potentially contaminative activities have been identified in the vicinity of the site, particularly along the A17 which runs alongside the southern site boundary.

Identified potential contamination sources are outlined below:

Historical

- A small-scale metal working facility (blacksmith) was noted approximately 5m south of the site between the 1880s and 1950s. Whilst typically these industries are considered potentially contaminative, due to relative scale, it is considered unlikely that a contaminant pathway may have been established with respect to the site. As a result, this potential source will not be considered further.

- Several petrol filling/service stations have historically been identified approximately 43m, 56m, and 57m south of the site respectively. These facilities remain active. Potential associated contaminants of concern include; PAHs, TPHs (fuel and lubricating oils), BTEX and MTBE.

- A number of potentially contaminative contemporary activities have been identified within the vicinity of the site. Identified activities include; blind, awning and canopy manufacture and sales (27m south), a car dealership (32m south), cabinet manufacture (58m south) and boatbuilding and repair (74m south). Potential contaminants of concern associated with the identified activities include; pH adjusters, phenols, SVOCs, VOCs, PAHs, TPHs, asbestos, BTEX and MTBE. Any contaminative impact to the site as a result of these activities is likely to be mitigated by their limited scale.

3.2 Potential Pathways

The potential pathways identified for the site include the following:

- Direct human (dermal) contact
- Inhalation (dust)
- Inhalation (gases and vapours)
- Direct contact with aggressive ground conditions
- Leaching and migration via groundwater and surface water

- Migration of ground gas and vapours via permeable soils

The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. Whilst dermal, and inhalation pathways are considered relevant to this end use (with respect to construction and maintenance workers) the consumption of homegrown produce (ingestion pathway) is considered unlikely. Consideration of existing agricultural use is beyond the scope of this investigation.

3.3 Potential Receptors

The potential receptors identified for the site include the following:

- Groundworkers (construction, demolition, and future maintenance workers)
- Building materials (buried concrete and underground services)
- Controlled waters: Groundwater (underlying superficial Tidal Flat Deposits and solid geology (Ampthill Clay and West Walton Formations) designated unproductive units), and Surface Water receptors (On-site drainage channels (including Skerth Drain and Labour in Vain) which flow into more significant watercourses (including Head Dike) present at the site margins.

Both the superficial Tidal Flat Deposits, and solid geology from the Ampthill Clay and West Walton Formations which underlie the site have been classified as Unproductive units.

Numerous drainage channels and watercourses have been identified on, and in the vicinity of the site. Viable contaminant linkage involving on site contamination sources and surface water receptors is considered likely.

The overall sensitivity of the site with respect to the aquatic environment is considered moderate.

3.4 Summary of Potential Contaminant Linkages

Table 3.2 lists the plausible contaminant linkages identified for the site. These are considered potentially unacceptable risks in line with guidelines published in Environment Agency (2021) Land Contamination Risk Management (LCRM), and additional risk assessment may be required. Linkages have been assessed in general accordance with guidance provided in the CIRIA Report C552 (Rudland *et al* 2001) but with the addition of a 'no linkage' category as detailed in Table 3.1.

It should be noted that whilst the risk assessment process undertaken in this report may identify potential risks to groundworkers (construction and future maintenance workers), consideration of occupational health and safety issues is beyond the scope of this report and needs to be considered separately in the Construction Phase Health and Safety Plan.

Table 3.1: Risk Assessment Process

	Consequence			
Probability	**Severe**	**Medium**	**Mild**	**Minor**
High Likelihood	Very high risk	High risk	Moderate risk	Low risk
Likely	High risk	Moderate risk	Low risk	Very low risk
Low Likelihood	Moderate risk	Low risk	Low risk	Very low risk
Unlikely	Low risk	Very low risk	Very low risk	Very low risk
No Linkage	No risk			

Table 3.2: Preliminary Exposure Model – Source Pathway Receptor Contaminant Linkages

Source(s)	Possible Pathway(s)	Receptor(s)	Probability	Consequence	Risk	Comments
On-Site: Agricultural use of the site, including the use of agricultural chemicals and potential leaks from mechanised agricultural equipment. COC: Herbicides, fungicides, pesticides, fertilisers, TPHs, PAHs (fuels and lubricant oils) BTEX and MTBE	Direct human contact (dermal), Inhalation (dust, gases, and vapours), Leaching and migration via groundwater and runoff.	Construction and maintenance workers, Controlled waters: Groundwater (Tidal Flat Deposits, Ampthill Clay, and West Walton Formations) and Surface Water receptors (drainage ditches and associated watercourses).	Low Likelihood (human receptors) Likely (controlled waters (surface waters)	Mild	Low	The majority of the site has been used for agricultural purposes since at least 1888. A site walkover identified agricultural chemicals within the farming complex situated toward the south-west of the site. It is considered possible that contamination associated with these chemicals may be present both within the farm complex, and at lower concentrations across agricultural sections of the site due to diffuse application to crops. Due to the size of the individual field units present, agriculture is likely to have been mechanised, particularly during later years. Localised contamination due to fuel or oil leaks associated with mechanised agriculture is considered possible. The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. It is considered likely that construction and maintenance workers will come into direct contact with contaminants (if present) during the construction and operation phases respectively, however it is assumed that good working practices including the use of appropriate PPE, regular hand washing, and other hygiene techniques will be adopted which would reduce the likelihood of long-term exposure. Consideration of existing agricultural use is beyond the scope of this investigation. The current and proposed presence of open ground throughout the development area following redevelopment enables/will enable the infiltration of meteoric water and will enable direct access to underlying soils. The underlying superficial Tidal Flat deposits and solid geology from the Ampthill Clay and West Walton formations have been designated unproductive units. These deposits are considered to exhibit very limited permeability and storage characteristics, and are very low sensitivity receptors. Numerous drainage channels and watercourses have been identified on, and in the vicinity of the site. Due to the relative impermeability of the underlying geology, runoff is considered the most likely contaminant linkage with respect to surface waters, and is likely to be significant.

Source(s)	Possible Pathway(s)	Receptor(s)	Probability	Consequence	Risk	Comments
On-Site: Made Ground on site. COC: Metals, semi-metals, TPHs, PAHs, asbestos, BTEX and MTBE	Direct human contact (dermal), Inhalation (dust, gases, and vapours), Leaching and migration via groundwater and runoff.	Construction and maintenance workers, Controlled waters: Groundwater (Tidal Flat Deposits, Ampthill Clay, and West Walton Formations) and Surface Water receptors (drainage ditches and associated watercourses).	Low Likelihood (human receptors) Likely (controlled waters (surface waters)	Mild	Low	Based on the historical course of development (inclusive of agricultural use and the presence of farming infrastructure across the east and south-west of the site) it is considered possible that a nominal thickness of Made Ground may be present. Depending on type and origin it is considered possible that this Made Ground may be contaminative. The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. It is considered likely that construction and maintenance workers will come into direct contact with contaminants (if present) during the construction and operation phases respectively, however it is assumed that good working practices including the use of appropriate PPE, regular hand washing, and other hygiene techniques will be adopted which would reduce the likelihood of long-term exposure. Consideration of existing agricultural use is beyond the scope of this investigation. The current and proposed presence of open ground throughout the development area following redevelopment enables/will enable the infiltration of meteoric water and will enable direct access to underlying soils. The underlying superficial Tidal Flat deposits and solid geology from the Ampthill Clay and West Walton formations have been designated unproductive units. These deposits are considered to exhibit very limited permeability and storage characteristics, and are very low sensitivity receptors. Numerous drainage channels and watercourses have been identified on, and in the vicinity of the site. Due to the relative impermeability of the underlying geology, runoff is considered the most likely contaminant linkage with respect to surface waters, and is likely to be significant.

Source(s)	Possible Pathway(s)	Receptor(s)	Probability	Consequence	Risk	Comments
On-Site: Pollution incident which occurred on 20th June 1997. COC: Kerosene	Direct human contact (dermal), Inhalation (dust, gases, and vapours), Leaching and migration via groundwater and runoff.	Construction and maintenance workers, Controlled waters: Groundwater (Tidal Flat Deposits, Ampthill Clay, and West Walton Formations) and Surface Water receptors (drainage ditches and associated watercourses).	Low Likelihood (human receptors) Likely (controlled waters (surface waters)	Mild	Low	A pollution incident is recorded to have occurred within a field unit situated close to the centre of the development area on 20th June 1997. This incident involved the release of kerosene fuel oil. The event was designated Category 3 (minor incident) status by the Environment Agency, indicating limited impact. Given the age, and organic nature of the contaminant involved, a measure of contaminant degradation is considered likely. The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. It is considered likely that construction and maintenance workers will come into direct contact with contaminants (if present) during the construction and operation phases respectively, however it is assumed that good working practices including the use of appropriate PPE, regular hand washing, and other hygiene techniques will be adopted which would reduce the likelihood of long-term exposure. Consideration of existing agricultural use is beyond the scope of this investigation. The current and proposed presence of open ground throughout the development area following redevelopment enables/will enable the infiltration of meteoric water and will enable direct access to underlying soils. The underlying superficial Tidal Flat deposits and solid geology from the Ampthill Clay and West Walton formations have been designated unproductive units. These deposits are considered to exhibit very limited permeability and storage characteristics, and are very low sensitivity receptors. Numerous drainage channels and watercourses have been identified on, and in the vicinity of the site. Due to the relative impermeability of the underlying geology, runoff is considered the most likely contaminant linkage with respect to surface waters, and is likely to be significant.

Source(s)	Possible Pathway(s)	Receptor(s)	Probability	Consequence	Risk	Comments
On-Site: Stockpiled soil within eastern Farm Complex. COC: Metals, semi-metals, TPHs, PAHs, asbestos, BTEX and MTBE	Direct human contact (dermal), Inhalation (dust, gases, and vapours), Leaching and migration via groundwater and runoff.	Construction,and maintenance workers, Controlled waters: Groundwater (Tidal Flat Deposits, Ampthill Clay, and West Walton Formations) and Surface Water receptors (drainage ditches and associated watercourses).	Low Likelihood (human receptors) Likely (controlled waters (surface waters)	Mild	Low	A large soil stockpile has been identified within a farmyard complex situated toward the east of the site. This stockpile was not covered, and was placed on open ground. The provenance of this material is unknown. Depending on the origin and composition of material comprising this stockpile, and in the absence of further information, it is considered possible that the stockpile could be contaminated. The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. It is considered likely that construction and maintenance workers will come into direct contact with contaminants (if present) during the construction and operation phases respectively, however it is assumed that good working practices including the use of appropriate PPE, regular hand washing, and other hygiene techniques will be adopted which would reduce the likelihood of long-term exposure. Consideration of existing agricultural use is beyond the scope of this investigation. The current and proposed presence of open ground throughout the development area following redevelopment enables/will enable the infiltration of meteoric water and will enable direct access to underlying soils. The underlying superficial Tidal Flat deposits and solid geology from the Ampthill Clay and West Walton formations have been designated unproductive units. These deposits are considered to exhibit very limited permeability and storage characteristics, and are very low sensitivity receptors. Numerous drainage channels and watercourses have been identified on, and in the vicinity of the site. Due to the relative impermeability of the underlying geology, runoff is considered the most likely contaminant linkage with respect to surface waters, and is likely to be significant.

Source(s)	Possible Pathway(s)	Receptor(s)	Probability	Consequence	Risk	Comments
Off-site: Petrol Filling Stations situated approximately 43m, 56m and 57m south of the site. COC: PAHs, TPHs, BTEX and MTBE	Leaching and lateral migration onto site. Direct human contact (dermal), Inhalation (dust, gases, and vapours),	Construction and maintenance workers.	Low Likelihood	Medium	Low	Several petrol filling/service stations have historically been identified approximately 43m, 56m, and 57m south of the site respectively. These facilities remain active. The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. It is considered likely that construction and maintenance workers will come into direct contact with contaminants (if present) during the construction and operation phases respectively, however it is assumed that good working practices including the use of appropriate PPE, regular hand washing, and other hygiene techniques will be adopted which would reduce the likelihood of long-term exposure. The current and proposed presence of open ground throughout the development area following redevelopment enables/will enable direct access to underlying soils. The underlying superficial Tidal Flat deposits and solid geology from the Ampthill Clay and West Walton formations have been designated unproductive units. These deposits are considered to exhibit low permeability and transmissivity.
Off-site: Contemporary commercial and industrial activities surrounding the site COC: hydrocarbons (TPH, PAHs), VOCs, SVOCs, pH adjusters, asbestos, phenols, pH adjusters, metals/semi-metals, BTEX and MTBE.	Leaching and lateral migration onto site. Direct human contact (dermal), Inhalation (dust, gases, and vapours),	Construction and maintenance workers.	Low Likelihood	Medium	Low	A number of potentially contaminative contemporary activities have been identified within the vicinity of the site including; blind, awning and canopy manufacture and sales, a car dealership, cabinet manufacture, and boatbuilding and repair. Any contaminative impact to the site as a result of these activities is likely to be mitigated by their limited scale. The proposed development is restricted to infrastructure, and will not involve the construction of permanently occupied structures. It is considered likely that construction and maintenance workers will come into direct contact with contaminants (if present) during the construction and operation phases respectively, however it is assumed that good working practices including the use of appropriate PPE, regular hand washing, and other hygiene techniques will be adopted which would reduce the likelihood of long-term exposure. The current and proposed presence of open ground throughout the development area following redevelopment enables/will enable direct access to underlying soils. The underlying superficial Tidal Flat deposits and solid geology from the Ampthill Clay and West Walton formations have been designated unproductive units. These deposits are considered to exhibit low permeability and transmissivity.

4.0 GEOTECHNICAL HAZARD IDENTIFICATION

Potential geotechnical hazards have been identified by Envirocheck during the Phase 1 Desk Study. These issues are presented below:

- Envirocheck record a 'moderate' risk relating to the presence of compressible ground and running sand hazards the site (potentially associated with the superficial Tidal Flat deposits recorded by the BGS to underlie the site).

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 Risk Evaluation

Based on historic and contemporary activity undertaken at, and in the area surrounding the site, the overall risk to human health and controlled waters from land contamination is considered **Low.** This designation is based on the proposed redevelopment of the site involving the construction of a new energy park.

It is considered unlikely that the site would be classified as Contaminated Land under Part 2a of the EPA 1990 however this has not been formally confirmed by the Local Authority.

Table 3.2 provides a summary of the geo-environmental hazards identified and the overall risk associated with each hazard. The overall site risk has been designated using qualitative judgement using the categories provided in Table 5.1.

Table 5.1: Assessed Overall Risk Categories for the Site from Land Contamination

Risk Category	Definition
Very High Risk	A significant contaminant linkage, including actual evidence of significant harm or significant possibility and significant harm, is clearly identifiable at the site (e.g., from visual or documentary evidence) under current conditions, with potential for legal and / or financial consequences for the site owner or other Responsible Person. Remediation advisable based on acute impacts being likely. Immediate action should be considered.
High Risk	A contaminant linkage is identifiable on site under current and future use conditions. Although likely, there is no obvious actual evidence of significant harm or significant possibility and significant harm under current conditions. Extent of risk is therefore subject to confirmation by investigation and risk assessment, and most likely to be deemed significant. Realisation of the risk is likely to present a substantial liability to the site owner or other Responsible Person. Remediation required for redevelopment and may also be required under Part 2A for existing receptors.
Moderate Risk	A contaminant linkage is identifiable on site under current and future use conditions. However, it is not likely to be a significant linkage under current conditions. It is either relatively unlikely that any such harm would be severe, and if any harm were to occur it is more likely, that the harm would be relatively mild. Actual extent of risk subject to confirmation by additional investigation and risk assessment and most likely to lie between no possibility of harm (under current conditions) and significant possibility of significant harm (under conditions created by new use). Remediation may be required for redevelopment.
Low Risk	Potential pathways and receptors exist but history of contaminative use or site conditions indicates that contamination is likely to be of limited extent and below the level of possibility of harm. Unlikely that the site owner or other Responsible Person would face substantial liabilities from such a risk. Precautionary investigations and risk assessment advisable on change of use. Any subsequent remedial works are likely to be relatively limited.
Very Low Risk	No contaminant linkage likely to exist under current or future conditions, but this cannot be completely discounted. If harm is realised, it is likely at worst to be mild or minor. Site not capable of being determined under Part 2A (in accordance with PPS23) where the Local Authority inspects the site. No further action needed.
No Risk	No contaminant linkage exists.

5.2 RECOMMENDATIONS FOR FURTHER WORK

Based on the findings of the Desk Study and Preliminary Risk Assessment, risk to human health and controlled water receptors from contamination at the site is considered Low, and the site is considered to be suitable for its intended end use. Further intrusive investigation of the site is not considered necessary at this stage, unless required to confirm the geotechnical characteristics of soils for purposes of building/foundation design.

Whilst no further works are considered necessary, a number of precautionary recommendations have been made which should be considered during the proposed development works.

- Should a site investigation be undertaken for purposes of geotechnical evaluation, it is recommended that these works also involve confirmation of the assumptions made within the Conceptual Site Model, inclusive of ground conditions, groundwater characteristics, and the contaminative status of soils and stockpiled soils at the site.

- It is recommended that during any groundworks, appropriately licenced contractors should be appointed, PPE/RPE should be worn as necessary by groundworkers, and a safe system of work is established prior to commencement.

- A watching brief should be maintained for contamination throughout the duration of the proposed development. In the event that any unforeseen gross or widespread contamination is encountered on site (i.e., hydrocarbons, ash, asbestos etc). Grange GeoConsulting Limited (or another appropriately qualified contaminated land specialist) should be contacted immediately. A representative will be able to attend site, examine any potentially contaminated materials, take soil samples as required, and provide specialist advice. This would be recorded and communicated to the Local Planning Authority (LPA) and an appropriate course of action determined.

- Specialist contractors should be employed as necessary to advise on the management of unexpected contamination.

6.0 REFERENCES

MILES, J. C. H., APPLETON, J. D., REES, D. M., GREEN, B. M. R., ADLAM. K. A. M. and MYRES. A. H. 2007. Indicative Atlas of Radon in England and Wales. Health Protection Agency and British Geological Survey. Report HPA-RPD-033.

RUDLAND, D. J., LANCEFIELD, R. M. and MAYELL, P. N. 2001. Contaminated land risk assessment. A guide to good practice. *CIRIA Report C552*. CIRIA, London. 158 pp.

SCIVYER, C. 2007. Radon: Guidance on protective measures for new buildings, extensions, conversions, and refurbishment (2007 edition). Building Research Establishment Report BR 211. BRE, Garston.

STONE, K., MURRAY, A., COOKE, S., FORAN, J. and GOODERHAM, L. 2009. Unexploded ordnance (UXO), a guide to the construction industry. *CIRIA Report C681*. CIRIA, London. 141 pp.

APPENDICES

Appendix A: DRAWINGS

Appendix B: SITE WALKOVER PHOTOGRAPHS

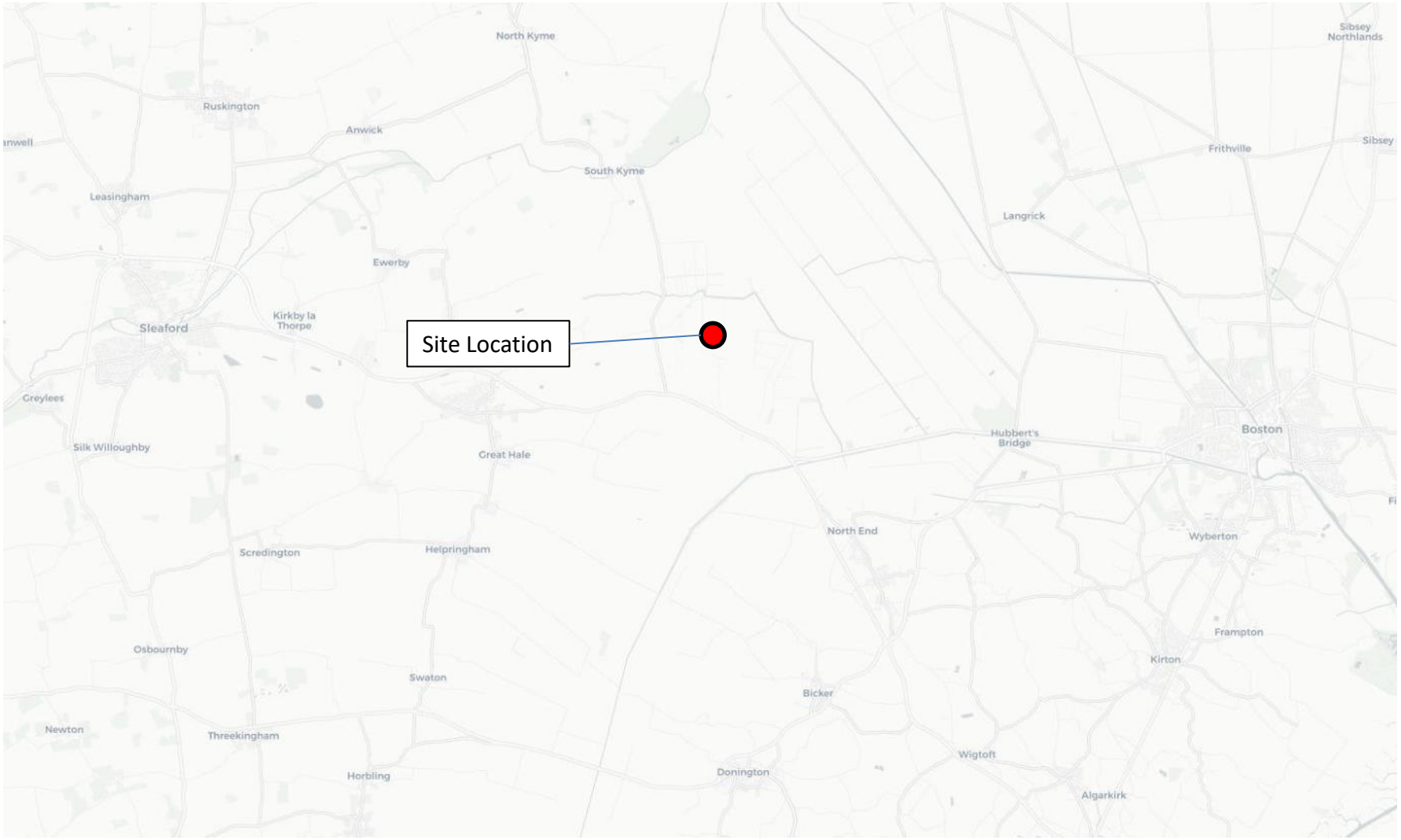
Appendix C: DESK STUDY RESEARCH INFORMATION

Appendix D: ZETICA UXB PLAN

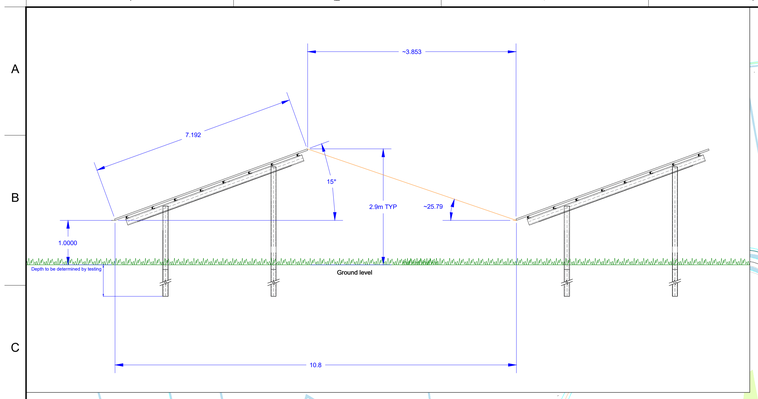
Appendix E: FLOOD MODEL OUTPUT

Appendix A

DRAWINGS



Grange Geo	**Site Location Plan** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) **Date**- August 2022	North	R22082-DWG1



LEGEND

- Project Boundary
- Perimeter Fence
- Ditch
- Water
- OHL
- Land Owner Access
- High Vegitation
- Gas
- Contours
- Maintenance Track
- Existing Road
- 20ft TX 3500 kVA
- 20ft TX 7000 kVA
- CCTV
- Gate

System description:	
DC Power kWp:	535300.790
AC Power kVA:	424512 (@Pmax) / 385920 (@Pnom)
Max. Export Capacity:	TBC
No. of modules:	781461
Module type:	Trina TSM-685NEG21C.20
Dimensions:	2.384x1.303x35
Substructure type:	3 modules in portrait
Modules per string:	27
Number of strings:	28943
Tilt angle:	15°
Shading angle:	~25.79°
Azimuth from South:	0°
Inverter model:	Sungrow SG350HX
Inverter power, kVA:	352 (@Pmax) / 320 (@Pnom)
No. of inverters:	1206.000
DC / AC ratio:	1.39 (@Pnom)

REV	Description			
	DESIGNED	CHECKED	APPROVED	DATE
1	Revised BESS layout			
	NB		JMM	18/07/22

ethical power

Unit 9. Dunchideock Barton . Dunchideock .
Exeter . Devon . EX2 9UA
(t) 01726 218618
[redacted]

Project Title: 1456-Heckington Fen

Description: Proposed Layout

Location co-ord: 52.993489°, -0.217489°

Site address: Heckington,
Sleaford, NG34 9NB,
United Kingdom

Drg No: EP-1456-GA-01

Scale: 1:5000@A0

Job No: 1456

Drawn by: NB /DT

Checked by: JMM

Date: 18/07/22

Appendix B

SITE WALKOVER PHOTOGRAPHS

Grange Geo

Photo Record

Heckington Solar Farm

Client- Ecotricity (Heck Fen Solar) Ltd.

Date- August 2022

Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

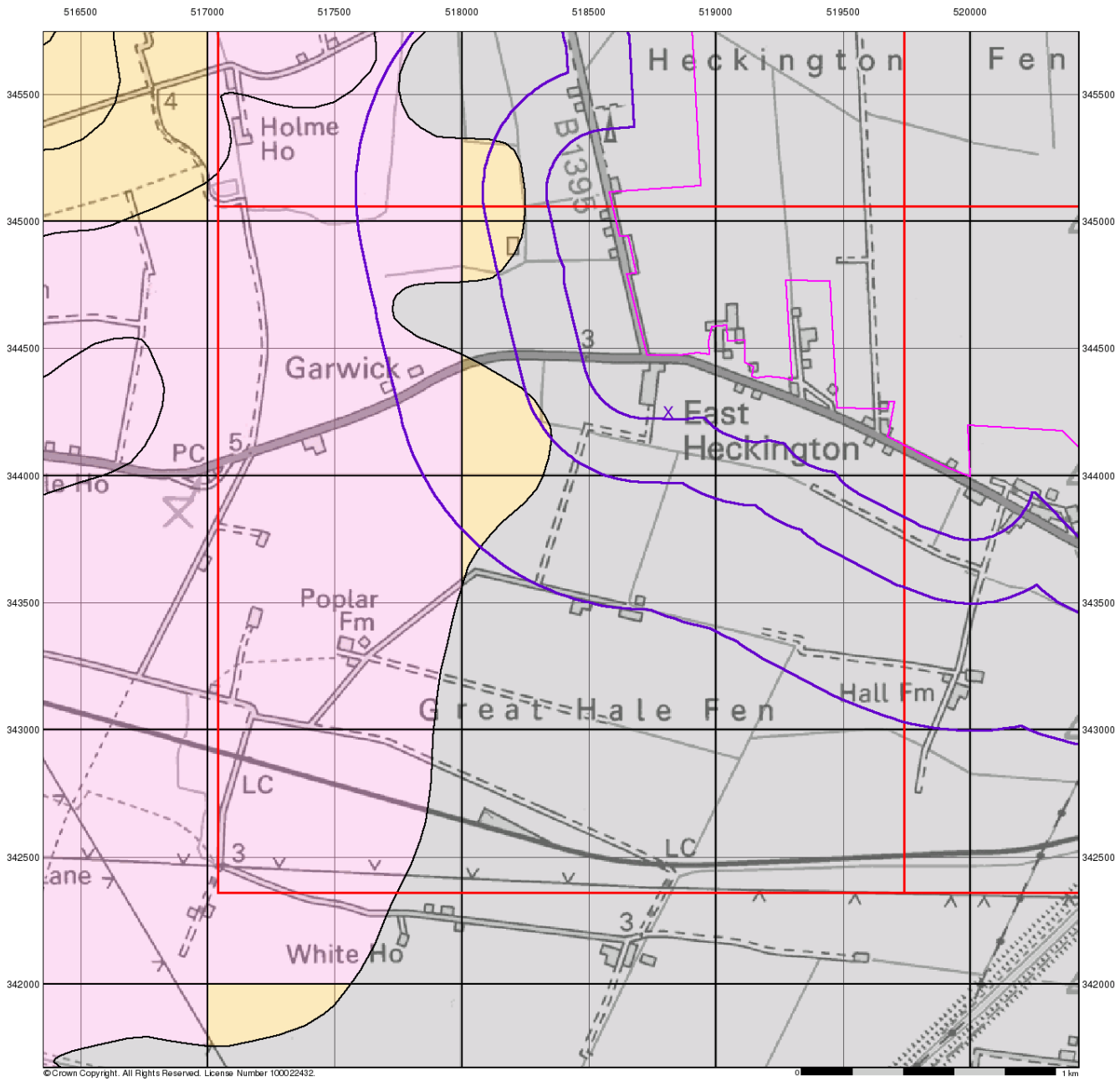
Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Grange Geo	**Photo Record** Heckington Solar Farm	**Client**- Ecotricity (Heck Fen Solar) Ltd. **Date**- August 2022	Appendix C

Appendix C

DESK STUDY RESEARCH INFORMATION



Groundwater Vulnerability

General

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

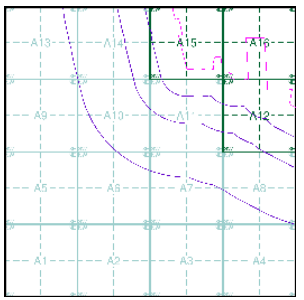
Agency and Hydrological

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



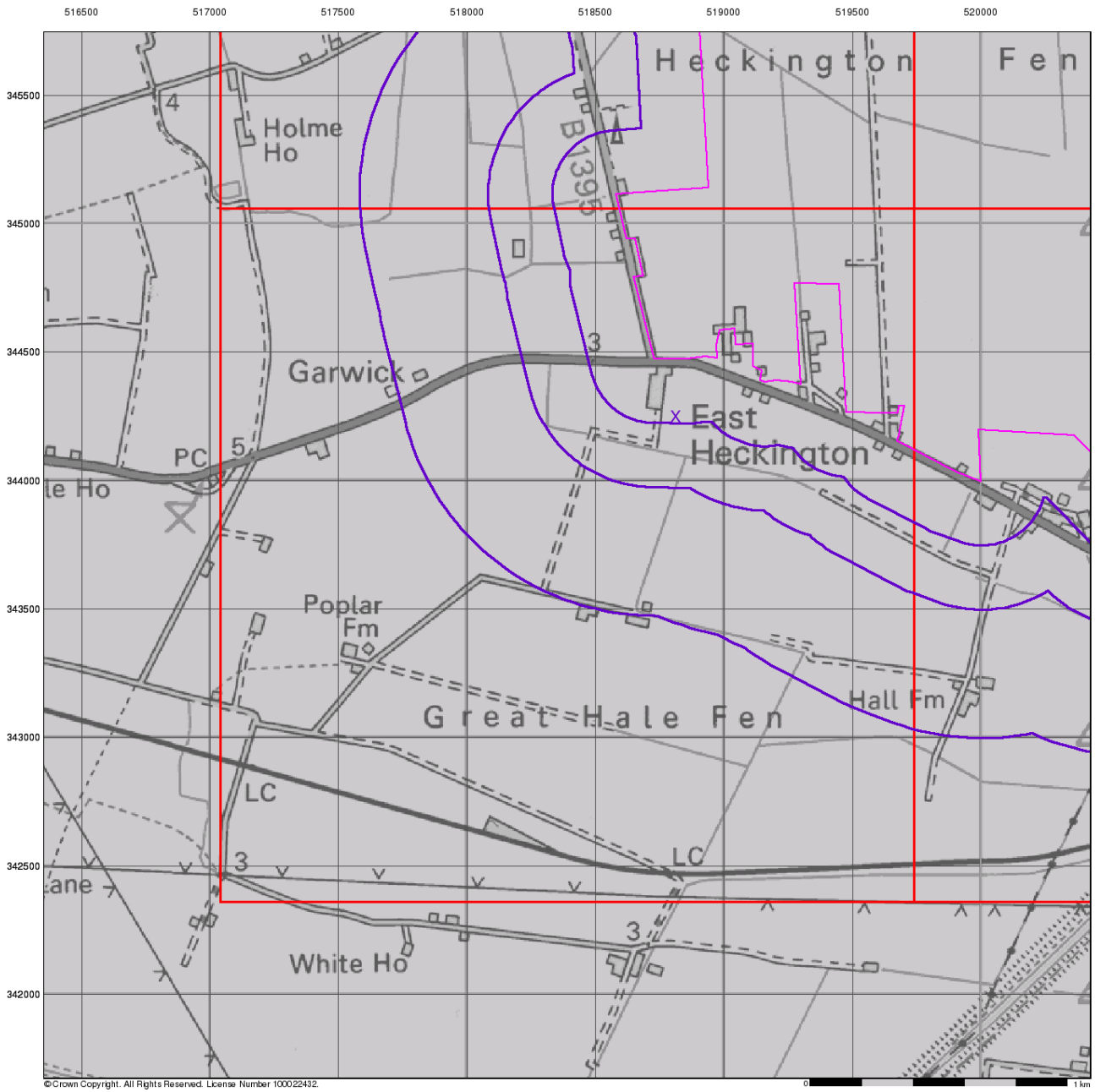
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

Bedrock Aquifer Designation

General

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

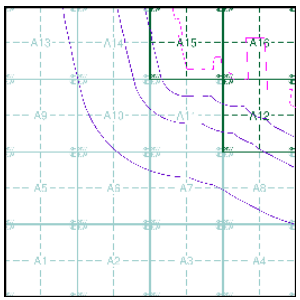
Slice | Map ID

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

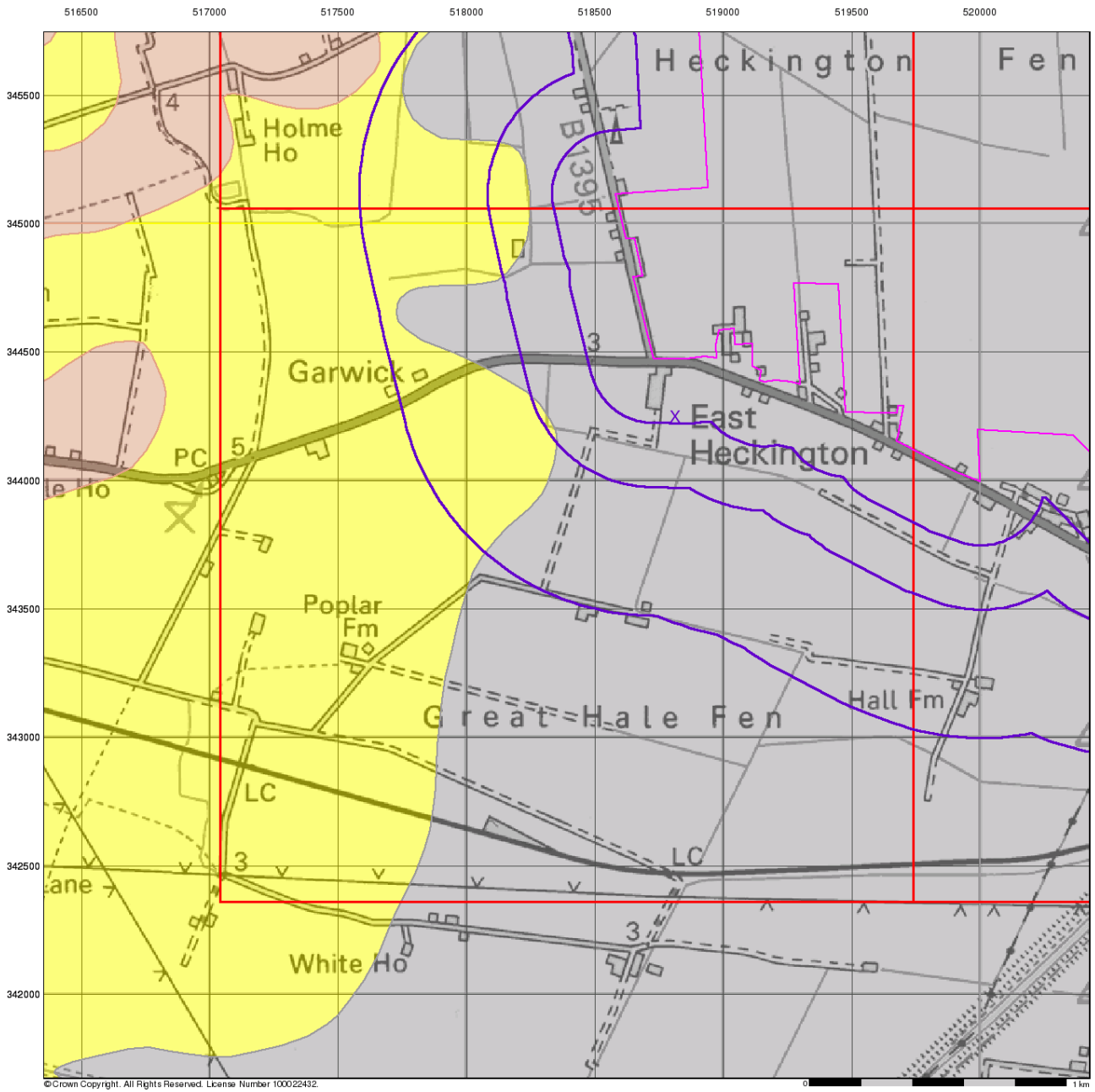


Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB



Grange Geo

Superficial Aquifer Designation

General

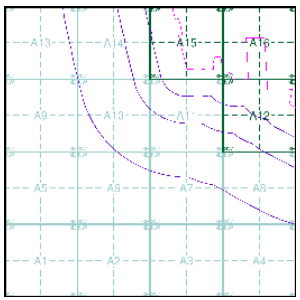
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

Agency and Hydrological

Geological Classes

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

Site Sensitivity Context Map - Slice A



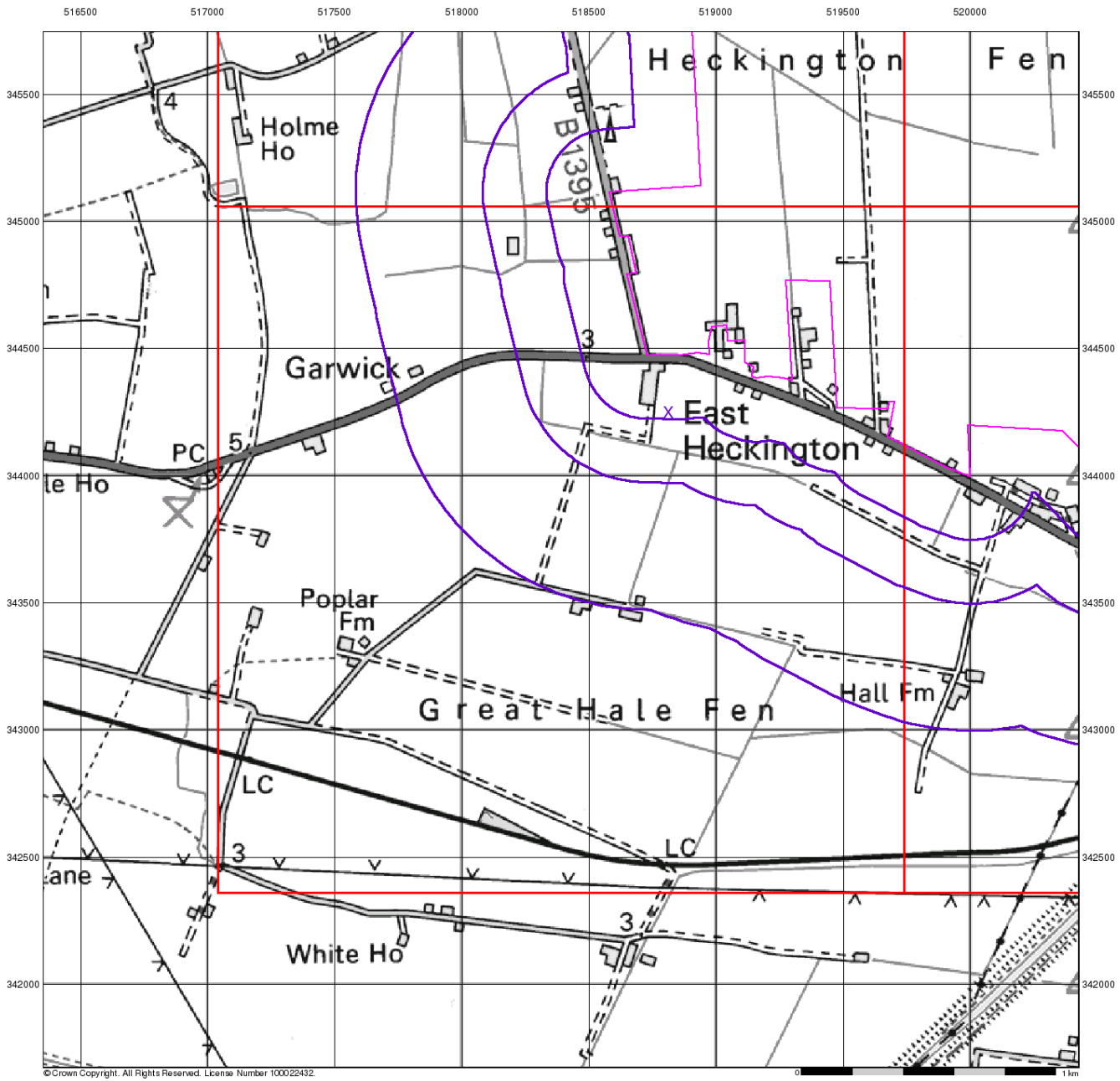
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

Source Protection Zones

General

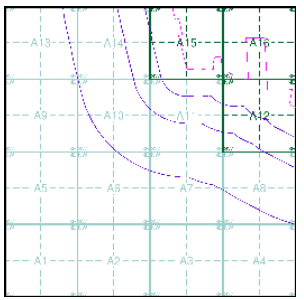
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Agency and Hydrological

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

Site Sensitivity Context Map - Slice A



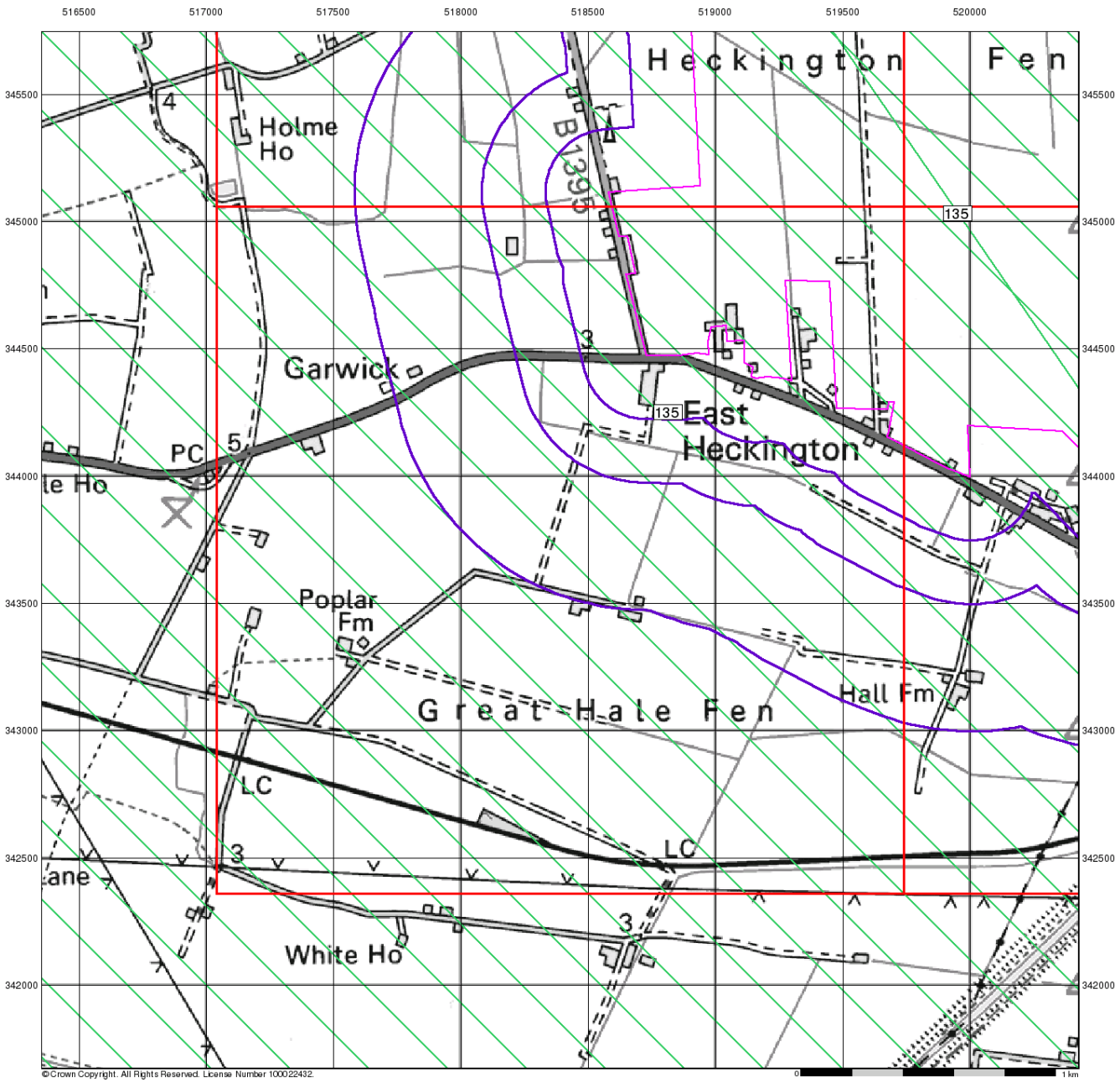
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

Sensitive Land Uses

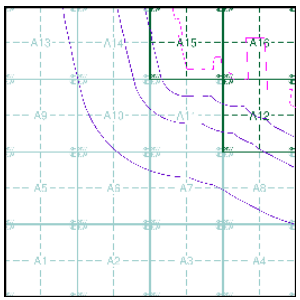
General

- 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



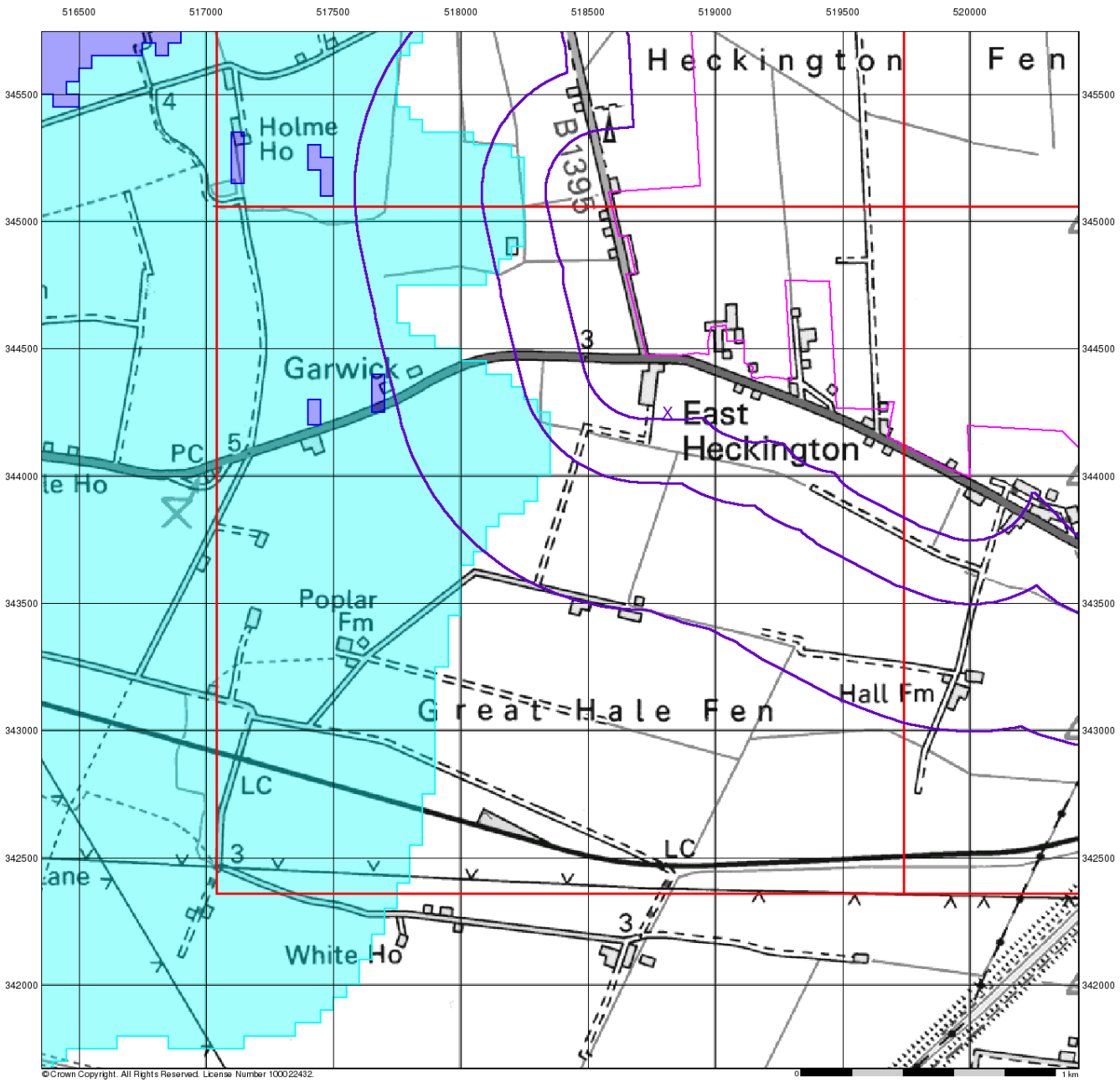
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



BGS Flood GFS Data

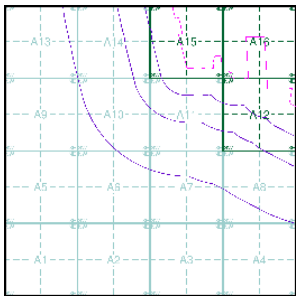
General

- 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



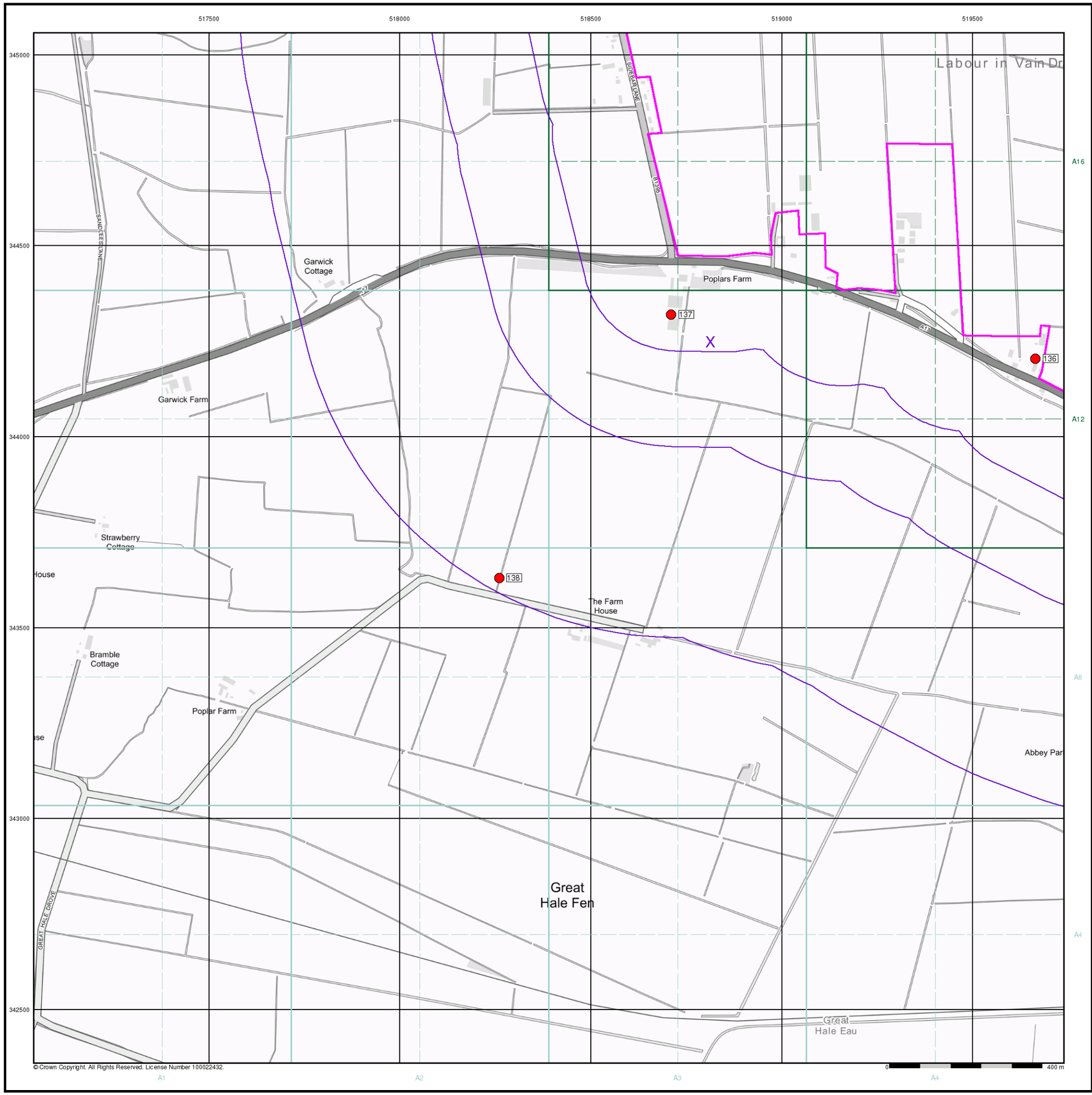
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

General

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

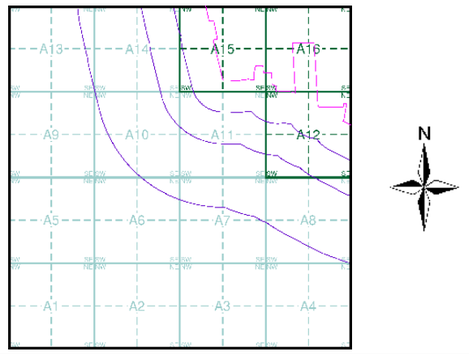
Agency and Hydrological (Boreholes)

- 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 [redacted]

Borehole Map - Slice A



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Grange Geo

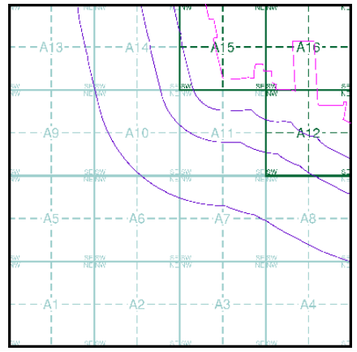
General

- Specified Site
- Specified Buffer(s)
- X 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

OS Water Network Map - Slice A



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518810, 344250
Slice:	A
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
299645546_1_1

Customer Reference:
R22082

National Grid Reference:
518810, 344250

Slice:
A

Site Area (Ha):
583.16

Search Buffer (m):
1000

Site Details:

Heckington Fen
SLEAFORD
NG34 9NB

Client Details:

Mr A Hare
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Nottinghamshire
NG24 4AD

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	28
Hazardous Substances	-
Geological	29
Industrial Land Use	30
Sensitive Land Use	31
Data Currency	32
Data Suppliers	36
Useful Contacts	37

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.

Copyright Notice

Natural England Copyright Notice

Scottish Natural Heritage Copyright

Ove Arup Copyright Notice

Stantec Copyright Notice

Radon Potential dataset Copyright Notice

Natural Resources Wales Copyright Notice

Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1			Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1	1	2	1	1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		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	pg 2		1		(*4)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 3	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 5	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 5	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 5	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 11	Yes	Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 13	34	27	24	40

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 28	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
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					
Geological					
BGS 1:625,000 Solid Geology	pg 29	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 29	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 29	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 29	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 29	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 30		6		
Fuel Station Entries					
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 31	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A14NE (NW)	332	1	518250 345000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A10NE (W)	348	1	518350 344250
1	**Discharge Consents** Operator: Mark Andrew Interiors Ltd Property Type: Domestic Property (Single) Location: Elm Grange East Heckington, Boston, Lincolnshire, Pe20 3qf Authority: Environment Agency, Anglian Region Catchment Area: Low River Witham / South Forty Foot Reference: Prnnf12401 Permit Version: 1 Effective Date: 6th March 2000 Issued Date: 8th March 2000 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of South Forty Foot Drain **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A16SW (NE)	0	2	519110 344540
1	**Discharge Consents** Operator: Abbey Farms Sykemouth Limited Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Elm Grange Farm, Heckington, Sleaford Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3nfs1564 Permit Version: 1 Effective Date: 7th March 1968 Issued Date: 7th March 1968 Revocation Date: 20th February 1992 Discharge Type: Discharge Of Other Matter-Surface Water Discharge Environment: Freshwater Stream/River Receiving Water: Unknown Trib **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	A16SW (NE)	14	2	519100 344500
2	**Discharge Consents** Operator: Mr Ray Hitchman Property Type: Domestic Property (Single) Location: Drifters Cottage Boston Road, East Heckington, Lincolnshire, Pe20 3qf Authority: Environment Agency, Anglian Region Catchment Area: Low River Witham / South Forty Foot Reference: Prnnf18173 Permit Version: 1 Effective Date: 7th July 2004 Issued Date: 26th August 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Black Sluice Idb Culvert **Status:** **New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A12NW (NE)	74	2	519070 344380
3	**Discharge Consents** Operator: Mr A H Atkin Property Type: Domestic Property (Single) Location: The Bungalow East Heckington., Boston, Lincs, Pe20 3qf Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu298 Permit Version: 1 Effective Date: 27th July 1967 Issued Date: 27th July 1967 Revocation Date: 27th May 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: Approximate location provided by supplier	A11SE (SE)	415	2	519000 344000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: Lincolnshire C.C. Property Type: Domestic Property (Single) Location: Great Hale Farm Great Hale Fen, Sleaford, Lincs Authority: Environment Agency, Anglian Region Catchment Area: Not Given Reference: Prnnf09851 Permit Version: 1 Effective Date: 26th April 1995 Issued Date: 26th April 1995 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary South Forty Foot Dra **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	A7NW (S)	995	2	518690 343480
	Nearest Surface Water Feature	A16NE (NE)	0	-	519441 344858
5	**Water Abstractions** Operator: N Asher Licence Number: 4/30/12/*G/0157 Permit Version: 100 Location: Asher Well 2 Heckington Fen Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Fluvial Sand and Gravel; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A15NW (N)	45	2	518550 345050
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1963	2	518797 342397
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: Trickle Irrigation Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1NE (SW)	1963	2	517411 343019

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: Trickle Irrigation Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A3SE (S)	1963	2	518797 342397
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A1NE (SW)	1963	2	517411 343019
	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	A11SE (SE)	0	3	519000 344000
	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	(E)	0	3	520000 344000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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: 3-10m Superficial Recharge: Low	A15NE (N)	0	3	518814 345000
	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	A15NE (N)	0	3	519000 345000
	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	(NE)	0	3	520000 345000
	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: 3-10m Superficial Recharge: Low	A11NE (N)	0	3	518814 344250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	A11NE (E)	0	3	519000 344250
	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	(E)	0	3	520000 344250
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A15NE (N)	0	3	518814 345000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(NE)	0	3	520000 345000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A11NE (N)	0	3	518814 344250
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(E)	0	3	520000 344250
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A11NE (N)	0	3	518814 344250
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(E)	0	3	520000 344250
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	A15NE (N)	0	3	518814 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(NE)	0	3	520000 345000
	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	A12NE (E)	0	2	519644 344330
	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	A16SE (E)	0	2	519470 344410
	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	A16SW (NE)	0	2	519125 344460

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	A16SE (E)	0	2	519600 344463
	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	A16SE (E)	0	2	519485 344400
	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	A16SW (E)	0	2	519250 344408
	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	A16SE (E)	0	2	519578 344505
	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	A16SW (NE)	0	2	519129 344455
	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	A16SE (E)	0	2	519525 344485
	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	A15SE (N)	0	2	518910 344593
	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	A16SW (NE)	0	2	519175 344470
	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	A15SE (N)	0	2	518945 344613
	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	A15SE (N)	0	2	518878 344630
	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	A15SE (NE)	0	2	519039 344575
	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	A15SE (N)	0	2	518882 344640
	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	A12NE (E)	0	2	519620 344355
	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	A15NE (N)	0	2	518940 344725
	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	A16SE (NE)	0	2	519640 344695
	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	A15NE (N)	0	2	518953 344781

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	A15SE (N)	0	2	518900 344655
	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	A15SE (N)	0	2	518920 344705
	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	A15NE (N)	0	2	518930 344835
	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	A15NE (N)	0	2	518865 344869
	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	A15NE (N)	0	2	518850 344872
	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	A15NE (N)	0	2	518890 344863
	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	A15NE (N)	0	2	518815 344905
	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	A15NE (N)	0	2	518832 344970
	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	A16SW (NE)	0	2	519125 344455
	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	A16SE (E)	0	2	519512 344400
	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	A12NE (E)	0	2	519580 344250
	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	A16SW (NE)	0	2	519110 344405
	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	A16SW (NE)	0	2	519140 344440
	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	A16SE (E)	0	2	519580 344480
	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	A16SE (E)	0	2	519575 344505
	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	A15SE (NE)	0	2	519055 344530

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	A15SE (N)	0	2	518942 344610
	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	A15SE (N)	0	2	518865 344580
	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	A15SE (NE)	0	2	518960 344580
	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	A15SE (N)	0	2	518875 344635
	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	A15SE (N)	0	2	518885 344643
	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	A15SE (N)	0	2	518915 344700
	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	A15NE (N)	0	2	518920 344835
	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	A15NE (N)	0	2	518880 344855
	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	A15NE (N)	0	2	518850 344870
	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	A15SE (N)	0	2	518920 344706
	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	A15NE (N)	0	2	518955 344743
	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	A15NE (N)	0	2	518830 344880
	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	A12NE (E)	0	2	519710 344135
	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	A15NE (N)	0	2	518830 344965
	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	A15SW (NW)	0	2	518690 344470
	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	A12NE (E)	0	2	519545 344180

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	A12NE (E)	0	2	519695 344320
	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	A12NE (E)	0	2	519640 344330
	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	A12NE (E)	0	2	519635 344335
	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	A12NE (E)	0	2	519630 344340
	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	A16SE (E)	0	2	519480 344400
	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	A16SW (E)	0	2	519228 344385
	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	A12NE (E)	0	2	519465 344360
	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	A12NW (E)	0	2	519290 344375
	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	A16SW (E)	0	2	519252 344410
	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	A16SW (E)	0	2	519262 344420
	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	A16SW (E)	0	2	519170 344390
	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	A16SW (E)	0	2	519255 344413
	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	A16SW (E)	0	2	519275 344419
	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	A12NE (E)	0	2	519639 344335
	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	A12NE (E)	0	2	519635 344340
	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	A15SE (N)	0	2	518898 344589

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	A16SW (NE)	2	2	519087 344525
	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	A12NW (E)	3	2	519224 344383
	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	A16SW (NE)	5	2	519101 344483
	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	A16SW (NE)	6	2	519080 344500
	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	A16SE (E)	8	2	519450 344412
	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	A11NE (N)	17	2	518814 344250
	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	A16SE (E)	18	2	519425 344410
	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	A12NW (E)	19	2	519160 344360
	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	A16SW (E)	33	2	519330 344400
	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	A16SE (E)	42	2	519425 344415
	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	A16SE (E)	43	2	519415 344415
	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	A16SW (E)	51	2	519347 344415
	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	A16SW (E)	52	2	519370 344422
	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	A16SW (E)	55	2	519350 344418
	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	A16SW (E)	56	2	519352 344420
	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	A15NW (NW)	65	2	518456 344753

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	A15NE (N)	0	2	518885 345046
	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	A12NE (E)	0	2	519641 344344
	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	A16SW (NE)	0	2	519226 344446
	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	A16SW (NE)	0	2	519123 344484
	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	A16SW (NE)	0	2	519216 344429
	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	A16SW (NE)	0	2	519261 344444
	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	A16SE (E)	0	2	519461 344429
	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	A12NE (E)	0	2	519631 344374
	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	A15SW (NW)	0	2	518690 344470
	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	A15SE (N)	0	2	518971 344659
	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	A15NE (N)	0	2	519001 344739
	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	A15NE (N)	0	2	518971 344809
	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	A15NE (N)	0	2	518956 344819
	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	A15NE (N)	0	2	518855 344890
	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	A15NE (N)	0	2	518898 344939
	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	A15NE (N)	0	2	518855 344956

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	A16SW (NE)	0	2	519111 344489
	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	A16SW (NE)	0	2	519153 344479
	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	A16SE (E)	0	2	519621 344479
	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	A16SE (E)	0	2	519543 344549
	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	A16SE (E)	0	2	519621 344559
	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	A15SE (NE)	0	2	519016 344614
	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	A16SW (NE)	0	2	519266 344446
	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	A16SW (NE)	0	2	519156 344506
	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	A16SE (E)	0	2	519483 344416
	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	A16SE (E)	0	2	519636 344504
	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	A15NE (N)	0	2	518943 344836
	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	A15NE (N)	0	2	518868 344960
	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	A15NE (N)	0	2	518926 345050
	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	A16SW (NE)	0	2	519246 344446
	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	A16SE (E)	0	2	519608 344386
	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	A16SW (NE)	0	2	519123 344476

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: Tidal Models Boundary Accuracy: As Supplied	A15NE (N)	0	2	518973 344776
	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	A15NE (N)	0	2	518973 344814
	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	A16SE (NE)	0	2	519556 344566
	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	A15NE (N)	0	2	518875 344926
	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	A12NE (E)	0	2	519693 344326
	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	A12NE (E)	0	2	519633 344356
	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	A15SE (NE)	0	2	518980 344626
	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	A16SW (NE)	0	2	519093 344506
	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	A15NE (N)	0	2	518838 344930
	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	A15SE (N)	0	2	518976 344684
	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	A16SW (E)	1	2	519296 344424
	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	A16SW (E)	3	2	519301 344449
	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	A11NE (N)	26	2	518814 344250
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 410.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SW (N)	0	4	518676 344688

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 559.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SE (N)	0	4	518821 344470
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NE (N)	0	4	518957 344823
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NE (N)	0	4	518956 344809
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 167.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SE (N)	0	4	518965 344642
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NE (N)	0	4	518956 344809
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NE (N)	0	4	518956 344814
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NE (N)	0	4	518959 344810
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SE (N)	0	4	518965 344631
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 49.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SE (NE)	0	4	518967 344582

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 128.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NE (N)	0	4	518967 344812
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 121.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16SW (NE)	0	4	519102 344697
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NW (NE)	0	4	519096 344818
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NW (NE)	0	4	519096 344823
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 196.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16SW (NE)	0	4	519113 344407
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 458.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NW (E)	0	4	519284 344377
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NW (NE)	0	4	519273 344817
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519442 344858
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 592.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	0	4	519473 344284

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519584 345001
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 365.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519597 344998
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 451.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NW (NE)	0	4	519096 344831
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 781.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NW (NE)	0	4	519274 344823
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 622.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519442 344865
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 218.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519584 345001
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 274.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A16SE (E)	0	4	519606 344566
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16SE (E)	0	4	519606 344566
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 358.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A12NE (E)	0	4	519620 344290

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 155.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519592 344846
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.9 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519593 344840
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 368.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16NE (NE)	0	4	519608 344779
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 369.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A16SE (E)	0	4	519618 344564
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.3 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A12NE (E)	0	4	519624 344207
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 276.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	0	4	519701 344289
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SW (N)	1	4	518677 344680
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	1	4	519474 344267
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	A12NE (E)	1	4	519708 344134

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 172.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	2	4	518617 344939
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 115.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	8	4	519484 344257
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 344.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SW (NW)	13	4	518700 344518
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	17	4	518609 344908
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SW (NW)	17	4	518701 344487
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 49.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	18	4	519630 344152
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 59.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	19	4	518591 344984
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	19	4	518578 345042
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NW (E)	23	4	519163 344361

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 602.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SW (NW)	24	4	518690 344474
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 192.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SE (N)	31	4	518844 344439
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 505.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NW (E)	40	4	519236 344336
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 264.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	41	4	519688 344096
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NE (E)	44	4	519682 344099
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 89.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NW (E)	48	4	519328 344338
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12NW (E)	48	4	519229 344340
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	51	4	518622 344853
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 373.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	51	4	518620 344864

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 372.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15SW (NW)	58	4	518676 344450
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1034.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	61	4	519078 344030
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 119.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NE (W)	82	4	518742 344273
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 287.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A15NW (N)	85	4	518525 344975
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NE (W)	201	4	518741 344264
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 146.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NE (W)	210	4	518740 344258
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 234.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SE (SE)	332	4	519568 343833
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SE (SE)	332	4	519562 343837
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 189.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	332	4	519395 343926

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SE (SE)	333	4	519568 343833
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 296.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	335	4	518248 344985
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 218.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	338	4	519188 344017
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	346	4	519388 343931
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 261.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SE (SE)	349	4	519563 343818
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	349	4	519393 343927
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	350	4	519392 343921
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	353	4	518248 344979
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 244.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NE (S)	353	4	518840 344090

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	355	4	518248 344947
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 591.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A12SW (SE)	356	4	519392 343921
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 92.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	362	4	518247 344854
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NE (S)	364	4	518791 344099
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	383	4	518247 344854
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 967.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NE (S)	383	4	518840 344090
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 139.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	395	4	518236 344846
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SE (NW)	411	4	518306 344475
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 343.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NE (W)	418	4	518287 344276

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 213.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SE (NW)	421	4	518295 344474
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 737.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	466	4	518112 344803
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 671.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A11NW (W)	497	4	518396 344104
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 130.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	525	4	518112 344803
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 319.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SE (W)	525	4	518108 344482
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NE (NW)	525	4	518113 344801
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 136.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8NE (SE)	570	4	519489 343568
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 527.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NE (W)	579	4	518264 344129
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 122.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SE (W)	601	4	518108 344482

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8NE (SE)	604	4	519482 343570
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8NE (SE)	606	4	519473 343572
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 255.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8NE (SE)	608	4	519473 343572
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SE (W)	632	4	518084 344452
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 191.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SE (W)	639	4	518077 344449
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NW (NW)	652	4	517977 344826
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8SE (SE)	754	4	519628 343284
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 299.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14NW (NW)	772	4	517859 344807
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 406.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A14SW (W)	772	4	517868 344401

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 423.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	796	4	517980 344126
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8SE (SE)	799	4	519619 343285
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 241.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8SW (SE)	800	4	519382 343324
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 298.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8SE (SE)	834	4	519529 343288
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 403.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	836	4	517984 344095
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 378.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	836	4	517989 344081
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8SW (SE)	861	4	519385 343333
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1412.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A13NE (NW)	862	4	517703 345056
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 64.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A8SW (SE)	870	4	519317 343327

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 244.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A13NE (NW)	873	4	517705 344791
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 670.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A7NE (S)	905	4	518877 343434
117	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 495.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A13NE (NW)	928	4	517693 344838
118	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	942	4	517787 344359
119	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	942	4	517787 344359
120	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 296.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	946	4	517782 344364
121	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A10NW (W)	956	4	517785 344307
122	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A13SE (W)	964	4	517699 344638
123	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 356.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A13SE (W)	974	4	517688 344638

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
124	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 403.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A7NW (S)	981	4	518599 343497
125	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 155.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A7NW (SW)	981	4	518483 343525
126	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A7NE (S)	991	4	518869 343436
127	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 182.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A7NW (S)	992	4	518691 343476
128	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 44.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A6NE (SW)	995	4	518295 343579
129	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 449.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A6NE (SW)	998	4	518331 343559
130	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 102.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	A6NE (SW)	998	4	518331 343559

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: North Kesteven District Council - Had landfill data but passed it to the relevant environment agency		0	5	518814 344250
	Local Authority Landfill Coverage Name: Lincolnshire County Council - Had landfill data but passed it to the relevant environment agency		0	6	518814 344250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: West Walton Formation, Ampthill Clay Formation And Kimmeridge Clay Formation (Undifferentiated)	A11NE (N)	0	1	518814 344250
	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	A11NE (N)	0	1	518814 344250
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	518814 345000
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	518814 344250
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	518814 345000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	518814 345000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	518814 344250
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	518814 345000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	518814 344250
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	518814 344250
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	518814 345000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A15NE (N)	0	1	518814 345000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A11NE (N)	0	1	518814 344250
	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	A15NE (N)	0	1	518814 345001
	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	A11NE (N)	0	1	518814 344250
	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	A15NE (N)	0	1	518814 345001
	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	A11NE (N)	0	1	518814 344250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
131	**Contemporary Trade Directory Entries** Name: Golf Service Station Location: East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12NE (E)	23	-	519450 344322
131	**Contemporary Trade Directory Entries** Name: Clive Rhodes At Elm Grange Studios Ltd Location: East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Blinds, Awnings & Canopies **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12NE (E)	27	-	519446 344324
132	**Contemporary Trade Directory Entries** Name: Dp Automotive Location: Poplars Farm, East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Car Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SE (N)	32	-	518771 344442
133	**Contemporary Trade Directory Entries** Name: Bp Location: East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A15SE (NE)	52	-	519063 344451
133	**Contemporary Trade Directory Entries** Name: Richwood Location: Elm Grange, East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Cabinet Makers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SE (NE)	58	-	519031 344471
134	**Contemporary Trade Directory Entries** Name: South Holland Marine & Fabrication Ltd Location: East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Boatbuilders & Repairers **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A12NW (E)	74	-	519372 344376

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
135	**Nitrate Vulnerable Zones** Name: Black Sluice Idb Draining To The South Forty Foot Drain Nvz Description: Surface Water Source: Environment Agency, Head Office	A11NE (N)	0	3	518814 344250

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
North Kesteven District Council - Environmental Health Department	October 2017	Annual Rolling Update
Boston Borough Council - Pollutions Section, Environmental Health	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Anglian Region	April 2022	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Anglian Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Anglian Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - Anglian Region	April 2022	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Variable
North Kesteven District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Annual Rolling Update
North Kesteven District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Variable
North Kesteven District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	June 2022	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Anglian Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Anglian Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Anglian Region	June 2016	As notified
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	July 2022	Quarterly
Water Industry Act Referrals		
Environment Agency - Anglian Region	October 2017	
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	July 2022	Bi-Annually

Data Currency

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	May 2022	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	May 2022	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	May 2022	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	May 2022	Quarterly
Flood Defences Environment Agency - Head Office	May 2022	Quarterly
OS Water Network Lines Ordnance Survey	July 2022	Quarterly
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites Environment Agency - Head Office	April 2022	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Anglian Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Local Authority Landfill Coverage Boston Borough Council - Pollutions Section, Environmental Health Lincolnshire County Council North Kesteven District Council - Environmental Health Department	 February 2003 February 2003 February 2003	 Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Boston Borough Council - Pollutions Section, Environmental Health Lincolnshire County Council North Kesteven District Council - Environmental Health Department	 October 2018 October 2018 October 2018	
Registered Landfill Sites Environment Agency - Anglian Region - Northern Area	March 2006	Not Applicable
Registered Waste Transfer Sites Environment Agency - Anglian Region - Northern Area	April 2018	
Registered Waste Treatment or Disposal Sites Environment Agency - Anglian Region - Northern Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2022	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Lincolnshire County Council - Highways and Planning Department	August 2010	Variable
Boston Borough Council - Planning Department	February 2016	Variable
North Kesteven District Council - Planning Department	October 2015	Variable
Planning Hazardous Substance Consents		
Lincolnshire County Council - Highways and Planning Department	August 2007	Variable
Boston Borough Council - Planning Department	February 2016	Variable
North Kesteven District Council - Planning Department	October 2015	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	May 2022	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	
Cheshire Brine Subsidence Compensation Board (CBSCB)	November 2020	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
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	 July 2022	 Quarterly
Fuel Station Entries Catalist Ltd - Experian	 June 2022	 Quarterly
Gas Pipelines National Grid	 October 2021	 Bi-Annually
Underground Electrical Cables National Grid	 May 2021	 Bi-Annually
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland Natural England	 February 2021	 Bi-Annually
Areas of Adopted Green Belt Boston Borough Council - Planning Department North Kesteven District Council	 October 2020 October 2020	 Quarterly Quarterly
Areas of Unadopted Green Belt Boston Borough Council - Planning Department North Kesteven District Council	 October 2020 October 2020	 Quarterly Quarterly
Areas of Outstanding Natural Beauty Natural England	 January 2021	 Bi-Annually
Environmentally Sensitive Areas Natural England	 January 2017	
Forest Parks Forestry Commission	 April 1997	 Not Applicable
Local Nature Reserves Natural England	 February 2021	 Bi-Annually
Marine Nature Reserves Natural England	 July 2019	 Bi-Annually
National Nature Reserves Natural England	 January 2021	 Bi-Annually
National Parks Natural England	 February 2018	 Bi-Annually
Nitrate Sensitive Areas Natural England	 April 2016	 Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	 April 2016 June 2017	 Bi-Annually
Ramsar Sites Natural England	 August 2020	 Bi-Annually
Sites of Special Scientific Interest Natural England	 February 2021	 Bi-Annually
Special Areas of Conservation Natural England	 July 2020	 Bi-Annually
Special Protection Areas Natural England	 February 2021	 Bi-Annually

Data Suppliers

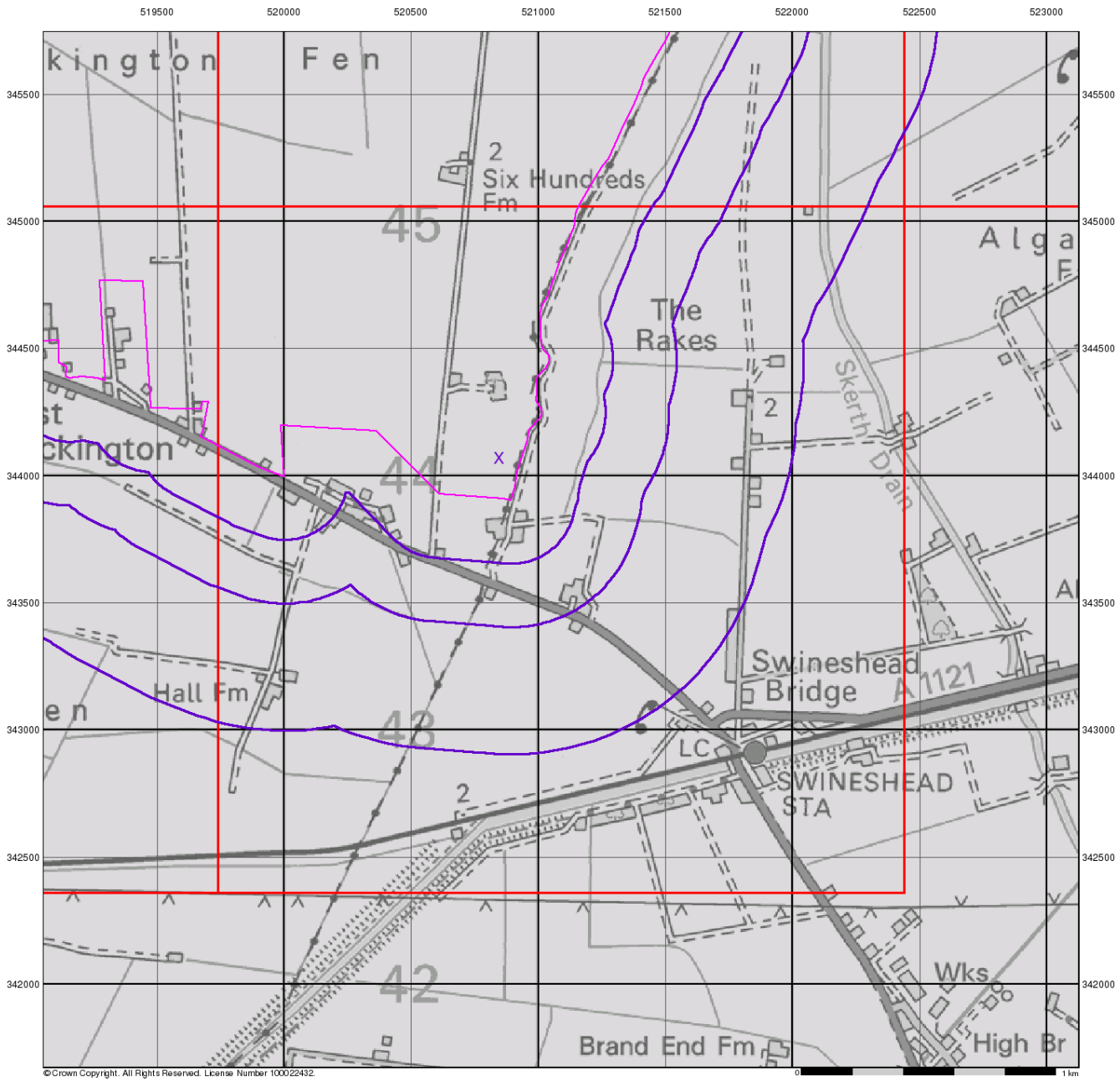
A selection of organisations who provide data within this report

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

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk [redacted]
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**North Kesteven District Council - Environmental Health Department** District Council Offices, Kesteven Street, Sleaford, Lincolnshire, NG34 7EF	Telephone: 01529 414155 Fax: 01529 413956 Website: www.n-kesteven.gov.uk
6	**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
-	**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: [redacted]
-	**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: [redacted]

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



Groundwater Vulnerability

General

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

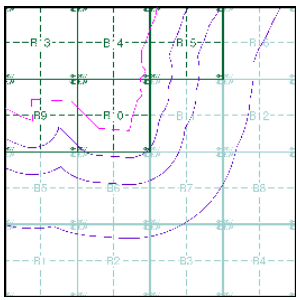
Agency and Hydrological

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 B



Order Details

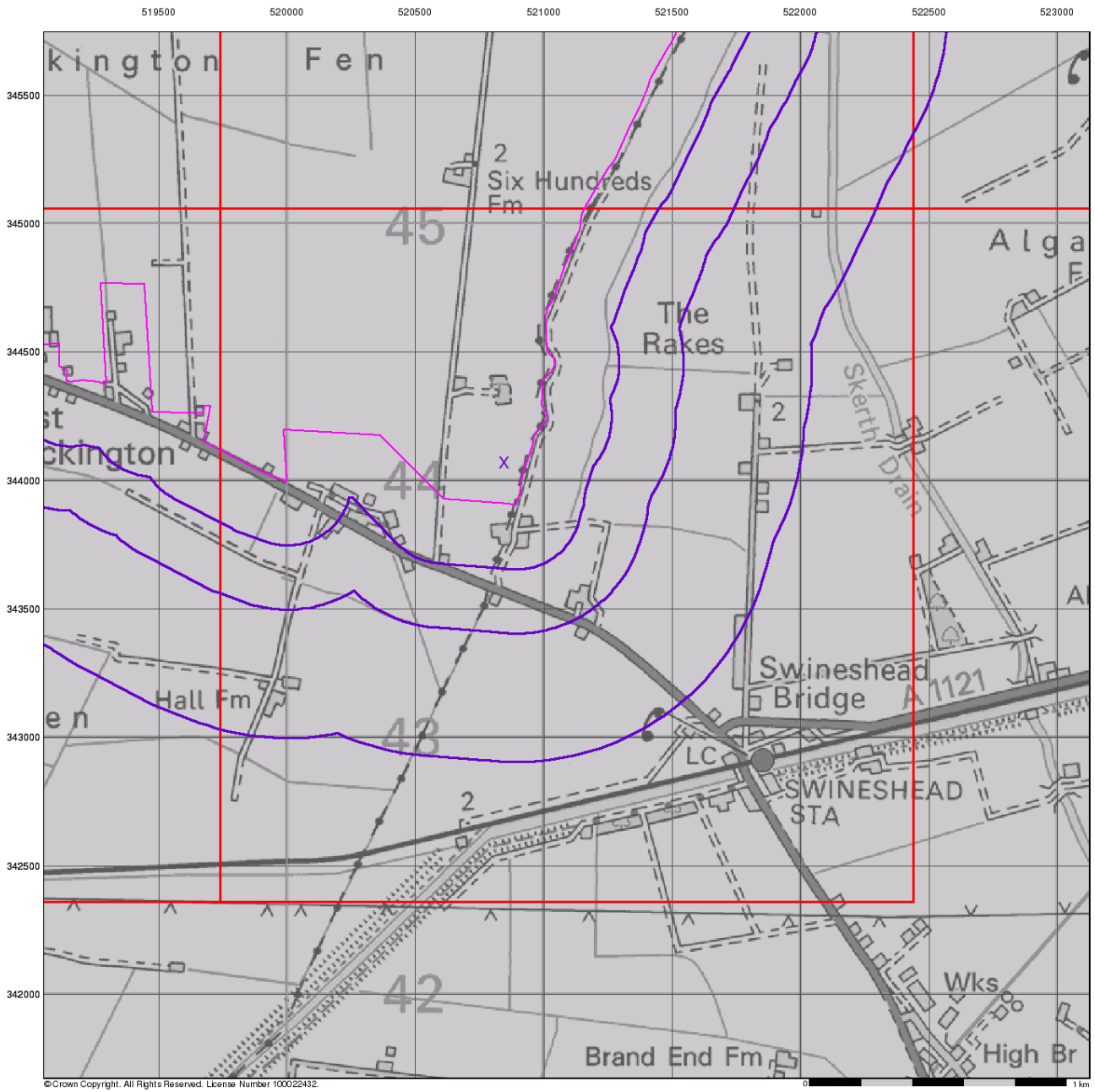
Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Bedrock Aquifer Designation

General

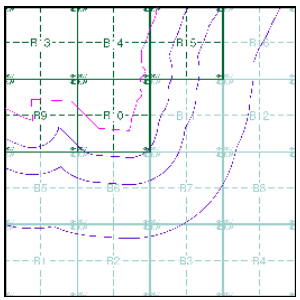
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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 B



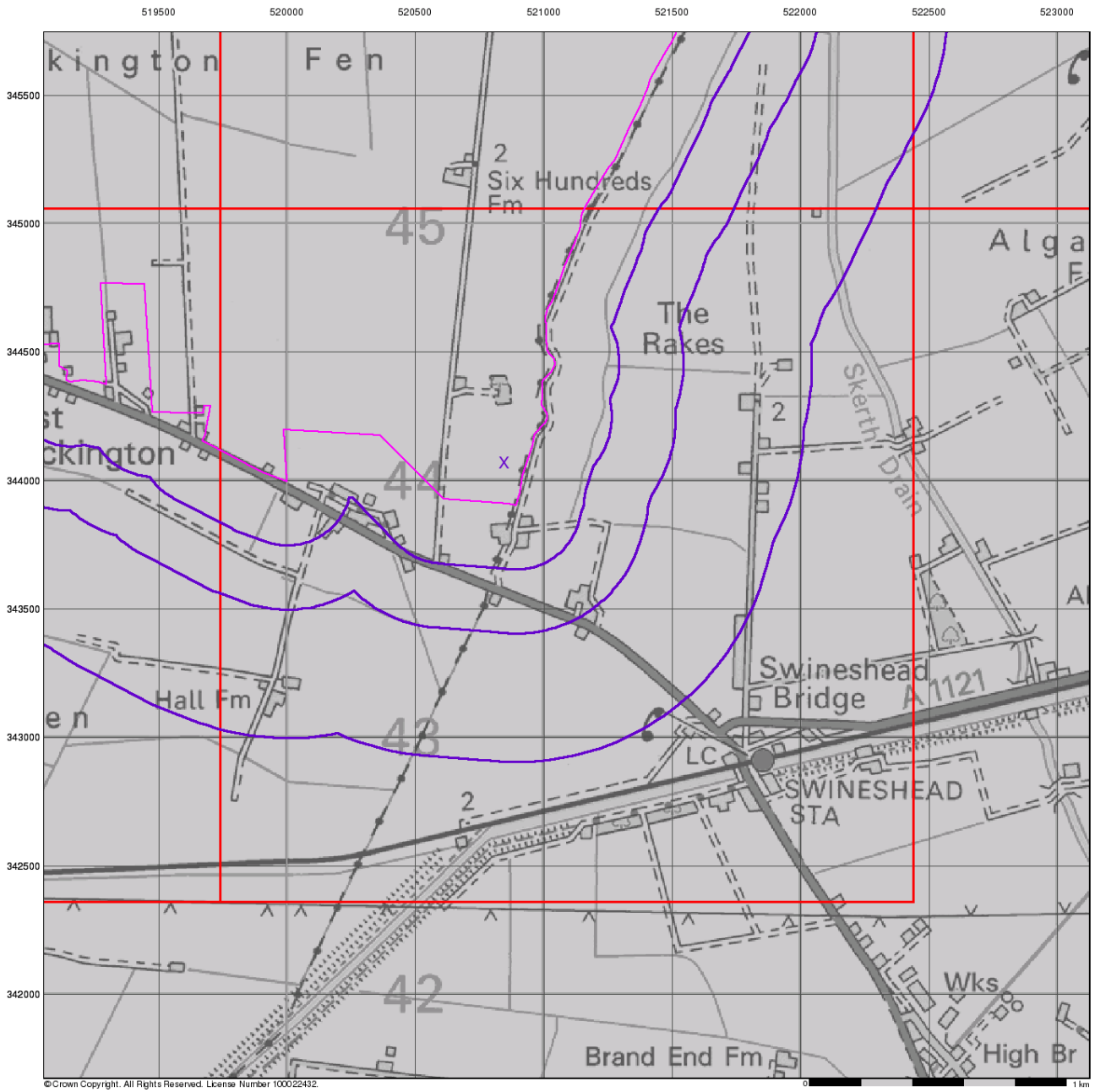
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Superficial Aquifer Designation

General

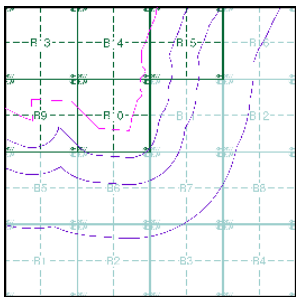
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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 B



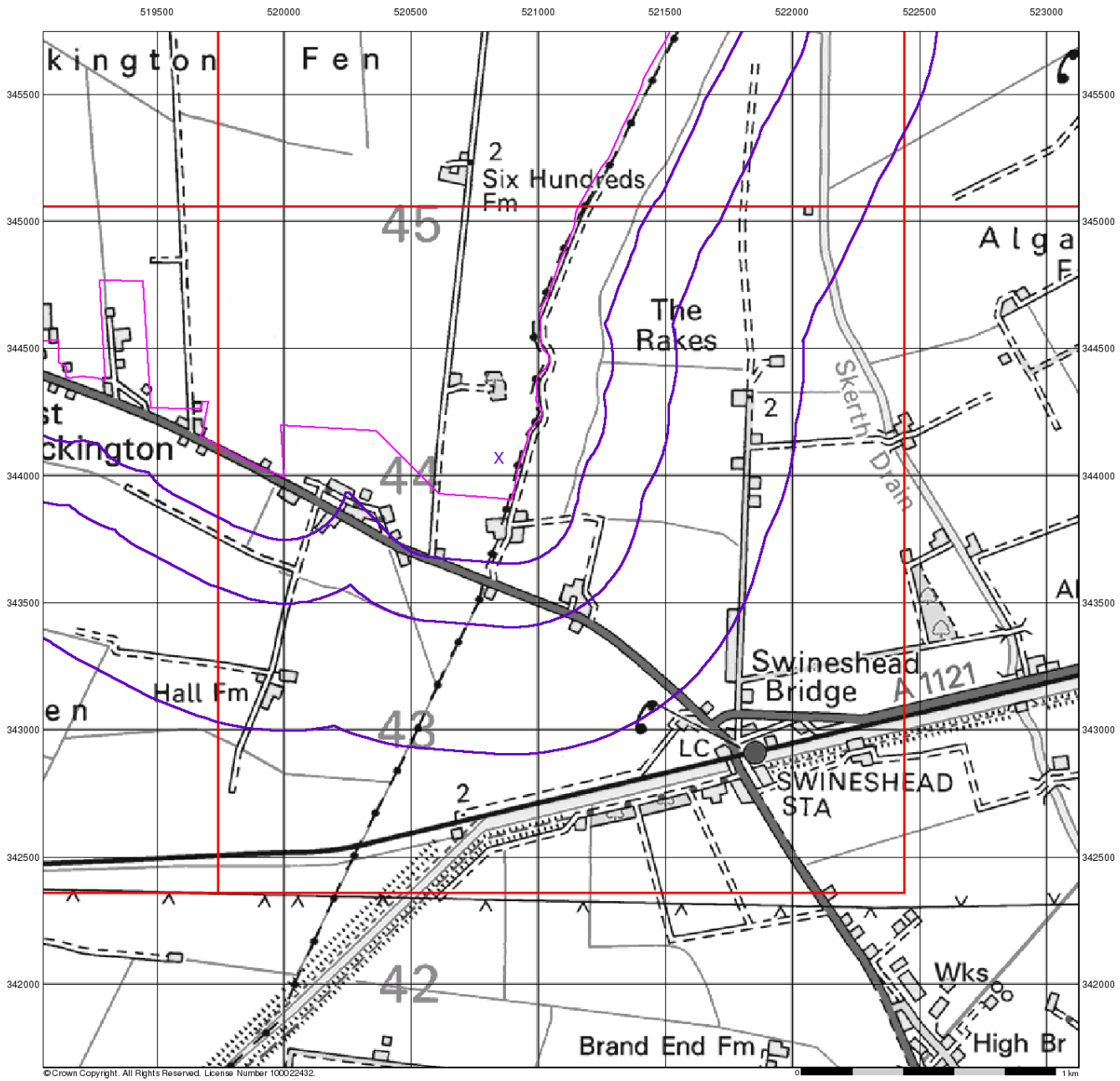
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

Source Protection Zones

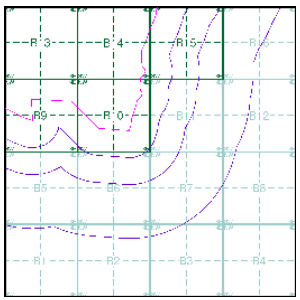
General

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 B



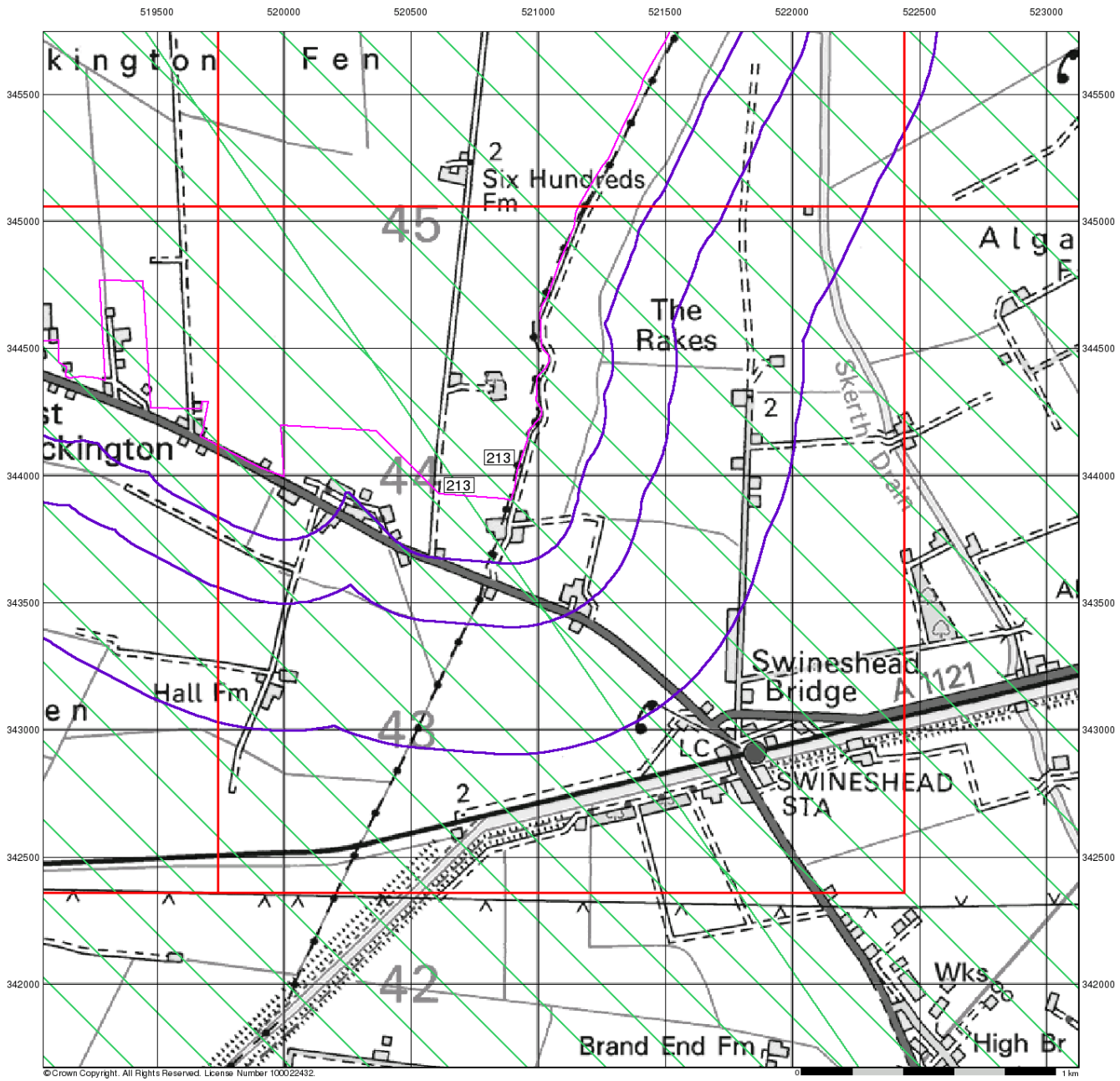
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:



Grange Geo

Sensitive Land Uses

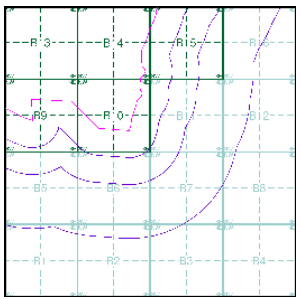
General

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 B



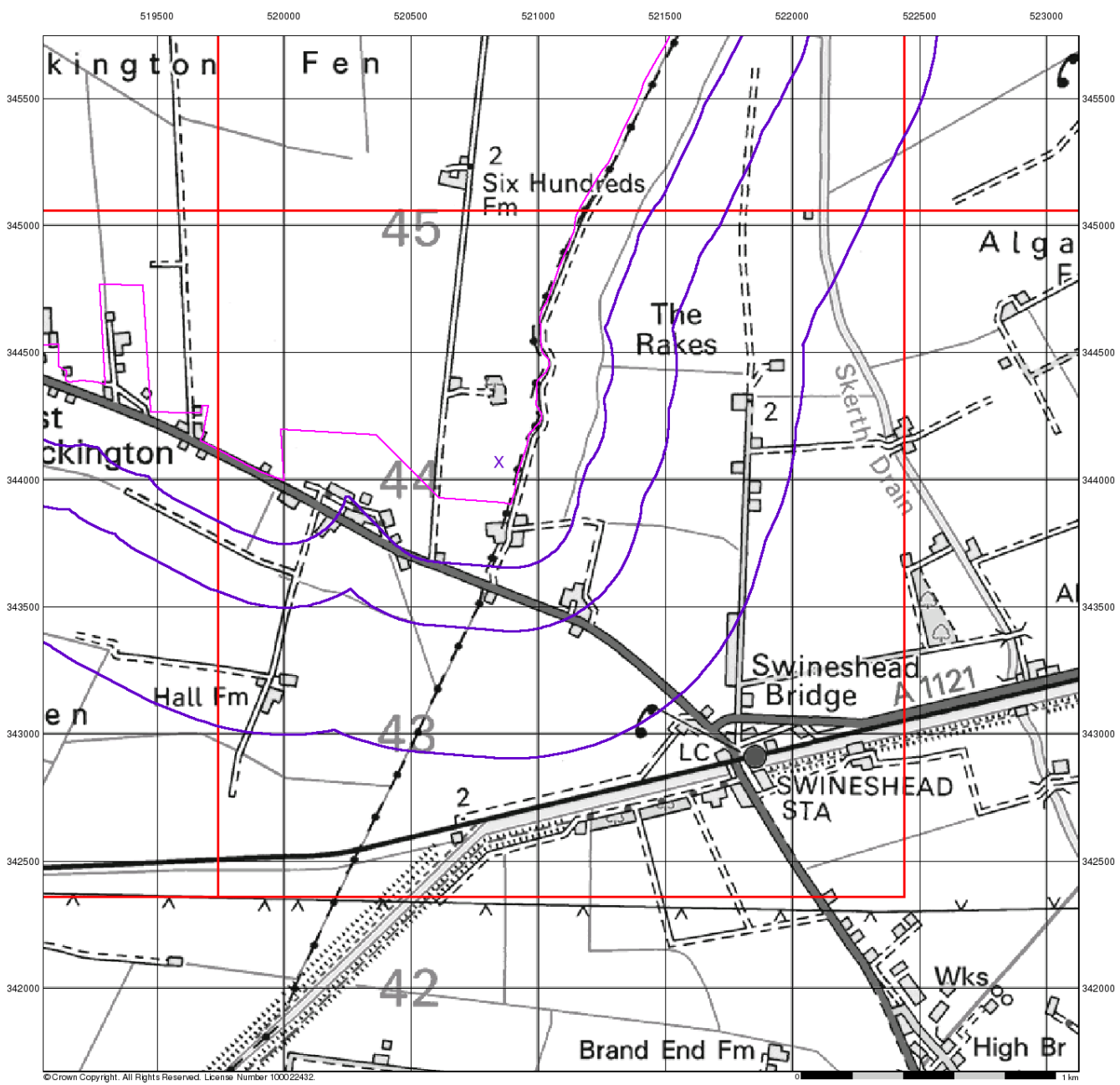
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

BGS Flood GFS Data

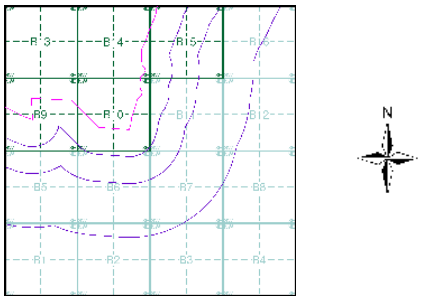
General

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 B



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Grange Geo

General

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

Agency and Hydrological

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

Geological

BGS Recorded Mineral Site

Industrial Land Use

Contemporary Trade Directory Entry
Fuel Station Entry

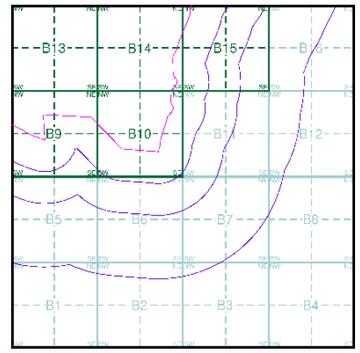
Waste

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

Hazardous Substances

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

Site Sensitivity Map - Slice B



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: w[redacted]

Grange Geo

Industrial Land Use Map

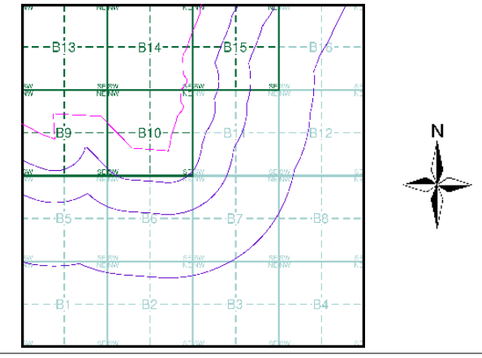
General

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

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Underground Electrical Cables

Industrial Land Use Map - Slice B



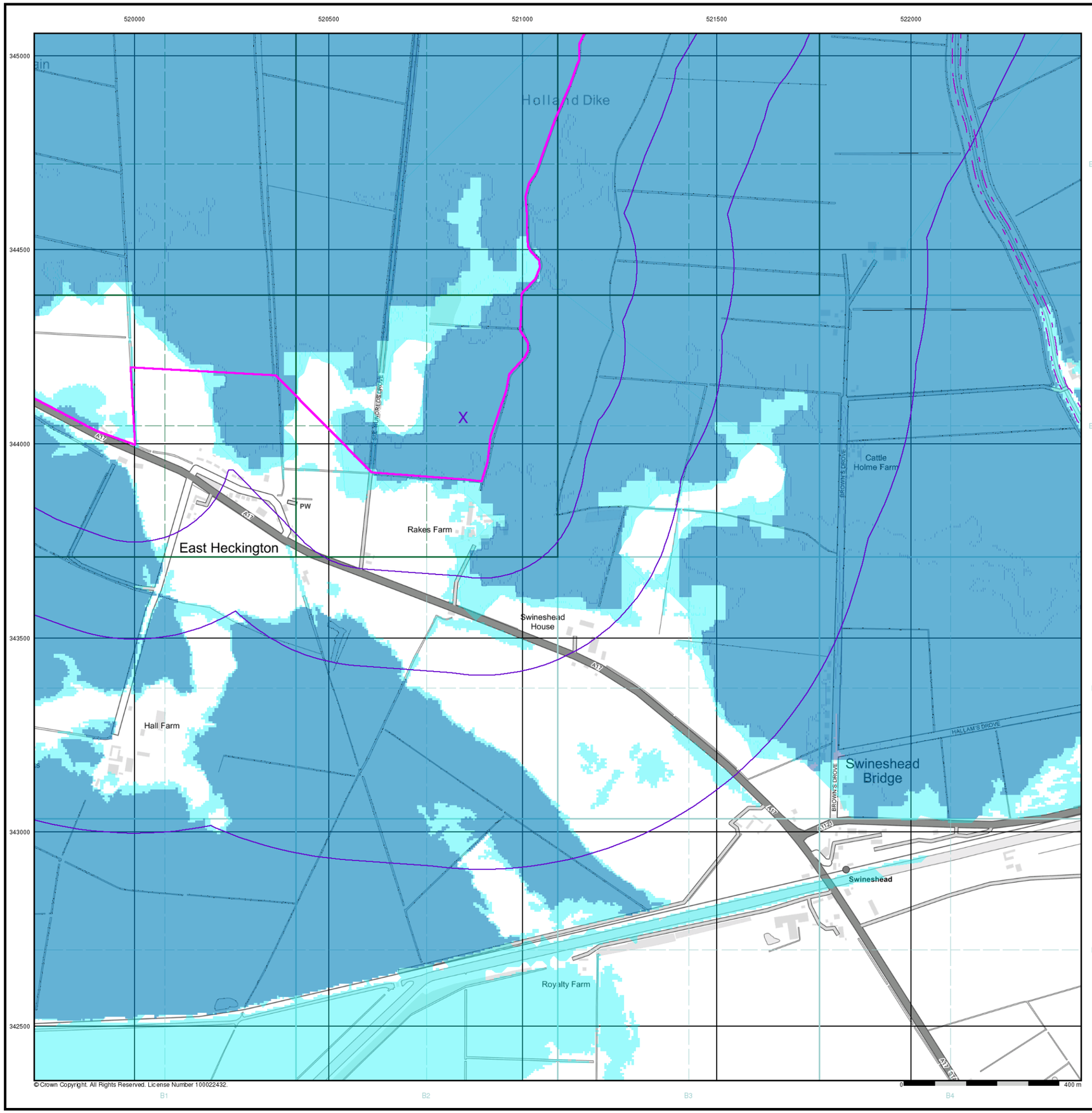
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

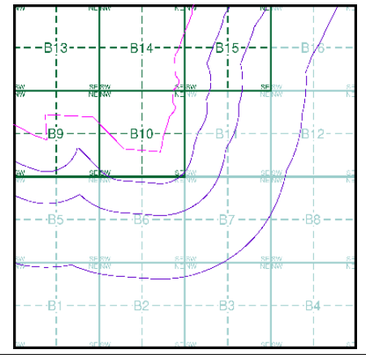
General

- 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 B



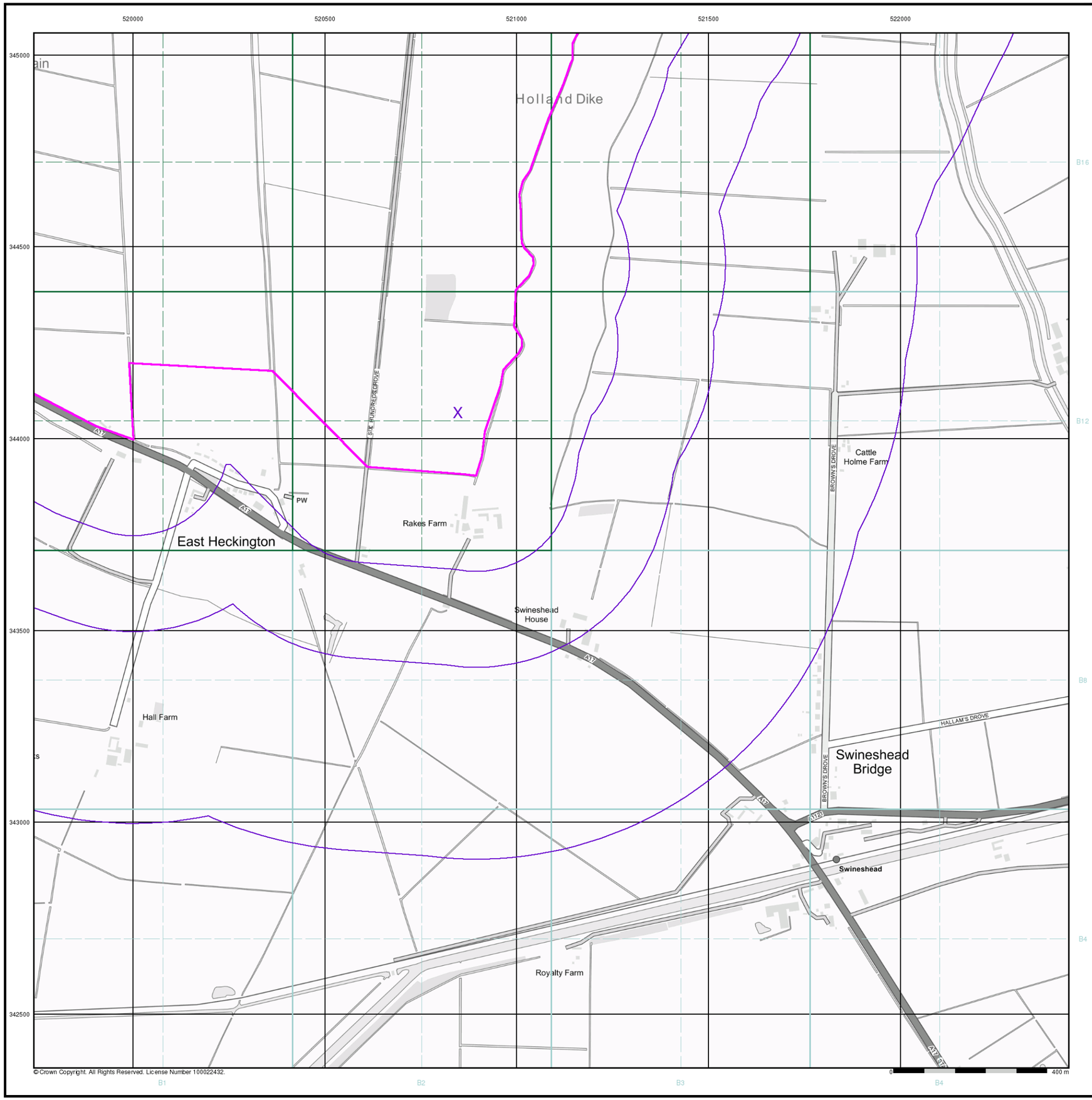
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

General

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

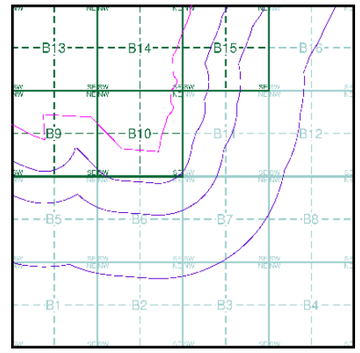
Agency and Hydrological (Boreholes)

- 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 [redacted]

Borehole Map - Slice B



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Grange Geo

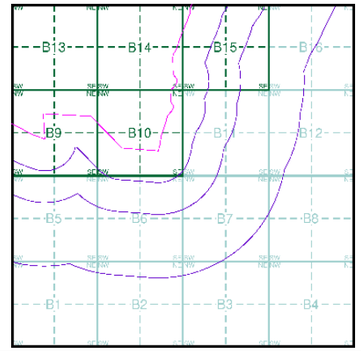
General

- Specified Site
- Specified Buffer(s)
- X 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

OS Water Network Map - Slice B



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520850, 344070
Slice:	B
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
299645546_1_1

Customer Reference:
R22082

National Grid Reference:
520850, 344070

Slice:
B

Site Area (Ha):
583.16

Search Buffer (m):
1000

Site Details:

Heckington Fen
SLEAFORD
NG34 9NB

Client Details:

Mr A Hare
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Nottinghamshire
NG24 4AD

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	48
Hazardous Substances	-
Geological	49
Industrial Land Use	51
Sensitive Land Use	52
Data Currency	53
Data Suppliers	57
Useful Contacts	58

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.

Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility					n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1	1	5	5	8
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 5		2	2	
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters	pg 6	1			1
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality					
River Quality Biology Sampling Points					
Substantiated Pollution Incident Register					
River Quality Chemistry Sampling Points					
Water Abstractions	pg 6				(*6)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 8	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 10	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 10	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 10	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 18	Yes	Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences	pg 25		Yes	n/a	n/a
OS Water Network Lines	pg 25	42	41	33	77

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 48	3	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
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					
Geological					
BGS 1:625,000 Solid Geology	pg 49	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 49	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 49	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 49	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 50	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 51		4	2	
Fuel Station Entries	pg 51		1	1	
Gas Pipelines	pg 51	1			
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 52	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: North Kesteven District Council Property Type: Domestic Property (Multiple) Location: Council Houses No.8 East Heckington, Boston, Lincs, Pe20 3qb Authority: Environment Agency, Anglian Region Catchment Area: Low River Witham / South Forty Foot Reference: Pr3nf890 Permit Version: 1 Effective Date: 28th October 1991 Issued Date: 28th October 1991 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Skerth Drain Heckington Fen **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	B9NE (W)	0	1	520320 344200
2	**Discharge Consents** Operator: Mr Schofield Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: The Cottage Browns Drove, Swineshead, Lincs. Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu856 Permit Version: 1 Effective Date: 14th January 1977 Issued Date: 14th January 1977 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B10SE (SE)	84	1	521000 344000
3	**Discharge Consents** Operator: Sullivan Baker Thomas-Baldwin Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Abbey Park Cottages, East Heckington, Boston, Pe20 Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3nff102 Permit Version: 1 Effective Date: 23rd September 1955 Issued Date: 23rd September 1955 Revocation Date: 17th March 1992 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unknown Trib. **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	B9SE (W)	139	1	520100 343900
4	**Discharge Consents** Operator: I Bradshaw Property Type: Domestic Property (Multiple) Location: Abbey Park Farm Cottages East Heckington, Boston, Lincs, Pe20 3qg Authority: Environment Agency, Anglian Region Catchment Area: Low River Witham / South Forty Foot Reference: Prnnf12058 Permit Version: 1 Effective Date: 24th February 1997 Issued Date: 24th February 1997 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Dyke North Of Park House **Status:** **Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 10m	B9SE (W)	184	1	520150 343890

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	**Discharge Consents** Operator: The Occupier Property Type: Domestic Property (Multiple) Location: Abbey Park Farm Cottages East Heckington, Boston, Lincs, Pe20 3qg Authority: Environment Agency, Anglian Region Catchment Area: Not Given Reference: Pr3nff102 Permit Version: 2 Effective Date: 18th March 1992 Issued Date: 18th March 1992 Revocation Date: 30th October 1996 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Ditch Receiving Water: Dyke **Status: Post National Rivers Authority Legislation where issue date > 31/08/1989** Positional Accuracy: Located by supplier to within 100m	B9SE (W)	184	1	520150 343890
5	**Discharge Consents** Operator: D Jeal Esq Property Type: Not Supplied Location: St Johns The Baptist Church East He, East Heckington, Boston, Pe20 Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lf382 Permit Version: 1 Effective Date: 6th March 1987 Issued Date: 6th March 1987 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Into Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	B9SE (SW)	219	1	520380 343850
6	**Discharge Consents** Operator: C A Warrington Property Type: Not Supplied Location: Plot 2 Old Main Road East Heckington, Sleaford, Lincs Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lf626 Permit Version: 1 Effective Date: 14th April 1988 Issued Date: 14th April 1988 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Into Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	B9SE (W)	283	1	520280 343860
6	**Discharge Consents** Operator: Mr K & Mrs S Rowan Property Type: Not Supplied Location: Plot 3 Old Main Rd, East Heckington, Boston, Lincs, Pe20 2bu Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lf627 Permit Version: 1 Effective Date: 14th April 1988 Issued Date: 14th April 1988 Revocation Date: 13th May 1997 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Into Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	B9SE (W)	283	1	520290 343850

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	**Discharge Consents** Operator: C A Warrington Property Type: Not Supplied Location: Plot 1 Old Main Rd, East Heckington, Sleaford, Lincs Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lf625 Permit Version: 1 Effective Date: 14th April 1988 Issued Date: 14th April 1988 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Into Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	B9SE (W)	294	1	520260 343860
7	**Discharge Consents** Operator: North Kesteven District Council Property Type: Domestic Property (Single) Location: East Heckington, Boston, Lincolnshire, Pe20 3qa Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3nfa0890 Permit Version: 1 Effective Date: 29th May 1963 Issued Date: 29th May 1963 Revocation Date: 1st April 1992 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Unknown Trib **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 10m	B9SE (SW)	303	1	520390 343720
7	**Discharge Consents** Operator: G & A K Stevens Property Type: Not Supplied Location: The Wheel/Park View Main Road, East Heckington, Boston Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lf841 Permit Version: 1 Effective Date: 6th July 1988 Issued Date: 6th July 1988 Revocation Date: 15th May 1997 Discharge Type: Unknown Discharge Environment: Land/Soakaway Receiving Water: Into Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Located by supplier to within 100m	B5NE (SW)	310	1	520400 343700
8	**Discharge Consents** Operator: Mr & Mrs S. Duffin Property Type: Domestic Property (Single) Location: No 1 Cottage At Bridge Farm Bridge Farm, Browns Drove, Swineshead Bridge, Boston, Lincs, Pe20 3pt Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu1007 Permit Version: 1 Effective Date: 7th November 1978 Issued Date: 7th November 1978 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B2NE (S)	911	1	521000 343000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: J A Graves (Bridge Farm) Limited Property Type: Domestic Property (Single) Location: No 1 Cottage At Bridge Farm Bridge Farm, Browns Drove, Swineshead Bridge, Boston, Lincs, Pe20 3pt Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu18 Permit Version: 1 Effective Date: 10th February 1966 Issued Date: 10th February 1966 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B2NE (S)	911	1	521000 343000
8	**Discharge Consents** Operator: J A Graves (Bridge Farm) Limited Property Type: Domestic Property (Single) Location: No 1 Cottage At Bridge Farm Bridge Farm, Browns Drove, Swineshead Bridge, Boston, Lincs, Pe20 3pt Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu19 Permit Version: 1 Effective Date: 10th February 1966 Issued Date: 10th February 1966 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B2NE (S)	911	1	521000 343000
8	**Discharge Consents** Operator: J A Graves (Bridge Farm) Limited Property Type: Domestic Property (Single) Location: No 1 Cottage At Bridge Farm Bridge Farm, Browns Drove, Swineshead Bridge, Boston, Lincs, Pe20 3pt Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu20 Permit Version: 1 Effective Date: 10th February 1966 Issued Date: 10th February 1966 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status:** **Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B2NE (S)	911	1	521000 343000
8	**Discharge Consents** Operator: Mr & Mrs Brine Property Type: Domestic Property (Single) Location: Mirfield Browns Drove, Swineshead Bridge, Boston, Lincs, Pe20 3px Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu17 Permit Version: 1 Effective Date: 10th February 1966 Issued Date: 10th February 1966 Revocation Date: 19th May 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: Approximate location provided by supplier	B2NE (S)	911	1	521000 343000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**Discharge Consents** Operator: Mr D Wilson Property Type: Domestic Property (Multiple) Location: 4 Houses At Hall Farm, East Heckington. Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu334 Permit Version: 1 Effective Date: 11th January 1968 Issued Date: 11th January 1968 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B1NW (SW)	998	1	520000 343000
9	**Discharge Consents** Operator: Mr A C Flear Property Type: Domestic Property (Multiple) Location: 4 Houses At Hall Farm, East Heckington. Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu215 Permit Version: 1 Effective Date: 22nd September 1966 Issued Date: 22nd September 1966 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B1NW (SW)	998	1	520000 343000
9	**Discharge Consents** Operator: S T Belton (Farms) Limited Property Type: Domestic Property (Multiple) Location: 4 Houses At Hall Farm, East Heckington. Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu2 Permit Version: 1 Effective Date: 9th February 1966 Issued Date: 9th February 1966 Revocation Date: 1st October 1996 Discharge Type: Unknown Discharge Environment: Onto Land Receiving Water: Land **Status: Pre National Rivers Authority Legislation where issue date < 01/09/1989** Positional Accuracy: Approximate location provided by supplier	B1NW (SW)	998	1	520000 343000
10	**Local Authority Pollution Prevention and Controls** Name: Four Winds Service Station Location: A17, East Heckington, Pe20 3qf Authority: North Kesteven District Council, Environmental Health Department Permit Reference: IPPC/2006/41 Dated: 1st January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the address or location	B9SW (W)	53	2	520019 343948
11	**Local Authority Pollution Prevention and Controls** Name: Four Winds Service Station Location: East Heckington, BOSTON, Lincolnshire, PE20 3QF Authority: North Kesteven District Council, Environmental Health Department Permit Reference: IPPC/2006/41 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Authorised** Positional Accuracy: Manually positioned to the road within the address or location	B9SE (W)	230	2	520195 343875

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
12	**Local Authority Pollution Prevention and Controls** Name: De Rodes Location: A17, East Heckington, Pe20 3qf Authority: North Kesteven District Council, Environmental Health Department Permit Reference: IPPC/2006/40 Dated: 1st January 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	B9SE (SW)	272	2	520333 343822
12	**Local Authority Pollution Prevention and Controls** Name: De Rodes Self Service Station Location: East Heckington, BOSTON, Lincolnshire, PE20 3QF Authority: North Kesteven District Council, Environmental Health Department Permit Reference: IPPC/2006/40 Dated: Not Supplied Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Authorised** Positional Accuracy: Manually positioned to the address or location	B9SE (SW)	272	2	520333 343822
	Nearest Surface Water Feature	B9NW (W)	0	-	519991 344272
13	**Pollution Incidents to Controlled Waters** Property Type: Road Location: PETERBOROUGH Authority: Environment Agency, Anglian Region Pollutant: Oils - Kerosene Fuel Oil Note: Potential Surface Water Incident Date: 20th June 1997 Incident Reference: 2468 Catchment Area: Not Given Receiving Water: Potential River Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	B13NW (NW)	0	1	520001 345001
14	**Pollution Incidents to Controlled Waters** Property Type: Not Given Location: PETERBOROUGH Authority: Environment Agency, Anglian Region Pollutant: Miscellaneous - Unknown Note: Oxney Road Dyke Incident Date: 1st April 1997 Incident Reference: 2429 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	B16NW (NE)	762	1	522001 345001
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B2NW (S)	1130	1	520417 342814

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: Trickle Irrigation Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B2NW (S)	1130	1	520417 342814
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: An/030/0012/012 Permit Version: 2 Location: South Forty Foot Drain At Lincolnshire Fens Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Transfer Between Sources Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 1st April 2020 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B2SW (S)	1312	1	520691 342606
	Water Abstractions Operator: L C J Mountain Farms Ltd Licence Number: An/030/0012/012 Permit Version: 1 Location: South Forty Foot Drain At Lincolnshire Fens Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Transfer Between Sources Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 30 September Permit Start Date: 21st June 2017 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B2SW (S)	1312	1	520691 342606
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B1SE (S)	1455	1	520268 342513

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: L C J Mountain Farms Limited Licence Number: 4/30/12/*S/0272 Permit Version: 104 Location: Drains At Great Hale Fen And Little Hale Fen Authority: Environment Agency, Anglian Region Abstraction: Trickle Irrigation Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 1st July 2021 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	B1SE (S)	1455	1	520268 342513
	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	B9SW (W)	0	3	520000 344000
	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	B10SE (S)	0	3	520846 344000
	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	B13NW (NW)	0	3	520000 345000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	B14NE (N)	0	3	520846 345000
	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	B14NE (N)	0	3	521000 345000
	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	B9NW (W)	0	3	520000 344069
	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	B10NE (NE)	0	3	520846 344069

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	B10NE (E)	0	3	521000 344069
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	B13NW (NW)	0	3	520000 345000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	B14NE (N)	0	3	520846 345000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	B9NW (W)	0	3	520000 344069
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	B10NE (NE)	0	3	520846 344069
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	B9NW (W)	0	3	520000 344069
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	B10NE (NE)	0	3	520846 344069
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	B13NW (NW)	0	3	520000 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	B14NE (N)	0	3	520846 345000
	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	B9NW (W)	0	1	519898 344365
	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	B9NW (W)	0	1	519825 344383
	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	B13SW (NW)	0	1	520050 344445
	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	B10SW (W)	0	1	520680 344024
	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	B10NW (W)	0	1	520605 344090
	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	B10NW (W)	0	1	520740 344095

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	B9NW (W)	0	1	519802 344360
	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	B9NW (W)	0	1	520000 344336
	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	B13SW (W)	0	1	519980 344385
	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	B10NW (W)	0	1	520640 344153
	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	B14SE (NE)	0	1	520990 344415
	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	B10NW (W)	0	1	520554 344140
	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	B10NW (W)	0	1	520622 344150
	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	B10SW (W)	0	1	520715 344043
	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	B10NW (W)	0	1	520720 344048
	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	B10NW (W)	0	1	520725 344053
	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	B10SW (W)	0	1	520668 344030
	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	B10NW (W)	0	1	520610 344085
	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	B14SE (N)	0	1	520846 344530
	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	B14SE (N)	0	1	521000 344530
	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	B10NW (W)	0	1	520415 344129
	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	B10NW (W)	0	1	520575 344143

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	B10NW (W)	0	1	520585 344145
	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	B14SE (N)	0	1	520860 344425
	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	B13SW (NW)	0	1	520075 344480
	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	B14SW (N)	0	1	520680 344540
	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	B10NW (W)	0	1	520540 344156
	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	B10NW (NW)	0	1	520750 344110
	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	B9NE (W)	0	1	520190 344180
	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	B9NE (W)	0	1	520125 344212
	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	B10NW (W)	0	1	520510 344204
	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	B9NE (W)	0	1	520110 344225
	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	B9NE (W)	0	1	520105 344230
	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	B9NE (W)	0	1	520100 344235
	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	B9NE (W)	0	1	520095 344239
	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	B10NW (W)	0	1	520441 344200
	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	B10NE (NW)	0	1	520760 344220
	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	B9NE (W)	0	1	520085 344249

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/Tidal Models Boundary Accuracy: As Supplied	B10NW (W)	0	1	520620 344069
	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	B9NW (W)	0	1	519990 344367
	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	B10NW (W)	0	1	520630 344130
	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	B9NW (W)	0	1	519925 344069
	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	B10SW (W)	0	1	520670 344030
	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	B10SW (W)	0	1	520712 344040
	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	B10SW (W)	0	1	520717 344045
	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	B10NW (W)	0	1	520722 344050
	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	B10NW (W)	0	1	520615 344080
	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	B10NW (W)	0	1	520610 344085
	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	B10NW (W)	0	1	520737 344078
	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	B10NW (W)	0	1	520590 344091
	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	B10NW (W)	0	1	520740 344108
	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	B10NW (W)	0	1	520420 344085
	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	B10NW (W)	0	1	520570 344140
	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	B10NW (W)	0	1	520580 344140

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	B10NW (W)	0	1	520620 344140
	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	B10NW (W)	0	1	520542 344150
	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	B10NW (W)	0	1	520420 344130
	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	B10NW (W)	0	1	520539 344160
	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	B9NE (W)	0	1	520165 344195
	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	B10NW (NW)	0	1	520745 344164
	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	B9NE (W)	0	1	520115 344220
	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	B9NE (W)	0	1	520110 344225
	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	B10NW (W)	0	1	520655 344115
	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	B9NE (W)	0	1	520105 344230
	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	B9NE (W)	0	1	520100 344235
	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	B10NW (W)	0	1	520475 344220
	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	B9NE (W)	0	1	520094 344240
	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	B9SW (W)	0	1	520010 344010
	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	B10NE (NW)	0	1	520765 344242
	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	B10NW (NW)	0	1	520719 344270

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	B9NW (W)	0	1	520064 344270
	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	B9NW (W)	0	1	519745 344320
	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	B9NW (W)	0	1	519755 344330
	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	B9NW (W)	0	1	520034 344300
	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	B9NW (W)	0	1	519805 344360
	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	B9NW (W)	0	1	519990 344260
	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	B9NW (W)	0	1	519925 344375
	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	B9NW (W)	0	1	519875 344370
	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	B10NW (NW)	0	1	520676 344243
	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	B10NE (N)	0	1	520770 344260
	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	B9NW (W)	0	1	520060 344274
	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	B9NW (W)	0	1	519747 344330
	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	B10NW (W)	0	1	520630 344151
	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	B10NE (NE)	0	1	520846 344069
	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	B15SW (NE)	0	1	521099 344394
	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	B10SE (S)	5	1	520846 343900

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	B10SE (SW)	6	1	520765 343910
	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	B10SW (SW)	7	1	520735 343906
	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	B10SW (SW)	8	1	520740 343910
	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	B10SW (SW)	13	1	520745 343904
	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	B9SE (SW)	17	1	520400 343740
	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	B10SW (SW)	19	1	520659 343885
	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	B10SE (SW)	20	1	520770 343895
	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	B10SW (SW)	31	1	520627 343895
	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	B9SE (W)	32	1	520208 344030
	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	B10SW (SW)	34	1	520550 343940
	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	B10SW (SW)	34	1	520625 343893
	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	B10SW (SW)	37	1	520678 343885
	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	B10SW (SW)	38	1	520670 343885
	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	B10SE (S)	39	1	520850 343870
	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	B10SW (SW)	40	1	520675 343882
	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	B9SE (W)	46	1	520413 344005

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	B10SW (SW)	48	1	520600 343880
	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	B10SW (SW)	50	1	520537 343930
	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	B10SE (S)	61	1	520880 343845
	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	B10SE (S)	61	1	520880 343845
	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	B10SE (S)	65	1	520885 343840
	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	B10SE (S)	65	1	520885 343840
	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	B10SW (SW)	77	1	520550 343880
	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	B10SE (S)	85	1	520904 343820
	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	B10SW (SW)	85	1	520548 343870
	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	B10SW (W)	85	1	520420 344000
	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	B10SW (W)	88	1	520475 343935
	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	B10SW (W)	92	1	520421 343988
	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	B10SW (W)	94	1	520420 343987
	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	B10SE (S)	101	1	520875 343805
	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	B10SE (S)	110	1	520905 343795
	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	B10SE (S)	121	1	520855 343785

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	B10SE (S)	122	1	520905 343783
	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	B9SE (W)	133	1	520392 343960
	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	B9SE (W)	143	1	520385 343953
	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	B10SE (S)	144	1	520880 343762
	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	B9SE (W)	145	1	520380 343955
	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	B9SE (W)	155	1	520210 344030
	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	B10SE (S)	171	1	520870 343735
	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	B9SE (W)	175	1	520265 343950
	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	B9SE (W)	177	1	520350 343939
	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	B10SE (S)	200	1	520830 343710
	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	B9SE (W)	209	1	520305 343940
	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	B6NE (S)	209	1	520830 343701
	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	B10SW (W)	0	1	520646 344029
	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	B10SW (W)	0	1	520726 344029
	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	B10SW (W)	0	1	520743 344034
	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	B10SW (SW)	0	1	520623 343936

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	B9NW (W)	0	1	519761 344349
	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	B10NW (N)	0	1	520746 344354
	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	B10NW (W)	0	1	520623 344159
	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	B10NW (W)	0	1	520621 344049
	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	B10SW (W)	0	1	520593 343966
	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	B9NW (W)	0	1	520023 344349
	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	B10NW (NW)	0	1	520636 344269
	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	B10NE (NE)	0	1	520846 344069
	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	B10NW (NW)	0	1	520623 344219
	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	B9NW (W)	0	1	519796 344379
	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	B10NE (N)	0	1	520786 344379
	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	B14SE (N)	0	1	520976 344386
	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	B13SW (W)	0	1	519993 344394
	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	B13SW (W)	0	1	519843 344394
	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	B14SE (N)	0	1	520826 344409
	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	B14SE (NE)	0	1	521026 344416

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	B9NE (W)	0	1	520113 344254
	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	B10NE (N)	0	1	520803 344266
	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	B9NE (W)	0	1	520083 344279
	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	B10NE (N)	0	1	520841 344296
	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	B10NE (N)	0	1	520886 344304
	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	B10NE (N)	0	1	520916 344356
	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	B9NW (W)	0	1	519906 344054
	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	B10NW (W)	0	1	520563 344159
	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	B9NE (W)	0	1	520203 344204
	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	B10NW (NW)	0	1	520631 344159
	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	B10NE (NW)	0	1	520773 344206
	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	B9NE (W)	0	1	520143 344214
	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	B14SE (N)	0	1	520841 344629
	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	B14SE (N)	0	1	520841 344429
	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	B14SE (N)	0	1	520911 344474
	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	B14SE (N)	0	1	520846 344506

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	B14SE (N)	0	1	520983 344529
	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	B14SE (NE)	0	1	521031 344479
	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	B14SE (N)	0	1	520816 344566
	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	B14SE (N)	0	1	520891 344534
	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	B14SE (N)	0	1	520891 344614
	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	B10NE (N)	0	1	520811 344284
	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	B9NE (W)	0	1	520236 344179
	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	B10NW (W)	0	1	520751 344069
	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	B9NE (W)	0	1	520196 344206
	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	B9NE (W)	0	1	520126 344236
	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	B14SE (N)	0	1	520923 344446
	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	B14SE (N)	0	1	520893 344506
	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	B14SE (N)	0	1	520833 344509
	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	B14SE (N)	0	1	520893 344584
	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	B14SE (N)	0	1	520991 344536
	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	B14SE (N)	0	1	520803 344574

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: Tidal Models Boundary Accuracy: As Supplied	B10SW (W)	0	1	520636 344026
	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	B10NW (W)	0	1	520623 344150
	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	B14SE (NE)	0	1	520983 344399
	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	B14SE (N)	0	1	520803 344386
	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	B14SE (N)	0	1	520833 344416
	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	B13SW (W)	0	1	519831 344416
	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	B14SE (NE)	0	1	521043 344419
	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	B14SE (N)	0	1	520846 344446
	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	B13SW (NW)	0	1	519806 344694
	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	B10SW (SW)	0	1	520641 343934
	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	B10SE (S)	0	1	520791 343929
	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	B10SE (S)	0	1	520871 343979
	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	B10SW (W)	0	1	520721 344026
	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	B10SW (W)	0	1	520736 344026
	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	B10NE (NW)	0	1	520781 344219
	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	B9NE (W)	0	1	520086 344266

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: Tidal Models Boundary Accuracy: As Supplied	B10NE (N)	0	1	520861 344259
	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	B9NW (W)	0	1	519753 344331
	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	B10NE (N)	0	1	520893 344314
	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	B9NE (W)	0	1	520106 344334
	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	B9NW (W)	0	1	519783 344356
	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	B10NE (N)	0	1	520773 344356
	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	B10NE (N)	0	1	520946 344334
	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	B9NW (W)	0	1	520011 344356
	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	B13SE (NW)	0	1	520191 344539
	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	B14SE (N)	0	1	520893 344629
	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	B10SE (S)	1	1	520846 343906
	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	B10SW (SW)	2	1	520623 343924
	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	B14SE (N)	4	1	521021 344506
	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	B10SE (S)	5	1	520891 343899
	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	B10SE (SE)	5	1	520911 343924
	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	B10SW (SW)	6	1	520706 343914

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: Tidal Models Boundary Accuracy: As Supplied	B14SE (NE)	6	1	521021 344399
	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	B10SW (SW)	6	1	520661 343914
	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	B10SW (SW)	7	1	520722 343909
	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	B9NE (W)	8	1	520233 344174
	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	B9NE (W)	10	1	520236 344159
	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	B10SW (SW)	11	1	520701 343909
	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	B14SE (NE)	11	1	521041 344416
	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	B14SE (NE)	14	1	521041 344494
	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	B10SE (SE)	22	1	520936 343909
	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	B9NE (W)	25	1	520233 344146
	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	B6NW (SW)	26	1	520586 343539
	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	B9NE (W)	39	1	520221 344139
	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	B9NE (W)	57	1	520203 344109
	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	B9NE (W)	76	1	520236 344079
	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	B10SE (S)	111	1	520931 343799
	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	B10SE (S)	122	1	520956 343799

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: Tidal Models Boundary Accuracy: As Supplied	B10SE (S)	122	1	520923 343786
	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	B9NE (W)	128	1	520233 344056
	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	B10SE (S)	143	1	520921 343764
	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	B10SE (S)	148	1	520893 343756
	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	B10SE (S)	175	1	520881 343729
	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	B10SE (S)	179	1	520863 343726
	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	B9SE (W)	180	1	520241 343999
	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	B9SE (W)	186	1	520263 343996
	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	B9SE (W)	198	1	520281 343969
	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	B9SE (W)	204	1	520286 343966
	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	B6NE (S)	238	1	520886 343666
	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	B6NE (S)	247	1	520926 343659
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences Type: Flood Defences Reference: Not Supplied	B16SE (NE)	14	1	522177 344655
	Flood Defences Type: Flood Defences Reference: Not Supplied	B16SE (NE)	35	1	522199 344653
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 215.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13SW (NW)	0	4	519978 344481

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 209.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9NW (W)	0	4	519988 344272
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9NW (W)	0	4	519988 344264
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 270.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SW (W)	0	4	520002 344016
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1095.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9NE (W)	0	4	520358 344177
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 284.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13SE (NW)	0	4	520343 344667
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 729.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9NE (W)	0	4	520375 344049
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13SE (NW)	0	4	520343 344664
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 333.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520668 344599
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 370.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NW (W)	0	4	520620 344091

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 383.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NW (W)	0	4	520633 344092
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NW (NW)	0	4	520641 344305
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 97.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NW (NW)	0	4	520642 344310
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 222.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13SW (NW)	0	4	519967 344696
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (NW)	0	4	520651 344407
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (NW)	0	4	520651 344411
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NW (NW)	0	4	520662 344314
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 139.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NW (NW)	0	4	520661 344371
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520669 344590

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520670 344597
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 136.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520670 344600
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520676 344509
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 98.6 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NE (N)	0	4	520760 344309
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 179.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520676 344515
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520685 344735
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 135.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520686 344739
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 344.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520696 344697
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14SW (N)	0	4	520696 344693

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 238.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10NE (N)	0	4	520858 344303
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 365.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13NW (NW)	0	4	519954 344918
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 434.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13NW (NW)	0	4	519954 344918
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 322.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13NE (NW)	0	4	520331 344952
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 343.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520666 344881
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520672 344880
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 28.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520700 344874
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 224.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520700 344874
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520733 345040

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 121.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B14NW (N)	0	4	520733 345045
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 368.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13SW (NW)	0	4	519967 344696
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 369.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B13SW (NW)	0	4	519978 344481
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 276.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9NW (W)	0	4	519977 344274
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 88.7 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SW (W)	0	4	519950 344015
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 698.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B14SE (NE)	1	4	521009 344395
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B15NW (N)	1	4	521156 345048
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: Underground Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B15NW (N)	1	4	521153 345042
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 181.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9NW (W)	1	4	519868 344048

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SW (W)	2	4	520002 343994
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 427.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B10SE (E)	2	4	520934 344042
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 93.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B10NE (NE)	2	4	520999 344297
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SW (W)	3	4	520042 343980
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 284.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10SE (S)	3	4	520837 343907
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B10SE (S)	3	4	520896 343902
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.7 Watercourse Level: Underground Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B14SE (NE)	3	4	521003 344389
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10SW (SW)	5	4	520613 343922
69	**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: Witham Primacy: 2	B10SW (SW)	6	4	520605 343924

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 264.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SW (W)	41	4	519918 343968
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.9 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SW (W)	45	4	520047 343979
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 106.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (W)	50	4	520149 343949
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SW (W)	57	4	519981 343940
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 107.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SE (W)	61	4	520087 343932
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 236.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SW (W)	96	4	519928 343923
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 54.6 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (W)	156	4	520149 343949
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SE (W)	157	4	520382 343936
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10SW (SW)	159	4	520457 343856

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2950.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Skerth Drain Catchment Name: Witham Primacy: 1	B16SE (NE)	176	4	522192 344645
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (W)	180	4	520192 343870
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 314.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15SW (NE)	180	4	521239 344653
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 628.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15NW (NE)	183	4	521338 344945
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 308.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11NW (E)	185	4	521191 344173
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 360.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (E)	190	4	521127 343968
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11NW (E)	190	4	521191 344173
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15SW (NE)	195	4	521238 344472
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 183.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15SW (NE)	195	4	521238 344472

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 275.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11NW (E)	196	4	521198 344173
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15NW (NE)	198	4	521339 344942
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 588.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15SW (NE)	201	4	521244 344472
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15SW (NE)	208	4	521239 344653
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 436.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15NW (NE)	208	4	521347 344942
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10SE (SE)	209	4	521089 343828
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B10SE (SE)	210	4	521087 343820
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 562.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B15SW (NE)	214	4	521245 344653
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.4 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (W)	230	4	520200 343865

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 229.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (SW)	239	4	520391 343737
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (SW)	290	4	520393 343736
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.0 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B9SE (SW)	301	4	520402 343710
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 30.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NE (S)	307	4	520759 343609
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 22.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NE (S)	316	4	520787 343597
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NE (S)	318	4	520809 343594
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NE (S)	323	4	520823 343588
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 170.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NE (S)	325	4	520829 343585
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 234.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SW (W)	332	4	519775 343724

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B9SW (W)	335	4	519782 343720
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 297.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5NW (SW)	336	4	520058 343610
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 51.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B6NE (S)	358	4	520780 343556
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B6NE (S)	359	4	520818 343552
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 34.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B6NE (S)	361	4	520831 343548
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	364	4	521255 343839
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: Underground Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B6NE (S)	367	4	520774 343547
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	371	4	521262 343838
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 432.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	B6NE (S)	371	4	520772 343543

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	373	4	521264 343838
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 129.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	373	4	521264 343838
117	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 123.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6NW (SW)	390	4	520445 343574
118	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 269.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5NE (SW)	392	4	520308 343518
119	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	404	4	521218 343663
120	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 77.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	407	4	521216 343656
121	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 116.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NW (SW)	409	4	520558 343522
122	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 133.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5NW (SW)	421	4	520034 343578
123	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 319.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (E)	467	4	521417 343929

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
124	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11NE (E)	467	4	521472 344151
125	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 482.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11NE (E)	477	4	521482 344152
126	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6NW (SW)	487	4	520483 343457
127	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 277.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11NE (E)	487	4	521513 344323
128	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 186.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6NW (SW)	487	4	520482 343458
129	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	500	4	521394 343831
130	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	500	4	521396 343841
131	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 185.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	508	4	521402 343831
132	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	508	4	521402 343831

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
133	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	513	4	521407 343830
134	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 420.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B11SW (SE)	518	4	521412 343830
135	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 255.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6NW (SW)	527	4	520498 343413
136	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 42.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	533	4	521171 343450
137	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	543	4	521373 343648
138	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 136.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	544	4	521372 343644
139	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5NW (SW)	549	4	519998 343449
140	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 198.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5NW (SW)	554	4	519997 343444
141	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 277.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NW (NE)	556	4	521797 345049

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
142	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	569	4	521210 343431
143	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 205.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	576	4	521216 343427
144	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 54.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	604	4	521351 343509
145	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 389.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7NW (SE)	651	4	521400 343494
146	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 366.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	660	4	520645 343263
147	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 323.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NW (NE)	702	4	521804 344747
148	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5SW (SW)	747	4	519942 343253
149	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5SW (SW)	754	4	519940 343247
150	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6SW (S)	758	4	520576 343169

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
151	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	761	4	521789 344303
152	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6SW (S)	766	4	520579 343162
153	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 36.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	766	4	521795 344302
154	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 20.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7SW (SE)	771	4	521381 343306
155	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6SW (S)	772	4	520581 343155
156	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	779	4	520578 343149
157	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6SW (S)	779	4	520578 343149
158	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	781	4	520582 343147
159	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 341.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	781	4	520566 343144

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
160	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 348.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	784	4	520588 343143
161	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	785	4	520566 343144
162	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SW (S)	786	4	520573 343142
163	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 363.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	B6SW (S)	787	4	520574 343141
164	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 201.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7SW (SE)	791	4	521397 343293
165	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	803	4	521832 344300
166	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	803	4	521840 344347
167	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 50.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	809	4	521838 344299
168	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	809	4	521845 344344

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
169	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NW (NE)	814	4	522094 345058
170	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 457.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	815	4	521851 344346
171	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NW (NE)	815	4	522073 345028
172	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NW (NE)	819	4	522092 345027
173	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NW (NE)	819	4	522078 345028
174	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 305.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NE (NE)	824	4	522165 344861
175	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 43.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5SE (SW)	826	4	520229 343195
176	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	830	4	521835 344111
177	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 504.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	830	4	521835 344121

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
178	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 48.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12NW (E)	832	4	521833 344062
179	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 285.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NE (NE)	832	4	522137 344747
180	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	842	4	521815 343981
181	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 231.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	844	4	521815 343975
182	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SE (S)	850	4	520947 343056
183	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 592.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	854	4	521835 344006
184	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SE (S)	857	4	520954 343050
185	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SE (S)	860	4	520957 343047
186	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 443.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SE (S)	860	4	520957 343047

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
187	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 350.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B6SE (S)	866	4	520951 343040
188	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5SW (SW)	883	4	519890 343122
189	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 111.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	886	4	521833 343905
190	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5SW (SW)	919	4	519876 343087
191	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 153.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B5SW (SW)	925	4	519874 343082
192	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 19.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	927	4	521812 343744
193	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	931	4	521811 343724
194	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	932	4	521810 343717
195	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 41.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B12SW (E)	934	4	521812 343715

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
196	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B8NW (E)	945	4	521812 343673
197	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 142.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B8NW (SE)	946	4	521811 343667
198	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 300.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16SE (NE)	968	4	522211 344663
199	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NE (NE)	968	4	522165 344861
200	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 535.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NE (NE)	975	4	522173 344863
201	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16NE (NE)	987	4	522128 344747
202	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 68.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B8NW (SE)	989	4	521807 343525
203	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B8NW (SE)	989	4	521807 343525
204	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7SE (SE)	990	4	521551 343164

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
205	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 443.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B16SE (NE)	995	4	522166 344638
206	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 268.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B7SE (SE)	996	4	521555 343159
207	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 493.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	B8NW (SE)	999	4	521818 343524

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: North Kesteven District Council - Had landfill data but passed it to the relevant environment agency		0	2	520846 344069
	Local Authority Landfill Coverage Name: Boston Borough Council - Has supplied landfill data		0	5	520936 344047
	Local Authority Landfill Coverage Name: Lincolnshire County Council - Had landfill data but passed it to the relevant environment agency		0	6	520846 344069

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: West Walton Formation, Ampthill Clay Formation And Kimmeridge Clay Formation (Undifferentiated)	B10NE (NE)	0	7	520846 344069
	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	B9NW (W)	0	7	520000 344069
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B10NE (NE)	0	7	520846 344069
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	7	520000 345000
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B14NE (N)	0	7	520846 345000
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B9NW (W)	0	7	520000 344069
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B10NE (NE)	0	7	520846 344069
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	7	520000 345000
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B14NE (N)	0	7	520846 345000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	7	520000 345000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B14NE (N)	0	7	520846 345000
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B9NW (W)	0	7	520000 344069
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	B10NE (NE)	0	7	520846 344069
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	7	520000 345000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B14NE (N)	0	7	520846 345000
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B9NW (W)	0	7	520000 344069
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	B10NE (NE)	0	7	520846 344069
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B9NW (W)	0	7	520000 344069
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B10NE (NE)	0	7	520846 344069

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	7	520000 345000
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	B14NE (N)	0	7	520846 345000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B13NW (NW)	0	7	520000 345000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B14NE (N)	0	7	520846 345000
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B9NW (W)	0	7	520000 344069
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	B10NE (NE)	0	7	520846 344069
	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	B13NW (NW)	0	7	520000 345001
	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	B14NE (N)	0	7	520846 345001
	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	B9NW (W)	0	7	520000 344069
	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	B10NE (NE)	0	7	520846 344069
	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	B13NW (NW)	0	7	520000 345001
	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	B14NE (N)	0	7	520846 345001
	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	B9NW (W)	0	7	520000 344069
	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	B10NE (NE)	0	7	520846 344069

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
208	**Contemporary Trade Directory Entries** Name: Jet Petrol Station Location: A17, East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	B9SW (W)	43	-	520034 343970
208	**Contemporary Trade Directory Entries** Name: Jet Service Station Location: East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned to the address or location	B9SW (W)	56	-	520008 343942
208	**Contemporary Trade Directory Entries** Name: Shell Service Station Location: A17, East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned to the address or location	B9SW (W)	57	-	520013 343942
208	**Contemporary Trade Directory Entries** Name: Four Winds Service Station Location: Truck Road, East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SW (W)	59	-	520012 343940
209	**Contemporary Trade Directory Entries** Name: Shell Location: A17, East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Active** Positional Accuracy: Manually positioned to the address or location	B9SE (SW)	272	-	520334 343821
209	**Contemporary Trade Directory Entries** Name: De Rodes Self Service Location: East Heckington, Boston, Lincolnshire, PE20 3QF Classification: Petrol Filling Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	B9SE (SW)	273	-	520332 343821
210	**Fuel Station Entries** Name: Four Winds Service Station Location: A17 , East Heckington , Boston, Lincolnshire, PE20 3QF Brand: Jet Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	B9SW (W)	57	-	520012 343942
211	**Fuel Station Entries** Name: De Rodes Service Station Location: A17 , East Heckingtonm , Boston, Lincolnshire, PE20 3QF Brand: Shell Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	B9SE (SW)	273	-	520332 343821
212	**Gas Pipelines** Name: HATTON TO GOSBERTON Nat Grid: Owned By National Grid Diameter (mm): 900 Building Proximity Distance (m): Not Supplied Status: Active Pipe Length (m): 47050.76 Pipe Number: Not Supplied	B9NW (W)	0	8	519878 344258

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
213	**Nitrate Vulnerable Zones** Name: Black Sluice Idb Draining To The South Forty Foot Drain Nvz Description: Surface Water Source: Environment Agency, Head Office	B10SW (SW)	0	3	520689 343960

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
North Kesteven District Council - Environmental Health Department	October 2017	Annual Rolling Update
Boston Borough Council - Pollutions Section, Environmental Health	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Anglian Region	April 2022	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Anglian Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Anglian Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - Anglian Region	April 2022	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Variable
North Kesteven District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Annual Rolling Update
North Kesteven District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Variable
North Kesteven District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	June 2022	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Anglian Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Anglian Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Anglian Region	June 2016	As notified
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	July 2022	Quarterly
Water Industry Act Referrals		
Environment Agency - Anglian Region	October 2017	
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	July 2022	Bi-Annually

Data Currency

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2022	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2022	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	May 2022	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	May 2022	Quarterly
Flood Defences		
Environment Agency - Head Office	May 2022	Quarterly
OS Water Network Lines		
Ordnance Survey	July 2022	Quarterly
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	As notified
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	April 2022	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Local Authority Landfill Coverage		
Boston Borough Council - Pollutions Section, Environmental Health	February 2003	Not Applicable
Lincolnshire County Council	February 2003	Not Applicable
North Kesteven District Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Boston Borough Council - Pollutions Section, Environmental Health	October 2018	
Lincolnshire County Council	October 2018	
North Kesteven District Council - Environmental Health Department	October 2018	
Registered Landfill Sites		
Environment Agency - Anglian Region - Northern Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Northern Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Northern Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2022	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Lincolnshire County Council - Highways and Planning Department	August 2010	Variable
Boston Borough Council - Planning Department	February 2016	Variable
North Kesteven District Council - Planning Department	October 2015	Variable
Planning Hazardous Substance Consents		
Lincolnshire County Council - Highways and Planning Department	August 2007	Variable
Boston Borough Council - Planning Department	February 2016	Variable
North Kesteven District Council - Planning Department	October 2015	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	May 2022	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	
Cheshire Brine Subsidence Compensation Board (CBSCB)	November 2020	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
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	July 2022	Quarterly
Fuel Station Entries Catalist Ltd - Experian	June 2022	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Underground Electrical Cables National Grid	May 2021	Bi-Annually
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt Boston Borough Council - Planning Department North Kesteven District Council	October 2020 October 2020	Quarterly Quarterly
Areas of Unadopted Green Belt Boston Borough Council - Planning Department North Kesteven District Council	October 2020 October 2020	Quarterly Quarterly
Areas of Outstanding Natural Beauty Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2021	Bi-Annually
Marine Nature Reserves Natural England	July 2019	Bi-Annually
National Nature Reserves Natural England	January 2021	Bi-Annually
National Parks Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	April 2016 June 2017	Bi-Annually
Ramsar Sites Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2021	Bi-Annually
Special Areas of Conservation Natural England	July 2020	Bi-Annually
Special Protection Areas Natural England	February 2021	Bi-Annually

Data Suppliers

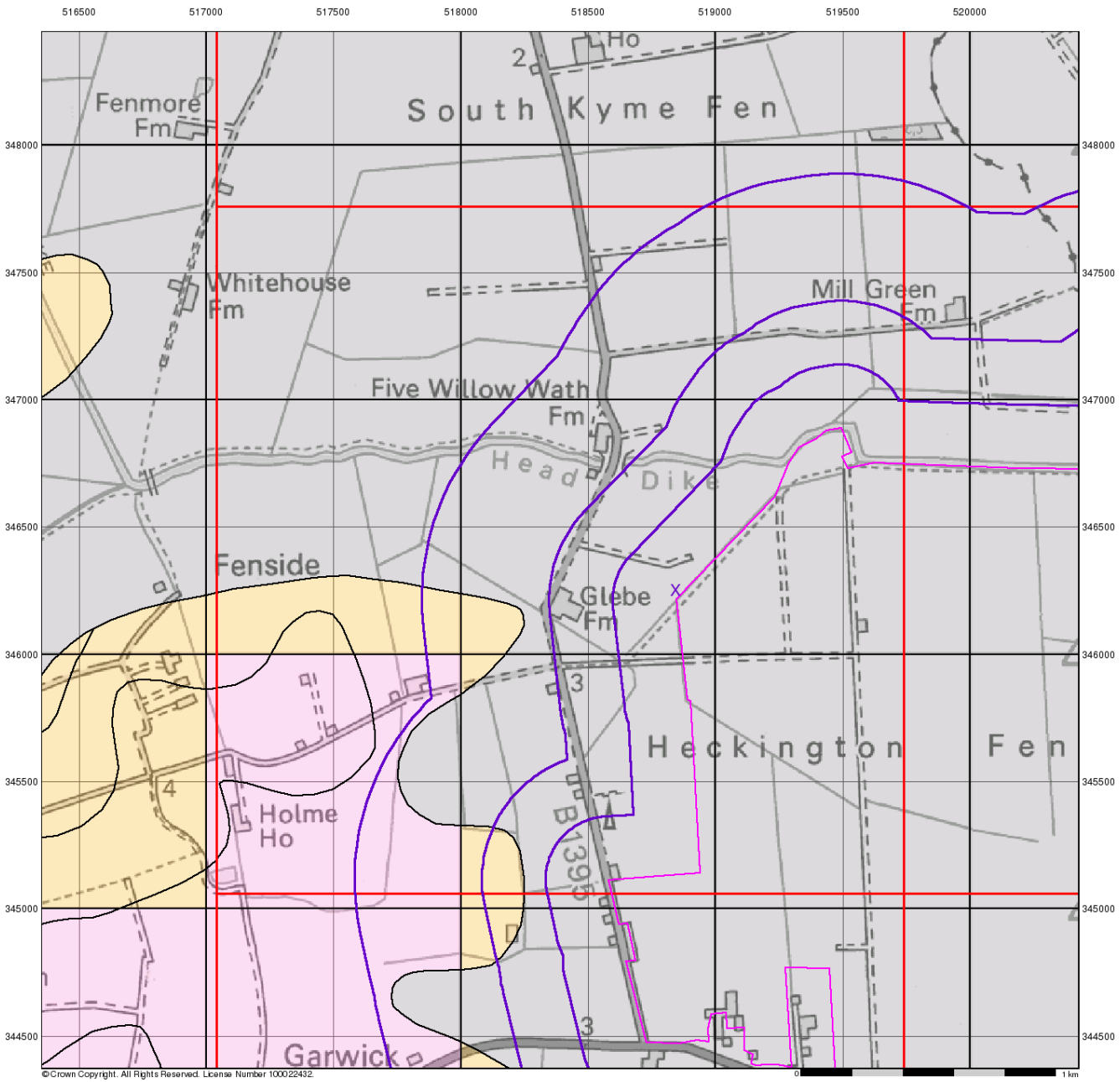
A selection of organisations who provide data within this report

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

Useful Contacts

Contact	Name and Address	Contact Details
1	**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	**North Kesteven District Council - Environmental Health Department** District Council Offices, Kesteven Street, Sleaford, Lincolnshire, NG34 7EF	Telephone: 01529 414155 Fax: 01529 413956 Website: www.n-kesteven.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**Boston Borough Council - Pollutions Section, Environmental Health** Municipal Buildings, West Street, Boston, Lincolnshire, PE21 8QR	Telephone: 01205 314200 Fax: 01205 364604 Website: www.boston.gov.uk
6	**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
7	**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: [redacted]
8	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: [redacted]
-	**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: [redacted]
-	**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: [redacted]

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



Groundwater Vulnerability

General

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

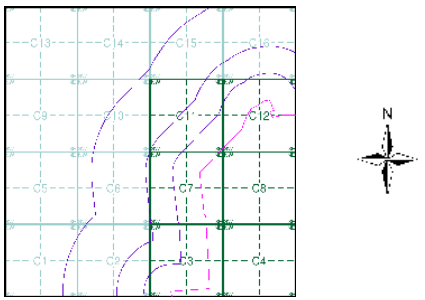
Agency and Hydrological

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 C



Order Details

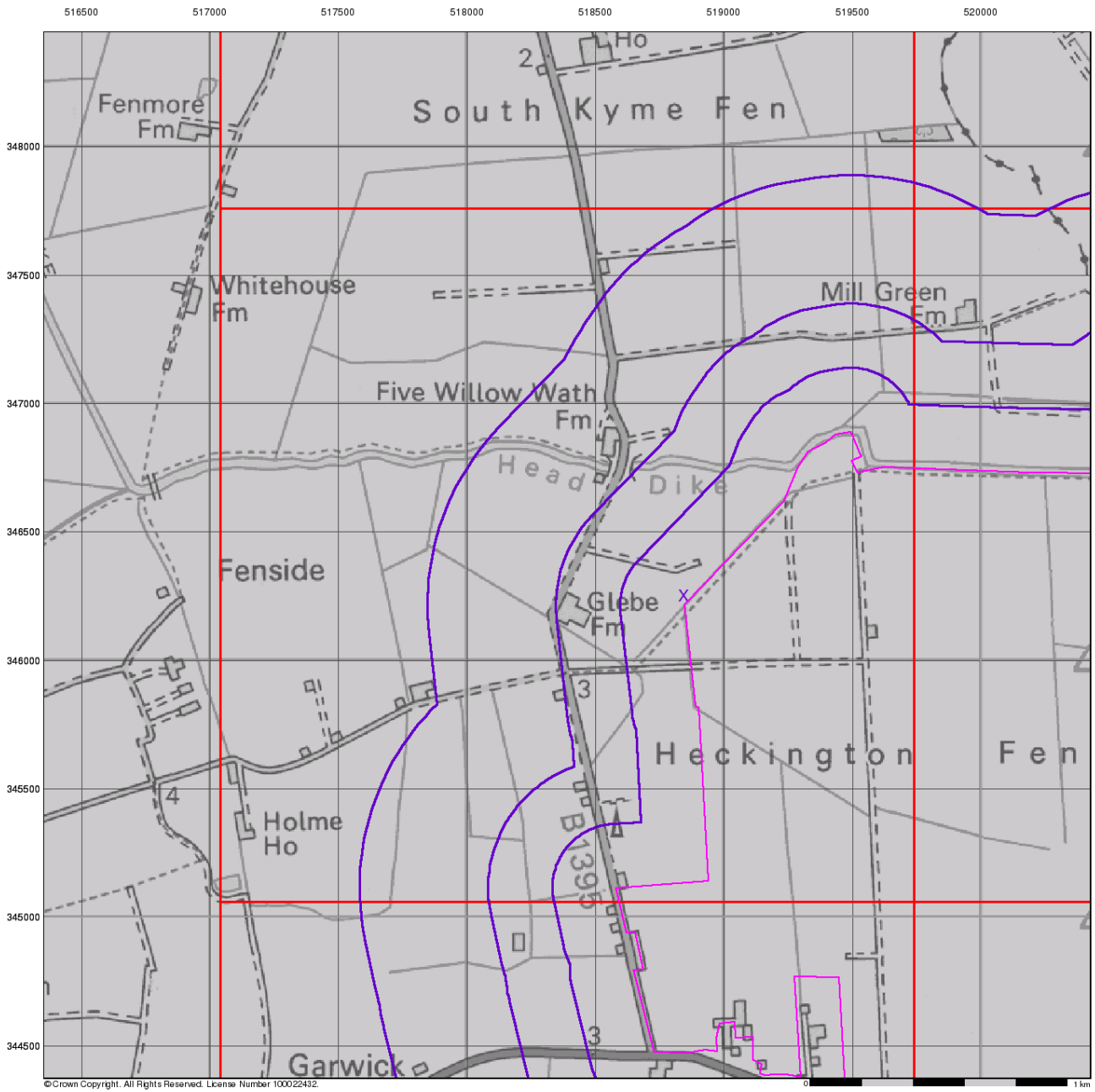
Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark Information Group

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Bedrock Aquifer Designation

General

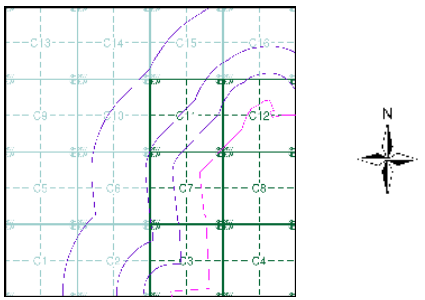
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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 C



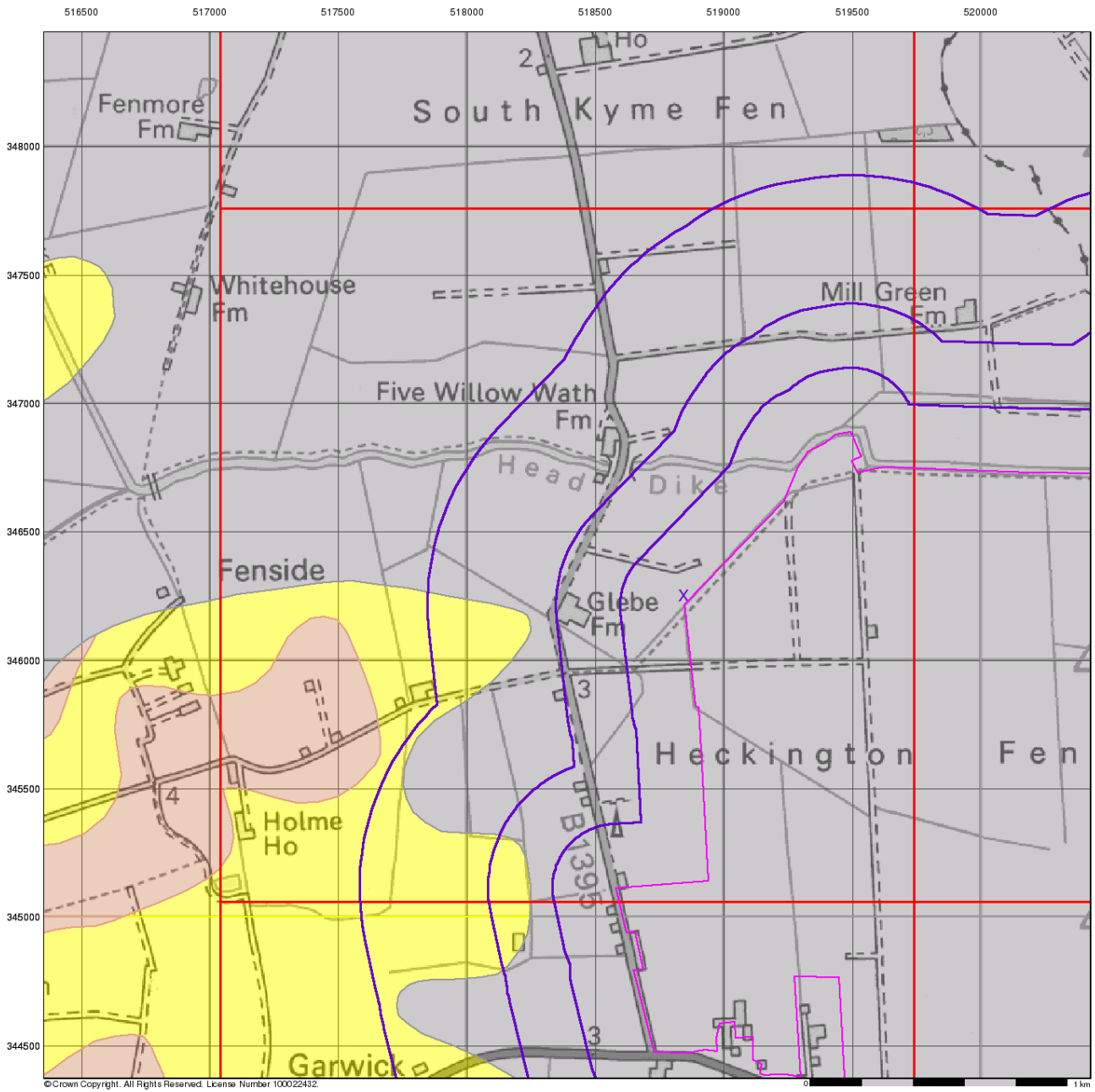
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Superficial Aquifer Designation

General

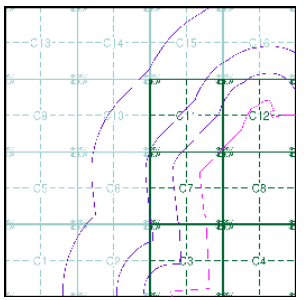
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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 C



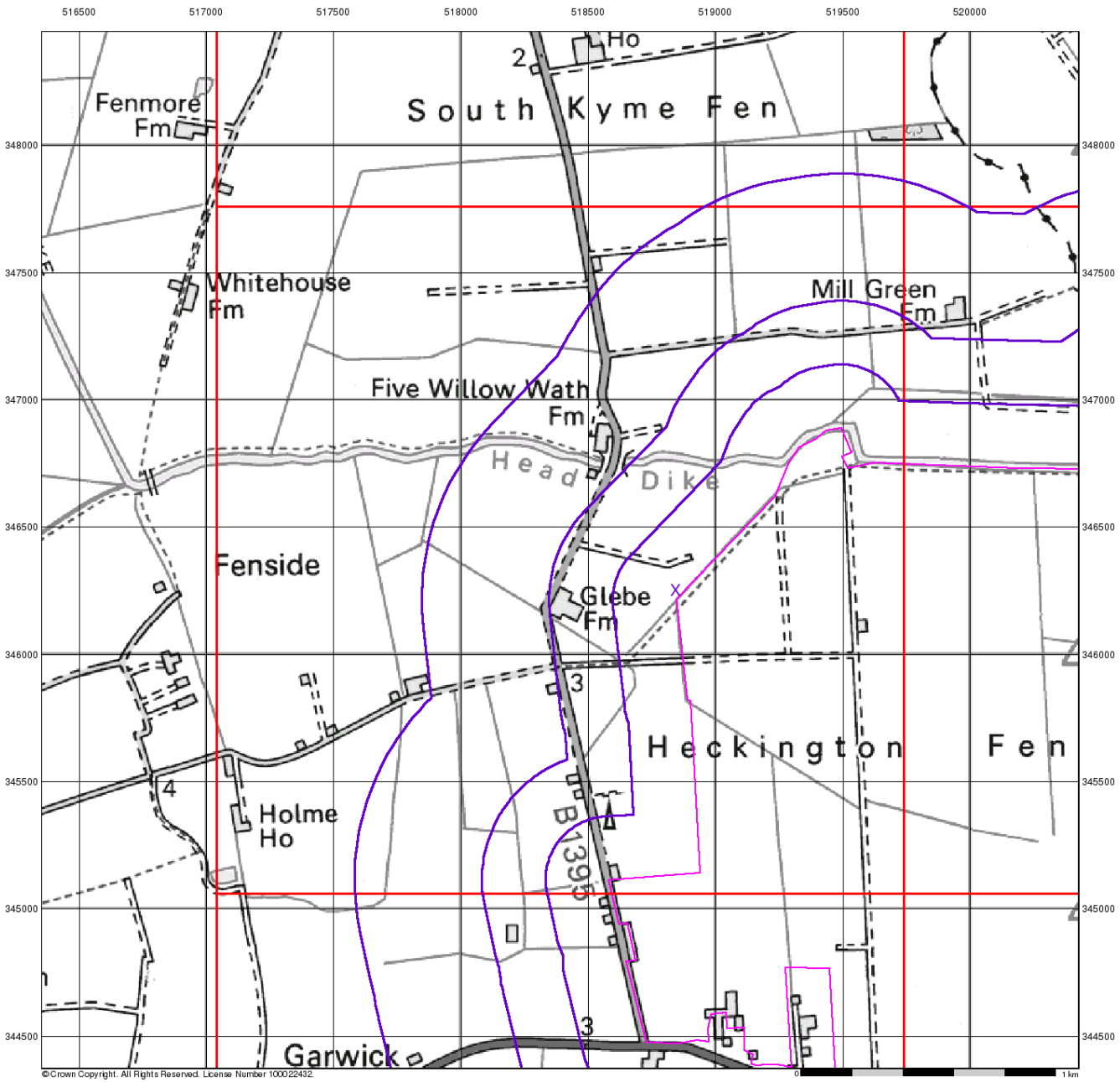
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Source Protection Zones

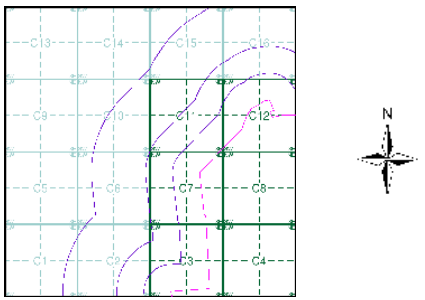
General

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 C



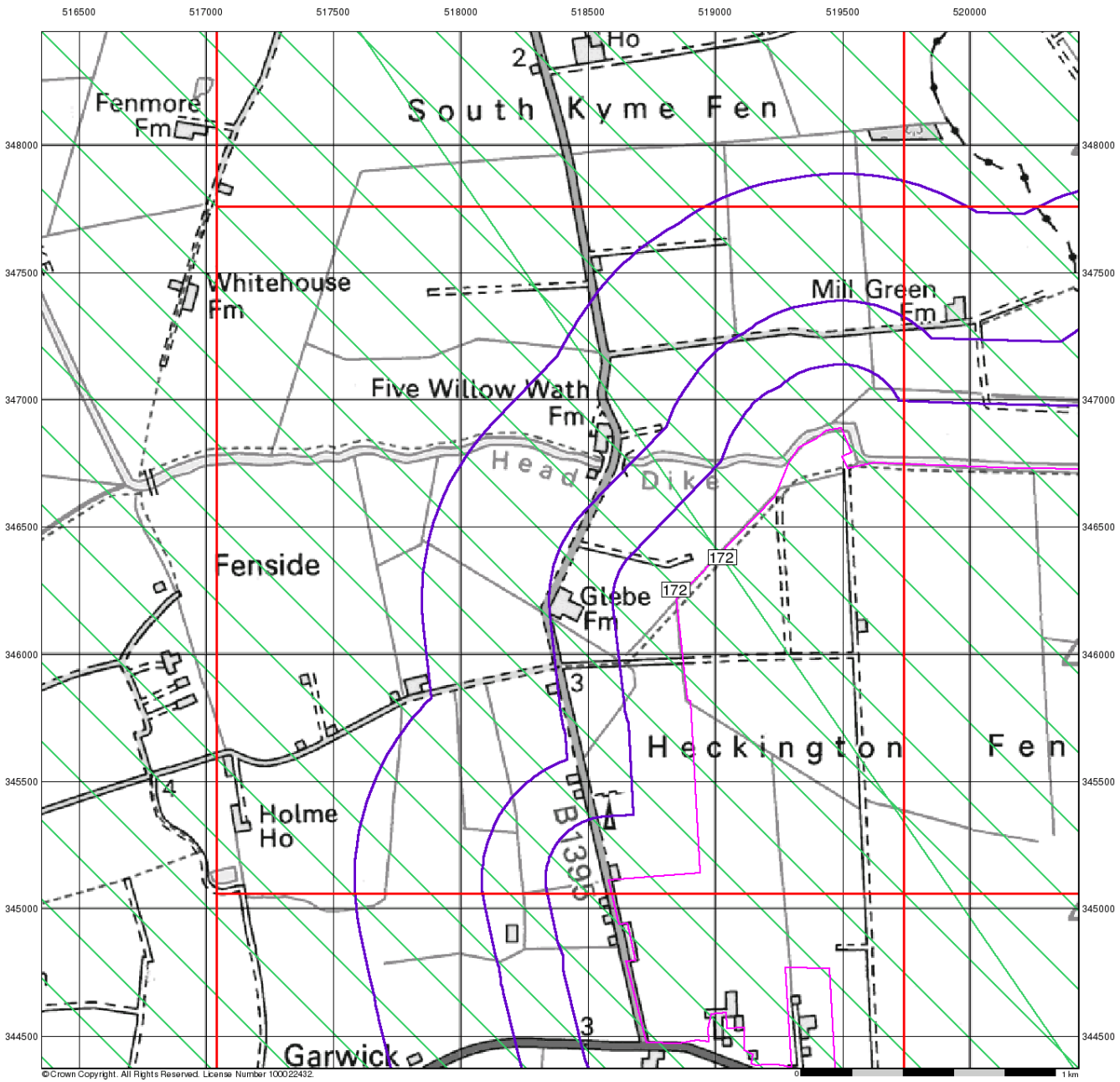
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:



Grange Geo

Sensitive Land Uses

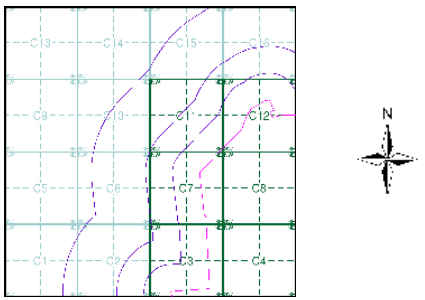
General

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 C



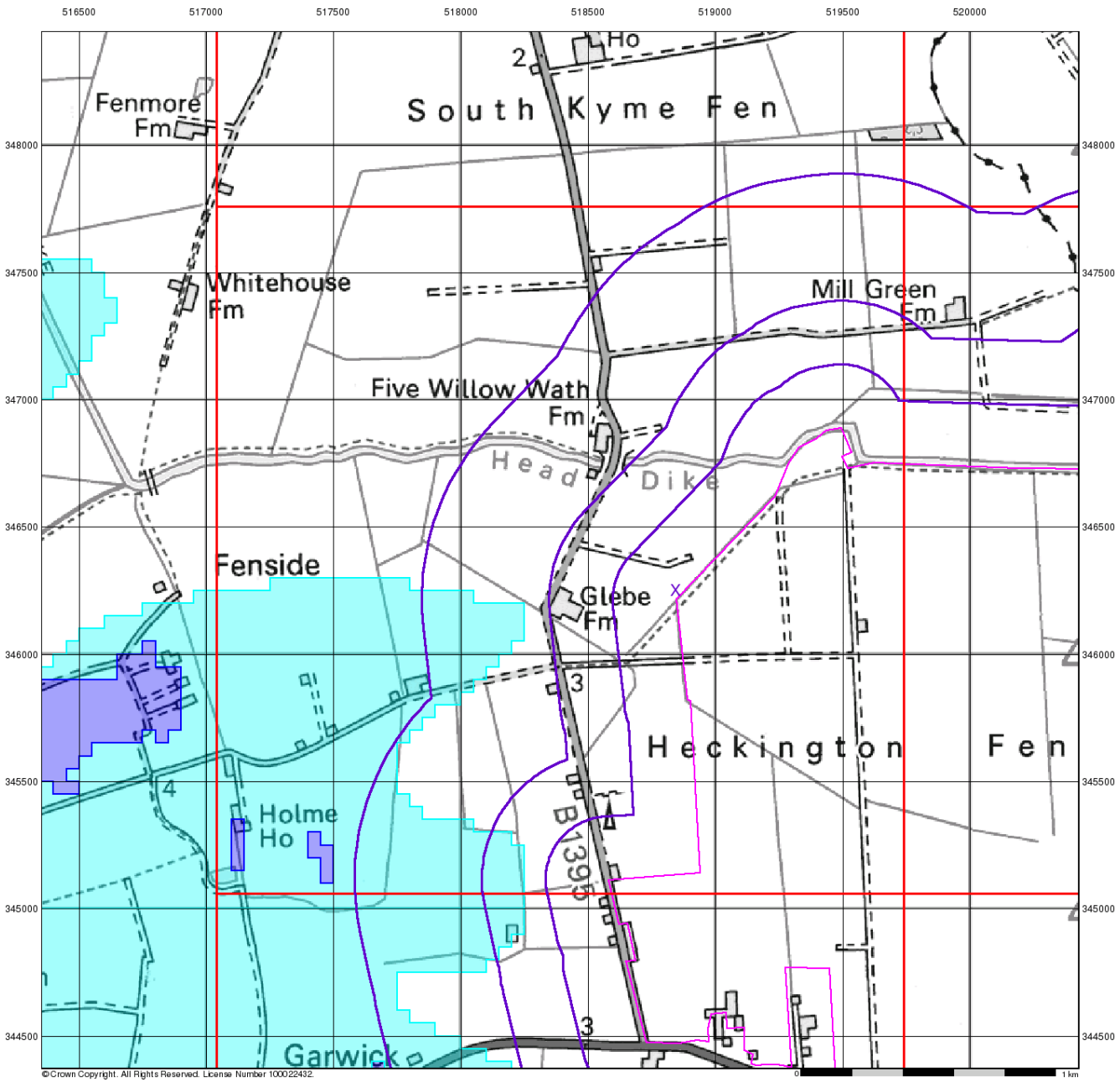
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:



Grange Geo

BGS Flood GFS Data

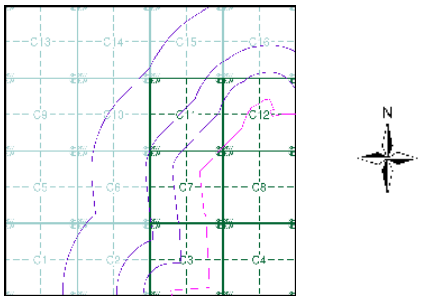
General

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 C



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Grange Geo

General

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

Agency and Hydrological

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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

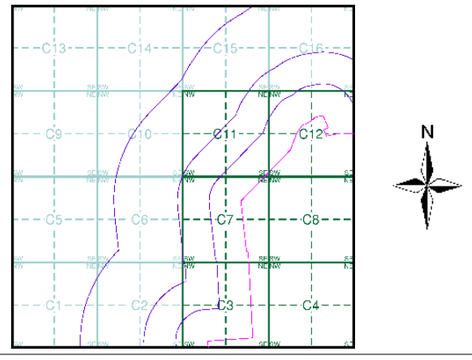
Waste

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

Hazardous Substances

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

Site Sensitivity Map - Slice C



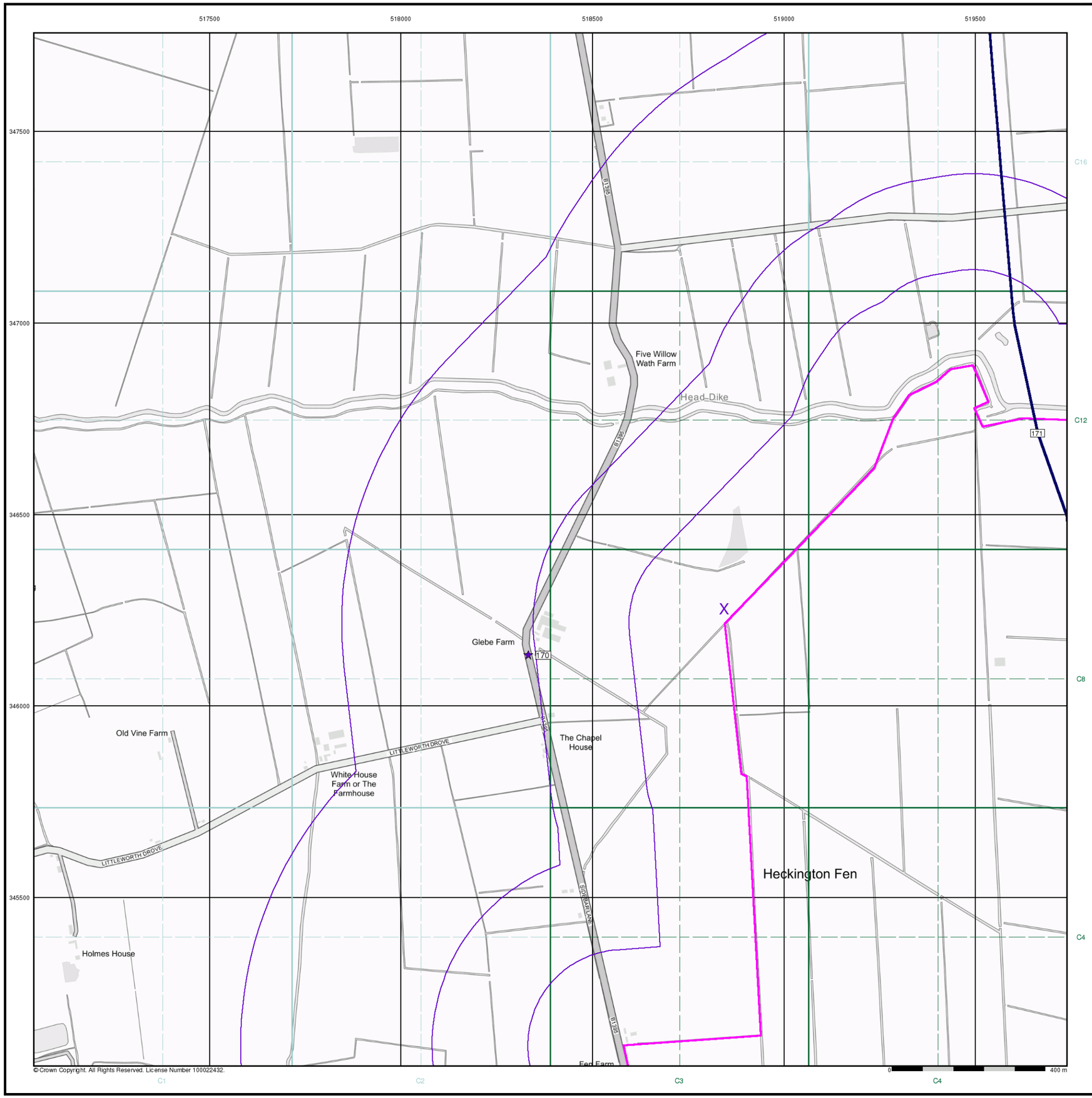
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:



Grange Geo

Industrial Land Use Map

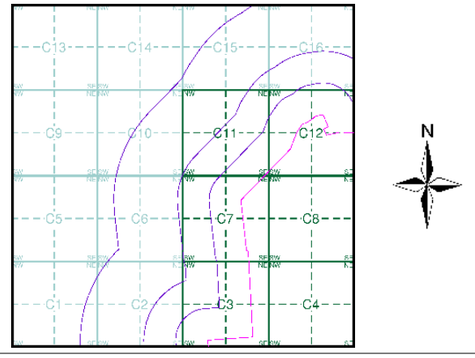
General

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

Industrial Land Use

Contemporary Trade Directory Entry
Fuel Station Entry
Gas Pipeline
Underground Electrical Cables

Industrial Land Use Map - Slice C



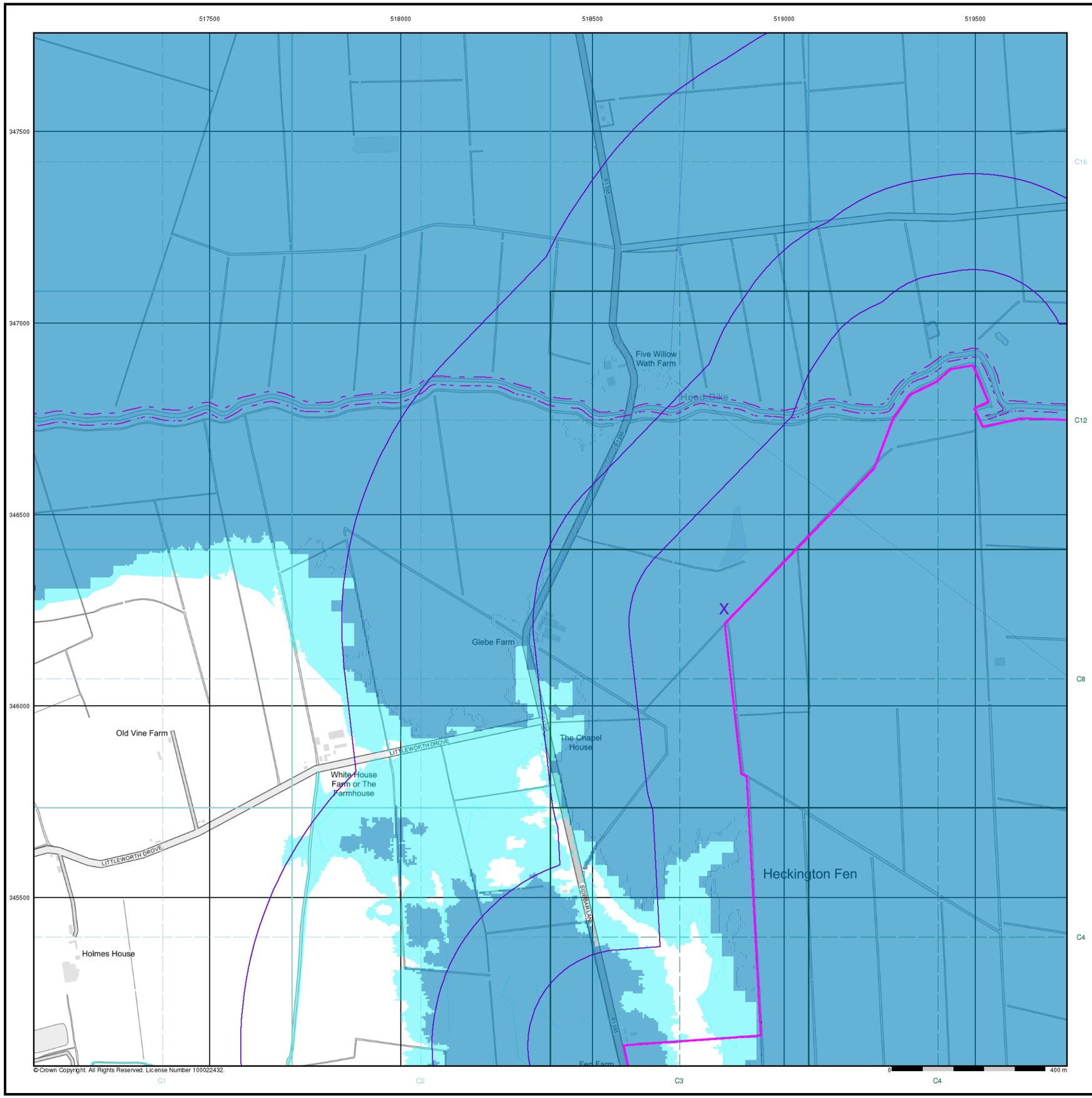
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:



Grange Geo

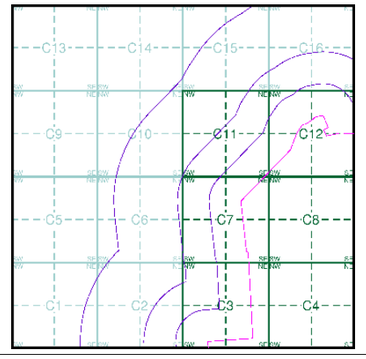
General

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

Agency and Hydrological (Flood)

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

Flood Map - Slice C



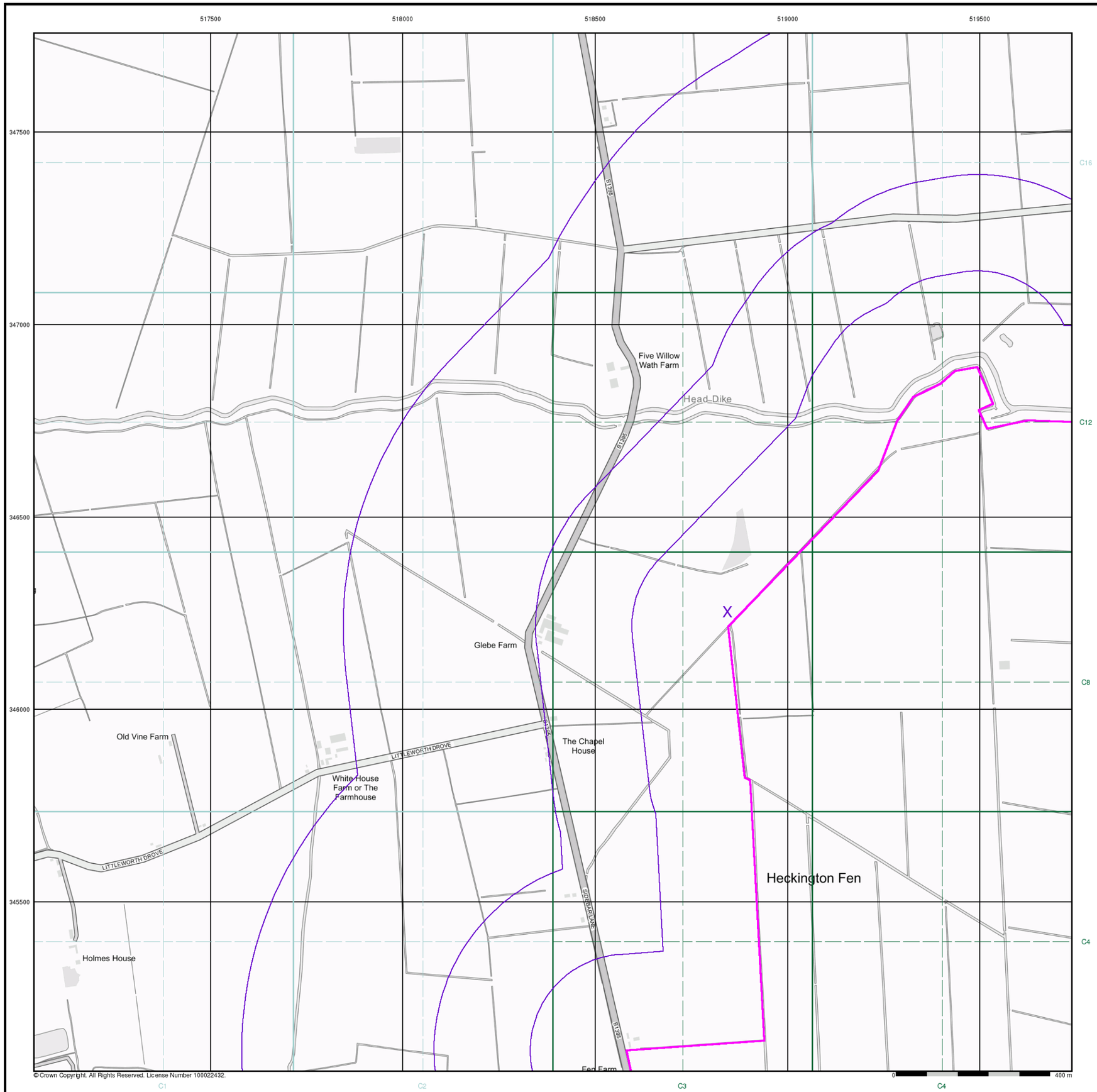
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

General

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

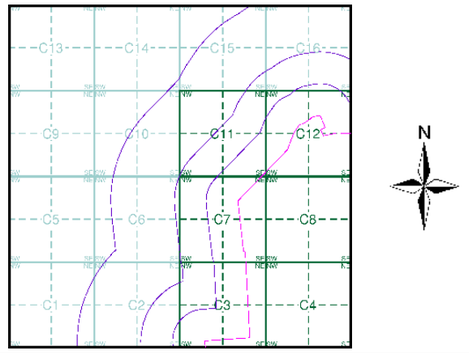
Agency and Hydrological (Boreholes)

- 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 [redacted]

Borehole Map - Slice C



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Grange Geo

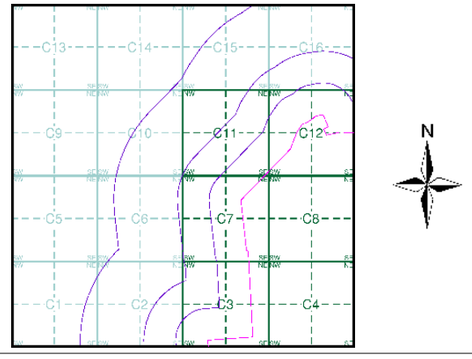
General

- 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

OS Water Network Map - Slice C



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	518840, 346250
Slice:	C
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
299645546_1_1

Customer Reference:
R22082

National Grid Reference:
518840, 346250

Slice:
C

Site Area (Ha):
583.16

Search Buffer (m):
1000

Site Details:

Heckington Fen
SLEAFORD
NG34 9NB

Client Details:

Mr A Hare
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Nottinghamshire
NG24 4AD

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	28
Hazardous Substances	-
Geological	29
Industrial Land Use	30
Sensitive Land Use	31
Data Currency	32
Data Suppliers	36
Useful Contacts	37

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.

Copyright Notice

Natural England Copyright Notice

Scottish Natural Heritage Copyright

Ove Arup Copyright Notice

Stantec Copyright Notice

Radon Potential dataset Copyright Notice

Natural Resources Wales Copyright Notice

Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1			Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1			1	1
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		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	pg 1		1	1	1 (*7)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 4	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 6	Yes	Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 8	Yes	Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences	pg 9		Yes	n/a	n/a
OS Water Network Lines	pg 9	52	29	38	45

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 28	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
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					
Geological					
BGS 1:625,000 Solid Geology	pg 29	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 29	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 29	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 29	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 29	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 30				1
Fuel Station Entries					
Gas Pipelines	pg 30	1			
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 31	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	C6NE (W)	332	1	518250 346200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	(SW)	348	1	518250 345000
1	**Discharge Consents** Operator: D & B Glass / D White Property Type: WWTW (NOT WATER CO) (NOT STP AT A PRIVATE PREMISES) Location: Bungalow Sidebar Lane, East Heckington, Lincs., Ng34 9ly Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Pr3lfu763 Permit Version: 1 Effective Date: 27th November 1975 Issued Date: 27th November 1975 Revocation Date: 17th June 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 10m	C3NW (SW)	406	2	518460 345500
2	**Discharge Consents** Operator: Allewell Farms Property Type: Arable Farming Location: Allewell Farms Five Willows Warth Farm, Clay Bank, South Kyme, Lincoln Authority: Environment Agency, Anglian Region Catchment Area: Not Supplied Reference: Gwnlf40496 Permit Version: 1 Effective Date: 31st March 1999 Issued Date: 21st July 2000 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Agricultural And Surface Discharge Environment: Land/Soakaway Receiving Water: Groundwater **Status: Deemed Groundwater Regulations Authorisation** Positional Accuracy: Located by supplier to within 100m	C11NW (NW)	655	2	518500 346800
	Nearest Surface Water Feature	C4NE (SE)	0	-	519413 345487
3	**Water Abstractions** Operator: R Maplethorpe & Son Licence Number: 4/30/12/*S/0045 Permit Version: 100 Location: Heckington Head Dyke S.Kyme Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Perpetuity Authorised Start: 01 May Authorised End: 31 August Permit Start Date: 1st October 1980 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C12NE (NE)	13	2	519500 346900
4	**Water Abstractions** Operator: F Casswell & Son Licence Number: 4/30/11/*S/0077 Permit Version: 101 Location: Head Dyke Within Clack Sluice Internal Drainage Board Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 April Authorised End: 31 October Permit Start Date: 13th March 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C11NE (N)	436	2	518769 346764

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Water Abstractions** Operator: N Asher Licence Number: 4/30/12/*G/0157 Permit Version: 100 Location: Asher Well 1 Heckington Fen Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Fluvial Sand and Gravel; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C6SE (SW)	688	2	518200 345800
	Water Abstractions Operator: C H Sardeson Licence Number: 4/30/12/*S/0242 Permit Version: 100 Location: I.D.B. Drain Heckington Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Storage Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Perpetuity Authorised Start: 01 January Authorised End: 31 March Permit Start Date: 1st April 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C1SW (SW)	1382	2	517200 345100
	Water Abstractions Operator: C H Sardeson Licence Number: 4/30/12/*S/0242 Permit Version: 101 Location: Point A Drain In Black Sluice Idb At Heckington Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Storage Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 March Permit Start Date: 15th March 2022 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C1SW (SW)	1384	2	517199 345061
	Water Abstractions Operator: C H Sardeson Licence Number: 4/30/12/*S/0242 Permit Version: 101 Location: Point A Drain In Black Sluice Idb At Heckington Authority: Environment Agency, Anglian Region Abstraction: Trickle Irrigation Abstraction Type: Water may be abstracted from a single point Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 March Permit Start Date: 15th March 2022 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C1SW (SW)	1384	2	517199 345061

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: George Ian Thorlby Licence Number: 4/30/12/*s/052 Permit Version: Not Supplied Location: Heckington Head Dyke, HECKINGTON Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 6 Yearly Rate (m3): 545530 Details: Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C9NW (W)	1636	2	517300 346750
	Water Abstractions Operator: MrMr W Orr Licence Number: 4/30/12/*S/0052 Permit Version: 102 Location: Heckington Head Dyke Heckington Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 June Authorised End: 31 July Permit Start Date: 20th March 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C9NW (W)	1874	2	517050 346750
	Water Abstractions Operator: G I Thorlby Licence Number: 4/30/12/*S/0052 Permit Version: 101 Location: Heckington Head Dyke Heckington Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 June Authorised End: 31 July Permit Start Date: 9th June 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C9NW (W)	1874	2	517050 346750
	Water Abstractions Operator: G I Thorlby Licence Number: 4/30/12/*S/0052 Permit Version: 100 Location: Heckington Head Dyke Heck'Gton Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Perpetuity Authorised Start: 01 June Authorised End: 31 July Permit Start Date: 1st May 1966 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	C9NW (W)	1874	2	517050 346750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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: 3-10m Superficial Recharge: Low	C7SE (S)	0	3	518844 346000
	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	C7SE (SE)	0	3	519000 346000
	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	(E)	0	3	520000 346000
	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: 3-10m Superficial Recharge: Low	C7NE (SE)	0	3	518844 346254

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	C7NE (E)	0	3	519000 346254
	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	(E)	0	3	520000 346254
	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: 3-10m Superficial Recharge: Low	(S)	0	3	518844 345000
	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	(S)	0	3	519000 345000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	(SE)	0	3	520000 345000
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	C7NE (SE)	0	3	518844 346254
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(E)	0	3	520000 346254
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	3	518844 345000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(SE)	0	3	520000 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	3	518844 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(SE)	0	3	520000 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	C7NE (SE)	0	3	518844 346254
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(E)	0	3	520000 346254
	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	C3SE (S)	0	2	518844 345065
	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	C3SE (S)	0	2	518844 345080
	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	C3SE (S)	0	2	518845 345130
	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	C3SE (S)	0	2	518841 345070
	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	C3SE (S)	0	2	518840 345120
	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	C3SE (S)	0	2	518825 345135

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	C3NW (SW)	0	2	518420 345720
	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	C7NE (SE)	0	2	518844 346254
	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	C3SE (S)	4	2	518820 345150
	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	C3SE (S)	15	2	518790 345199
	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	C6SE (SW)	65	2	518375 345940
	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	C3SE (S)	71	2	518800 345262
	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	C3SE (S)	84	2	518840 345350
	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	C3NE (S)	90	2	518820 345620
	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	C3SE (S)	113	2	518800 345370
	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	C3NE (S)	119	2	518790 345480
	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	C3SE (S)	127	2	518795 345380
	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	C3SE (S)	132	2	518801 345265
	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	C3SE (S)	138	2	518785 345385
	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	C3NE (S)	166	2	518755 345425
	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	C3NW (S)	246	2	518680 345400
	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	C3NW (S)	247	2	518675 345404

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	C3NW (S)	250	2	518675 345405
	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	C3SE (S)	0	2	518895 345060
	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	C12SW (NE)	0	2	519083 346572
	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	C7NE (SE)	0	2	518844 346254
	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	C3SE (S)	0	2	518881 345139
	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	C3NE (S)	0	2	518901 345730
	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	C3NW (SW)	0	2	518460 345505
	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	C3NE (S)	0	2	518820 345550
	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	C3SE (S)	0	2	518928 345134
	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	C3NE (S)	108	2	518808 345570
	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	C3NE (S)	108	2	518800 345646
	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	C3NE (S)	111	2	518808 345526
	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	C3NE (S)	118	2	518800 345556
	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	C3NE (S)	127	2	518780 345680
	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	C3NE (S)	154	2	518760 345616
	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	C3NW (S)	196	2	518705 345635

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	C3NW (S)	217	2	518691 345586
	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	C3NW (S)	223	2	518695 345550
	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	C3NW (S)	229	2	518688 345559
	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	C3NW (S)	230	2	518688 345535
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences Type: Flood Defences Reference: Not Supplied	C11NE (N)	14	2	518930 346757
	Flood Defences Type: Flood Defences Reference: Not Supplied	C11NE (N)	35	2	518936 346781
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 421.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7NE (E)	0	4	519047 346270
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 406.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C8NE (E)	0	4	519522 346288
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 482.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SE (E)	0	4	519528 346420
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 265.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7NE (SE)	0	4	518865 346234
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 358.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11SE (NE)	0	4	519035 346413

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SE (E)	0	4	519519 346420
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SE (E)	0	4	519516 346420
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 299.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SE (E)	0	4	519516 346420
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SW (NE)	0	4	519283 346671
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 208.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SW (NE)	0	4	519296 346676
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SE (NE)	0	4	519500 346718
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 234.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12SE (NE)	0	4	519521 346726
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1164.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11SE (N)	0	4	518921 346742
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NE (NE)	0	4	519501 346750

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 204.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C8NE (E)	0	4	519582 346180
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 324.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SE (S)	0	4	518920 345138
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 324.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7NE (S)	0	4	518852 346221
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 256.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C8SE (SE)	0	4	519559 345758
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 367.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519575 345433
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 359.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4SE (SE)	0	4	519585 345217
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 235.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7NE (S)	0	4	518852 346221
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.5 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518877 345987
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 171.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518877 345979

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 183.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518885 345976
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 676.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518906 345814
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518906 345814
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518911 345812
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 162.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7SE (S)	0	4	518914 345811
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 306.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C3NE (S)	0	4	519052 345726
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 22.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NE (S)	0	4	519052 345726
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NE (S)	0	4	519052 345704
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 410.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NE (S)	0	4	519052 345698

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4SW (S)	0	4	519073 345288
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 451.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4SW (S)	0	4	519073 345282
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 781.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NW (SE)	0	4	519230 345603
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 431.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C8SW (SE)	0	4	519296 345993
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519403 345506
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519409 345502
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519411 345495
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519412 345500
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 622.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519412 345487

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 107.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C4NW (SE)	0	4	519312 345563
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 178.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519412 345500
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C8SE (E)	0	4	519536 346014
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 580.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C8SE (E)	0	4	519538 346003
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519565 345423
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519565 345419
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 188.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C4NE (SE)	0	4	519565 345407
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4SE (SE)	0	4	519574 345219
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 218.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C4SE (SE)	0	4	519574 345219

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C4SE (SE)	0	4	519578 345219
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SE (S)	0	4	518942 345139
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 172.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SW (S)	2	4	518579 345107
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 27.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SW (S)	19	4	518570 345069
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 65.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NE (NE)	21	4	519530 346755
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 213.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SW (S)	21	4	518523 345277
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1204.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Head Dike Catchment Name: Witham Primacy: 1	C12NE (NE)	26	4	519586 346781
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 732.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Head Dike Catchment Name: Witham Primacy: 1	C11NE (N)	28	4	518933 346770
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 55.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NE (NE)	33	4	519470 346918

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 201.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Head Dike Catchment Name: Witham Primacy: 1	C12NE (NE)	33	4	519567 346798
66	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 47.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NW (NE)	57	4	519384 346909
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 156.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NE (NE)	70	4	519509 346957
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 188.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7NE (N)	76	4	518827 346352
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 130.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7NE (NE)	84	4	518909 346401
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 95.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NW (NE)	94	4	519375 346956
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NW (NE)	98	4	519375 346956
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 417.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NW (NE)	128	4	519174 346811
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 271.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NW (NE)	132	4	519369 346993

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SW (S)	174	4	518520 345288
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 487.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7SW (SW)	185	4	518666 345960
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 151.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	186	4	518486 345436
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SW (S)	194	4	518524 345346
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7NW (NW)	205	4	518715 346374
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 172.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7NW (NW)	211	4	518708 346376
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 227.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NE (NE)	214	4	519627 347056
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 500.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C12NE (NE)	214	4	519627 347056
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 267.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7SW (SW)	221	4	518651 345968

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 24.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7SW (SW)	221	4	518636 345979
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 413.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NE (N)	231	4	519058 346801
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C7SW (SW)	239	4	518632 345983
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3SW (S)	240	4	518521 345356
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 89.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	251	4	518502 345443
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 296.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2SE (SW)	335	4	518232 345280
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 431.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NE (N)	336	4	518939 346796
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 39.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	337	4	518486 345436
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	339	4	518499 345454

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 225.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	346	4	518447 345432
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 116.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	350	4	518478 345568
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11SW (NW)	367	4	518541 346420
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 79.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11SW (NW)	372	4	518536 346421
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 296.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (NE)	380	4	519315 347271
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2SE (SW)	387	4	518231 345294
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2SE (SW)	395	4	518230 345297
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 777.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6SW (SW)	397	4	517969 345871
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2SE (SW)	397	4	518230 345306

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2SE (SW)	397	4	518230 345298
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (NE)	398	4	519317 347259
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 100.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2NE (SW)	401	4	518223 345406
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (NE)	406	4	519316 347266
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 87.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (N)	410	4	519228 347264
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SE (NE)	411	4	519610 347283
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 208.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SE (NE)	412	4	519611 347284
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 434.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SE (NE)	412	4	519611 347284
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 348.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (NE)	413	4	519341 347281

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (N)	437	4	519216 347263
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 590.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Head Dike Catchment Name: Witham Primacy: 1	C11NW (N)	439	4	518714 346771
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NE (N)	439	4	518800 346799
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 97.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C3NW (SW)	441	4	518443 345634
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 127.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (N)	442	4	519090 347248
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 385.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6SE (SW)	445	4	518384 345955
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 369.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NE (N)	462	4	518798 346832
117	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 355.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6SE (SW)	463	4	518138 345752
118	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 737.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C2SE (SW)	466	4	518116 345098

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
119	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (N)	471	4	519095 347221
120	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 22.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (N)	476	4	519094 347226
121	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 270.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C7SW (SW)	485	4	518405 345794
122	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 46.3 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C6NE (W)	489	4	518361 346149
123	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6NE (W)	491	4	518342 346130
124	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 114.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SE (N)	497	4	518976 347234
125	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 348.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16SW (N)	516	4	519071 347258
126	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SE (N)	526	4	518981 347207
127	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 87.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C6NE (W)	527	4	518321 346172

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
128	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 21.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SE (N)	531	4	518980 347213
129	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 114.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SE (N)	550	4	518862 347221
130	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11SW (NW)	558	4	518574 346738
131	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 69.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NW (NW)	570	4	518607 346789
132	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 487.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11SW (NW)	570	4	518555 346735
133	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.3 Watercourse Level: Underground Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C6NE (W)	598	4	518248 346220
134	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 84.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C6NE (W)	610	4	518236 346228
135	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16NE (NE)	612	4	519594 347492
136	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 583.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16NE (NE)	612	4	519594 347492

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
137	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NW (N)	613	4	518613 346858
138	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 372.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16NE (NE)	616	4	519608 347494
139	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 144.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	620	4	518725 347193
140	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 319.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NW (N)	622	4	518612 346869
141	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 379.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Labour in Vain Drain Catchment Name: Witham Primacy: 2	C6NE (W)	685	4	518164 346272
142	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6NE (W)	685	4	518164 346272
143	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 523.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6NE (W)	688	4	518162 346290
144	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 150.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	713	4	518716 347189
145	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 407.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C11NW (NW)	724	4	518494 346893

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
146	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 151.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6SE (SW)	755	4	518105 345899
147	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 253.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16NW (N)	758	4	519065 347605
148	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 424.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C16NW (N)	758	4	519317 347628
149	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	816	4	519060 347603
150	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	820	4	519057 347606
151	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	831	4	518574 347177
152	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	841	4	519045 347627
153	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 220.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	843	4	518825 347609
154	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 314.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	844	4	518573 347201

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
155	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 394.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	849	4	519054 347638
156	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	851	4	518560 347192
157	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 152.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	852	4	518560 347196
158	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 270.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (N)	852	4	518560 347196
159	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1412.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6SW (W)	862	4	517783 345831
160	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1567.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Head Dike Catchment Name: Witham Primacy: 1	C10NE (NW)	877	4	518238 346848
161	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 23.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C10NE (NW)	877	4	518238 346848
162	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 368.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C10NE (NW)	892	4	518240 346872
163	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 560.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C6NW (W)	910	4	517928 346081

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
164	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	943	4	518820 347609
165	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 250.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NW (N)	945	4	518725 347600
166	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 13.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C10NE (NW)	962	4	518088 346809
167	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 516.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C10NE (NW)	972	4	518086 346822
168	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 395.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15NE (N)	979	4	518764 347611
169	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 143.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	C15SW (NW)	994	4	518410 347219

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: North Kesteven District Council - Had landfill data but passed it to the relevant environment agency		0	5	518844 346254
	Local Authority Landfill Coverage Name: Lincolnshire County Council - Had landfill data but passed it to the relevant environment agency		0	6	518844 346254

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: West Walton Formation, Ampthill Clay Formation And Kimmeridge Clay Formation (Undifferentiated)	C7NE (SE)	0	1	518844 346254
	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	C7NE (SE)	0	1	518844 346254
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C7NE (SE)	0	1	518844 346254
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	C7NE (SE)	0	1	518844 346254
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	C7NE (SE)	0	1	518844 346254
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	C7NE (SE)	0	1	518844 346254
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	C7NE (SE)	0	1	518844 346254
	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	C7NE (SE)	0	1	518844 346254
	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	C7NE (SE)	0	1	518844 346254

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
170	**Contemporary Trade Directory Entries** Name: A17 Recoveries & Transportation Location: Side Bar La, Heckington Fen, Sleaford, Lincolnshire, NG34 9LZ Classification: Car Breakdown & Recovery Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	C6NE (W)	519	-	518333 346132
171	**Gas Pipelines** Name: HATTON TO GOSBERTON Nat Grid: Owned By National Grid Diameter (mm): 900 Building Proximity Distance (m): Not Supplied Status: Active Pipe Length (m): 47050.76 Pipe Number: Not Supplied	(E)	0	7	519750 346307

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
172	**Nitrate Vulnerable Zones** Name: Black Sluice Idb Draining To The South Forty Foot Drain Nvz Description: Surface Water Source: Environment Agency, Head Office	C7NE (SE)	0	3	518844 346254

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Environment Agency - Head Office North Kesteven District Council - Environmental Health Department	 June 2020 October 2017	 Annually Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region	 April 2022	 Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region	 March 2013	
Integrated Pollution Controls Environment Agency - Anglian Region	 January 2009	
Integrated Pollution Prevention And Control Environment Agency - Anglian Region	 April 2022	 Quarterly
Local Authority Integrated Pollution Prevention And Control North Kesteven District Council - Environmental Health Department	 May 2014	 Variable
Local Authority Pollution Prevention and Controls North Kesteven District Council - Environmental Health Department	 May 2014	 Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements North Kesteven District Council - Environmental Health Department	 May 2014	 Variable
Nearest Surface Water Feature Ordnance Survey	 June 2022	
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region	 September 1999	
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region	 July 2015	
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region	 March 2013	
Registered Radioactive Substances Environment Agency - Anglian Region	 June 2016	 As notified
River Quality Environment Agency - Head Office	 November 2001	 Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	 April 2012	
River Quality Chemistry Sampling Points Environment Agency - Head Office	 April 2012	
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Northern Area	 April 2022	 Quarterly
Water Abstractions Environment Agency - Anglian Region	 July 2022	 Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region	 October 2017	
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	 July 2022	 Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	 May 2022	 Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	 May 2022	 Quarterly

Agency & Hydrological	Version	Update Cycle
Areas Benefiting from Flood Defences Environment Agency - Head Office	May 2022	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	May 2022	Quarterly
Flood Defences Environment Agency - Head Office	May 2022	Quarterly
OS Water Network Lines Ordnance Survey	July 2022	Quarterly
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites Environment Agency - Head Office	April 2022	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Anglian Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Local Authority Landfill Coverage Lincolnshire County Council North Kesteven District Council - Environmental Health Department	February 2003 February 2003	Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Lincolnshire County Council North Kesteven District Council - Environmental Health Department	October 2018 October 2018	
Registered Landfill Sites Environment Agency - Anglian Region - Northern Area	March 2006	Not Applicable
Registered Waste Transfer Sites Environment Agency - Anglian Region - Northern Area	April 2018	
Registered Waste Treatment or Disposal Sites Environment Agency - Anglian Region - Northern Area	June 2015	
Hazardous Substances	**Version**	**Update Cycle**
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	January 2022	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements Lincolnshire County Council - Highways and Planning Department North Kesteven District Council - Planning Department	August 2010 October 2015	Variable Variable
Planning Hazardous Substance Consents Lincolnshire County Council - Highways and Planning Department North Kesteven District Council - Planning Department	August 2007 October 2015	Variable Variable

Data Currency

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	May 2022	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
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	July 2022	Quarterly
Fuel Station Entries Catalist Ltd - Experian	June 2022	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Underground Electrical Cables National Grid	May 2021	Bi-Annually

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

Data Suppliers

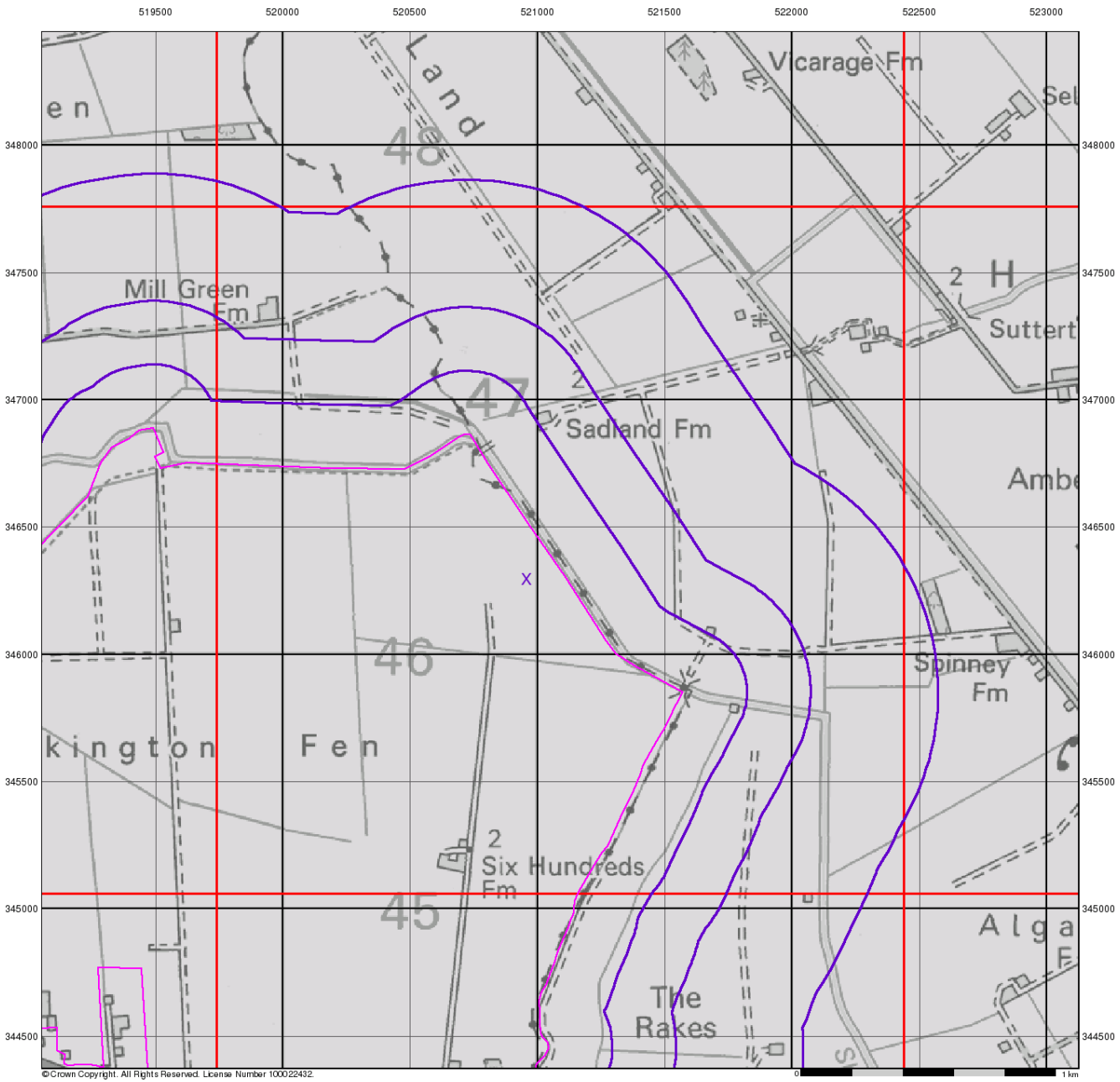
A selection of organisations who provide data within this report

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

Useful Contacts

Contact	Name and Address	Contact Details
1	**British Geological Survey - Enquiry Service** British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: [redacted]
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
4	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
5	**North Kesteven District Council - Environmental Health Department** District Council Offices, Kesteven Street, Sleaford, Lincolnshire, NG34 7EF	Telephone: 01529 414155 Fax: 01529 413956 Website: www.n-kesteven.gov.uk
6	**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
7	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: [redacted]
-	**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: [redacted]
-	**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: [redacted]

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



Groundwater Vulnerability

General

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

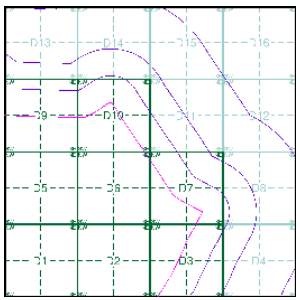
Agency and Hydrological

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 D



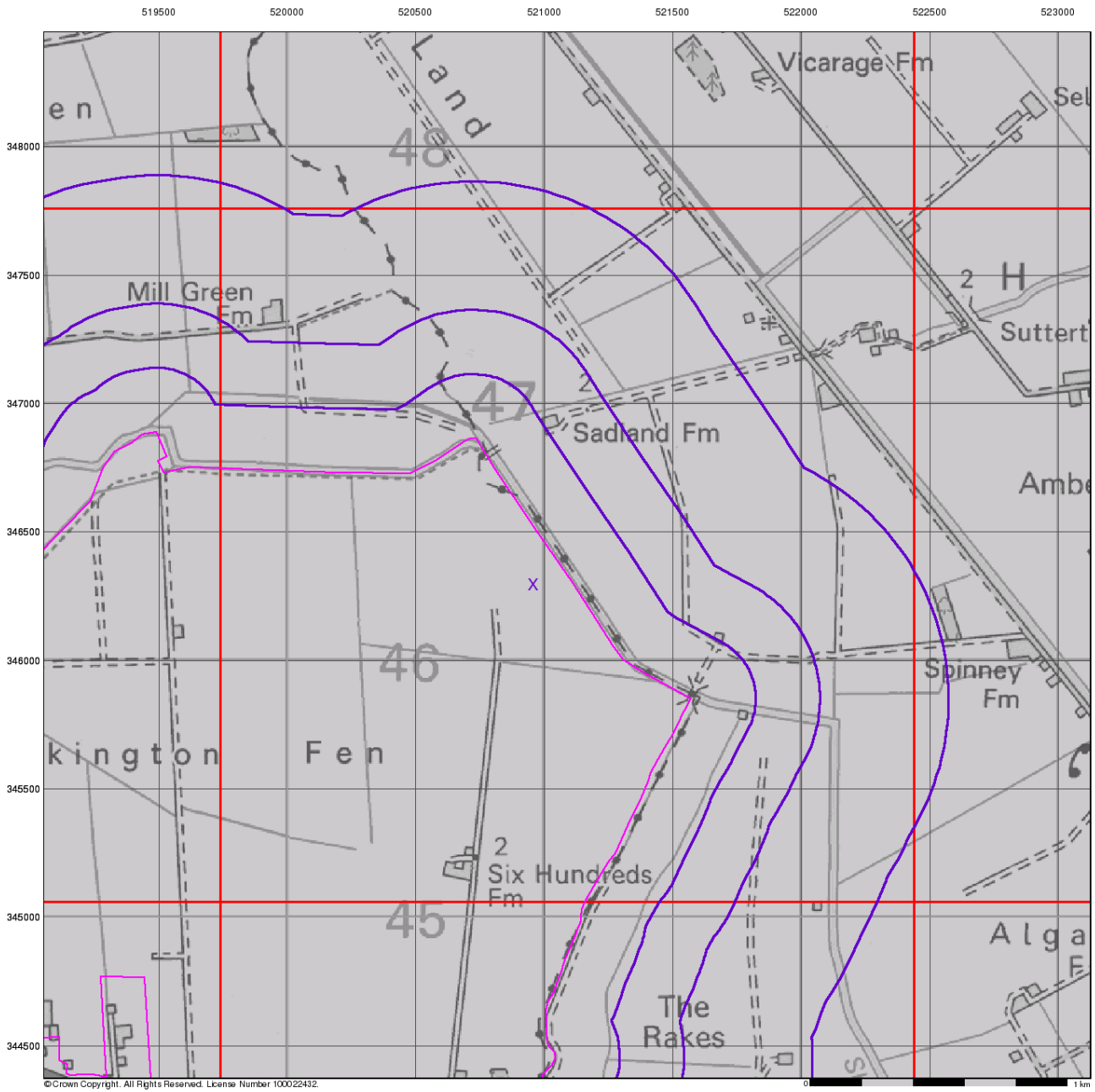
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Bedrock Aquifer Designation

General

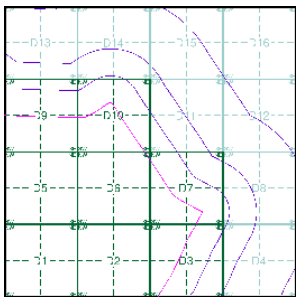
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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 D

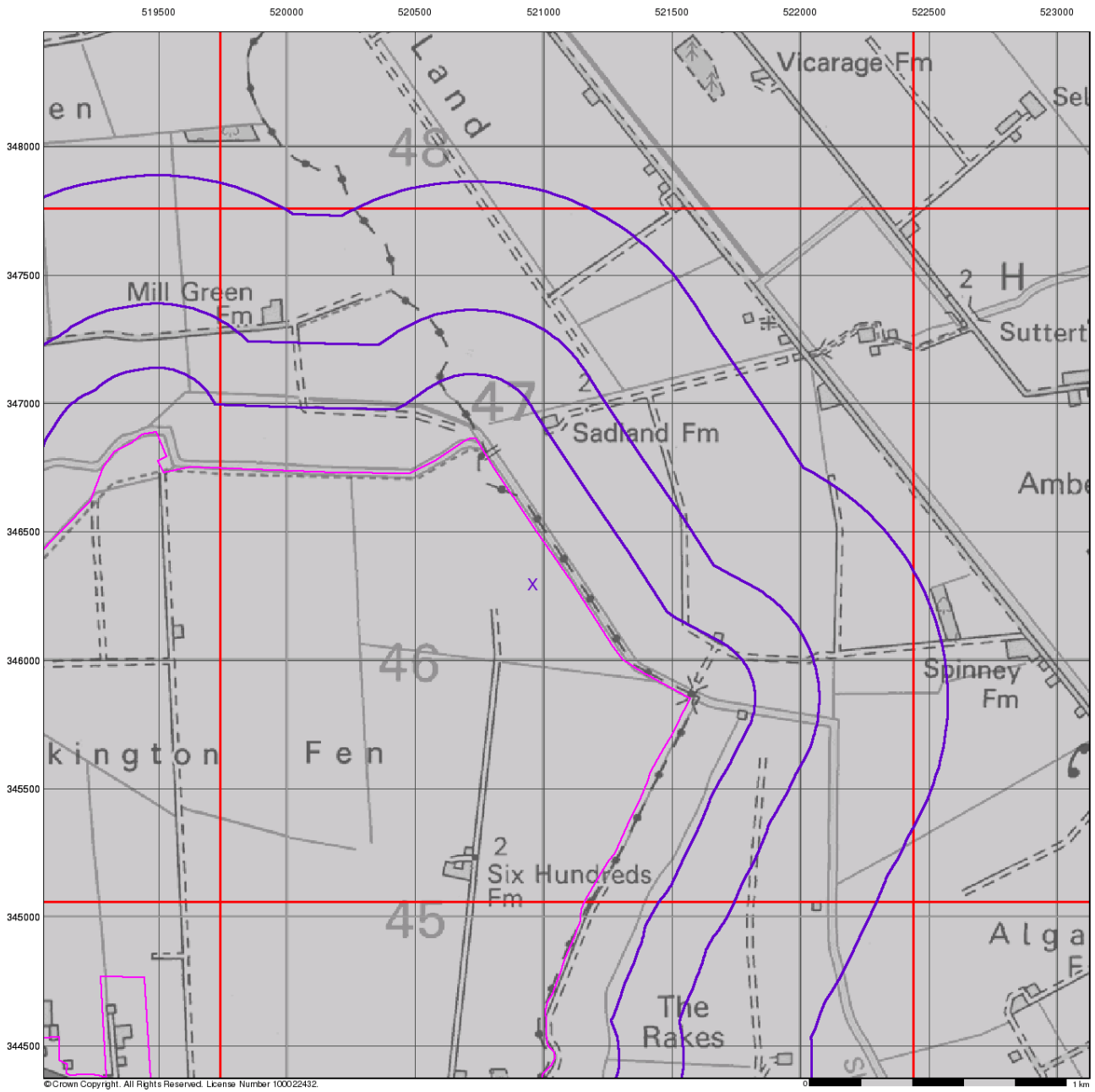


Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB



Superficial Aquifer Designation

General

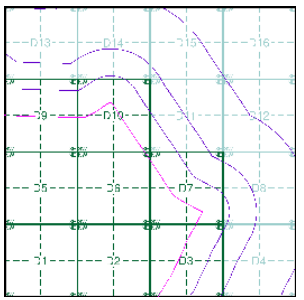
Specified Site | Specified Buffer(s) | Bearing Reference Point | Slice | Map ID

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 D



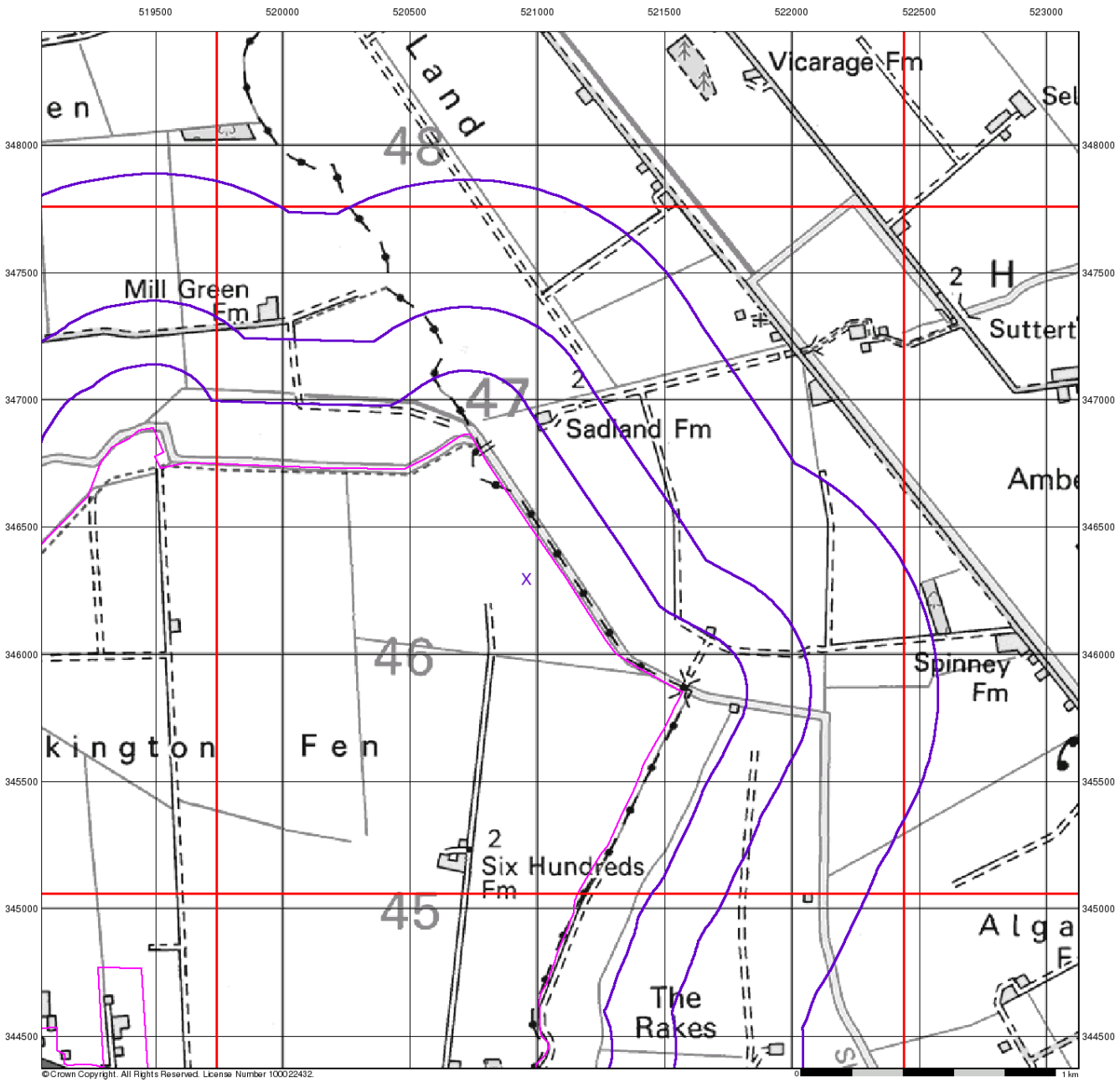
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

Source Protection Zones

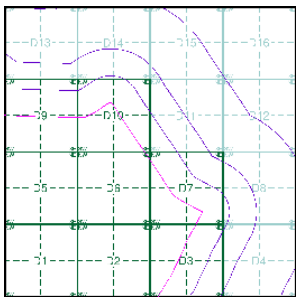
General

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 D

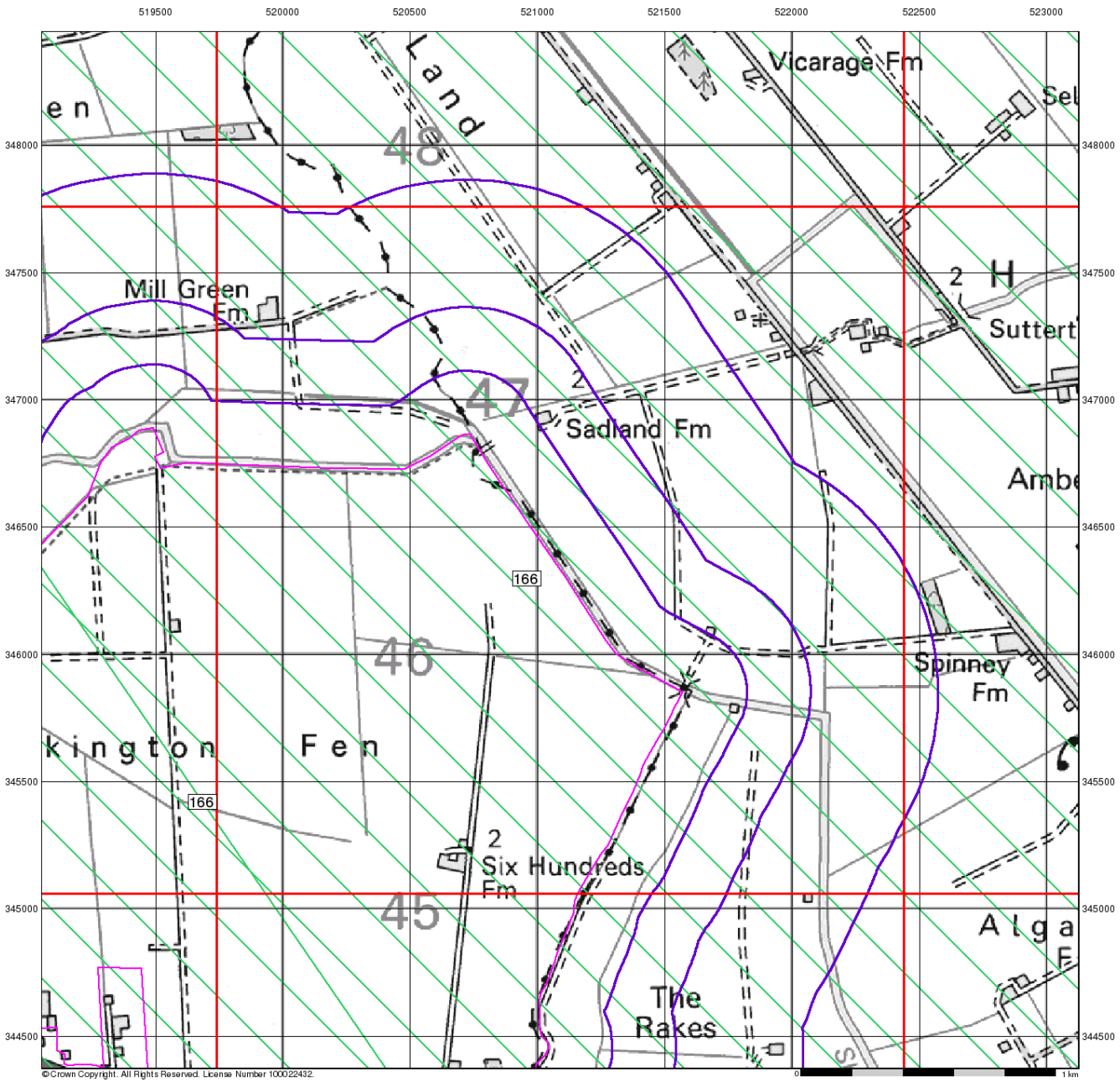


Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB



Grange Geo

Sensitive Land Uses

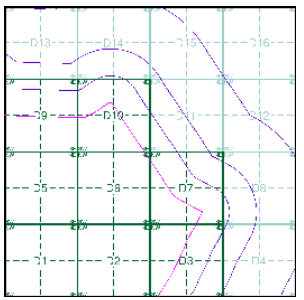
General

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 D



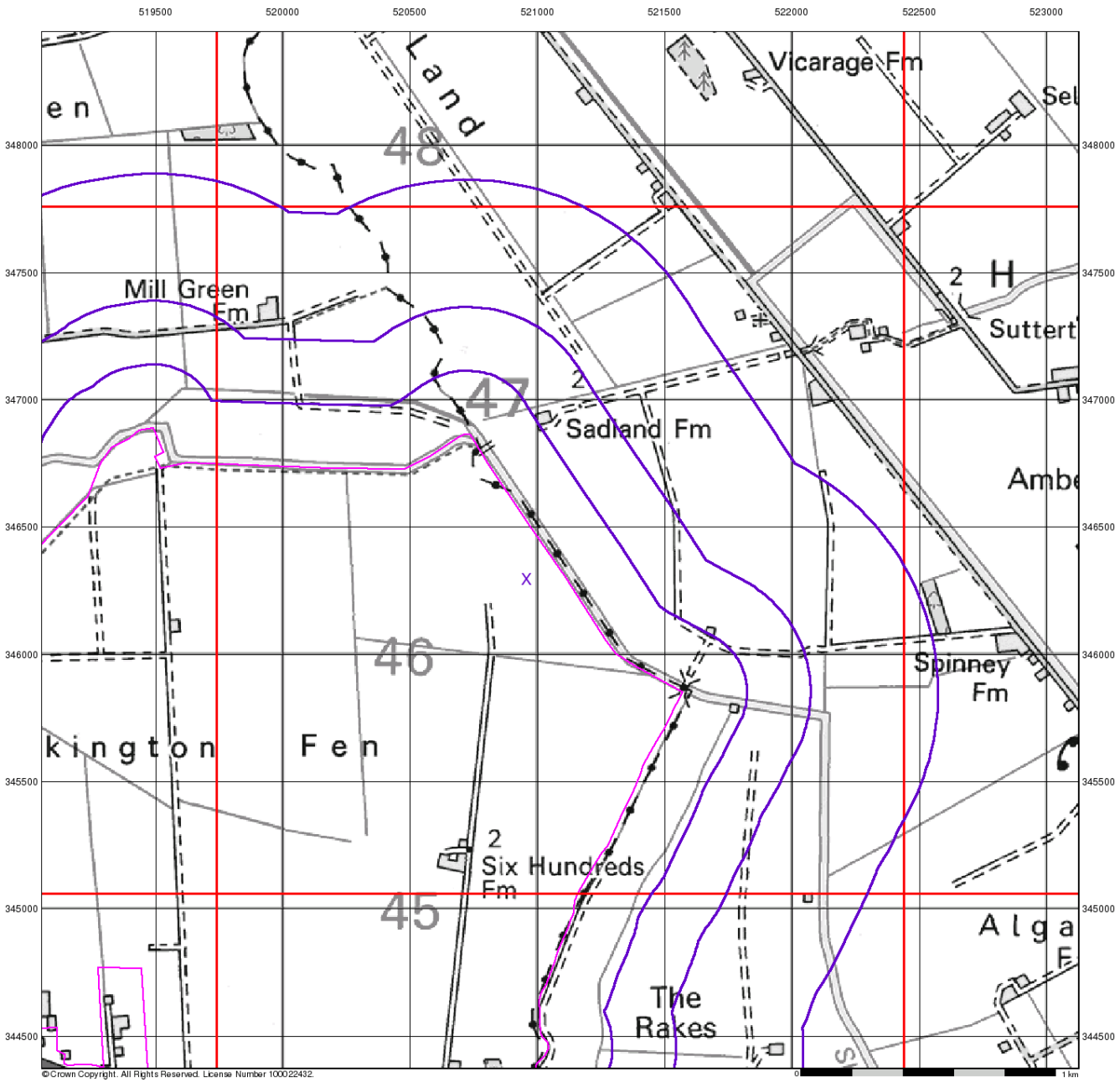
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

BGS Flood GFS Data

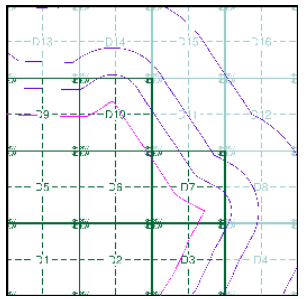
General

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 D



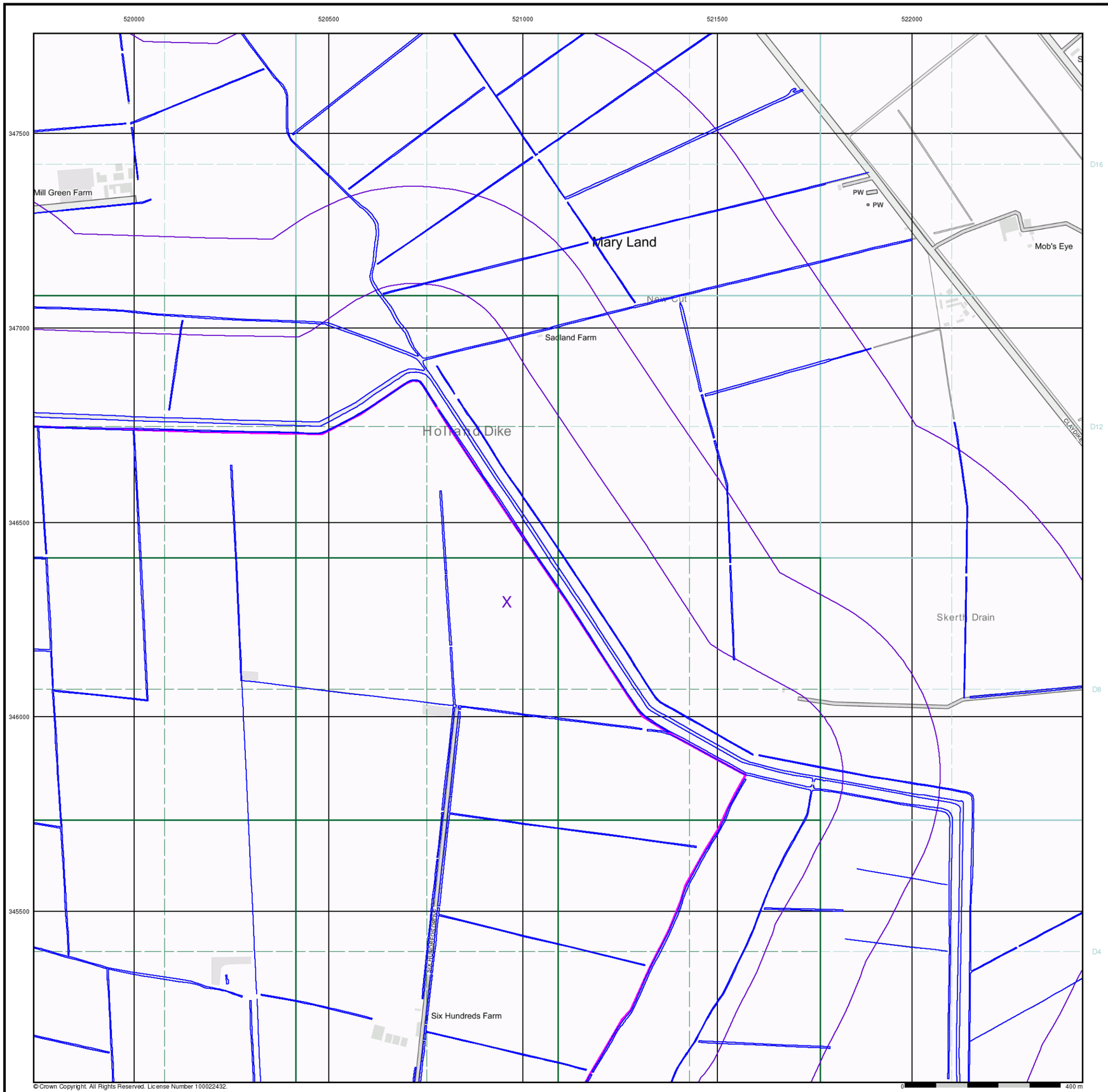
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark Information Group
Tel: 0844 844 9952
Fax: 0844 844 9951
Web:



Grange Geo

General

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

Agency and Hydrological

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

Geological

- BGS Recorded Mineral Site

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry

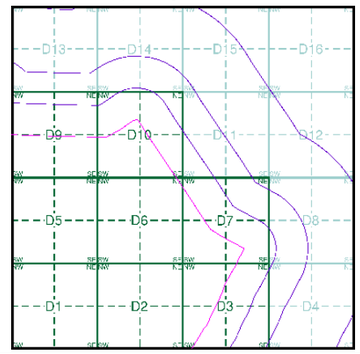
Waste

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

Hazardous Substances

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

Site Sensitivity Map - Slice D



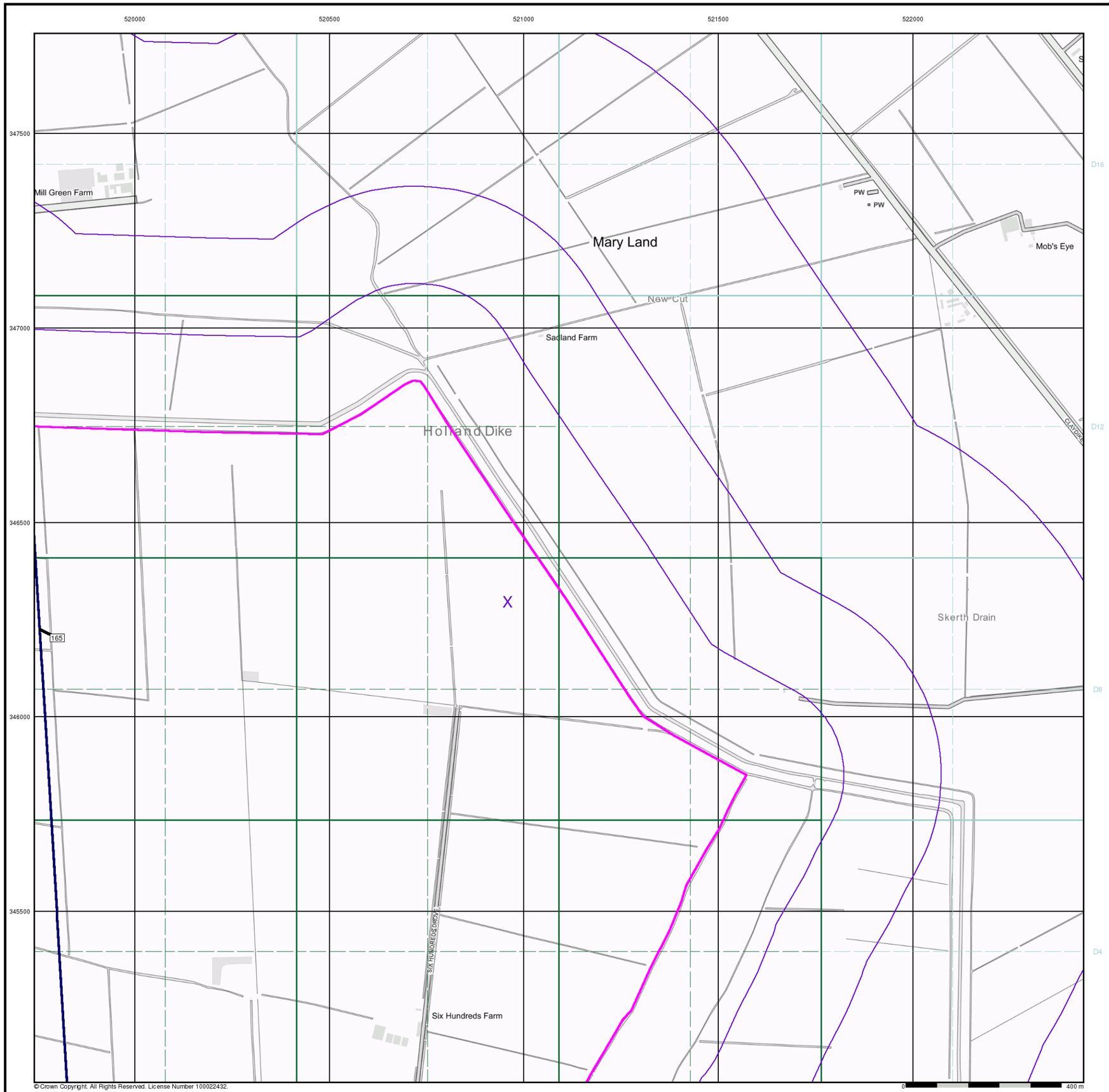
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]



Grange Geo

Industrial Land Use Map

General

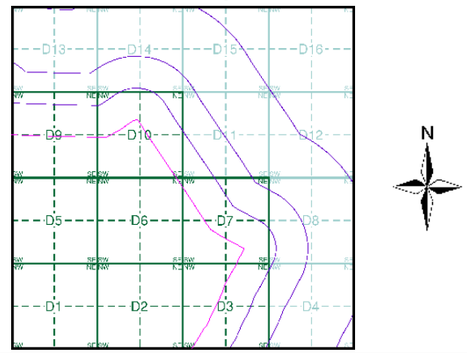
Specified Site | Specified Buffer(s) | Bearing Reference Point

Slice | Map ID

Industrial Land Use

- Contemporary Trade Directory Entry
- Fuel Station Entry
- Gas Pipeline
- Underground Electrical Cables

Industrial Land Use Map - Slice D



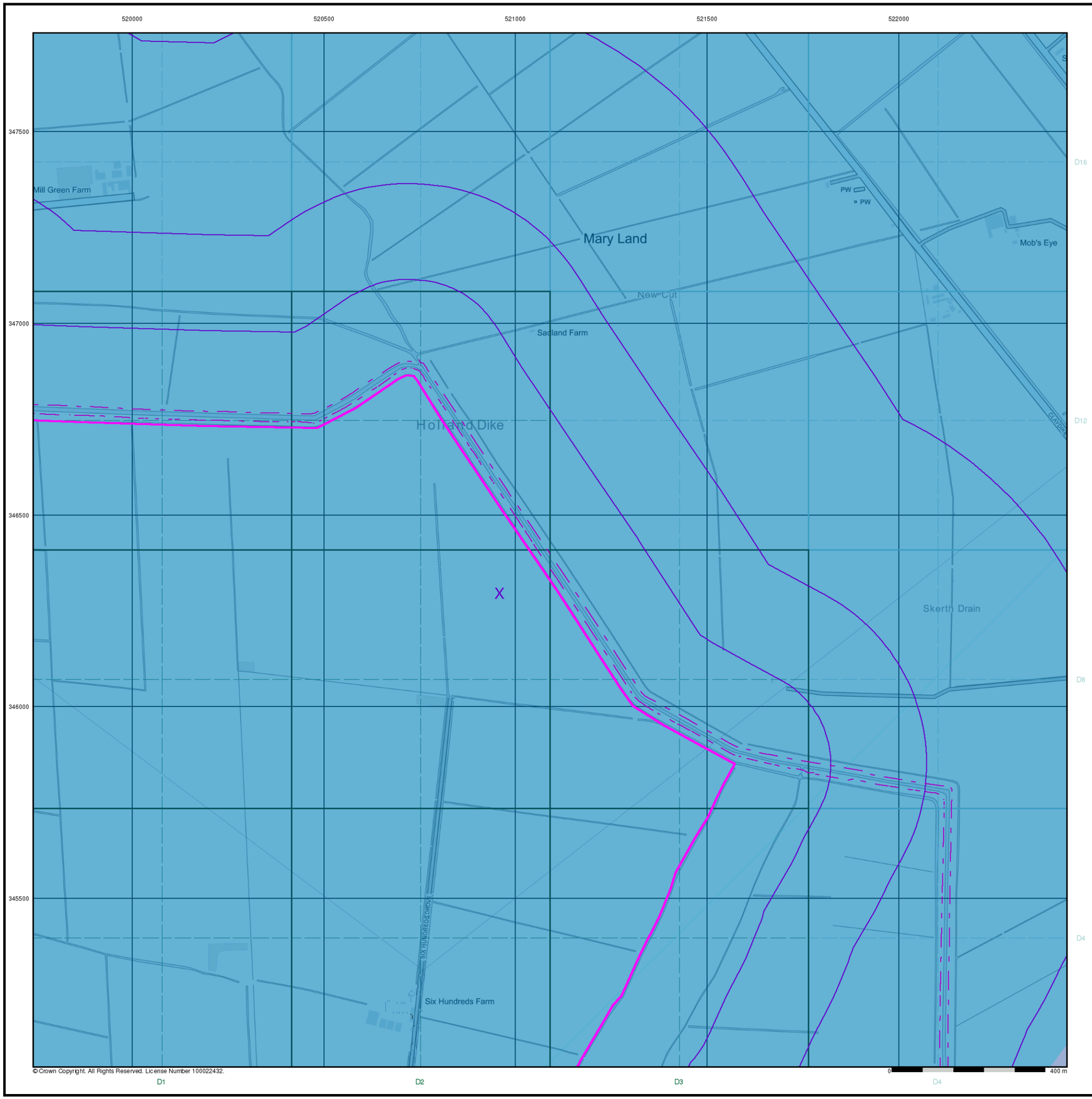
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: w[redacted]



Grange Geo

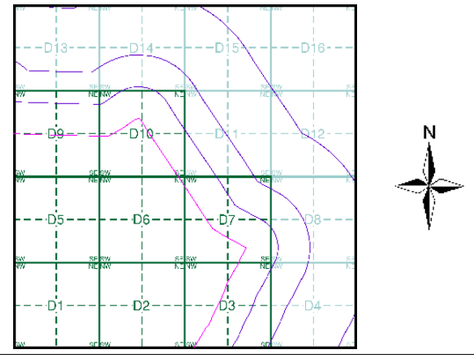
General

- 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 D



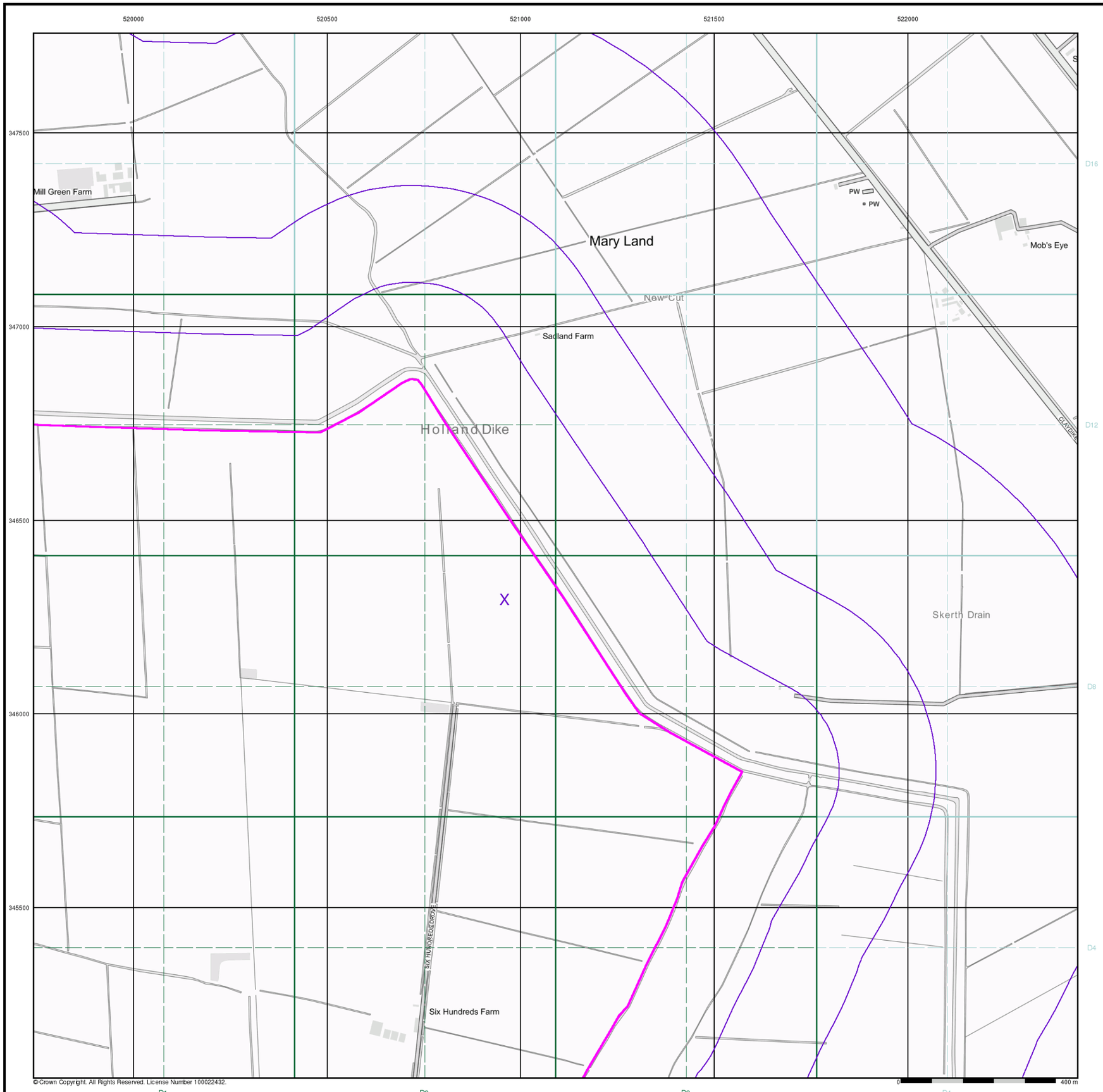
Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: w[redacted]



General

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

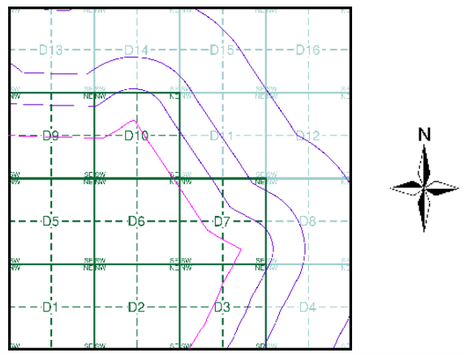
Agency and Hydrological (Boreholes)

- 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 [redacted]

Borehole Map - Slice D



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: [redacted]

Grange Geo

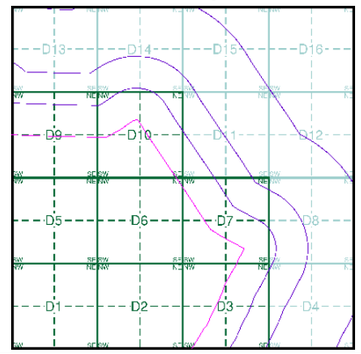
General

- 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

OS Water Network Map - Slice D



Order Details

Order Number:	299645546_1_1
Customer Ref:	R22082
National Grid Reference:	520960, 346300
Slice:	D
Site Area (Ha):	583.16
Search Buffer (m):	1000

Site Details

Heckington Fen, SLEAFORD, NG34 9NB

Landmark INFORMATION GROUP

Tel: 0844 844 9952
Fax: 0844 844 9951
Web: w[redacted]

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
299645546_1_1

Customer Reference:
R22082

National Grid Reference:
520960, 346300

Slice:
D

Site Area (Ha):
583.16

Search Buffer (m):
1000

Site Details:

Heckington Fen
SLEAFORD
NG34 9NB

Client Details:

Mr A Hare
Grange Geo Consulting Ltd
43 Winchilsea Avenue
Newark
Nottinghamshire
NG24 4AD

Contents

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	23
Hazardous Substances	-
Geological	24
Industrial Land Use	25
Sensitive Land Use	26
Data Currency	27
Data Suppliers	31
Useful Contacts	32

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.

Report Version v53.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility					n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls					
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		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	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 3	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 3	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 3	Yes		n/a	n/a
Flooding from Rivers or Sea without Defences	pg 3	Yes		n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences	pg 4		Yes	n/a	n/a
OS Water Network Lines	pg 4	62	36	9	57

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 23	3	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
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					
Geological					
BGS 1:625,000 Solid Geology	pg 24	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain				n/a	n/a
Potential for Collapsible Ground Stability Hazards				n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 24	Yes		n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 24	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 24	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 24	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries					
Fuel Station Entries					
Gas Pipelines	pg 25	1			
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt					
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 26	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Nearest Surface Water Feature	D1SE (SW)	0	-	520277 345279
	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	D5SW (W)	0	1	520000 346000
	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	D6SE (S)	0	1	520959 346000
	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	D6SE (S)	0	1	521000 346000
	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	D5NW (W)	0	1	520000 346296

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	D6NE (NW)	0	1	520959 346296
	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	D6NE (E)	0	1	521000 346296
	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	(SW)	0	1	520000 345000
	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	(S)	0	1	520959 345000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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	(S)	0	1	521000 345000
	Groundwater Vulnerability - Soluble Rock Risk None				
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	D5NW (W)	0	1	520000 346296
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	D6NE (NW)	0	1	520959 346296
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(SW)	0	1	520000 345000
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	1	520959 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(SW)	0	1	520000 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	(S)	0	1	520959 345000
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	D5NW (W)	0	1	520000 346296
	Superficial Aquifer Designations Aquifer Designation: Unproductive Strata	D6NE (NW)	0	1	520959 346296
	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	D6NE (NW)	0	2	520959 346296
	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	D3NE (SE)	0	2	521635 345616
	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	D6NE (NW)	0	2	520959 346296
	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	D1NE (SW)	0	2	520414 345571
	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	D7SW (SE)	0	2	521360 345783
	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	D2SE (S)	0	2	520761 345314
	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 Type: Flood Defences Reference: Not Supplied	D6NE (NE)	14	2	521078 346376
	Flood Defences Type: Flood Defences Reference: Not Supplied	D7NW (NE)	35	2	521097 346389
1	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6NE (NW)	0	3	520802 346367
2	**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: Witham Primacy: 2	D9SW (W)	0	3	519773 346419
3	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 3.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9SE (W)	0	3	520261 346435
4	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 209.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9SE (W)	0	3	520260 346438
5	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 245.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9SW (NW)	0	3	519998 346740
6	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 424.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520751 345189
7	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 548.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2NE (S)	0	3	520781 345490
8	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 238.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520809 345751

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520793 345760
10	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 270.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520824 346028
11	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 642.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520881 345742
12	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 45.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520814 345796
13	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520815 345800
14	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 214.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520836 346013
15	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 61.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SW (SE)	0	3	521320 345966
16	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 256.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1NW (SW)	0	3	519812 345716
17	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 367.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SW (SW)	0	3	519933 345352

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
18	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 359.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SW (SW)	0	3	519935 345137
19	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 329.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1NW (SW)	0	3	519812 345716
20	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 434.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SW (SW)	0	3	519933 345352
21	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 353.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SE (SW)	0	3	520278 345281
22	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 806.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D5NE (W)	0	3	520277 346093
23	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 24.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SE (SW)	0	3	520300 345270
24	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SE (SW)	0	3	520326 345285
25	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SE (SW)	0	3	520315 345287
26	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 322.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SE (SW)	0	3	520316 345273

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
27	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 291.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520611 345223
28	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 224.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520724 345098
29	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 121.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520746 345166
30	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 359.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2NE (S)	0	3	520780 345633
31	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.4 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520746 345170
32	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520748 345189
33	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520750 345206
34	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SW (S)	0	3	520751 345212
35	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 125.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SE (S)	0	3	520765 345337

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2SE (S)	0	3	520765 345341
37	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 150.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2NE (S)	0	3	520781 345490
38	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2NE (S)	0	3	520780 345638
39	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 116.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520792 345754
40	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 18.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2NE (S)	0	3	520782 345509
41	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D2NE (S)	0	3	520783 345514
42	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1095.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D1SE (SW)	0	3	520300 345270
43	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 482.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D5NW (W)	0	3	519783 346239
44	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 234.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9SW (W)	0	3	519753 346746

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
45	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1291.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D5NW (W)	0	3	520024 346249
46	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1891.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6NE (NE)	0	3	521065 346369
47	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 470.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (S)	0	3	520921 346016
48	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520837 346020
49	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520838 346026
50	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520838 346026
51	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 14.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SW (SE)	0	3	521305 345968
52	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520833 346026
53	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520828 346027

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
54	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520823 346030
55	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 550.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6SE (SW)	0	3	520823 346030
56	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 148.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6NE (SW)	0	3	520814 346179
57	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 97.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D5NW (W)	0	3	519786 346171
58	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 342.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D5NE (W)	0	3	520268 346265
59	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 204.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D5NW (W)	0	3	519786 346171
60	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6NE (SW)	0	3	520814 346184
61	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 179.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6NE (W)	0	3	520807 346286
62	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 4.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D6NE (NW)	0	3	520802 346363

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
63	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 37.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D3SW (S)	1	3	521176 345080
64	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.5 Watercourse Level: Underground Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D3SW (S)	3	3	521179 345088
65	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 850.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D7SE (SE)	3	3	521571 345840
66	**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: Witham Primacy: 2	D7SW (SE)	3	3	521380 345958
67	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.4 Watercourse Level: Underground Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D7SE (SE)	3	3	521576 345849
68	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D7SE (SE)	4	3	521577 345852
69	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 169.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SE (SE)	5	3	521577 345852
70	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1204.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Head Dike Catchment Name: Witham Primacy: 1	D10NW (N)	26	3	520751 346888
71	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1338.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 1	D6NE (NE)	26	3	521088 346382

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
72	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 32.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D10NW (N)	30	3	520751 346888
73	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 164.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 1	D7SE (SE)	33	3	521588 345879
74	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 16.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SE (SE)	55	3	521591 345903
75	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D10NW (N)	55	3	520737 346918
76	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 31.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: New Cut Catchment Name: Witham Primacy: 2	D10NE (N)	55	3	520768 346925
77	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 232.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9NE (NW)	55	3	520090 346789
78	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1210.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7NW (NE)	55	3	521113 346399
79	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 17.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D10NE (N)	58	3	520833 346816
80	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 85.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D10NE (N)	58	3	520824 346830

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
81	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 25.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D10NE (N)	59	3	520778 346902
82	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 191.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D10NW (N)	60	3	520735 346923
83	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 624.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D10NW (N)	60	3	520735 346923
84	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1011.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SE (SE)	62	3	521607 345901
85	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 539.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: New Cut Catchment Name: Witham Primacy: 2	D10NE (N)	71	3	520801 346933
86	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 335.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SE (SE)	174	3	521743 345815
87	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 29.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SE (SE)	174	3	521749 345844
88	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 544.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7SE (SE)	174	3	521743 345815
89	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2950.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Skerth Drain Catchment Name: Witham Primacy: 1	D7SE (SE)	176	3	521749 345844

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
90	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 628.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D3NE (SE)	183	3	521613 345508
91	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 338.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D3SE (SE)	194	3	521452 345165
92	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D3NE (SE)	199	3	521613 345508
93	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 199.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D3NE (SE)	207	3	521621 345507
94	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 500.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9NE (NW)	214	3	520127 347030
95	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 81.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D14SW (N)	234	3	520636 347084
96	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 6.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14SW (N)	234	3	520636 347084
97	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 542.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14SE (N)	235	3	520755 347116
98	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 242.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7NE (E)	247	3	521536 346318

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
99	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.7 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D9NE (NW)	286	3	520124 347019
100	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14SW (N)	311	3	520616 347158
101	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 223.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D14SW (N)	311	3	520616 347158
102	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 484.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14SW (N)	313	3	520626 347164
103	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 233.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NW (SE)	369	3	521860 345608
104	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7NE (E)	404	3	521533 346389
105	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 317.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D7NE (E)	407	3	521533 346396
106	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 434.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13SW (NW)	412	3	520043 347330
107	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 263.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NW (SE)	426	3	521829 345429

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
108	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 206.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D14SW (N)	513	3	520545 347348
109	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14SW (N)	513	3	520545 347348
110	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 435.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14SW (N)	519	3	520552 347357
111	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.9 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11SE (NE)	547	3	521493 346710
112	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 108.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11SE (NE)	550	3	521491 346717
113	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D15SW (N)	561	3	521167 347220
114	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 191.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NW (NE)	572	3	521288 347065
115	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NW (NE)	574	3	521291 347055
116	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 731.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: New Cut Catchment Name: Witham Primacy: 2	D11NW (NE)	574	3	521291 347055

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
117	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 119.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D15SW (N)	576	3	521182 347224
118	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 740.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D15SW (N)	576	3	521182 347224
119	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NE (NE)	584	3	521461 346822
120	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 9.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NE (NE)	584	3	521461 346822
121	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NE (NE)	586	3	521460 346827
122	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NW (SE)	589	3	522090 345568
123	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 232.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NE (NE)	590	3	521457 346837
124	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 443.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D11NE (NE)	594	3	521469 346827
125	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 15.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D8SE (E)	596	3	522134 346049

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
126	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 310.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Skerth Drain Catchment Name: Witham Primacy: 2	D8NE (E)	596	3	522138 346274
127	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 170.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NW (SE)	597	3	522098 345567
128	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.5 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D15SW (N)	597	3	521115 347323
129	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 120.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D15SW (N)	602	3	521109 347334
130	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 638.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D15SW (N)	603	3	521109 347334
131	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 437.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D8SE (E)	611	3	522150 346051
132	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 372.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NW (NW)	616	3	519979 347525
133	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 134.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13SW (NW)	645	3	520010 347382
134	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	646	3	521024 347439

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
135	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	647	3	521040 347432
136	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 1.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	653	3	521034 347443
137	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 182.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	654	3	521033 347445
138	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	654	3	521033 347445
139	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 5.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	659	3	521037 347448
140	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 588.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	664	3	521042 347451
141	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 7.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NW (SE)	668	3	522091 345398
142	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 327.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4SW (SE)	675	3	522098 345397
143	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 318.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Holland Dike Catchment Name: Witham Primacy: 2	D13NE (NW)	704	3	520399 347493

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
144	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NE (NW)	704	3	520399 347493
145	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 474.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NE (NW)	704	3	520408 347498
146	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 180.8 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4SE (SE)	746	3	522151 345345
147	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 133.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4SE (SE)	746	3	522151 345345
148	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 35.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	759	3	520931 347596
149	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 632.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	759	3	520931 347596
150	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.9 Watercourse Level: Underground Permanent: True Watercourse Name: Skerth Drain Catchment Name: Witham Primacy: 2	D8NE (E)	763	3	522140 346359
151	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 390.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Skerth Drain Catchment Name: Witham Primacy: 2	D8NE (E)	770	3	522140 346370
152	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.2 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	773	3	520901 347618

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
153	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 10.8 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NW (NW)	778	3	519995 347516
154	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 199.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D14NE (N)	782	3	520911 347625
155	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 12.6 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NW (NW)	787	3	519991 347526
156	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 2.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NW (NW)	788	3	519994 347526
157	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 365.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NE (NW)	789	3	520332 347665
158	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 11.3 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4SW (SE)	814	3	522094 345070
159	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 305.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4SE (SE)	824	3	522147 345164
160	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 635.1 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4SE (SE)	824	3	522147 345164
161	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 8.0 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NE (SE)	825	3	522269 345406

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
162	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 203.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D4NE (SE)	829	3	522276 345410
163	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 123.0 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NW (NW)	845	3	519986 347583
164	**OS Water Network Lines** Watercourse Form: Inland river Watercourse Length: 356.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Witham Primacy: 2	D13NW (NW)	952	3	519969 347714

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: North Kesteven District Council - Had landfill data but passed it to the relevant environment agency		0	4	520959 346296
	Local Authority Landfill Coverage Name: Boston Borough Council - Has supplied landfill data		0	6	521076 346368
	Local Authority Landfill Coverage Name: Lincolnshire County Council - Had landfill data but passed it to the relevant environment agency		0	5	520959 346296

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: West Walton Formation, Ampthill Clay Formation And Kimmeridge Clay Formation (Undifferentiated)	D6NE (NW)	0	7	520959 346296
	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	D5NW (W)	0	7	520000 346296
	Potential for Collapsible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D6NE (NW)	0	7	520959 346296
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	D5NW (W)	0	7	520000 346296
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	D6NE (NW)	0	7	520959 346296
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D5NW (W)	0	7	520000 346296
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	D6NE (NW)	0	7	520959 346296
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	D5NW (W)	0	7	520000 346296
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	D6NE (NW)	0	7	520959 346296
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	D5NW (W)	0	7	520000 346296
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	D6NE (NW)	0	7	520959 346296
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	D5NW (W)	0	7	520000 346296
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	D6NE (NW)	0	7	520959 346296
	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	D5NW (W)	0	7	520000 346296
	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	D6NE (NW)	0	7	520959 346296
	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	D5NW (W)	0	7	520000 346296
	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	D6NE (NW)	0	7	520959 346296

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
165	**Gas Pipelines** Name: HATTON TO GOSBERTON Nat Grid: Owned By National Grid Diameter (mm): 900 Building Proximity Distance (m): Not Supplied Status: Active Pipe Length (m): 47050.76 Pipe Number: Not Supplied	D5NW (W)	0	8	519754 346225

Sensitive Land Use

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
166	**Nitrate Vulnerable Zones** Name: Black Sluice Idb Draining To The South Forty Foot Drain Nvz Description: Surface Water Source: Environment Agency, Head Office	(SW)	0	1	519685 345420

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Environment Agency - Head Office	June 2020	Annually
North Kesteven District Council - Environmental Health Department	October 2017	Annual Rolling Update
Boston Borough Council - Pollutions Section, Environmental Health	September 2017	Annual Rolling Update
Discharge Consents		
Environment Agency - Anglian Region	April 2022	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - Anglian Region	March 2013	
Integrated Pollution Controls		
Environment Agency - Anglian Region	January 2009	
Integrated Pollution Prevention And Control		
Environment Agency - Anglian Region	April 2022	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Variable
North Kesteven District Council - Environmental Health Department	May 2014	Variable
Local Authority Pollution Prevention and Controls		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Annual Rolling Update
North Kesteven District Council - Environmental Health Department	May 2014	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Boston Borough Council - Pollutions Section, Environmental Health	December 2014	Variable
North Kesteven District Council - Environmental Health Department	May 2014	Variable
Nearest Surface Water Feature		
Ordnance Survey	June 2022	
Pollution Incidents to Controlled Waters		
Environment Agency - Anglian Region	September 1999	
Prosecutions Relating to Authorised Processes		
Environment Agency - Anglian Region	July 2015	
Prosecutions Relating to Controlled Waters		
Environment Agency - Anglian Region	March 2013	
Registered Radioactive Substances		
Environment Agency - Anglian Region	June 2016	As notified
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Water Abstractions		
Environment Agency - Anglian Region	July 2022	Quarterly
Water Industry Act Referrals		
Environment Agency - Anglian Region	October 2017	
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	July 2022	Bi-Annually

Data Currency

Agency & Hydrological	Version	Update Cycle
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2022	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	May 2022	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	May 2022	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	May 2022	Quarterly
Flood Defences		
Environment Agency - Head Office	May 2022	Quarterly
OS Water Network Lines		
Ordnance Survey	July 2022	Quarterly
BGS Groundwater Flooding Susceptibility		
British Geological Survey - National Geoscience Information Service	May 2013	As notified
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites		
Environment Agency - Head Office	April 2022	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - Anglian Region	January 2009	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - Anglian Region - Northern Area	April 2022	Quarterly
Local Authority Landfill Coverage		
Boston Borough Council - Pollutions Section, Environmental Health	February 2003	Not Applicable
Lincolnshire County Council	February 2003	Not Applicable
North Kesteven District Council - Environmental Health Department	February 2003	Not Applicable
Local Authority Recorded Landfill Sites		
Boston Borough Council - Pollutions Section, Environmental Health	October 2018	
Lincolnshire County Council	October 2018	
North Kesteven District Council - Environmental Health Department	October 2018	
Registered Landfill Sites		
Environment Agency - Anglian Region - Northern Area	March 2006	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - Anglian Region - Northern Area	April 2018	
Registered Waste Treatment or Disposal Sites		
Environment Agency - Anglian Region - Northern Area	June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	January 2022	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements		
Lincolnshire County Council - Highways and Planning Department	August 2010	Variable
Boston Borough Council - Planning Department	February 2016	Variable
North Kesteven District Council - Planning Department	October 2015	Variable
Planning Hazardous Substance Consents		
Lincolnshire County Council - Highways and Planning Department	August 2007	Variable
Boston Borough Council - Planning Department	February 2016	Variable
North Kesteven District Council - Planning Department	October 2015	Variable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	May 2022	Bi-Annually
CBSCB Compensation District		
Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	
Cheshire Brine Subsidence Compensation Board (CBSCB)	November 2020	As notified
Coal Mining Affected Areas		
The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability		
Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	January 2019	As notified
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	July 2022	Quarterly
Fuel Station Entries Catalist Ltd - Experian	June 2022	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Underground Electrical Cables National Grid	May 2021	Bi-Annually
Sensitive Land Use	**Version**	**Update Cycle**
Ancient Woodland Natural England	February 2021	Bi-Annually
Areas of Adopted Green Belt Boston Borough Council - Planning Department North Kesteven District Council	October 2020 October 2020	Quarterly Quarterly
Areas of Unadopted Green Belt Boston Borough Council - Planning Department North Kesteven District Council	October 2020 October 2020	Quarterly Quarterly
Areas of Outstanding Natural Beauty Natural England	January 2021	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	February 2021	Bi-Annually
Marine Nature Reserves Natural England	July 2019	Bi-Annually
National Nature Reserves Natural England	January 2021	Bi-Annually
National Parks Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	April 2016 June 2017	Bi-Annually
Ramsar Sites Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest Natural England	February 2021	Bi-Annually
Special Areas of Conservation Natural England	July 2020	Bi-Annually
Special Protection Areas Natural England	February 2021	Bi-Annually

Data Suppliers

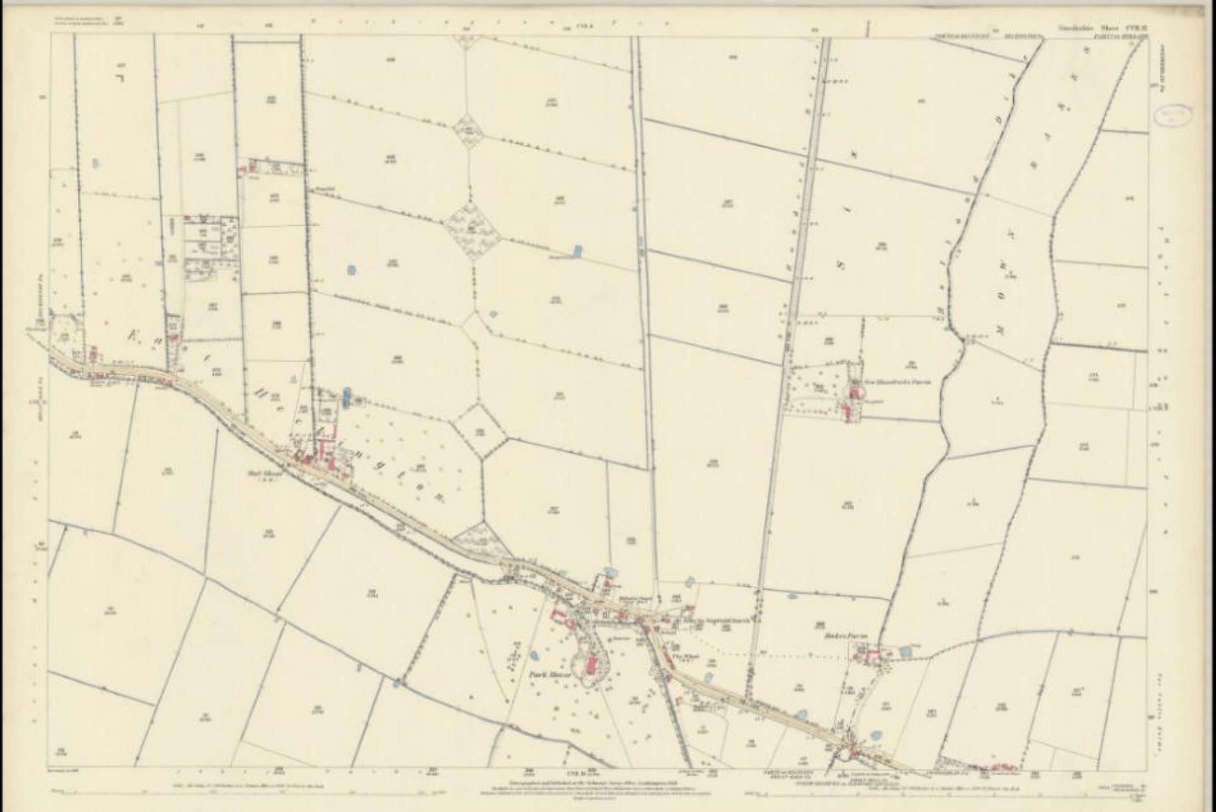
A selection of organisations who provide data within this report

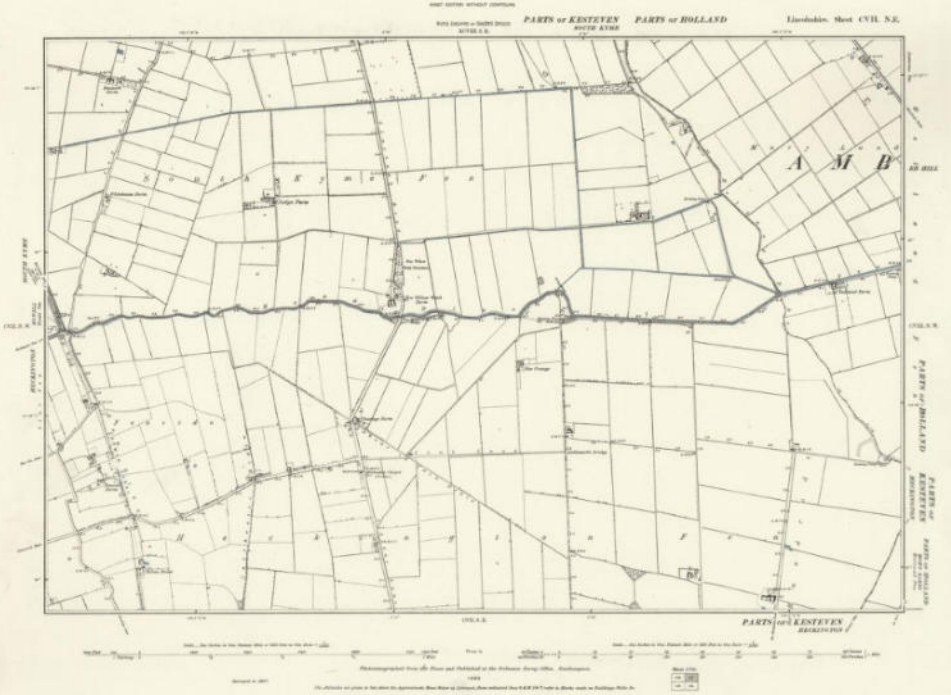
Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec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

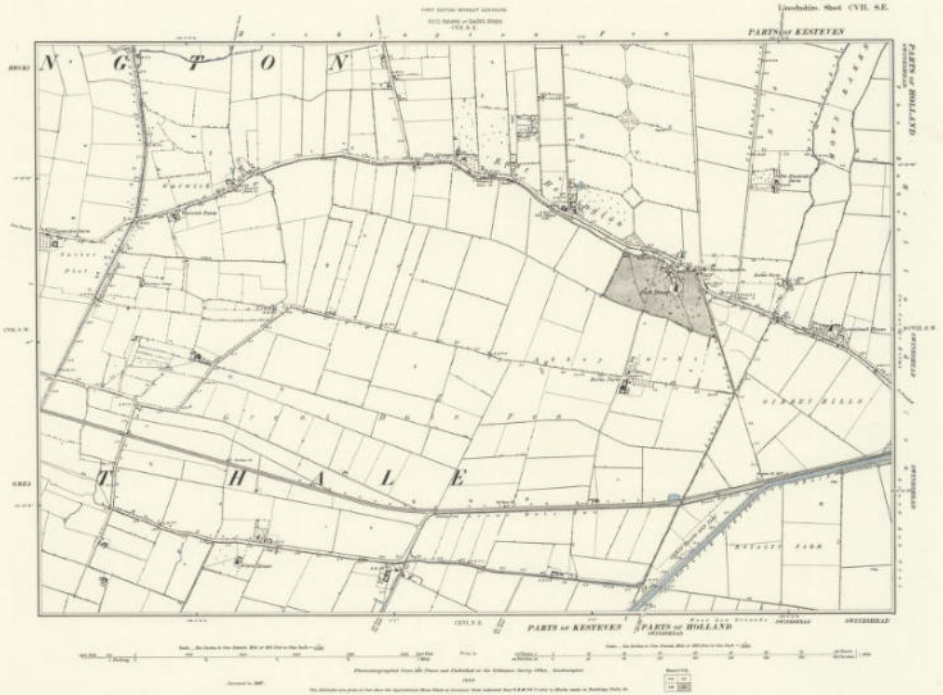
Useful Contacts

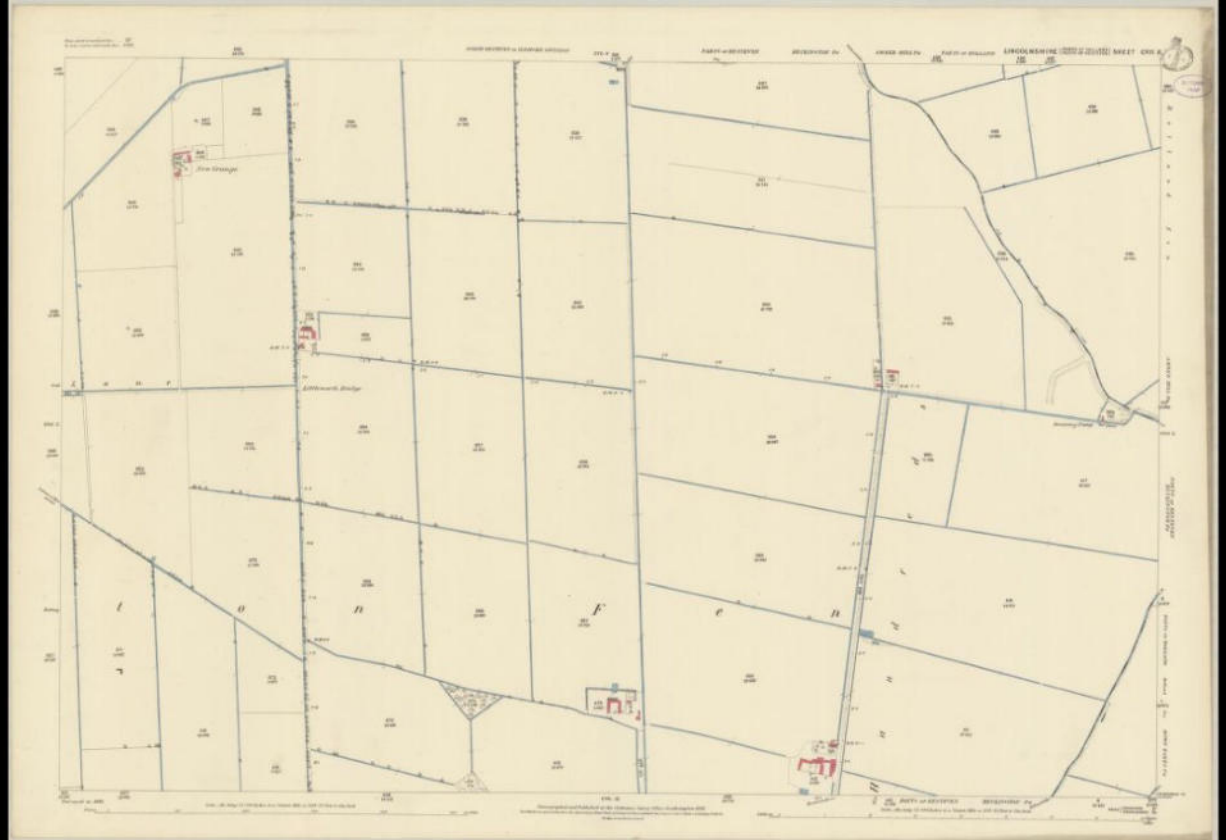
Contact	Name and Address	Contact Details
1	**Environment Agency - Head Office** Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
2	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	**Ordnance Survey** Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
4	**North Kesteven District Council - Environmental Health Department** District Council Offices, Kesteven Street, Sleaford, Lincolnshire, NG34 7EF	Telephone: 01529 414155 Fax: 01529 413956 Website: www.n-kesteven.gov.uk
5	**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
6	**Boston Borough Council - Pollutions Section, Environmental Health** Municipal Buildings, West Street, Boston, Lincolnshire, PE21 8QR	Telephone: 01205 314200 Fax: 01205 364604 Website: www.boston.gov.uk
7	**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: [redacted]
8	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9966 Fax: 0844 844 9951 Email: helpdesk@landmark.co.uk Website: w[redacted]
-	**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: [redacted]
-	**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: [redacted]

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



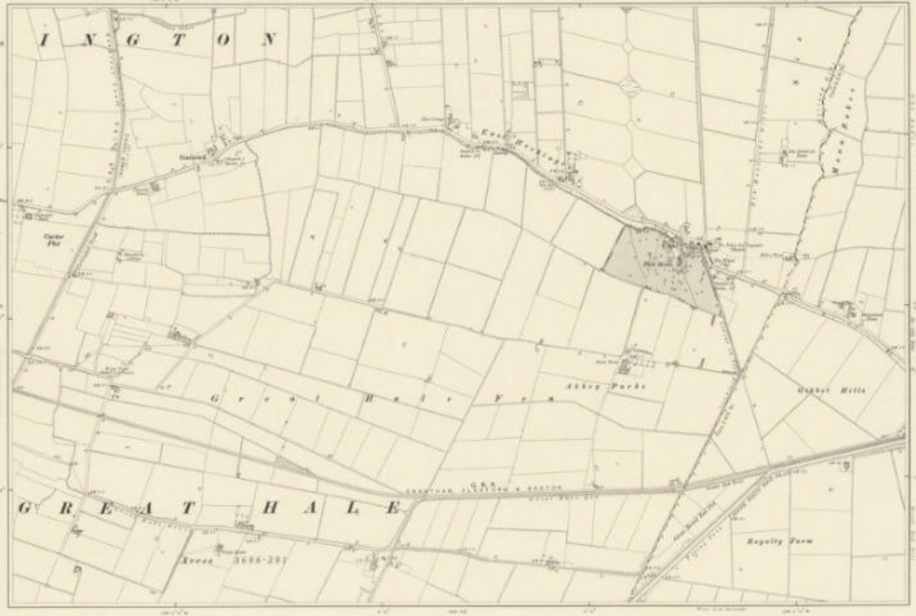

PARTS OF KESTEVEN
SOUTH KYME
PARTS OF HOLLAND
Lincolnshire, Sheet CVII. S.E.
A M B
HILL
PARTS OF HOLLAND
PARTS OF KESTEVEN
PARTS OF KESTEVEN
HECKINGTON
CVII. S.W.
CVII. S.E.
Photozincographed from the Plans and Published at the Ordnance Survey Office, Southampton.
1888


Lincolnshire. Sheet CVII. S.E.
PARTS of KESTEVEN
N G T O N
T H A L E
PARTS of KESTEVEN
PARTS of HOLLAND



SECOND EDITION, 1906.

LINCOLNSHIRE | PARTS OF KESTEVEN / PARTS OF HOLLAND | SHEET CVII. S.E.

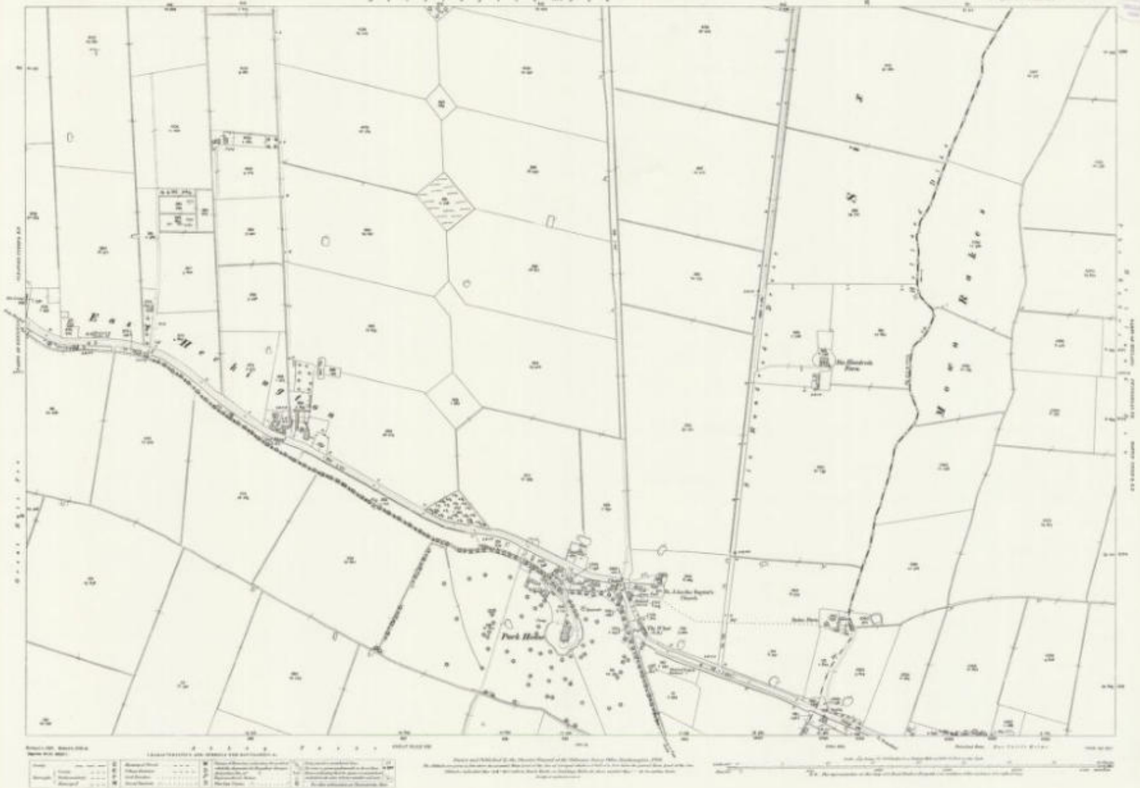


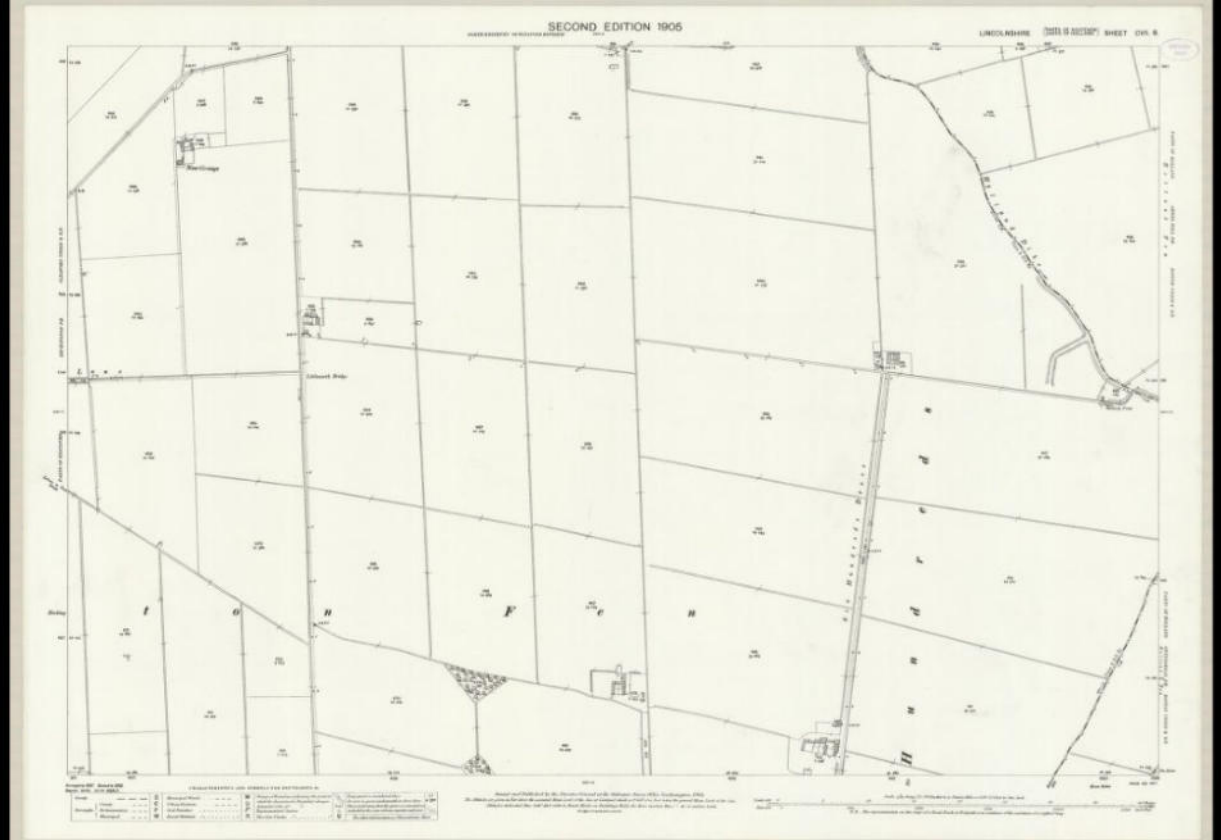
CHARACTERISTICS AND SYMBOLS

Price 1s

SECOND EDITION 1905

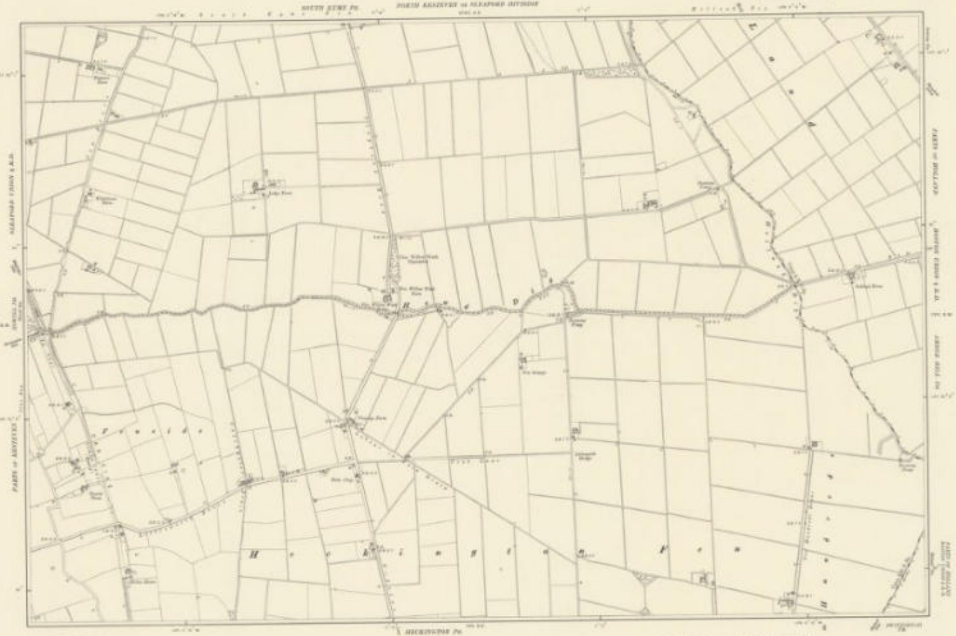
LINCOLNSHIRE SHEET CVIII.12




SECOND EDITION 1905
LINCOLNSHIRE (PARTS OF HOLLAND) SHEET CVII. 6.

SECOND EDITION, 1906.

LINCOLNSHIRE. PARTS OF KESTEVEN / PARTS OF HOLLAND SHEET CVII. N.E.



CHARACTERISTICS AND SYMBOLS.

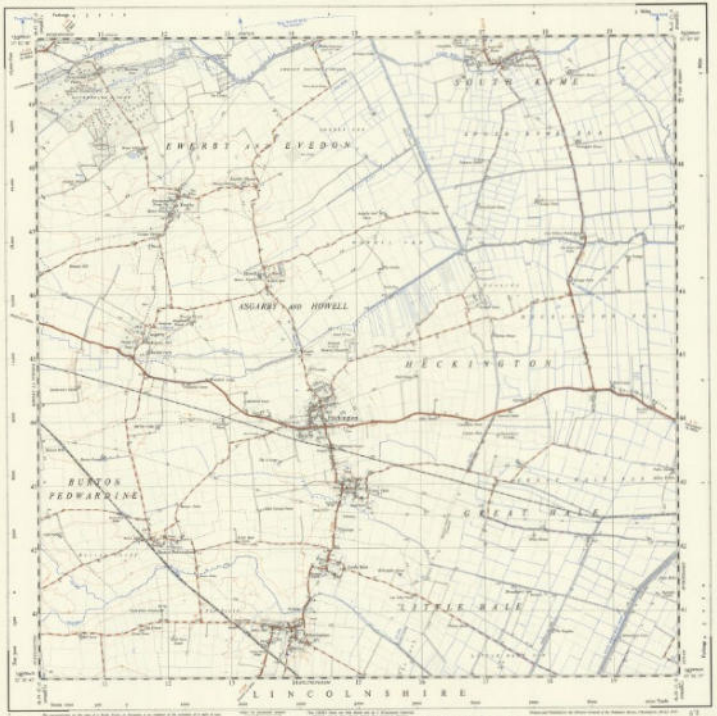
Price 1s.

ORDNANCE SURVEY

Scale 1:25,000 or about 2½ Inches to 1 Mile

Provisional Edition

SHEET TF14



SHEET TF14

SHEET TF14

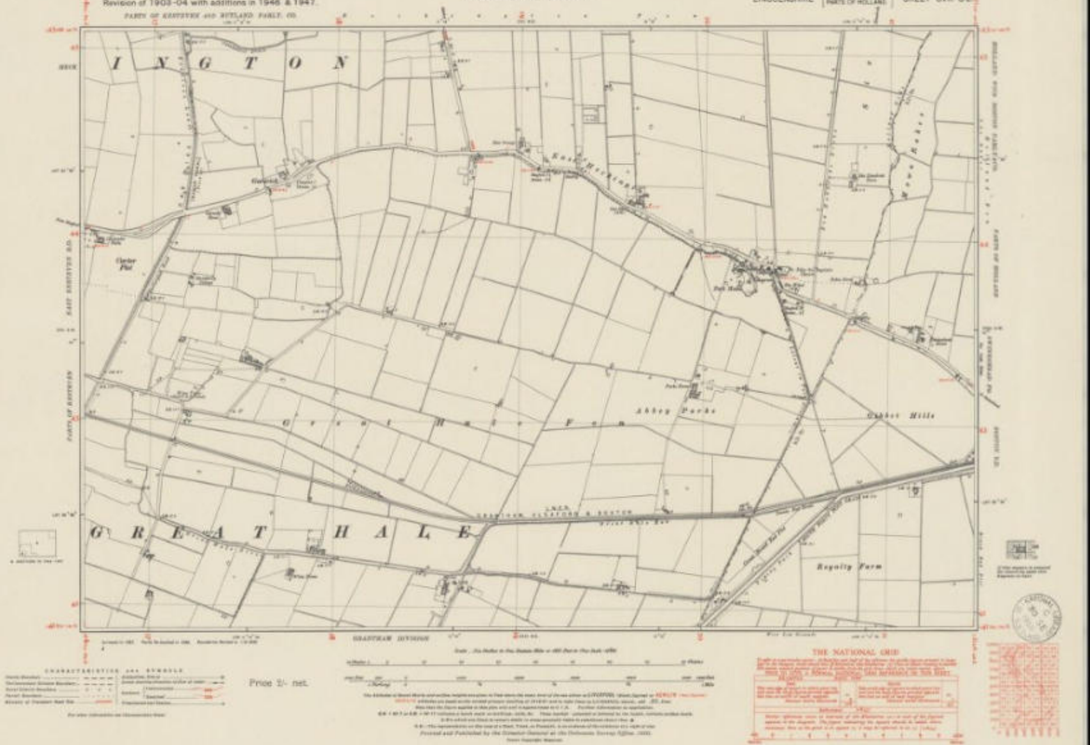
SHEET TF14

Revision of 1903-04 with additions in 1946 & 1947.

PROVISIONAL EDITION.

LINCOLNSHIRE | PARTS OF KESTEVEN / PARTS OF HOLLAND | SHEET CVII. S.E.

PARTS OF KESTEVEN AND RUTLAND PARLY. CO.



Price 2/- net.

Revision of 1903 with additions in 1947

PROVISIONAL EDITION.

LINCOLNSHIRE. PARTS OF KESTEVEN / PARTS OF HOLLAND. SHEET CVII. N.E.

Price 1/- net.

Printed on "War Substitute Paper"

Printed and Published by the Director General at the Ordnance Survey Office

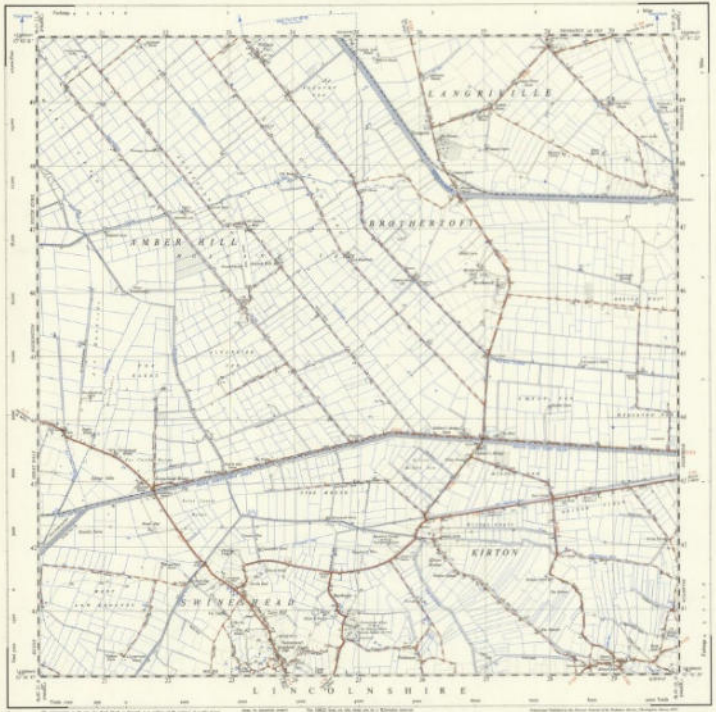
THE NATIONAL GRID

ORDNANCE SURVEY

Scale 1:25,000 or about 2½ Inches to 1 Mile

Provisional Edition

SHEET TF24



SHEET TF24

SHEET TF24

Appendix D

ZETICA UXB PLAN

UNEXPLODED BOMB RISK MAP

zeticaUXO

SITE LOCATION

Map Centre: 519445,345368

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

miltary | **industry** | **UXO find**
transport | **dock** | **Luftwaffe targets**
utilities | **Bombing decoy** | **other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

[redacted]

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website:

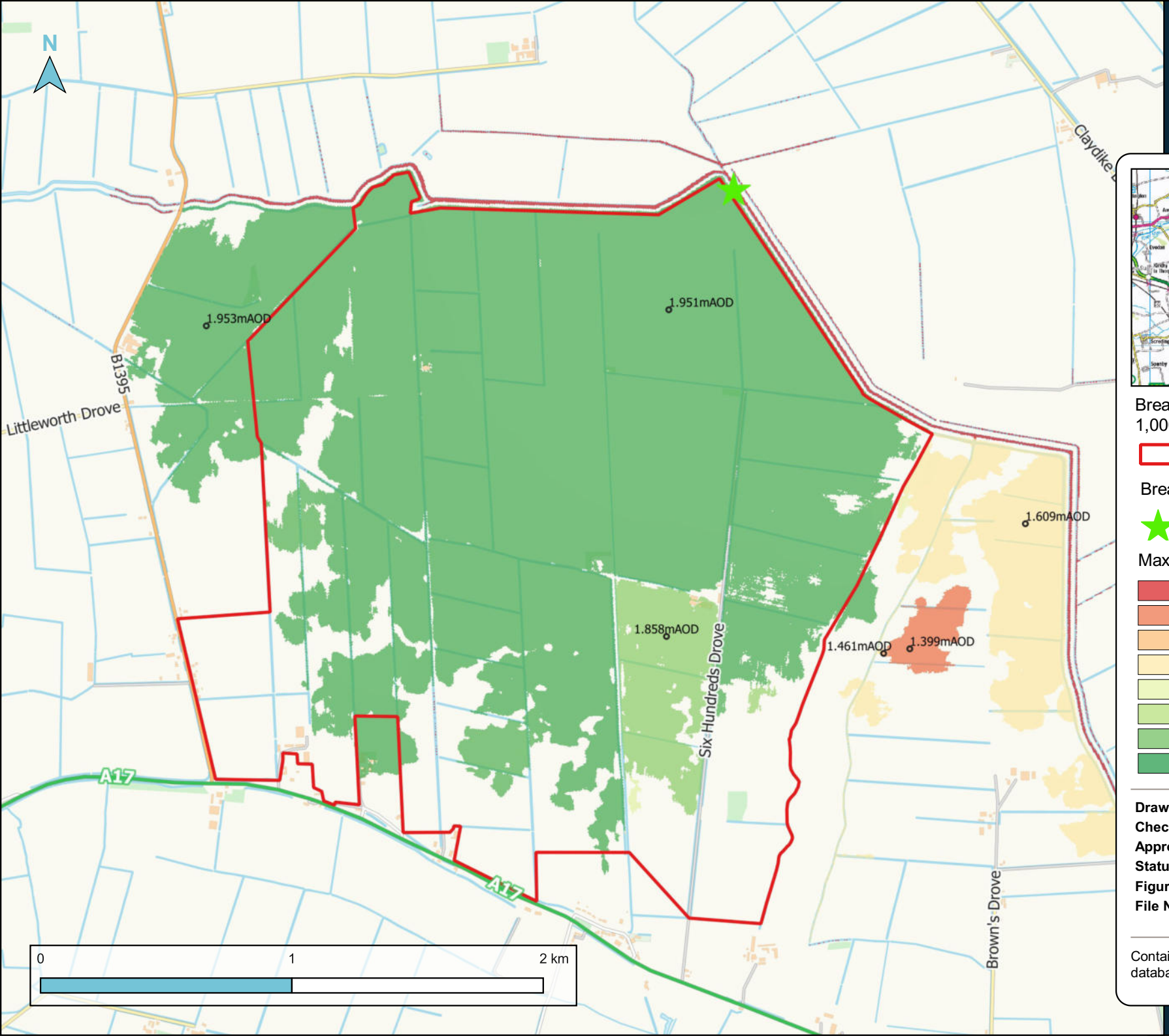
[redacted]

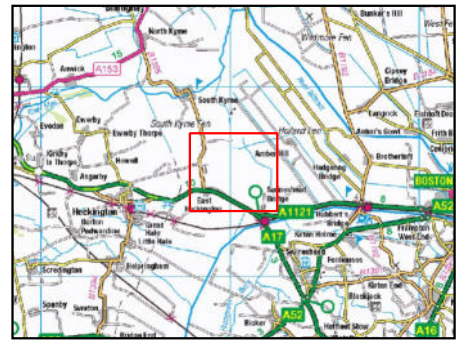
It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix E

FLOOD MODEL OUTPUT





Breach - Maximum Flood Levels
1,000-year +20%CC

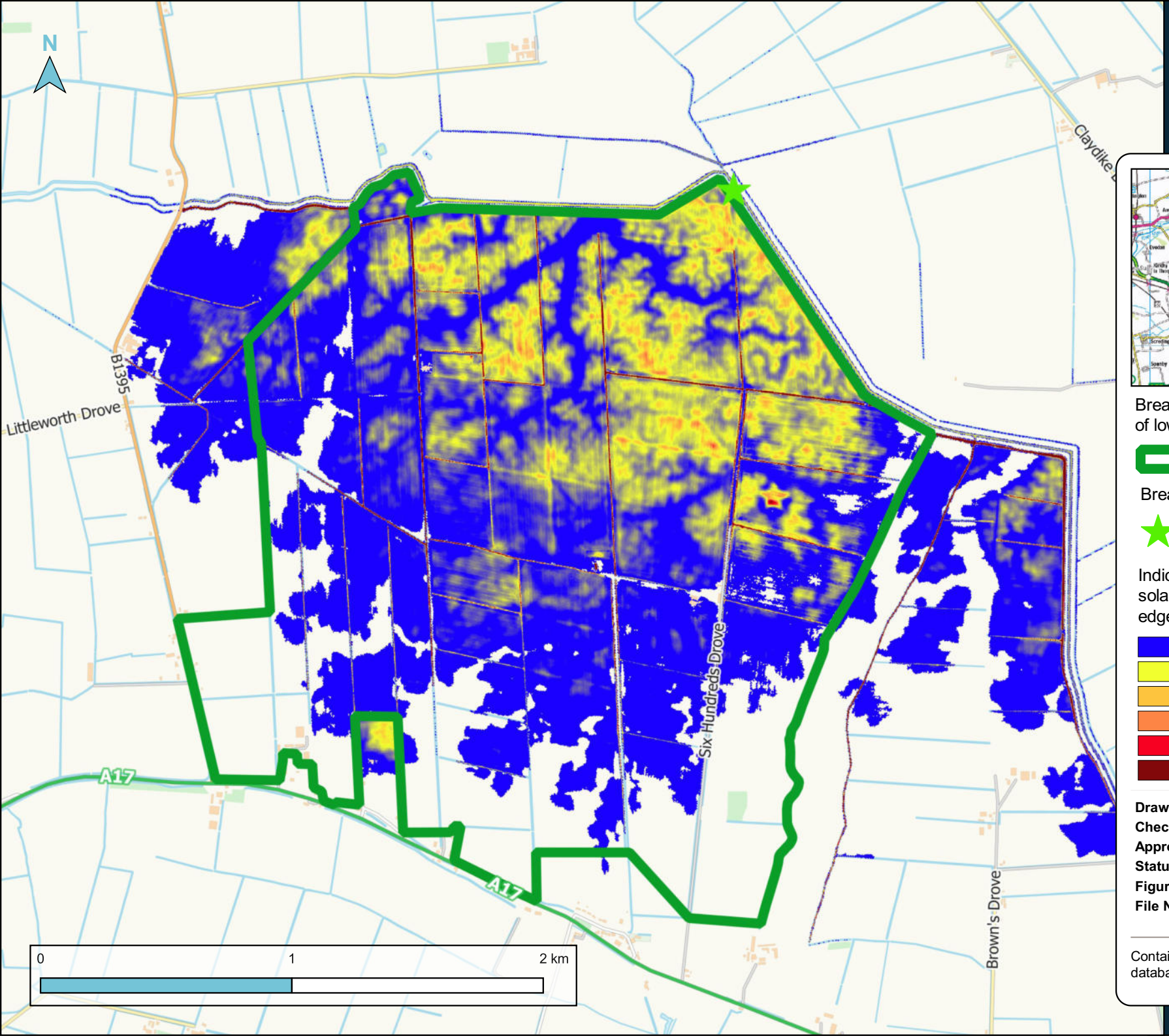
Heckington Boundary

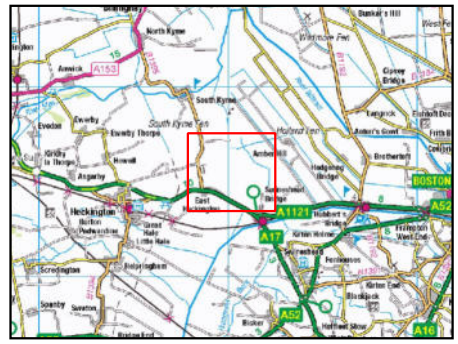
Breach Location

Maximum water level [mAOD]

- <= 1.30
- 1.31 - 1.40
- 1.41 - 1.50
- 1.51 - 1.60
- 1.61 - 1.70
- 1.71 - 1.80
- 1.81 - 1.90
- 1.91 - 2.00

Drawn By:	EC	**Date:**	01/06/2022
Checked By:	SH	**Date:**	01/06/2022
Approved By:	SH	**Date:**	01/06/2022
Status:	S3	**Revision:**	P02
Figure Title:	BREACH - 0.1% CC		
File Name:	GRN-JBAU-XX-XX-FI-Z-0013-S3-P01-Breach_panel_height_Final.qgz		





Breach - Indicative, minimum height of lower edge of solar panel arrays

Heckington Boundary

Breach Location

Indicative height of solar panel lower edge [mAGL]

- <= 1.00
- 1.01 - 1.10
- 1.11 - 1.20
- 1.21 - 1.30
- 1.31 - 1.40
- >= 1.40

Drawn By:	EC	**Date:**	07/06/2022
Checked By:	SH	**Date:**	07/06/2022
Approved By:	SH	**Date:**	07/06/2022
Status:	S3	**Revision:**	P02
Figure Title:	BREACH - Solar Panel Min Height		
File Name:	GRN-JBAU-XX-XX-FI-Z-0013-S3-P01-Breach_panel_height_Final.qgz		