

TerraConsult

16th August 2019
Report No 4521/R01 Issue 01

Proposed Materials Recycling Facility, Eastleigh, Hampshire

Combined Phase 1 and 2 Site Investigation Report

Prepared for

Veolia Environmental Services

Proposed Materials Recycling Facility, Eastleigh, Hampshire

Combined Phase 1 and 2 Site Investigation Report

16th August 2019

Carried Out For:

Veolia Environmental Services

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DOCUMENT INFORMATION AND CONTROL SHEET

Document Status and Approval Schedule

Report No 4521/R01 Issue	Title
	Proposed Materials Recycling Facility, Eastleigh, Hampshire Combined Phase 1 and 2 Site Investigation Report

Issue History

Issue	Status	Date		Signature	Date
01			**Prepared By:** Adam Steele BSc (Hons) MSc MIEnvSc		12/08/2019
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DISCLAIMER

This report should be read with the Service Constraints Report Limitations & Planning Requirements set out in Appendix A.

bsi. ISO 9001 Quality Management FS573193

bsi. ISO 14001 Environmental Management EMS573194

Executive Summary

The client, Veolia Environmental Services, commissioned TerraConsult Ltd to undertake a Combined Phase 1 and 2 Site Investigation for a proposed Materials Recycling Facility (MRF) on a currently vacant site off Chicken Hall Lane in Eastleigh, Hampshire, which is being considered for development.

Development Proposals

Development proposals are understood to comprise site clearance followed by the construction of a main processing building with associated office buildings, access roads, parking areas and a bi-directional weighbridge.

Conclusions

Based on the findings of the Conceptual Side Model (CSM) a plausible pollutant linkage has not been identified. Additional investigation is therefore considered unnecessary.

Recommendations

Recommendations are provided within this report.

Proposed Materials Recycling Facility, Eastleigh, Hampshire

Combined Phase 1 and 2 Site Investigation Report

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1. Introduction

1.1 Background Information

TerraConsult Limited was commissioned by Veolia Environmental Services to carry out a Phase 1 and 2 site investigation for a proposed Materials Recycling Facility (MRF) on a currently vacant site off Chicken Hall Lane in Eastleigh, Hampshire. The purpose of the report is to provide information on conditions at the site for a proposed commercial development at the site.

1.2 Development Proposals

It is understood that the development proposals comprise site clearance followed by the construction of a main processing building with associated office buildings, access roads, parking areas and a bi-directional weighbridge.

1.3 Purpose of Investigation

The scope of this investigation was to meet the requirements to provide information for planning purposes and for design of the development. The specific activities carried out are as follows:

- Undertake a desk study of available information to include a review of existing reports, history of the site and geo-environmental data;
- Carry out a site walk over;
- Develop a preliminary conceptual site model and refine this according to the findings of the investigation;
- Carry out an intrusive investigation comprising cable percussive boreholes and trial pitting with associated sampling;
- Ground gas and groundwater monitoring;
- Laboratory testing for potential contaminants and geotechnical purposes;
- Assess the general nature and extent of contamination at the site and carry out a contamination risk assessment to determine if the site poses a risk to potential receptors;
- To monitor the ground gas conditions at the site and undertake a ground gas risk assessment;
- Should the investigation indicate that remediation of contaminants be required, provide recommendations of feasible remedial measures to facilitate development of the site for residential end use; and
- Provide preliminary geotechnical information on the ground conditions for foundation and floor slab design.

This report has been devised to comply with the relevant principles and requirements of a range of guidance with regards to potentially contaminated land, including (but not limited to):

- Part IIA of the Environment Protection Act, 1990;
- Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, April 2012);
- National Planning Policy Framework (HCA, March 2012);
- BS5930:2015: "Code of practice for site investigations";
- BS10175: 2011 +A2:2017 "Investigation of Potentially Contaminated Sites - Code of Practice";
- The Building Regulations 2010. Part C (HM Government 2013)
- DEFRA/Environment Agency (2004) Report CLR11 "Model Procedures for the Management of Land Contamination";
- Environment Agency (2011) Report GPLC1 "Guiding Principles for Land Contamination"; and
- Environment Agency (2017) "The Environment Agency's Approach to Groundwater Protection" November 2017 Version 1.1.

1.4 Previous Investigations

It is understood that the site has not been subject to any previous investigations.

1.5 Limitations

TerraConsult's service constraints and report limitations are presented in Appendix A and a description of environmental risk assessment methodology and terminology is presented in Appendix B.

In preparation of this report, it is assumed that any information provided to TerraConsult by the client in connection with the commission is accurate, complete and not misleading. TerraConsult cannot guarantee the accuracy or validity of this information.

2. Site Location and Description

2.1 Site Location

The location of the site is indicated in **Figure 1** below and a summary and a brief description is presented in **Table 2.1**.

Figure 1 Site Location

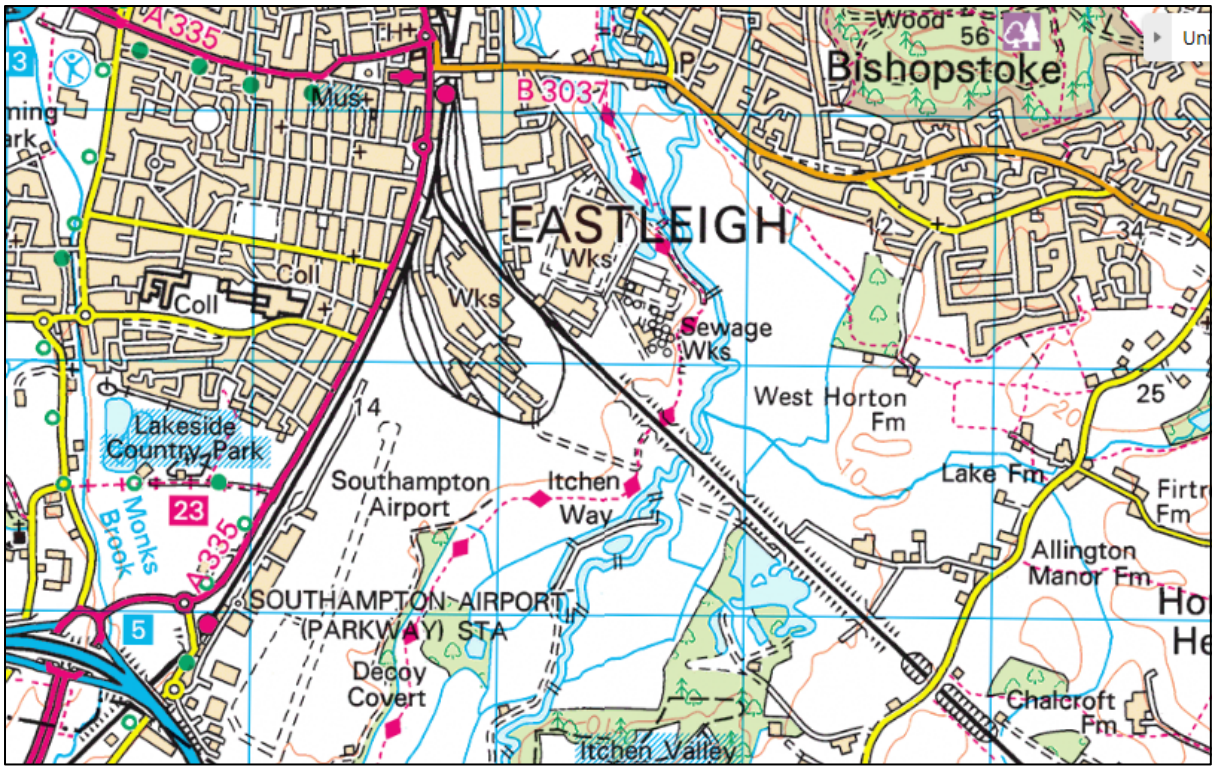


Table 2.1 Summary of Description of the Site and its Environs

Location	Site 131m from Prysmian Cables & Systems, Chickenhall Lane, Eastleigh.
Grid Reference	446484, 118092
Post Code	SO50 6YU
Site Area	4.86 ha (approx.)
Topography	The site is generally flat. No topographical surveys have been provided.

2.2 Site Description

A site walkover was completed on 20th June 2019, findings are provided below and selected photographs are presented in **Appendix C**.

The site was accessed via an asphalt roadway off Chickenhall Lane. The site was bounded by a water treatment works and residential housing to the north and east, agricultural land to the south-east, a railway to the south and an industrial estate to the west. The site boundaries were demarcated by fencing to the north, and mature trees and hedgerows to the east, south and west.

The site was mostly grassed with the asphalt roadway adjacent the northern boundary. A dirt track was orientated north to south. Vegetation was heavily overgrown on the southern

boundary and small woodland was present to the east. A number of foul service covers were noted on the northern and southern boundaries. A pylon was present in the south-eastern corner of the site.

Evidence of great crested newt fencing was noted in a poor state of repair along the eastern boundary of the site.

3. Geological Information

A summary of the environmental background information (geology, hydrology, hydrogeology, database information *etc.*) and regulator consultation information has been presented in the following chapters. Unless otherwise stated, the following information has been obtained from the GroundSure report which is included in **Appendix E**.

3.1 Anticipated Ground Conditions and Permeability

The anticipated superficial deposits, underlying solid geology and recorded Made Ground within 250m of the site are detailed in **Table 3.1**.

Table 3.1 Ground Conditions and Permeability

Item	Anticipated Ground Conditions	Recorded Permeability
Made/Artificial Ground	Made Ground is located along the north-eastern boundary and the southern boundary.	Very high to low with a mixed flow type.
Superficial Deposits	The site is underlain by River Terrace Deposits. Clay and silt deposits are present over under the majority of the site. Sand and gravel deposits are present in the eastern half.	Low to very low with a mixed flow type. Very high to high with an intergranular flow type.
	Alluvium is present 103m east of the site.	-
Solid Geology	The superficial deposits on site are underlain by the Wittering Formation.	High to low with an intergranular flow type.
Faults	None recorded.	-

3.2 Radon Potential

Information regarding radon is presented in **Table 3.2** below.

Table 3.2 Radon

Item	Details
Radon Affected Area	The site is not within a radon affected area, as less than 1% of properties are above the action level.
Radon Protected Measure	No radon protective measures are considered necessary for new properties or extensions as described in Building Research Establishment (BRE) publication BR211.

3.3 Geological Hazards

Information regarding the risk of geological hazards affecting the site is presented in **Table 3.3** below.

Table 3.3 Geological Hazards

Hazard	Distance/Direction	Hazard Rating
Shrink-swell clays	On site	Moderate
	23m west	Low
Landslides	On site	Very low

Hazard	Distance/Direction	Hazard Rating
Ground dissolution of soluble rocks	On site	Negligible
Compressible deposits	On site	Very low to negligible
Collapsible deposits	On site	Low to very low
Running sands	On site	Low to very low

4. Hydrogeology and Hydrology Information

4.1 Aquifers

Information regarding aquifers beneath the site is presented in **Table 4.1** below.

Table 4.1 Aquifers

Item	Distance/Direction	Designation
Superficial Deposits	On site	Secondary A Aquifer.
	On site	Secondary (undifferentiated) Aquifer.
Solid Geology	On site	Secondary A Aquifer.

4.2 Abstraction Licences

Information regarding abstraction licences within 250m of the site is presented in **Table 4.2** below.

Table 4.2 Abstraction Licences

Item	Distance/Direction	Details
Groundwater Abstraction	-	None recorded.
Surface Water Abstraction	148m south	Point: Itchen Carrier at Rail Workshop, Eastleigh. Status: historical.
Potable Water Abstraction	-	None recorded.

4.3 Source Protection Zones and Groundwater Vulnerability

Information regarding source protection zones (SPZs) and groundwater vulnerability within 250m of the site are presented in **Table 4.3** below.

Table 4.3 SPZs and Groundwater Vulnerability

Item	Distance/Direction	Classification / Soil Vulnerability Category
SPZs	-	None recorded.
SPZs within Confined Aquifers	-	None recorded.
Groundwater Vulnerability and Leaching Potential	On site	Minor aquifer with high leaching potential (HU).
	55m east	Minor aquifer with intermediate leaching potential (I2).

4.5 Detailed River Network and Surface Water Features

Information regarding river networks and surface water features within 250m of the site are presented in **Table 4.4** below.

Table 4.4 Detailed River Network and Surface Water Features

Item	Distance/Direction	Details
Ordnance Survey MasterMap Water Network	29-32m south-west	Name: unknown (14 records). Type: inland river not influenced by normal tidal action. Catchment area: Itchen.
	154-250m south-east and east	Name: unknown (14 records). Type: inland river not influenced by normal tidal action. Catchment area: Itchen.
	224-231m east and south-east	Name: River Itchen (6 records). Type: inland river not influenced by normal tidal action. Catchment area: Itchen.
Surface Water Features (not represented on mapping).	145-222m east and south-east	5 records; no further details given.

4.6 Flooding

Information regarding flooding within 250m of the site is presented in **Table 4.5** below.

Table 4.5 Flooding

Item	Details
Environment Agency Zone 2 and Zone 3 Floodplains	Environment Agency Zone 2 and 3floodplains are recorded 113m east of the site.
Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating	The highest risk of flooding on site is recorded as very low.
Flood Defences	There are no recorded flood defences within 250m of the site.
Areas benefitting from Flood Defences	There are areas benefitting from flood defences within 250m of the site.
Areas benefitting from Flood Storage	There are no areas used for flood storage within 250m of the site.
Groundwater Flooding Susceptibility Areas and Flooding Confidence Areas	There are groundwater flooding susceptible areas within 50m of the site. This relates to superficial deposits flooding. The highest susceptibility to groundwater flooding is recorded as potential at surface; the BGS confidence in this result is 'moderate'.

5. Historical Information

5.1 Historical Industrial Sites and Landfills

Information regarding historical industrial sites and landfills within 250m of the site is provided in **Table 5.1** below**.**

Table 5.1 Historical Potentially Contaminative Uses

Item	Distance/Direction	Use
Potentially Contaminative Uses	On site	Railway sidings, unspecified works and sewage works (16 records).
	0m north	Unspecified tanks (2 records).
	2-50m south-west, north-west, north-east and north	Railway sidings, locomotive carriage and wagon works, unspecified works, unspecified commercial/industrial, unspecified tanks, sewage works and rifle range (23 records).
	52-100m south-west, north-west, north-east and west	Rifle range, old gravel pit, unspecified tanks, unspecified pit, filter beds, filter bed and locomotive carriage and wagon works (22 records).
	104-99m east, north-east, south-east, north, south, south-west and north-west	Unspecified heap, unspecified ground workings, unspecified tanks, unspecified works and railway sidings (26 records).
	225-247m north-west	Gravel pit, gas works, carriage and wagon works and railway sidings (4 records).
Historical Tank Database	1-41m north, north-west and north-east	Tanks and unspecified tank (20 records).
	54-96m north-east, north-west and east	Tanks and unspecified tank (16 records).
	110-246m north-east, north, north-west, south, south-west and west	Unspecified tank and tank (22 records).
Historical Energy Features Database	84-85m west	Gas governor (2 records).
	154-155m west	Electricity substation (2 records).
Historical Petrol and Fuel Database	-	None recorded.
Historical Garage and Motor Vehicle Repair Database	2m south-west	Carriage and wagon works.
	23m north-west	Carriage and wagon works.
	157m north-west	Locomotive carriage and wagon works.
Historical Military Sites	-	None recorded.
Potentially Infilled Land	On site	Sewage works and pond (17 records).
	38-95m north-east, north-west, south-west, west and east	Sewage works, old gravel pit, unspecified pit, filter beds and filter bed (16 records).

Item	Distance/Direction	Use
	101-225m north-east, east, south, south-east, north and north-west	Canal, unspecified heap, unspecified ground workings, pond, unspecified heap and gravel pit (20 records).
Environment Agency Landfills	-	None recorded.
Environment Agency Historical Landfills	-	None recorded.
BGS/DoE Non-operational Landfill Sites	-	None recorded.
Landfills from Local Authority and Historical Mapping Records	-	None recorded.
Waste treatment, transfer or disposal sites.	-	None recorded.
Environment Agency Licensed Waste Sites	234m north-west	Eastleigh Railworks; treatment of waste to produce soil <75,000 tonage per year. Surrendered: 03/04/2019.

5.2 Site History

The site history is summarised below in **Table 5.2** and determined from the GroundSure historical mapping.

Table 5.2 Site History

Date from	Date to	Feature	
On-site Features			
1868	1954	Road runs E-W across site.	
1868 1909	1981	'Chicken Hall Farm' with associated buildings at eastern section. Expansion of farm buildings.	
1868 1954	2014	Pond at centre of site adjacent 'Chicken Hall Farm'. Listed as two separate ponds.	
1868	2010	Track running N-S from pond in centre of site.	
1888	1908	Road E-W across northern portion of site associated with 'Sewage Works'.	
1909	Present day	Marsh at south eastern corner.	
1909	Present day	Road/track along north eastern boundary.	
1962	1962	Electricity Pylon at south eastern corner.	
Date from	**Date to**	**Feature**	**Distance and Direction from Site**
Off-site Features			
1868	Present day	London & South Western Railway	Southern boundary

Date from	Date to	Feature	
On-site Features			
1888	Present day	Residential Property	North western boundary
1888	Present day	'Sewage Works (Eastleigh U.D)' Significant expansion until the present day	20 m north
1868	Present day	River Itchen	100 m west
1888	1908 1931	Gravel pits	100 m north west 100 m west
1981 1989	Present day	Works Extended	100m north west 50 m west

5.3 Railways and Tunnels

Information regarding railways and tunnels on or within 250m of the site are presented in **Table 5.3** below.

Table 5.3 Railways and Tunnels

Feature	Distance/Direction	Use / Detail
Tunnels	-	None recorded.
Historical Railway and Tunnel Features	On site	Railway sidings (4 records).
	2-37m south-west	Railway sidings (20 records).
	93-247m west, north-west and south-west	Railway sidings (25 records).
Historical Railways	-	None recorded.
Active Railways	8-16m south-west	Name: not given and Eastleigh to Fareham Line (18 records). Type: rail and multi-track.
	90-23m west, south-east, south-west and north-west	Name: not given (64 records). Type: rail and multi-track.
Railway Projects	-	None recorded.

6. Environmental Information

6.1 Environmental Permits, Incidents, Registers and Sensitive Sites

Information regarding environmental permits, incidents, registers and designated sensitive sites are provided in **Table 6.1** below.

Table 6.1 Environmental Permits, Incidents, Registers and Sensitive Sites

Item		Distance/Direction	Detail
Industrial Sites Holding Licences and/or Authorisations	Historic IPC Authorisations	-	None recorded.
	Part A(1) and IPPC Authorised Activities	On site	Operator: Clean Power (UK) Ltd (2 records). Process: disposal of >50tonne/day non-hazardous waste involving biological treatment. Status: determination.
	Red List Discharge Consents	226m east	Southern Water Services Ltd; sewage disposal works (2 records).
	List 1 Dangerous Substances Inventory Sites	193m east	Pirelli General Plc. Status: not active. Receiving water: River Itchen.
		193m east	Alstrom Transport (Wessex traincare Ltd). Status: not active. Receiving water: River Itchen.
		193m east	Br.rail Engineering Ltd. Status: active. Receiving water: River Itchen. Authorised substance: mercury (other) and cadmium.
		193m east	Eastleigh Sewage Treatment Works. Status: active. Receiving water: River Itchen. Authorised substance: mercury (other) and cadmium.
	List 2 Dangerous Substances Inventory Sites	78m south-west	Eastleigh Sewage Treatment Works. Status: active. Receiving water: River Itchen. Authorised substances: iron.
		78m south-west	Prysmian Cables and Systems Ltd. Status: active. Receiving water: River Itchen. Authorised substances: chromium, copper, lead, nickel, pH and zinc.
		78m south-west	Pirelli (2 records). Status: not active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.

Item		Distance/Direction	Detail
		78m south-west	Pirelli Cable Plc. (3 records). Status: active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.
		78m south-west	Onyx Hampshire Ltd. Status: active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.
		78m south-west	Vfs (Southampton Ltd). Status: active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.
		78m south-west	Intercole Circuits ltd. Status: not active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.
		193m east	Cp Laboratories Ltd. Status: not active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.
		193m east	Apw Electronic Solutions. Status: not active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel, pH and zinc.
		193m east	Manor Bakeries Ltd. Status: active. Receiving water: River Itchen. Authorised substances: copper, lead, nickel and zinc.
	Part A(2) and Part B Activities and Enforcements	-	None recorded.
	Category 3 or 4 Radioactive Substances Authorisations	-	None recorded.
	Licensed Discharge Consents	203m north	Pirelli General Cable Works Ltd. Effluent: trade discharges – process effluent – not water company.
		209-226m east	Chickenhall Eastleigh Waste Water Treatment Works (30 records). Effluent: sewage discharges – final/treated effluent and storm overflow.
	Water Industry Referrals	-	None recorded.
	Hazardous Substance Consents and Enforcements	-	None recorded.

Item		Distance/Direction	Detail
Dangerous or Hazardous Sites		-	None recorded.
Environment Agency Recorded Pollution Incidents	National Incidents Recording System, List 2	17m west	Incident date: 24/07/2001. Category 3 minor land impact.
		46m north	Incident date: 10/01/2002. Category 3 minor water impact.
		218m south-east	Incident date: 24/07/2003. Category 3 minor water impact.
	National Incidents Recording System, List 1	11m north-east	Incident date: 06/10/2000. Significant land impact.
Recorded Part 2A Sites		-	None recorded.
Potentially Contaminative Industrial Sites		47-144m north-west, north and south-west	Tanks and tank; tanks (generic) (9 records).
		53m north-east	Sewage works; waste storage, processing and disposal (2 records).
		85-86m west	Gas governor station; gas features (2 records).
		89m north-east	Filter beds; waste storage, processing and disposal.
		146-153m north-west	Works; unspecified works or factories (2 records).
		155-206m west and north	Electricity substation; electrical features (2 records).
Petrol and Fuel Sites		-	None recorded.
Underground Electricity Transmission Cables		-	None recorded.
High Pressure Gas Transmission Pipelines		-	None recorded.
Designated Sites		On site	Nitrate Vulnerable Zone.
		94m south	River Itchen Site of Special Scientific Interest (SSSI).
		215m east	River Itchen Special Area of Conservation (SAC).

7. Ground Workings, Mining, Extractions and Cavities

Information regarding historical and current ground workings, mining activities, extractions and cavities on or within 250m of the site are presented in **Table 7.1** below.

Table 7.1 Ground Workings, Mining, Extractions and Cavities

Feature	Distance/Direction	Use/Detail
Historical Surface Ground Working Features	On site	Pond and sewage works (17 records).
	38-95m north-east, north-west, south-west, west and east	Sewage works, old gravel pit, unspecified pit, filter beds, canal and gravel pit (15 records).
	101-225m north-east, east, south-east, north and north-west	Canal, unspecified heap, unspecified ground works, pond and gravel pit (22 records).
Historical Underground Ground Working Features	-	None recorded.
Current Ground Workings	83-220m north-west	Chicken Hall Farm Gravel Pit (4 records). Commodity: sand and gravel. Status: ceased.
Historical Mining	-	None recorded.
Coal Mining	-	None recorded.
Records Held by Johnson Poole and Bloomer	-	The study site is not located within 1000m of an area when Johnson Poole and Bloomer hold information.
Non-coal Mining	-	None recorded.
Non-coal Mining Cavities	-	None recorded.
Natural Cavities	-	None recorded.
Brine Extraction	-	None recorded.
Gypsum Extraction	-	None recorded.
Tin Mining	-	None recorded.
Clay Mining	-	None recorded.

8. Hazard Assessment & Preliminary Conceptual Site Model

8.1 Hazards Identified with the Proposed Development

The hazard identification is based on the assumption that the site is to be developed to a residential end-use, comprising bungalows, private gardens and car parking. It is assumed that drinking water will be supplied by underground pipes.

8.2 Potential Sources of Contamination

8.2.1 On Site Sources

Based on the data previously discussed, the following potential sources of contamination on site have been identified:

- Railway sidings;
- Unspecified works;
- Sewage works;
- Pond;
- Part A(1) and IPPC Authorised Activity;
- Active railways; and
- Potential Made Ground present on site.

8.2.2 Off Site Sources

Based on the data previously discussed, the following potential sources of contamination off site have been identified:

- Unspecified tanks;
- Railway sidings;
- Locomotive carriage and wagon works;
- Unspecified works;
- Unspecified commercial/industrial;
- Sewage works;
- Rifle range;
- Old gravel pit;
- Filter beds;
- Unspecified ground workings;
- Gas works;
- Carriage and wagon works;
- Gas governor
- Electricity substations;
- Canal;

- Environment Agency Licensed Waste Sites;
- Historical railway and tunnel features;
- Industrial Sites Holding Licences and/or Authorisations;
- Environment Agency Recorded Pollution Incidents;
- Potentially Contaminative Industrial Sites; and
- Chicken Hall Farm Gravel Pit.

8.3 Conceptual Site Model

In accordance with BS 10175, a general schematic section has been developed for the site based on the previously presented data and contaminant linkage assessment. This is shown in **Figure 1**.

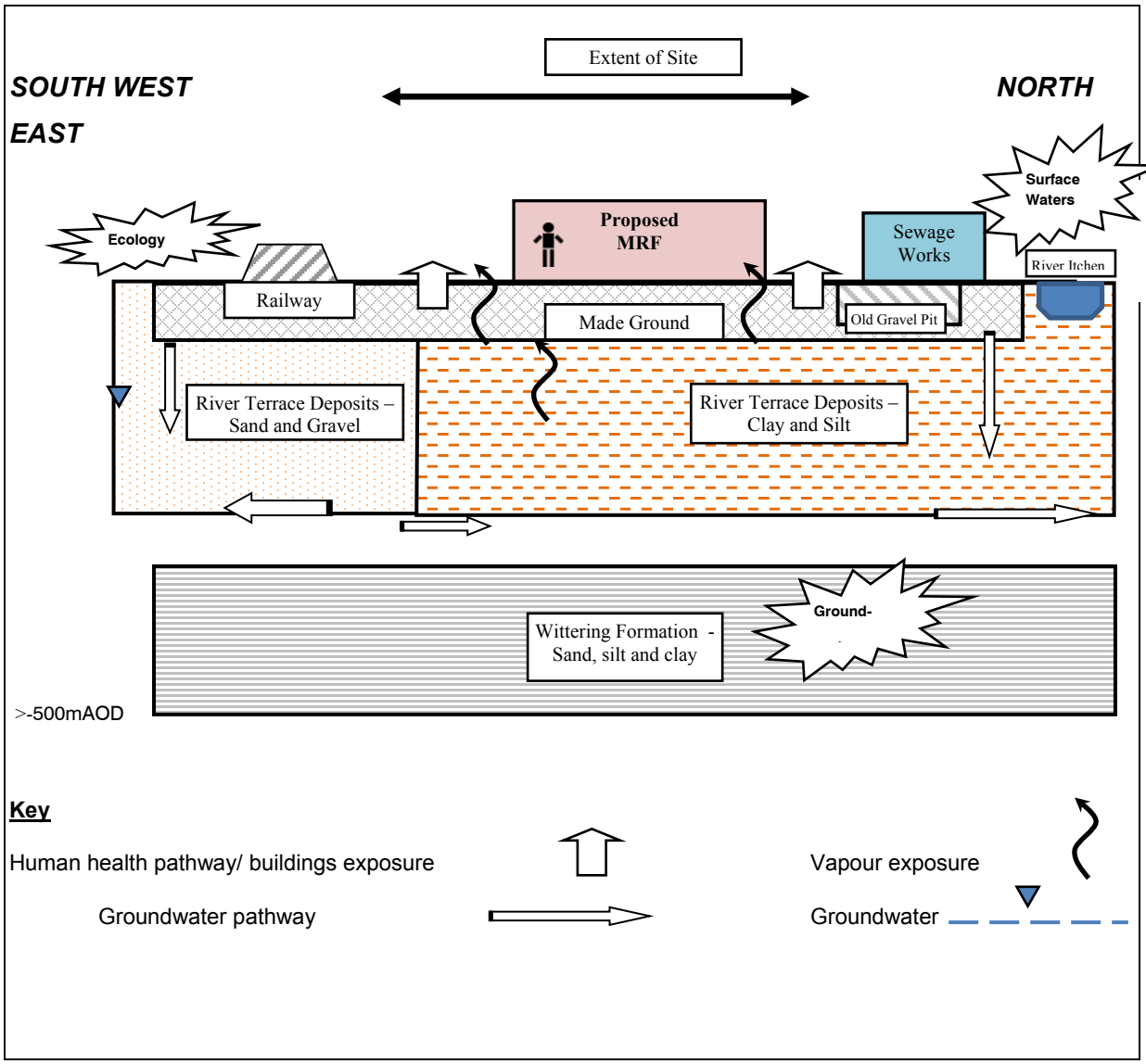


Figure 1: Preliminary Conceptual Ground Model - Schematic Section (not to scale)

The model for the site shows the anticipated geology, former site usage and vulnerable receptors. The information presented above represents the preliminary conceptual ground model that may need to be revised based on data obtained during any future investigation,

either desk-based or intrusive. The conceptual site model and proposed end use described above should be considered very broadly representative of a residential land use, as a worst case scenario, as defined in SR3 "Updated Technical Model to the CLEA Model" (SC050021/SR3, 2011) for the purpose of this report.

8.4 Preliminary Contamination Hazard Assessment

The preliminary hazard assessment is based on current available guidance published by a number of sources and is summarised in Appendix B. A preliminary conceptual site model for this site has been established using the desk study information and has been used as a basis for the preliminary hazard assessment. The contaminant linkages have been individually assessed and a summary of the potential geo-environmental risks associated with the site and in the context of the proposed residential development is provided in **Table 8.4**.

Table 8.1 Summary of Preliminary Qualitative Risk Assessment

Issue	Risk Rating	Justification Comments
Contamination Potential		
Potential for significant on-site contamination.	Moderate	Potentially contaminated and/or gas generating Made Ground may be present on the site due to historic sewage works, railway sidings and infilled pond.
Potential for contaminants to migrate via soil/air/groundwater pathways to site.	Moderate	The anticipated ground conditions could provide a pathway for potential contaminants to migrate on site.
Potential for contaminants to migrate via soil/air/groundwater pathways off-site.	Moderate	The anticipated ground conditions could provide a pathway for potential contaminants to migrate off-site.
Geo-environmental Risk		
Risk of harm to human health based on anticipated conditions.	Moderate to low	Potential sources of contamination identified and plausible pathway linkages to receptors.
Risk to site workers.	Moderate to low	Potential sources of contamination identified and plausible pathway linkages to receptors.
Risk of pollution to controlled water.	Moderate	Underlying ground conditions are designated as Secondary A Aquifers.
Hazards to flora and fauna.	Low	Localised landscaping is expected on the site.
Hazards to building structures and services – excluding ground gas.	Low	Potential sources of contaminants (including pH, sulphates and organics).
Liabilities		
Likelihood of designation as Contaminated Land under Part 2A of EPA 1990.	Low	Potential for contamination identified but is likely to be addressed under the planning regime.
Liability issues for owner.	Moderate to low	Potential liability issues identified.
Development Implications		
Possible requirement for remediation of soil.	Moderate to low	Remediation may be required. Ground investigation required to clarify potential risks.

Issue	Risk Rating	Justification Comments
Possible requirement for remediation of groundwater.	Low	Potential sources of contamination identified and plausible pathway linkages to the underlying Secondary A Aquifer.
Possible requirement for gas protection.	Moderate to low	Ground gas protection measures may be required as potential sources have been identified. Ground investigation required to clarify potential risks.
Special requirements for water supply pipes.	Low	Pipes may be directed through affected soil; however, specialist pipework may not be required.
Potential limitations on foundation design.	Low	Concrete selection may be affected by potential for chemical attack. Ground investigation required to clarify potential risks.
Risk of encountering materials classed as hazardous waste.	Moderate to low	Potential sources of contamination have been identified. Ground investigation required to clarify potential risks.

9. Fieldwork and Analysis

The works undertaken as part of the site investigation and subsequent analysis of selected samples is summarised below.

9.1 Site Investigation

The site work undertaken as part of this phase of investigation is detailed in the following section. The site investigation was undertaken in accordance with the scope of works agreed with the client and generally in accordance with industry guidance including BS10175: 2011 *Investigations into Potentially Contaminated Sites – Code of Practice* and BS5930: 2015 *Code of Practice for Site Investigations – Amendment 2*.

9.1.1 Site Work Rationale and Preparatory Works

The exploratory hole location plan and fieldwork records are presented in **Appendix 5**. The investigative positions were selected based on the available access and to provide coverage of the proposed development plot.

Statutory service plans were provided by the client. Prior to boring a cable avoidance tool and signal generator were used to confirm each location was clear of detectable services.

9.1.2 Cable Percussive Boreholes

A total of four cable percussive boreholes, referenced CP01 to CP04, were undertaken from the 1st July to 5th July 2019 and were completed at depths between 10.00mbgl and 15.00mbgl. Standard Penetration Tests (SPTs) were carried out in both granular and cohesive strata in the holes in general accordance with BS EN ISO 22476-3:2005+A1 2011. Undisturbed driven UT100 samples were taken from cohesive strata for laboratory analysis.

9.1.3 Trial Pits

Ten trial pits were excavated using a 10 tonne tracked excavator across the site to depths between 2.30mbgl to 3.70mbgl. The trial pit logs and photographs are presented in Appendix XX.

9.1.4 California Bearing Ratio Tests

A total of ten in-situ plate bearing tests were carried out in accordance with BS 1377: Part 9: 1990 and IAN 73/06 rev.1 to provide the Modulus of Subgrade Reaction and CBR value of the ground. The results of the ten plate bearing tests are presented in Appendix X.

9.1.5 Standpipe Installations and Monitoring

Single standpipe installations were placed in boreholes CP01 to CP03. Each standpipe comprised 50mm diameter PTFE piping, slotted below 1.00mbgl; installed to depths of 5.00mbgl. Once introduced into the ground the slotted section was surrounded by suitable gravel pack, above which a sealing material (bentonite) was used. A rubber bung and gas tap were placed at the top of the pipework and a flush cover concreted at surface to protect the installation from damage. Flow was monitored for a period of up to two minutes, the concentration of volatile organic compounds (VOCs) was also monitored for a period of up to

two minutes and the concentrations of ground gases including methane, carbon dioxide, hydrogen sulphide and carbon monoxide were monitored for up to five minutes. The depth to groundwater was measured using a dip-meter. The monitoring results are presented in **Appendix E**.

9.2 Laboratory Analysis

The scheduled analysis and number of samples tested is summarised in **Table 9.1** and **Table 9.2** below. The laboratory certificates are presented in **Appendix F**.

Table 9.1 Summary of Scheduled Contamination Testing

Analysis	No. of Soil Samples Tested
Metals	10
Speciated polycyclic aromatic hydrocarbons (PAHs)	10
Speciated petroleum hydrocarbons	2
Extractable petroleum hydrocarbons	2
Benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tertiary butyl ether (MTBE)	2
Asbestos screen	6
pH	10
Soil organic matter (SOM)	10
SO4 / total sulphate	10

Table 9.2 Summary of Scheduled Geotechnical Testing

Analysis	No. of Soil Samples Tested
Moisture Content	16
Atterberg Limits	24
Particle Size Distribution (wet sieve)	8
Particle density (glass jar method)	8
Oedometer (6 stages)	8
Triaxal Test	8
BRE SD1 Suite	4

10. Ground Conditions

The encountered ground conditions, groundwater and other observations are summarised and discussed below.

10.1 Encountered Ground Conditions

The ground conditions encountered are summarised in **Table 10.1** and discussed below.

Table 10.1 Summary of Encountered Ground Conditions

Stratum	Location	Surface Depth (mbgl)	Proven Base Depth (mbgl)	Proven thickness (m)
Topsoil	CP02, CP03, TP02, TP04-TP07, TP09 and TP10	0.00	0.05 to 0.35	0.05 to 0.35
Made Ground	CP01, CP04, TP01, TP03, TP05, TP08-TP10	0.00 to 0.35	0.40 to 2.00	0.30 to 1.95
River Terrace Deposits	All CPs, TP01-TP08	0.25 to 2.10	1.60 to 5.00	0.90 to 4.50
Wittering Formation	All CPs, TP01-TP02, TP04, TP07, TP09-TP10	1.60 to 5.00	>3.70 to>15.00	>0.40 to >13.40

10.1.1 Topsoil

A surface covering of topsoil was encountered in borehole locations CP02, CP03, TP02, TP04-TP07, TP09 and TP10 and comprised soft or firm, brown, slightly sandy clay and slightly gravelly clay. The gravel fraction was subangular to subrounded of medium to coarse flint. Abundant roots and rootlets were noticed within the topsoil at TP02-TP07, TP09 and TP10. The topsoil was proved to depths between 0.05mbgl to 0.35mbgl.

10.1.2 Made Ground

Made Ground was encountered from surface in two cable percussive boreholes; CP01 and CP04. At CP01 the Made Ground comprised firm, brown, slightly sandy, gravelly clay. The gravel fraction was angular to subangular of medium to coarse flint, brick and concrete. However, in CP04 it comprised firm brown sandy clay with rare fine brick gravels. The Made Ground was proved to depths of 0.40mbgl and 1.40mbgl.

A surface covering of Made Ground was also encountered in trial pits TP01, TP03 and TP08 comprising of greyish brown, gravelly clay. The gravel fraction was subangular to subrounded flint, brick, concrete and rare metal. Abundant roots and rootlets were noted in TP01, TP03 and TP08. This stratum was proved to depths of 0.30mbgl to 0.40mbgl at these three locations.

Made Ground was encountered underlying topsoil at TP05, TP09 and TP10 at depths between 0.05mbgl to 0.30mgl. This comprised brown, grey or black, slightly sandy, slightly gravelly clay or gravelly clay. The gravel fraction was fine to medium of subangular to subrounded flint and rare brick or chalk with occasional rootlets. A heavy hydrocarbon odour

was noted between 1.00mbgl to 2.00mbgl at TP09. This stratum was proved to depths between 1.90mbgl to 2.10mbgl.

10.1.3 River Terrace Deposits

River Terrace Deposits were encountered underlying the topsoil or Made Ground at depths between 0.30mbgl to 1.40mbgl in all cable percussive boreholes. This stratum comprised dense, brown, clayey sand and gravel or clayey gravelly sand. The gravel fraction was subangular to subrounded flint. This stratum was proved to depths between 1.60mbgl to 5.00mbgl.

10.1.4 Wittering Formation

The Wittering Formation was encountered underlying the River Terrace Deposits in all cable percussive boreholes and trial pits TP01, TP02, TP04, TP07, and underlying the Made Ground in trial pits TP09 and TP10. This stratum comprised stiff grey clay with sandy laminations. All cable percussive boreholes and trial pits TP01, TP02, TP04, TP07, TP09 and TP10 were completed in this stratum.

10.1.5 Groundwater

During the site investigation, seepage was noted between 2.20mbgl to 3.10mbgl in boreholes CP01 and CP02, and trial pits TP03-TP09. During subsequent monitoring, groundwater was noted between 1.55mbgl to 2.55mbgl at CP01, CP02 and CP03.

10.2 Visual and Olfactory Observations

A strong hydrocarbon odour was noted within the Made Ground between depths of 1.00mbgl to 2.00mbgl in TP09.

11. Summary of Laboratory Analysis

The results of chemical laboratory testing and ground gas monitoring are detailed in the following section.

11.1 Soil Analysis

The samples were submitted to Concept Life Sciences of Braintree in Essex who are UKAS accredited in accordance with ISO17025 and are also MCERTS accredited for soil analysis in accordance with the Environment Agency's scheme. The laboratory carries out Quality Assurance and Quality Control in accordance with BS ISO 17025 and participate in external laboratory comparison and quality control schemes. Details of the accreditation and the methods of analysis are provided on the relevant test reports.

The results of chemical laboratory testing of soil samples for inorganic and organic compounds have initially been compared against the screening criteria for commercial end use. The screening criteria hierarchy used is as follows:

- Chartered Institute of Environmental Health (CIEH) and Land Quality Management Ltd (LQM) Suitable for Use Levels (S4ULs).
- Department for Environment Food and Rural Affairs (Defra) Category 4 Screening Levels (C4SLs).
- Contaminated Land: Applications in Real Environments (CL:AIRE) soil generic assessment criteria (GACs).

11.2 Geotechnical Analysis

Samples were submitted to K4 Soils Laboratory in Watford who are UKAS accredited in accordance with ISO17025.

The results of testing for aggressive ground conditions have been classified using values provided in BRE Special Digest1:2005: Concrete in aggressive ground.

11.3 Groundwater Analysis

The results of groundwater analysis have been compared to The Water Supply (Water Quality) Regulations 2016 (WSR) and Guidelines for Drinking-water Quality: World Health Organisation (WHO).

Table 11.1 Results of Laboratory Analysis for Metals

Determinand *Metals*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Respective Land Use (mg/kg)**		**No. of Samples with Elevated Concentrations**	**Samples with Elevated Concentrations**
	Minimum	*Maximum*	*S4Uls*	*C4SLs*		
Arsenic	3	11	640	-	0	None elevated
Cadmium	<0.1	56	190	-	0	None elevated
Chromium (III)	11	250	8,600	-	0	None elevated
Copper	9	2,200	68,000	-	0	None elevated
Lead	7	370	-	6,000	0	None elevated
Mercury	<1	6.6	1,100	-	0	None elevated
Nickel	15	52	980	-	0	None elevated
Selenium	<3	5	120,000	-	0	None elevated
Zinc	27	7,500	730,000	-	0	None elevated

Table 11.2 Results of Laboratory Analysis for Polycyclic Aromatic Hydrocarbons

Determinand *PAHs*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Proposed Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Samples with Elevated Concentrations**
	Minimum	*Maximum*	*S4Uls*				
			1% som	*2.5% som*	*6% som*		
Acenaphthene	<0.1	0.3	84,000	97,000	100,000	0	None elevated
Acenaphthylene	<0.1	<0.1	83,000	97,000	100,000	0	None elevated
Anthracene	<0.1	0.3	520,000	540,000	540,000	0	None elevated
Benzo[a]anthracene	<0.1	1.6	170	170	180	0	None elevated
Benzo[a]pyrene	<0.1	1.7	76	76	76	0	None elevated

Determinand *PAHs*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Proposed Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Samples with Elevated Concentrations**
	Minimum	*Maximum*	*S4Uls*				
			1% som	*2.5% som*	*6% som*		
Benzo[b]fluoranthene	<0.1	1.3	44	44	45	0	None elevated
Benzo[ghi]perylene	<0.1	1.0	3,900	4,000	4,000	0	None elevated
Benzo[k]fluoranthene	<0.1	1.4	1,200	1,200	1,200	0	None elevated
Chrysene	<0.1	1.7	350	350	350	0	None elevated
Dibenz[ah]anthracene	<0.1	0.3	3.5	3.6	3.6	0	None elevated
Fluoranthene	<0.1	3.2	23,000	23,000	23,000	0	None elevated
Fluorene	<0.1	0.3	63,000	68,000	71,000	0	None elevated
Indeno[123-cd]pyrene	<0.1	0.8	500	510	510	0	None elevated
Naphthalene	<0.1	0.3	190	460	1,100	0	None elevated
Phenanthrene	<0.1	1.0	22,000	22,000	23,000	0	None elevated
Pyrene	<0.1	3.1	54,000	54,000	54,000	0	None elevated
Total PAH	<0.1	18.0	-	-	-	-	-

Table 11.3 Results of Laboratory Analysis for Speciated Petroleum Hydrocarbons

Determinand *Petroleum Hydrocarbons*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Proposed Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Location of Samples with Elevated Concentrations**
Speciated - Aliphatic	*Minimum*	*Maximum*	*S4ULs*				
			1% som	*2.5% som*	*6% som*		
>C5-C6			42	78	160	0	None elevated

Determinand *Petroleum Hydrocarbons*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Proposed Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Location of Samples with Elevated Concentrations**
Speciated - Aliphatic	*Minimum*	*Maximum*	*S4ULs*				
			1% som	*2.5% som*	*6% som*		
>C5-C6	<0.1	<0.1	3,200	5,900	12,000	0	None elevated
>C6-C8	<0.1	1.1	7,800	17,000	40,000	0	None elevated
>C8-C10	<0.1	96	2,000	4,800	11,000	0	None elevated
>C10-C12	<2	1,000	9,700	23,000	47,000	0	None elevated
>C12-C16	<2	1,600	59,000	82,000	90,000	0	None elevated
>C16-C35	9	15,000	1,600,000	1,700,000	1,800,000	0	None elevated
>C35-C40	7	414	1,600,000	1,700,000	1,800,000	0	None elevated
Speciated - Aromatic	*Minimum*	*Maximum*	*S4ULs*			**No. of Samples with Elevated Concentrations**	**Location of Samples with Elevated Concentrations**
			1% som	*2.5% som*	*6% som*		
>C6-C7	<0.1	<0.1	26,000	46,000	86,000	0	None elevated
>C7-C8	<0.1	<0.1	56,000	110,000	180,000	0	None elevated
>C8-C10	<0.1	26	3,500	8,100	17,000	0	None elevated
>C10-C12	<2	1,000	16,000	28,000	34,000	0	None elevated
>C12-C16	2	3,900	36,000	37,000	38,000	0	None elevated
>C16-C21	13	4,000	28,000	28,000	28,000	0	None elevated
>C21-C35	67	3,600	28,000	28,000	28,000	0	None elevated
>C35-C40	20	238	28,000	28,000	28,000	0	None elevated

Table 11.4 Results of Laboratory Analysis for Volatile Organic Compounds (VOC)

Determinand *VOCs*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Respective Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Samples with Elevated Concentrations**
			S4ULs				
	Minimum	*Maximum*	*1% som*	*2.5% som*	*6% som*		
All tested VOCs	<0.005	9.7	Results were all less than the screening values			0	None elevated

Table 11.5 Results of Laboratory Analysis for Semi Volatile Organic Compounds (SVOC)

Determinand *SVOCs*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Respective Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Samples with Elevated Concentrations**
			S4ULs				
	Minimum	*Maximum*	*1% som*	*2.5% som*	*6% som*		
All tested SVOCs	<0.001	<0.001	Results were all less than the limits of detection			0	None elevated

Table 11.6 Results of Laboratory Analysis for Polychlorinated biphenyls (PCB)

Determinand *PCBs*	**Determinand Concentration Range (mg/kg)**		**Screening Values for Respective Land Use (mg/kg)**			**No. of Samples with Elevated Concentrations**	**Samples with Elevated Concentrations**
			S4ULs				
	Minimum	*Maximum*	*1% som*	*2.5% som*	*6% som*		
All tested PCBs	<0.001	0.032	Results were all less than the screening values			0	None elevated

Table 11.7 Asbestos Screening

Determinand	Screening Result	Asbestos Matrix	Asbestos Type	No. of Samples with Asbestos	Location of Samples with Detected Asbestos
Asbestos	Not detected	-	-	0	None detected

Table 11.8 Summary of Aggressive Ground Analysis

Stratum	Determinand			DS / ACEC Class
	Total sulphate (%)	Water soluble sulphate as SO_4 (mg/l)	pH	
Made Ground	0.03	23	8.7	DS-2 / AC-2
Glaciofluvial Deposits	<0.02	18	7.3	DS-4 / AC-4
Groundwater	-	33 to 99	7.82 to 7.89	DS-1 / AC-1

Table 11.7 Summary of Groundwater Analysis Results

Determinand	Determinand Concentration Range (mg/l)		Threshold Value (mg/l)	No. of Samples with Elevated Concentrations	Location of Samples with Elevated Concentrations
	Minimum	*Maximum*	*UK DWS*		
Arsenic	0.0003	0.0009	0.1	0	None elevated
Cadmium	<0.00002	0.00004	0.005	0	None elevated
Chromium	<0.001	<0.001	0.05	0	None elevated
Copper	0.0031	0.0056	2	0	None elevated
Lead	<0.0003	0.0004	10	0	None elevated
Mercury	<0.00005	<0.00005	1	0	None elevated

Determinand	Determinand Concentration Range (mg/l)		Threshold Value (mg/l)	No. of Samples with Elevated Concentrations	Location of Samples with Elevated Concentrations
	Minimum	*Maximum*	*UK DWS*		
Nickel	0.003	0.003	0.02	0	None elevated
Selenium	<0.0005	0.0052	0.01	0	None elevated
Zinc	0.003	0.004	5	0	None elevated
Nitrate	<0.5	19	50	0	None elevated

11.4 Summary of Analysis and Monitoring Results

The result of chemical laboratory analysis of selected soil samples is discussed in the following section.

11.4.1 Summary of Soil Sample Analysis and Screening Results

Analysis of selected soil samples indicated no elevated concentrations of selected determinands when compared to their respective criteria for commercial end use. Asbestos was not detected at any location.

11.4.2 Groundwater

The analysis of selected groundwater samples recorded concentrations of the various determinands that were below their respective screening values.

12. Updated Qualitative Risk Assessment

The updated assessment of plausible contaminant linkages based on the results of the investigation is presented in **Appendix G**. The contaminant linkages have been individually assessed and a summary of the potential geo-environmental risks associated with the site and in the context of the proposed development is provided in **Table 12.1**.

Table 12.1 Summary of Updated Qualitative Risk Assessment

Issue	Risk Rating	Justification Comments
Contamination Potential		
Potential for significant on-site contamination.	Low	No elevated concentrations have been detected from selected soil sample analysis.
Potential for contaminants to migrate via soil/air/groundwater pathways to site.	Moderate	The anticipated ground conditions could provide a pathway for potential contaminants to migrate on site.
Potential for contaminants to migrate via soil/air/groundwater pathways off-site.	Moderate	The anticipated ground conditions could provide a pathway for potential contaminants to migrate off-site.
Geo-environmental Risk		
Risk of harm to human health (end users) based on anticipated conditions.	Low	Based on the results of analysis and the commercial end use.
Risk to site workers.	Low	Based on the results of analysis.
Risk of pollution to controlled water.	Low	Based on the results of groundwater analysis.
Hazards to flora and fauna.	Low	Based on the results of analysis.
Hazards to building structures and services – excluding ground gas.	Low	Based on the results of analysis.
Liabilities		
Likelihood of designation as Contaminated Land under Part 2A of EPA 1990.	Low	Contamination has not been identified during the site investigation.
Liability issues for owner.	Low	Potential liability issues have not been identified.
Development Implications		
Possible requirement for remediation of soil.	Low	Based on the results of analysis.
Possible requirement for remediation of groundwater.	Low	Based on the results of groundwater analysis.
Possible requirement for gas protection.	Low	Based on the results of monitoring.
Special requirements for water supply pipes.	Low	Pipes may be directed through affected soil and specialist pipework may not be required. The water provider, however, may require additional soil analysis.
Potential limitations on foundation design.	Low	Based on the results of analysis.
Risk of encountering materials classed as hazardous waste.	Low	Potential sources of contamination have not been identified.

13. Geoenvironmental Conclusion and Recommendation

The following recommendations are based on the results of the conceptual site model and risk assessment.

13.1 Summary of Development Proposals and Ground Investigation Results

The proposals, encountered ground conditions and analysis results are summarised below.

13.1.1 Development Proposals

Development proposals comprise site clearance followed by the construction of a main processing building with associated office buildings, access roads, parking areas and a bi-directional weighbridge.

13.1.2 Summary of Encountered Ground Conditions and Groundwater

The encountered ground conditions comprised either Topsoil to depths between 0.05mbgl to 0.35mbgl or Made Ground to depths of 0.40mbgl to 2.00mbgl. River Terrace Deposits were encountered underlying the Topsoil and Made Ground to depths between 1.60mbgl to 5.00mbgl. The solid geology of the Wittering Formation was encountered in all cable percussive boreholes, as well as trial pits TP02, TP04, RTP07, TP09 and TP10.

During the site investigation, seepage was noted between 2.20mbgl to 3.10mbgl in boreholes CP01 and CP02, and trial pits TP03-TP09. During subsequent monitoring, groundwater was noted between 1.55mbgl to 2.55mbgl at CP01, CP02 and CP03.

13.1.3 Summary of Laboratory Test Results and Monitoring

When compared to the screening criteria for commercial end use, the chemical laboratory testing indicated no elevated concentrations of selected determinands.

The analysis of selected groundwater samples recorded concentrations of the various determinands that were below their respective screening values.

13.2 Conclusion

Based on the conceptual site model and risk assessment, risk to end users and site workers has not been identified.

13.3 Recommendations

Recommendations are provided below.

13.3.1 Watching Brief

It is recommended that a watching brief is maintained on site, particularly during the groundwork stage. During any ground works an appraisal of the exposed soils should be made by a competent person, this as an example could be the site manager. If any material is noted to show visual and/or olfactory signs of contamination it should be stockpiled separately and tested prior to its appropriate removal off-site or re-use. If soils suspected of being contaminated are encountered, it is recommended that a contaminated land specialist

is consulted.

13.3.2 Buried Services

Potable water pipework shall comply with the Water Supply Regulations, the agreement of the water provider and Local Authority should also be sought regarding the potable water pipework and fittings selected prior to commencement.

13.3.3 Importing and Re-Use of Soil and Materials Management Plan

Excavated soil that is to remain and be re-used on site, assuming it is suitable for the proposed use, may not be determined as waste and its re-use therefore may not require an Environmental Permit. It may be necessary to consult the Environment Agency or other statutory bodies regarding re-use of soils as part of the proposals and whether a Materials Management Plan or Environmental Permit is required. In any case, a site waste management plan or materials management plan may assist the design and cost assessment of the proposed development. This should be devised within the design phase of the scheme.

13.3.4 Soil Disposal

The client and contractors are advised to follow the process outlined in the Environment Agency's Technical Guidance Document WM3 '*Waste Classification – Guidance on the Classification and Assessment of Waste*', 1st edition 2015. Background information and the results of chemical laboratory analysis within this assessment may be used as part of an initial characterisation to determine the likely waste classification of waste soils.

13.3.5 Statutory Authority Consultation

It is recommended that this report is sent to the statutory authorities including the Local Authority Environmental Health and Planning Departments prior to site works commencing to seek their comments. Where necessary, they will consult the Environment Agency or other relevant statutory authorities. If applicable to this project, this report should also be provided to the relevant building warranty provider.

13.3.6 Health and Safety

As outlined within the HSE publication "Successful Health and Safety Management – HSG65" this report should inform your development of safe systems of work and the information used as an input to the safety management system. The contents of this report may be used to supplement the contents of the Health and Safety File as required under the Construction Design and Management (CDM) Regulations 2015.

In accordance with the Construction Design and Management (CDM) Regulations 2015, TerraConsult has acted in the role of Principal Contractor and as Principal Designer for the works as described in this report. With issue of this report, TerraConsult has discharged and completed all contractual and legal requirements for these positions and has no further involvement with the project. It is the developer's duty, as required by the CDM Regulations, to appoint others to fill these roles for the further development of the site.

14. Geotechnical Assessment and Recommendation

14.1 Fieldwork and Laboratory Data Review

There was generally a thin coverage of Topsoil at the site. Made Ground was identified within all of the locations in the south east corner of the site in the vicinity of the corner of the proposed main processing building and under an area of proposed hardstanding and landscaping. The thickest layers of Made Ground were found to be 1.95m in trial pit TP09.

The natural geology was identified in all of the intrusive locations and was found to comprise granular River Terrace Deposits overlying cohesive strata of the Wittering Formation. Groundwater was encountered within the River Terrace Deposits and occasionally the Wittering Formation.

Thirteen samples of the clay were submitted to a geotechnical laboratory for plasticity analysis. The classification test results on the clay strata are summarised below:

Table 14.1 Summary of Geotechnical Laboratory Classification Testing

Hole	Depth (m)	Moisture Content (%)	% passing 425um sieve	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Modified Plasticity Index	Volume Change Potential	Liquidity Index
BH1	2.5	28	100	59	20	39	39	Medium	0.21
BH1	4.5	24	100	51	21	30	30	Medium	0.10
BH1	10	28	100	70	26	44	44	High	0.05
BH1	13	25	100	63	23	40	40	High	0.05
BH2	5.5	24	100	46	21	25	25	Medium	0.12
BH2	8.5	28	100	78	25	53	53	High	0.06
BH2	11.5	26	100	53	23	30	30	Medium	0.10
BH2	14.5	26	100	69	23	46	46	High	0.07
BH3	4.5	23	100	56	21	35	35	Medium	0.06
BH3	7.0	26	100	72	24	48	48	High	0.04
BH3	10.0	24	100	59	22	37	37	Medium	0.05
BH3	13.0	28	100	80	27	53	53	High	0.02
BH4	7.0	26	100	68	26	42	42	High	0.00
Minimum		**23**	**100**	**46**	**20**	**25**	**25**	**Medium**	**0.00**
Average		**25.8**	**100**	**63.38**	**23.2**	**40.15**	**40.15**	**High**	**0.07**
Maximum		**28**	**100**	**80**	**27**	**53**	**53**	**High**	**0.21**

None of the results indicated any significant level of desiccation.

SPT N-values were recorded throughout each borehole and are summarised below for the three main strata encountered. The listed N-values have been corrected to the standard Energy Ratio of 66.46% and are therefore reported below as N_{60} values:

Table 14.2 Summary of SPT N_{60}-Values

Hole No	Depth (m)	River Terrace Deposits	Wittering Formation
CP01	1.50	18	-
	3.50	-	23
	5.50	-	28
	8.50	-	32
	11.50	-	35
	14.50	-	40
CP02	1.50	36	-
	2.50	30	-
	4.50	21	-
	7.00	-	21
	10.00	-	36
	13.00	-	35
CP03	1.50	39	-
	2.50	29	-
	3.50	32	-
	5.50	-	20
	8.50	-	28
	11.50	-	33
	14.50	-	41
CP04	1.50	45	-
	2.40	32	-
	3.00	34	-
	4.50	22	-
	5.50	-	21
	8.50	-	31
No of Tests		11	14
Range of Values		18 - 45	20 - 41
Mean		30.73	30.29

The average results indicate that the granular River Terrace Deposits are generally dense (although they were found to be locally Medium Dense). The cohesive Wittering Formation strata are identified as generally being stiff in nature.

14.2 Trees

Mature trees were noted along the north-western, south-western and eastern site boundaries during the investigation. Prior to any redevelopment a tree survey within the site boundary, and up to 20m beyond the site boundary would be recommended to determine the effect of existing trees to proposed properties and also to assess the condition of trees which are to remain.

It is unknown whether any Tree Preservation Orders are applicable to any trees within the development area, Discussions should also be held with the council's tree preservation officer to determine whether there are any tree preservation orders on the site. Any proposed felling or removal of trees or hedgerows should be agreed with the Local Authority as part of the pre-planning discussions for development and should be carried out outside the bird nesting season (it may be possible that tree felling can be carried out during the bird nesting season under the direction of an ecologist).

Care must be taken to ensure that any existing trees scheduled for retention are not adversely affected by construction operations. Further guidance on this aspect of site works is given in the British Standards "Guidance for Trees in Relation to Constructions", BS5837.

14.3 Foundation Recommendations

14.3.1 Shallow Foundations

It is proposed to develop the site for a Materials Recycling Facility (MRF) essential comprising a large warehouse building and small office building with associated access roads, vehicle unloading bays and area and soft landscaping. The large warehouse building will house various plant for the operations but at the time of writing specific foundation loads were not known.

It is considered that the building will transfer loads into the ground via a series of columns thus maintain a large open plan working area. These columns will therefore transfer into the ground as a series of point loads across the site.

The investigation undertaken has revealed only locally thin layers of Made Ground within the footprint of the main building with thicker Made Ground identified within the south east corner. It would be recommended that some further investigation works are undertaken to delineate the extent of the thicker Made Ground in order to identify if they extend under the proposed building footprint. However, column loads could potentially be founded into the underlying dense River Terrace Deposits using pad foundations. For pad foundations up to 3m wide a safe allowable bearing pressure of 300kN/m2 would ensure that any overall settlements should be no more than 25mm. Due to the granular nature of the material, the majority of this settlement should be short term and occur mainly during the construction phase.

Should any pad foundation be placed below the groundwater table then the safe allowable bearing pressure discussed above should be halved.

14.3.2 Deep Foundations

Where shallow foundations prove not to be appropriate due to engineering or technical considerations, piles could be considered. Piles should be designed to penetrate through any Made Ground, loose soils and soft clay and should extend a suitable depth into the underlying firm to stiff medium to high strength clay.

A specialist piling contractor should be contacted with regards to the selection of appropriate pile design and construction method. Geotechnical information within this report should be provided to give design parameters although further, deeper information will likely be required.

Bored and cast in situ CFA (continuous flight auger) piles would be considered suitable for the ground conditions at the site although the advice of a specialist contractor should be sought. Care should be taken for bored and cast in situ piles taken through any Made Ground where collapse of the pile shaft or running sand conditions could lead to 'necking' of the pile.

Whilst TerraConsult considers the risks to be low for piling, a risk assessment is likely to be necessary to show that the piling will not create additional risks to Controlled Water.

Any piling works undertaken from existing ground levels will require a suitable piling mat/platform constructed in accordance with BRE Report 470 (2004). A geotextile may be incorporated into the platform to reduce the required thickness and the platform could be designed as part of the engineering fill required for any earthworks to alter final site levels. TerraConsult can assist in the design if required once the piling rig type is known.

14.4 Ground Floor Slab and Hardstanding Recommendations

Ground bearing floor slabs would not be recommended on Made Ground deposits or soft or loose natural deposits. However, placement of slabs onto the underlying natural dense granular strata would be suitable.

Any Made Ground or soft or loose spots should be locally removed and replaced with an inert engineered granular fill. Reengineering of the Made Ground could be appropriate provided the material is demonstrated to meet any specific requirements as set out in the Specification for Highway Works.

No CBR testing was undertaken as part of the site investigation works. However, with regards to the natural strata for initial design purposes, we would recommend that a CBR value of 2.5% can be used across the site. However, we would recommend that some in-situ testing is undertaken in areas of proposed hardstanding and this along with ground conditions and plasticity data are reviewed in line with the layout to provide more detailed information for design purposes.

14.5 Groundwater and Excavations

It is not expected that groundwater will be encountered in any shallow excavations at this site. It is anticipated that any groundwater in excavations can be controlled by sump pumping. If inflows are relatively localised, this may cause softening or loosening of the ground and require localised excavation support in order to prevent instability of the sides of excavations.

Excavations through the soils to a depth of about 2.0m should be stable in the short term (up to 3 to 4 hours). All excavations should be carried out in accordance with CIRIA Report 97 "Trenching Practice" and BS6031: 2009: Code of Practice for Earthworks. Further guidance on this aspect of site works is given in the British Standards for "Workmanship on Building Sites", BS 8000, Parts 1 and 14, and in the Construction Industry Training Board's Site Safety Note 10.

Excavation depths should generally be readily achieved using conventional hydraulic plant (e.g. wheeled JCB or similar) although larger plant (tracked 360^{o} or similar) will have higher excavation rates.

14.6 Buried Concrete and Pipework

The results of laboratory pH and sulphate content indicate that a Design Sulphate Class of DS-1 and ACEC Class AC-1 conditions prevail in accordance with BRE Special Digest 1, 2005 (the Design Concrete Class). This was found to be the case within the Made Ground and shallow natural soils, with the exception of one result in the Made Ground at location TP09 which returned a classification of DS-2 and AC-2.

However, four samples of the Wittering Formation were also tested for Total Sulphur and when using the Total Potential Sulphate these results returned a Design Sulphate Class of DS-3 to DS-4 and an ACEC Class of AC-3 to AC-4.

Therefore, the classification of any subsurface concrete in future development will depend on the depth of any underground structures such as foundations. Those which are taken either into the Made Ground or the shallow soils (not the Wittering Formation) will not require any significant measures to prevent any attack on the concrete with the highest identified rating of DS-2 and AC-2. However, any structures taken into the underlying Wittering Formation such as piled foundations will require a sulphate resistant concrete to prevent long term attack from the natural sulphur content.

Available information indicates that this will be DS-4 with an ACEC Class of AC-4.

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APPENDICES

Appendix A	Service Constraints, Report Limitations and Planning Requirements
Appendix B	Environmental Risk Assessment Methodology and Terminology
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Appendix A

Service Constraints, Report Limitations

and Planning Requirements

Service Constraints, Report Limitations and Planning Requirements

This report (the "Services") was compiled and carried out by TerraConsult (South) Limited (TCSL) for the client named on the front of the report (the "client") in accordance with the terms of a contract between TCSL and the "client". The Services were performed by TCSL with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by TCSL taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between TCSL and the client.

Other than that expressly contained in the above paragraph, TCSL provides no other representation or warranty whether express or implied, is made in relation to the Services. Unless otherwise agreed, this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of TCSL. If a third party relies on this report, it does so wholly at its own and sole risk and TCSL disclaims any liability to such parties.

It is TCSL's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of, or reliance upon, the report in those circumstances by the client without TCSL 's review and advice shall be at the client's sole and own risk.

The information contained in this report is protected by disclosure under Part 3 of the Environmental Information Regulations 2004 pursuant to the provisions of Regulation 12(5) without the consent in writing of a Director of TerraConsult (South) Limited.

The report has been prepared at the date shown on the front page and should be read in light of any subsequent changes in legislation, statutory requirements and industry practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of TCSL. In the absence of such written advice of TCSL, reliance on the report in the future shall be at the client's own and sole risk. Should TCSL be requested to review the report in the future, TCSL shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between TCSL and the client.

The observations and conclusions described in this report are based solely upon the Services that were provided pursuant to the agreement between the client and TCSL. TCSL has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report. TCSL is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, TCSL did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, radon gas or other radioactive or hazardous materials.

The Services are based upon TCSL's observations of existing physical conditions at the site gained from existing documents, together with TCSL's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst TerraConsult (South) Limited has no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified. No responsibility can be accepted for errors within third party items presented in this report. Further, TCSL was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. TCSL is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to TCSL and including the doing of any independent investigation of the information provided to TCSL save as otherwise provided in the terms of the contract between the client and TCSL.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and TCSL] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

Throughout the report the term 'geotechnical' is used to describe aspects relating to the physical nature of the site (such as foundation requirements) and the term 'geoenvironmental' is used to describe aspects relating to ground-related environmental issues (such as potential contamination). However, it should be appreciated that this is an integrated investigation and these two main aspects are inter-related. The geoenvironmental sections are written in broad agreement with BS 10175:2011+A1 2013. For the geotechnical aspects of the report, the general requirements of Eurocode 7 (BS EN 1997-2:2007) providing a desk study assessment. This report shall not be considered as being a Ground Investigation Report (GIR).

Planning Requirements

The National Planning Policy Framework (NPPF, 2012) has twelve core land-use planning principles, two of which directly relate to the potential for pollution and contaminated land:

- Requirement to *"contribute to conserving and enhancing the natural environment and reducing pollution"* and setting out of a preference for developments to be on land of "*lesser environmental value*"; and
- *"encourage the effective use of land by re-using land that has been previously developed (brownfield land), providing that it is not of high environmental value.".*

In accordance with the core principles of NPPF, Paragraph 109 clarifies that enhancing the natural environment includes:

- *"preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and*
- *remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.".*

Paragraph 121 of NPPF states that planning policies and decisions for developments should also ensure that:

- *"the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;*
- *after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
- *adequate site investigation information, prepared by a competent person, is presented.".*

This report has been prepared and authorised by staff that are competent as defined in the NPPF.

Unexploded Ordnance

Clients have a legal duty under the CDM 2015 Regulations to provide designers and contractors with project-specific health and safety information needed to identify hazards and risks. This includes the possibility of unexploded ordnance (UXO) being encountered on the site. Further details are given in CIRIA Report C681 (Stone et al 2009). A non-UXO specialist screening exercise has been carried out for the site by considering any evidence of UK defence activities on or near the site evident from the gathered desk study information and the unexploded aerial delivered bomb (UXB) regional risk maps produced by Zetica. Other data sources are available, but as a first stage screening exercise the freely available Zetica maps have been used. The level of risk stated is that determined by Zetica, a company experienced in the desk study, field investigation and clearance of UXO/UXB.

Appendix B

Environmental Risk Assessment

Methodology & Terminology

ENVIRONMENTAL RISK ASSESSMENT

METHODOLOGY & TERMINOLOGY

Legislation Overview

This report includes hazard identification and environmental risk assessment in line with the risk-based methods referred to in relevant UK legislation and guidance. Government environmental policy is based upon a "suitable for use approach," which is relevant to both the current use of land and also to any proposed future use. The contaminated land regime is the statutory regime for remediation of contaminated land that causes an unacceptable level of risk and is set out in Part 2A of the Environmental Protection Act 1990 ("EPA 1990"). The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health or the wider environment given the current use and circumstances of the land. Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

> *"any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:*
>
> *(a) Significant harm is being caused or there is a significant possibility of such harm being caused;*
>
> *or*
>
> *(b) Pollution of controlled waters is being, or is likely to be, caused."*

In order to assist in establishing if there is a "*significant possibility of significant harm*" there must be a "*contaminant linkage"* for potential harm to exist. That means there must be a source(s) of contamination, sensitive receptors present and a connection or pathway between the two. This combination of contaminant-pathway-receptor is termed a "contaminant linkage or CPR linkage."

Part IIA of The Environmental Protection Act 1990 is supported by a substantial quantity of guidance and other Regulations. Key implementing legislation of the Part 2A regime includes the Contaminated Land (England) Regulations 2006 (SI 2006/1380) as recently amended by the overarching legislation for the contaminated land regime, which implements the provisions of Part IIA of the Environmental Protection Act 1990 (as inserted by section 57 of the Environment Act 1995), came into force on 14th July 2000 together with recent amended regulations: Contaminated Land (England) (Amendment) Regulations 2012 (SI 2012/263). Revised and Contaminated Land Statutory Guidance was published by Defra in (Defra, April 2012). Part IIA defines the duties of Local Authorities in dealing with it. Part IIA places contaminated land responsibility as a part of planning and redevelopment process rather than Local Authority direct action except in situations of very high pollution risk.

In the planning process guidance is provided by National Planning Policy Framework (NPPF) of March 2012 which requires that a site which has been developed shall not be capable of being determined "contaminated land" under Part IIA. In practice, Planning Authorities require sites being developed to have a lower level of risk post development than the higher level of risk that is required in order to determine a site as being contaminated in accordance with Part IIA. This is to ensure that there is a suitable zone of safety below the level for Part IIA determination and prevent recently developed sites becoming reclassified as contaminated land if there are future legislative or technical changes (e.g. a substance is subsequently found to be more toxic than previously assessed this increases its hazard)..

The criteria for assessing levels of contaminants and hence determining whether a site represents a hazard are based on a range of techniques, models and guidance. Within this context it is relevant to note that Government objectives are:

(a) to identify and remove unacceptable risks to human health and the environment;

(b) to seek to bring damaged land back into beneficial use;

(c) to seek to ensure that the cost burdens faced by individuals, companies and society as a whole are proportionate, manageable and economically sustainable.

These three objectives underlie the "suitable for use" approach to remediation of contaminated land. The "suitable for use" approach focuses on the risks caused by land contamination. The approach recognises that the risks presented by any given level of contamination will vary greatly according to the use of the land and a wide range of other factors, such as the underlying geology of the site. Risks therefore should be assessed on a site-by-site basis.

The "suitable for use" approach then consists of three elements:

(a) *ensuring that land is suitable for its current use* - in other words, identifying any land where contamination is causing unacceptable risks to human health and the environment, assessed on the basis of the current use and circumstances of the land, and returning such land to a condition where such risks no longer arise ("remediating" the land); the contaminated land regime provides the regulatory mechanisms to achieve this;

(b) *ensuring that land is made suitable for any new use, as planning permission is given for that new use* - in other words, assessing the potential risks from contamination, on the basis of the proposed future use and circumstances, before official permission is given for the development and, where necessary to avoid unacceptable risks to human health and the environment, remediating the land before the new use commences; this is the role of the town and country planning and building control regimes; and

(c) *limiting requirements for remediation to the work necessary to prevent unacceptable risks to human health or the environment in relation to the current use or future use of the land for which planning permission is being sought* - in other words, recognising that the risks from contaminated land can be satisfactory assessed only in the context of specific uses of the land (whether current or proposed), and that any attempt to guess what might be needed at some time in the future for other uses is likely to result either in premature work (thereby running the risk of distorting social, economic and environmental priorities) or in unnecessary work (thereby wasting resources).

The mere presence of contaminants does not therefore necessarily warrant action, and consideration must be given to the scale of risk involved for the use that the site has, and will have in the future.

OVERALL METHODOLOGY

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 the CLR 11 Model Procedures for the Management of Land Contamination (Environment Agency, 2004), and BS10175:2011+A2 20173. Important aspects of the risk assessment process are transparency and justification. The particular rationale behind the risk assessments presented is given in this appendix.

The first stage of a two-staged investigation and assessment of a site is the Preliminary Investigation (BS 10175:2011), often referred to as the Phase 1 Study, comprising desk study and walk-over survey, which culminates in the Preliminary Risk Assessment. A preliminary conceptual site model (CSM) is developed which identifies potential geotechnical and geo-environmental hazards and the qualitative degree of risk associated with them. From the geo-environmental perspective, the Hazard Identification process uses professional judgement to evaluate all the hazards in terms of potential contaminant linkages (of contaminant source-pathway-receptor). Potential contaminant linkages are potentially 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 generic risk assessment.

The second stage is the Ground Investigation, Generic Risk Assessment and Geotechnical Interpretation. This represents the further assessment mentioned above. The scope of the Ground Investigation is based on the findings of the Preliminary Risk Assessment and is designed to reduce uncertainty in the geotechnical and geoenvironmental hazard identification. The Ground Investigation comprises fieldwork, laboratory testing and usually also on-site monitoring. The Ground Investigation may include the Exploratory, Main and Supplementary Investigations described in BS 10175:2011+A1

2013. The result of the Ground Investigation reduces uncertainty in the geotechnical and geoenvironmental risks. Depending on the findings more detailed investigations or assessments may be required.

Preliminary Risk Assessment

Current practice recommends that the determination of potential liabilities that could arise from land contamination be carried out using the process of risk assessment, whereby "risk" is defined as:

"(a) The probability, or frequency, or occurrence of a defined hazard; and

(b) The magnitude (including the seriousness) of the consequences."

The UK's approach to the assessment of environmental risk is set out in by the Department of the Environment Transport and the Regions (2000) publication "A Guide to Risk Assessment and Risk Management for Environmental Protection" (also called Greenleaves II). This established an iterative, systematic staged process which comprises:

(a) Hazard identification;

(b) Hazard assessment;

(c) Risk estimation;

(d) Risk evaluation;

(e) Risk assessment;

At each stage during the development process the above steps are repeated as more detailed information becomes available for the site.

For an environmental risk to be present, all three of the following elements must be present:

- Source/Contaminant: hazardous substance that has the potential to cause adverse impacts;
- Receptor: target that may be affected by contamination: examples include human occupants/users of site, water resources (rivers or groundwater), or structures;
- Pathway: a viable route whereby a hazardous substance may come into contact with the receptor.

The absence of one or more of each component (contaminant, pathway, receptor) would prevent a contaminant linkage being established and there would be no significant environmental risk.

The identification of potential contaminant linkages is based on a Conceptual Model of the site, which is subject to continual refinement as additional data becomes available. As part of a Phase I Investigation (Desk Study and site walk over) a Preliminary Conceptual Site Model (PCSM) is formed. Based on the PCSM, potential contaminant linkages can be assessed. If the PCSM and hazard assessment indicate that a pollution linkage is not of significance then no further assessment or action is required due to this linkage. For each significant and possible linkage a risk assessment is carried out. The linkages which potentially pose significant risks may require a variety of responses ranging from immediate remedial action or risk management or, more commonly, further investigation and risk assessment. This next stage is termed a Phase II Main Site Investigation and should provide additional data to allow refinement of the Conceptual Site Model and assess the level of risk from each contaminant linkage.

Definition of Risk Assessment Terminology

The criteria used for risk assessment are broadly based on those presented in DETR's "A Guide to Risk Assessment and Risk Management for Environmental Protection" (2000). The Severity of the risk is classified according to the criteria in Table B.1 below:

Table B.1 Severity/Consequence of Risk

Severe	Acute risks to human health. Catastrophic damage to buildings/property (e.g. by explosion). Direct pollution of sensitive water receptors or serious pollution of other controlled water (watercourses or groundwater) bodies.
Medium	Harm to human health from long-term exposure. Slight pollution of sensitive controlled waters (surface waters or aquifers) or pollution of other water bodies. Significant effects on sensitive ecosystems or species.
Mild	No significant harm to human health in either short or long term. No pollution of sensitive controlled waters, no more than slight pollution of non-sensitive waters. Significant damage to buildings or structures. Requirement for protective equipment during site works to mitigate health effects.
Negligible	Damage to non-sensitive ecosystems or species. Minor damage to buildings or structures. No harm or pollution of water.

The probability of the risk occurring is classified according to criteria given in Table B.2 below:

Table B.2: Probability of Risk Occurring	
High likelihood	Contaminant linkage may be present, and risk is almost certain to occur in the long term, or there is evidence of harm to the receptor.
Medium/Reasonably Foreseeable	Contaminant linkage may be present, and it is probable that the risk will occur over the long term.
Low/Unlikely	Contaminant linkage may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
Negligible/ Not credible	Contaminant linkage may be present but the circumstances under which harm would occur are improbable.

An overall evaluation of the level of risk is gained from a comparison of the severity and probability, as shown in Table B.3 below:

Table B.3: Comparison of Severity and Probability					
		Severity			
		Severe	**Medium**	**Mild**	**Negligible**
Probability	**High likelihood**	Very High Risk	High Risk	Medium/Low Risk	Low Risk
	Medium/Reasonably Foreseeable	High Risk	Medium Risk	Low Risk	Near Zero
	Low/Unlikely	High/Medium Risk	Medium/Low Risk	Low Risk	Near Zero
	Negligible/ Not credible	Medium/Low Risk	Low Risk	Low Risk	Near Zero

The various risk rankings provide guidance for recommended actions, whether this is:

AR - Action Required, Remediation or mitigation or site investigation works required

SIR - Site Investigation Required, further assessment is required.

NAR - No Action Required.

A description of the evaluated risk is as follows:

Table B.4 – Description of the Classified Risks and Likely Action Required

Evaluated Risk	Recommended Actions
Very High Risk	AR: There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High Risk	AR: Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the long term.
Moderate Risk	SIR: It is possible that harm could arise to a designated receptor from an identified hazard. However, it is relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Low Risk	NAR: It is possible that harm could arise to a designated receptor from an identified hazard, but there is a low likelihood of this hazard occurring and if realised, harm would at worst normally be mild.
Near Zero	NAR: There is a negligible possibility that harm could arise to a receptor. In the event of such harm being realised, it is not likely to be severe.

Definition of Controlled Waters

The term 'controlled waters' is defined in Section 104 of the Water Resources Act 1991 as:

> *"Territorial Waters…which extend seawards for three miles…, coastal waters…, inland freshwaters, waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and ground waters, that is to say, any waters contained in underground strata."*

Note that the definition of groundwater under the Water Resources Act 1991 includes all water within underground strata (including soil / pore water in the unsaturated zone). The definition of groundwater under the Groundwater Directive however is limited to water in the saturated zone. For the purposes of Part IIA of the Environmental Protection Act 1990, the Environment Agency recommends that the groundwater within the saturated zone only is considered as the receptor (rather than soil / pore water).

Environment Agency's Aquifer Designations

The Environment Agency have classified different types of aquifer from which groundwater can be extracted. The aquifer designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems. The aquifer designation data is based on geological mapping provided by the British Geological Survey.

The maps are split into two different types of aquifer designation:

- **Superficial (Drift)** – permeable unconsolidated (loose) deposits.
- **Bedrock (Solid)**– solid permeable formations e.g. sandstone, chalk, limestone.

The aquifer designations displayed on the Environment Agency maps are as follows:

- **Principal Aquifers (formerly termed Major Aquifers) –** These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as a major aquifer.
- **Secondary Aquifers (formerly termed Minor Aquifers) –** These include a wide range of rock layers or drift deposits with an equally wide range of water permeability and storage. Secondary aquifers are subdivided into two types:
    - **Secondary A** - permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers;
    - **Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
    - - **Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
- **Unproductive Strata (formerly termed Non-Aquifer) –** These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

MANAGEMENT OF CONTAMINATED LAND

When risk assessment of the site has been completed and this indicates that remedial works are required, the main guidance in managing this process is set out in the Defra/EA publication CLR11 (2004) “Model Procedures for the Management of Land Contamination.” The stages of managing remediation are as follows:

(a) Options Appraisal and develop Remediation Strategy;

(b) Develop Implementation Plan and Verification Plan;

(c) Remediation, Verification and Monitoring.

The Remediation Strategy sets out the remediation targets, identifies technically feasible remedial solutions and presents an evaluation of the options so that these can be assessed enabling that the most suitable solution is adopted. An outline of the proposed remedial method should be presented. Agreement should be sought of the appropriate statutory bodies for the Remediation Strategy before proceeding to the next stage.

The Implementation Plan is a detailed method statement setting out how the remediation is to be carried out including stating how the site will be managed, welfare procedures, health and safety considerations together with practical measures such as details of temporary works, programme of works, waste management licences and regulatory consents required. Agreement should again be sought of the appropriate statutory bodies for this Plan.

The Verification Plan sets out the requirements for gathering data to demonstrate that the remediation has met the required remediation objectives and criteria. The Verification Plan presents the requirements for a wide range of issues including the level of supervision, sampling and testing regimes for treated materials, waste and imported materials, required monitoring works during and post remediation, how compliance with all licenses and consents will be checked etc. Agreement should again be sought of the appropriate statutory bodies for the Verification Plan. On completion of the remediation a Verification Report should be produced to provide a complete record of all remediation activities on site and the data collected as required in the Verification Plan. The Verification Report should demonstrate that the remediation has met the remedial targets to show that the site is suitable for the proposed use.

GLOSSARY

TERMS		UNITS	
AST	Above Ground Storage Tank	m	Metres
BGS	British Geological Survey	km	Kilometres
BSI	British Standards Institute	%	Percent
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes	%v/v	Percent volume in air
CIEH	Chartered Institute of Environmental Health	mb	Milli Bars (atmospheric pressure)
CIRIA	Construction Industry Research Association		
CLEA	Contaminated Land Exposure Assessment	l/hr	Litres per hour
CSM	Conceptual Site Model	ha	Hectare (10,000 m^2)
DNAPL	Dense Non-Aqueous Phase Liquid (chlorinated solvents, PCB)	µg/l	Micrograms per Litre (parts per billion)
DWS	Drinking Water Standard	ppb	Parts Per Billion
EA	Environment Agency	mg/kg	Milligrams per kilogram (parts per million)
EQS	Environmental Quality Standard		
GAC	General Assessment Criteria	ppm	Parts Per Million
GL	Ground Level	mg/m^3	Milligram per metre cubed
GSV	Gas Screening Value	Mg/m^3	Megagram per metre cubed
HCV	Health Criteria Value	$µg/m^3$	Microgram per metre cubed
LNAPL	Light Non-Aqueous Phase Liquid (petrol, diesel)	m bgl	Metres Below Ground Level
ND	Not Detected	m bcl	Metre Below Cover Level
LMRL	Lower Method Reporting Limit	mOD	Metres Above Ordnance Datum (sea level)
NR	Not Recorded		
OD	Ordnance Datum	kN/m^2	Kilo Newtons per metre squared
PAH	Poly Aromatic Hydrocarbon		
PCB	Poly-Chlorinated Biphenyl	kPa	Kilo Pascal – same as kN/m^2
PID	Photo Ionisation Detector	µm	Micro metre
PCSM	Preliminary Conceptual Site Model		
SGV	Soil Guideline Value		
TPH (CWG)	Total Petroleum Hydrocarbon (Criteria Working Group)		
SPT	Standard Penetration Test		
SVOC	Semi Volatile Organic Compound		
UST	Underground Storage Tank		
VCCs	Vibro Concrete Columns		
VSCs	Vibro Stone Columns		
VOC	Volatile Organic Compound		

Appendix C

Drawings

Site Location Plan

TerraConsult



Address:
Chicken Hall Lane,
Eastleigh,
Hampshire,
SO50 6RQ

Notes:

AGS		Project:	Hampshire MRF	Drawing No:	
Issue:	DRAFT	Project No:	4521		**4521D001-1**
Scale:	1:25000	Client:	Veolia Environmental Services		

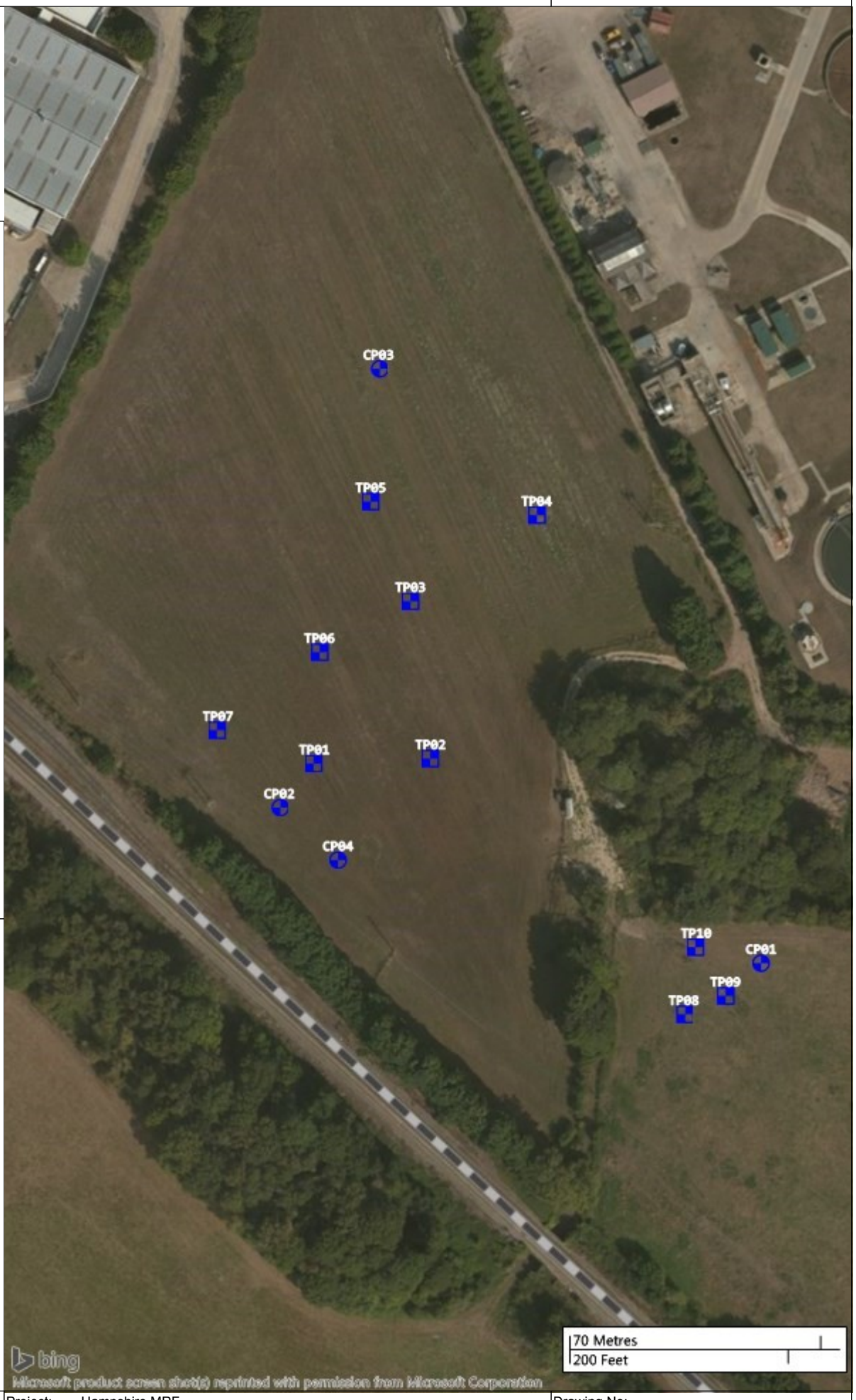
Exploratory Hole Location Plan

TerraConsult

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Legend Key

- Locations By Type - CP
- Locations By Type - TP



Remarks:

None

AGS		Project:	Hampshire MRF	Drawing No:
Issue:	DRAFT	Project No:	4521	**4521D002-1**
Scale:	1:1500	Client:	Veolia Environmental Services	



Location of photos



Photograph 1. View of access road from site entrance.

Photograph 2. View south east from access road.





Photograph 3 & 4: View south from eastern boundary of site. Note old newt fencing on Photograph 4





Photograph 5: View of Railway Bridge at south eastern boundary of the site.

Photograph 6: View north west from south eastern corner showing overgrown nature of the site.





Photograph 7 & 8: Wooded area at east of site.





Photograph 9: View west from central area of site.

Photograph 10: View south west from north east of site.





Photograph 11: View north west from central section of site.

Photograph 12: View east from central section.





Photograph 13 & 14: View south from western portion of site.





Photograph 15: View of pylon at south western corner of site



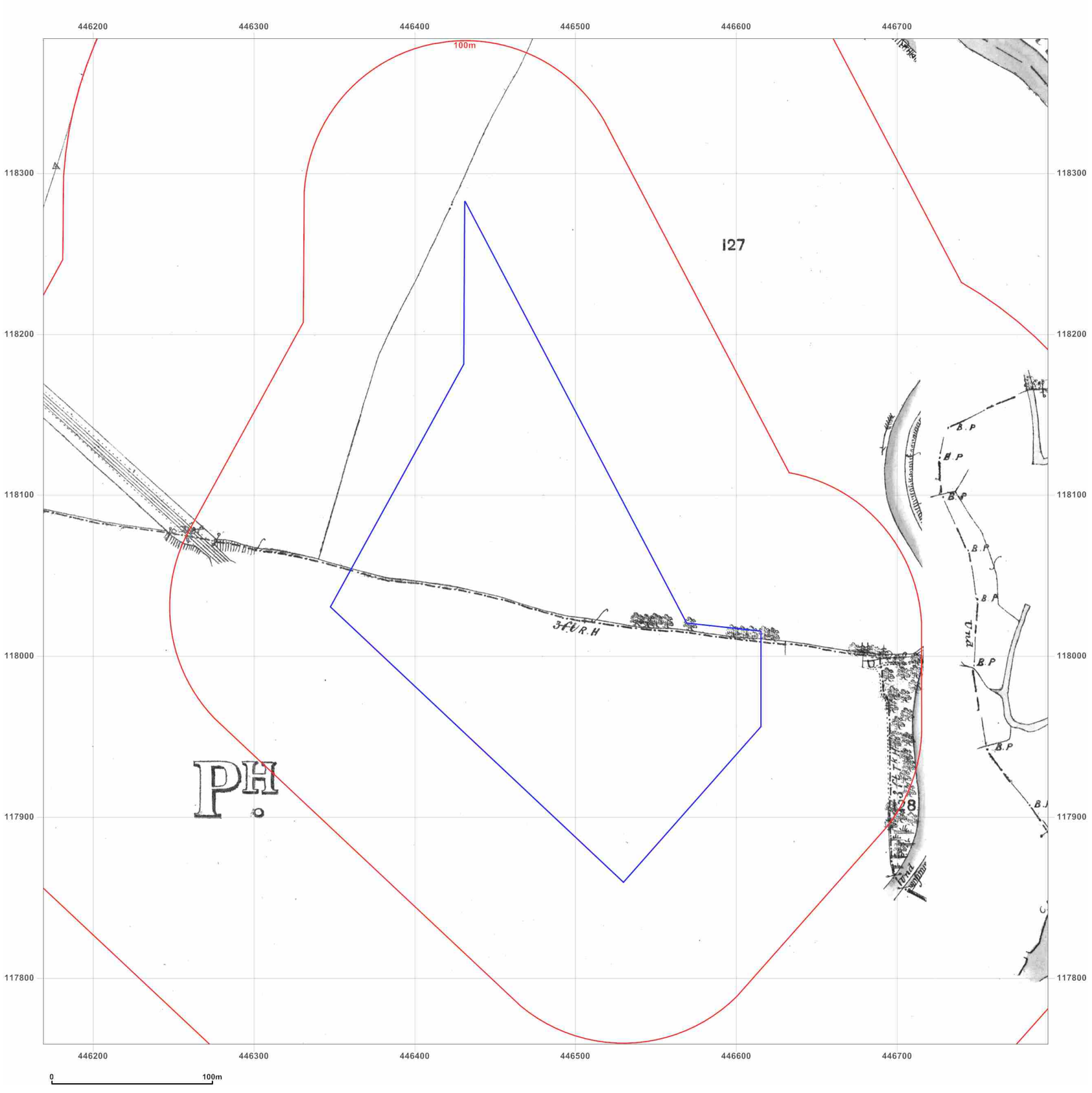
Photograph 16: View along southern boundary from south western corner. Note rough ground and service chambers.

Photograph 17: View north across site from southern central boundary.



Appendix D

Historical Maps



Site Details:

TANK 131M FROM PRYSMIAN
CABLES & SYSTEMS,
CHICKENHALL LANE 13M
FROM UNNAMED ROAD,
CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series

Map date: **1869**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed 1869
Revised 1869
Edition N/A
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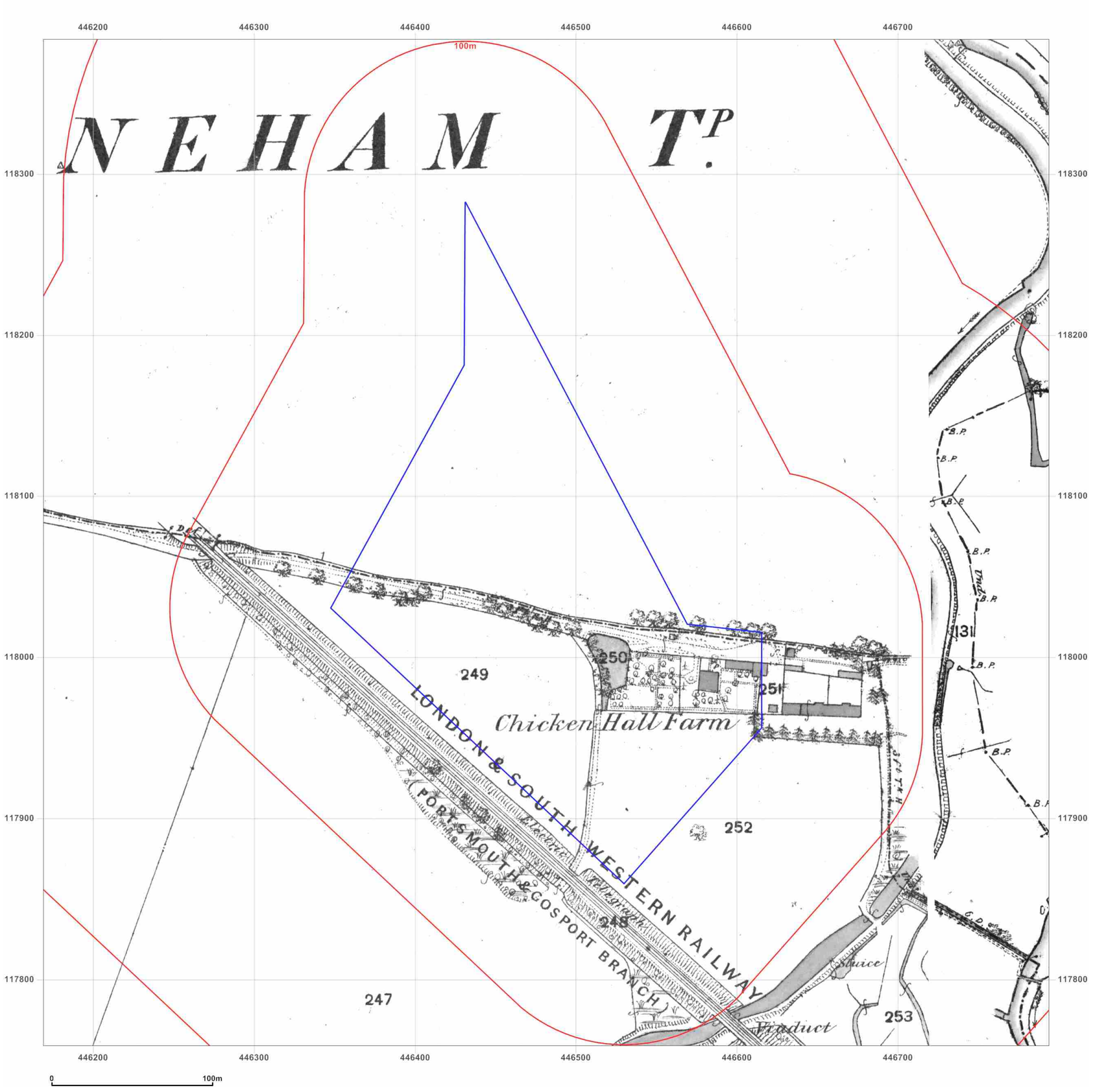
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Report Ref: HMD-147-6100765
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Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series
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Scale: 1:2,500
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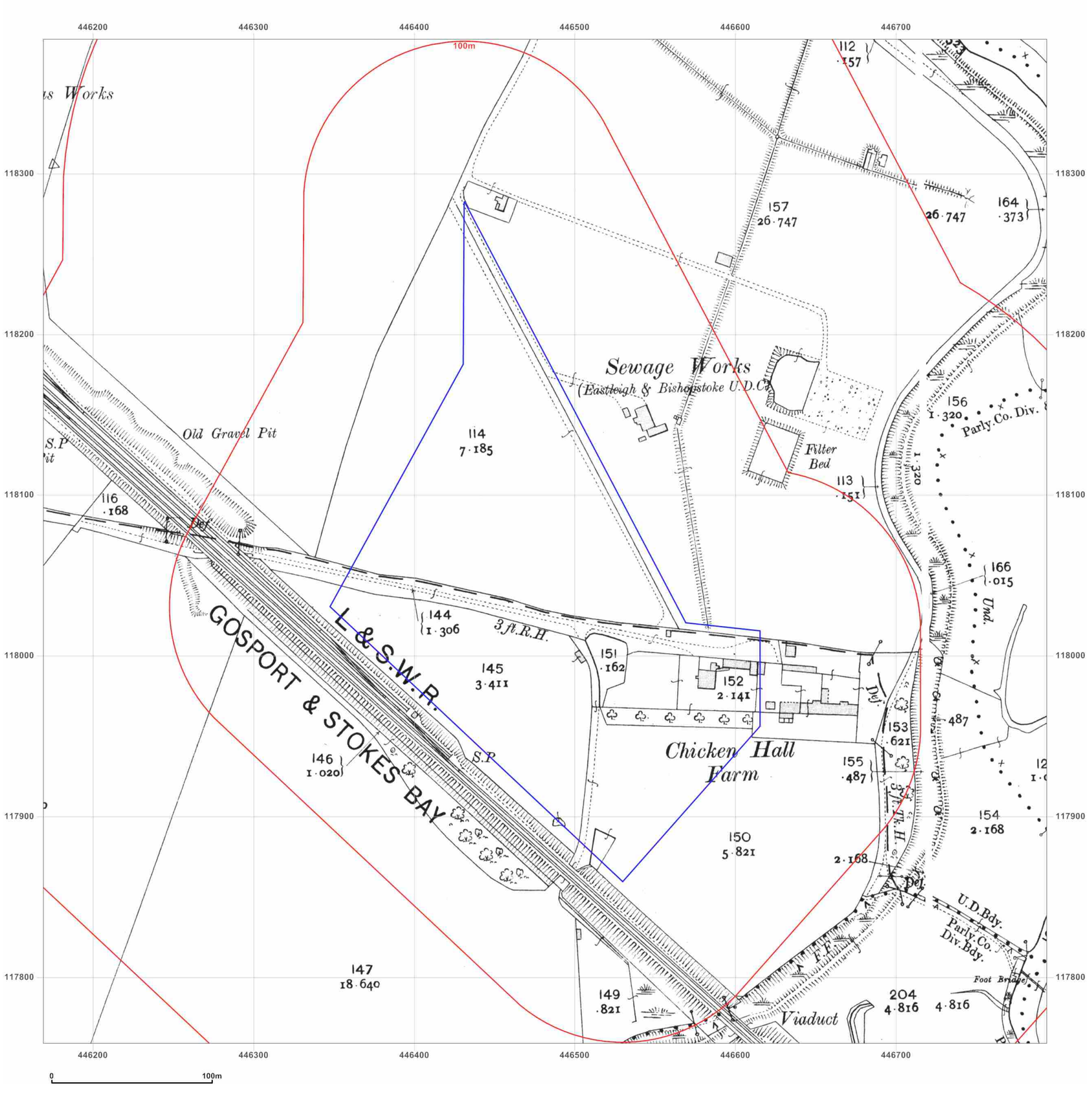
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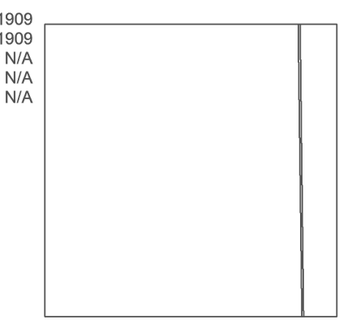
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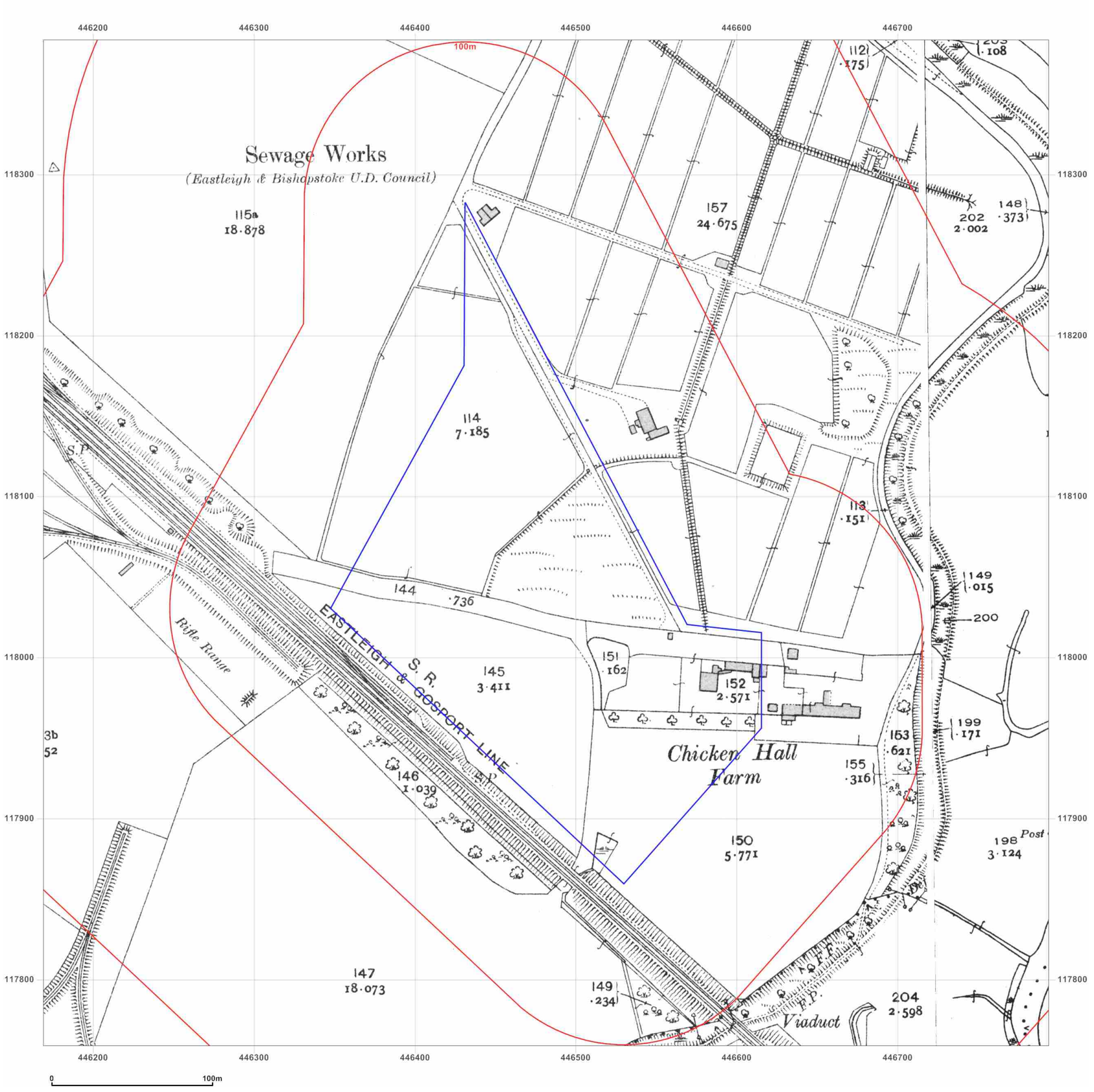
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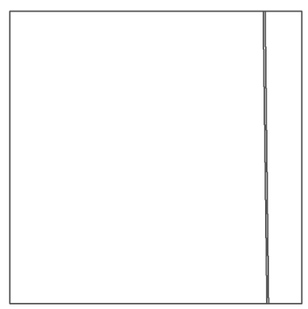
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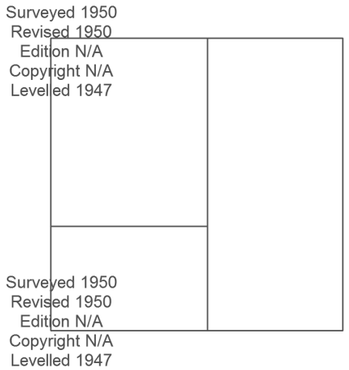
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Map Name: National Grid

Map date: **1954**

Scale: 1:2,500

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Grid Ref: 446481, 118071

Map Name: National Grid

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Revised 1961
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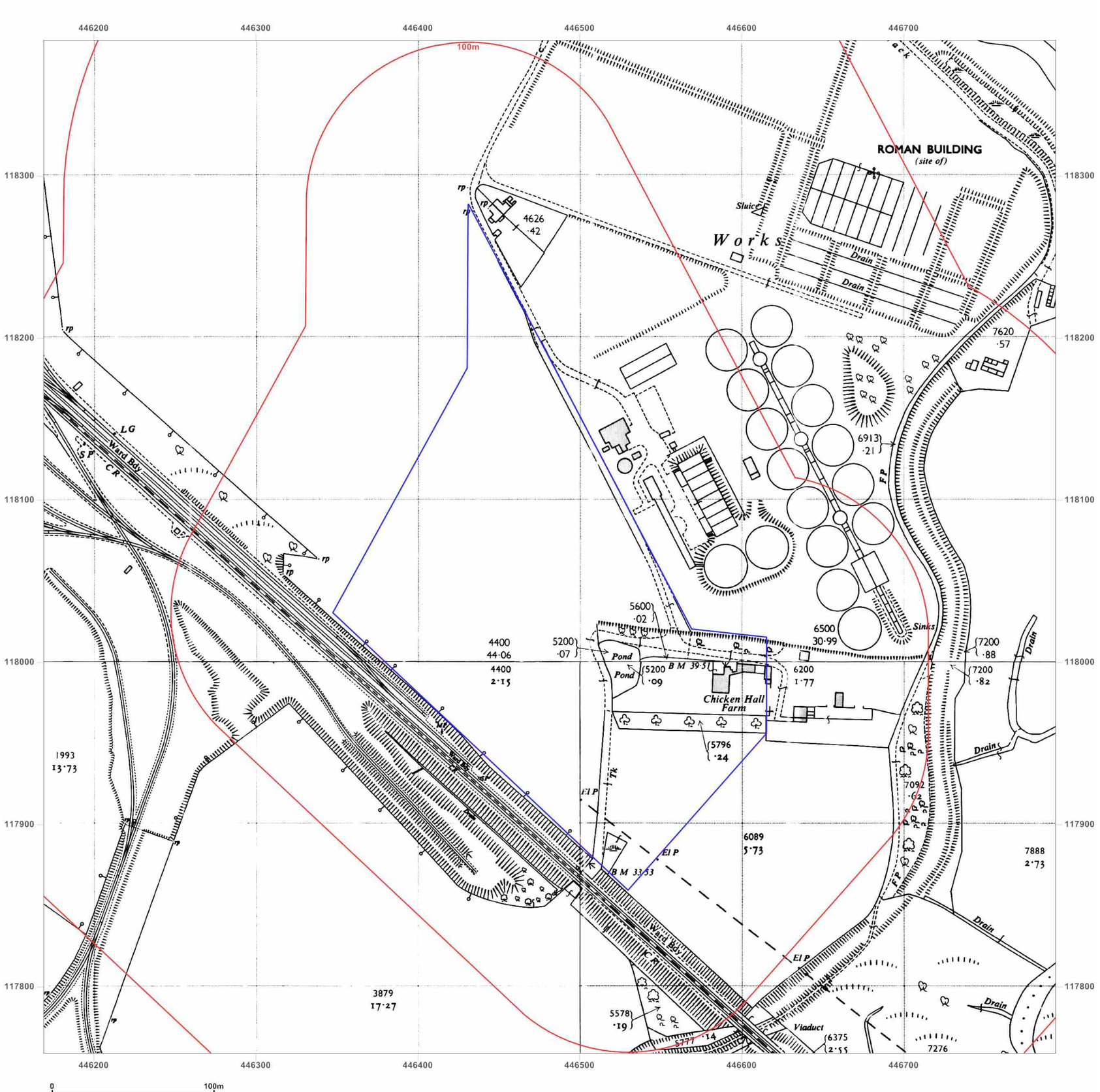
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Edition N/A
Copyright 1968
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Surveyed 1950
Revised 1971
Edition N/A
Copyright 1972
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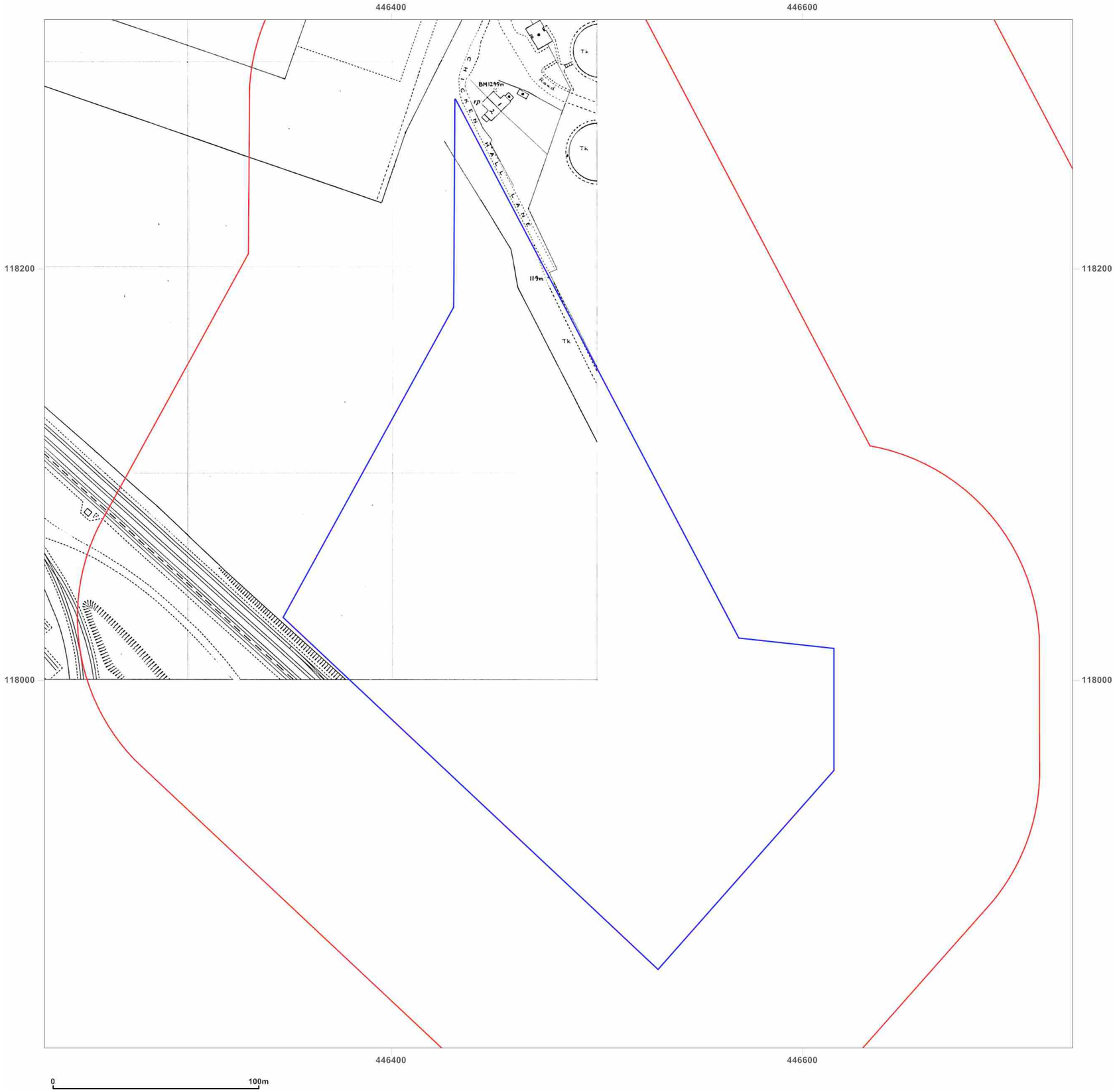
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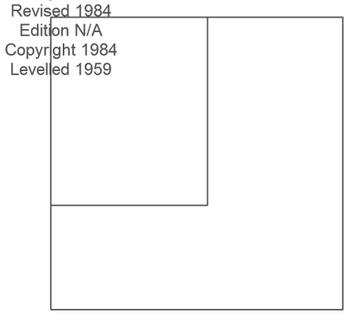
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Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid
Map date: **1984**
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Revised 1984
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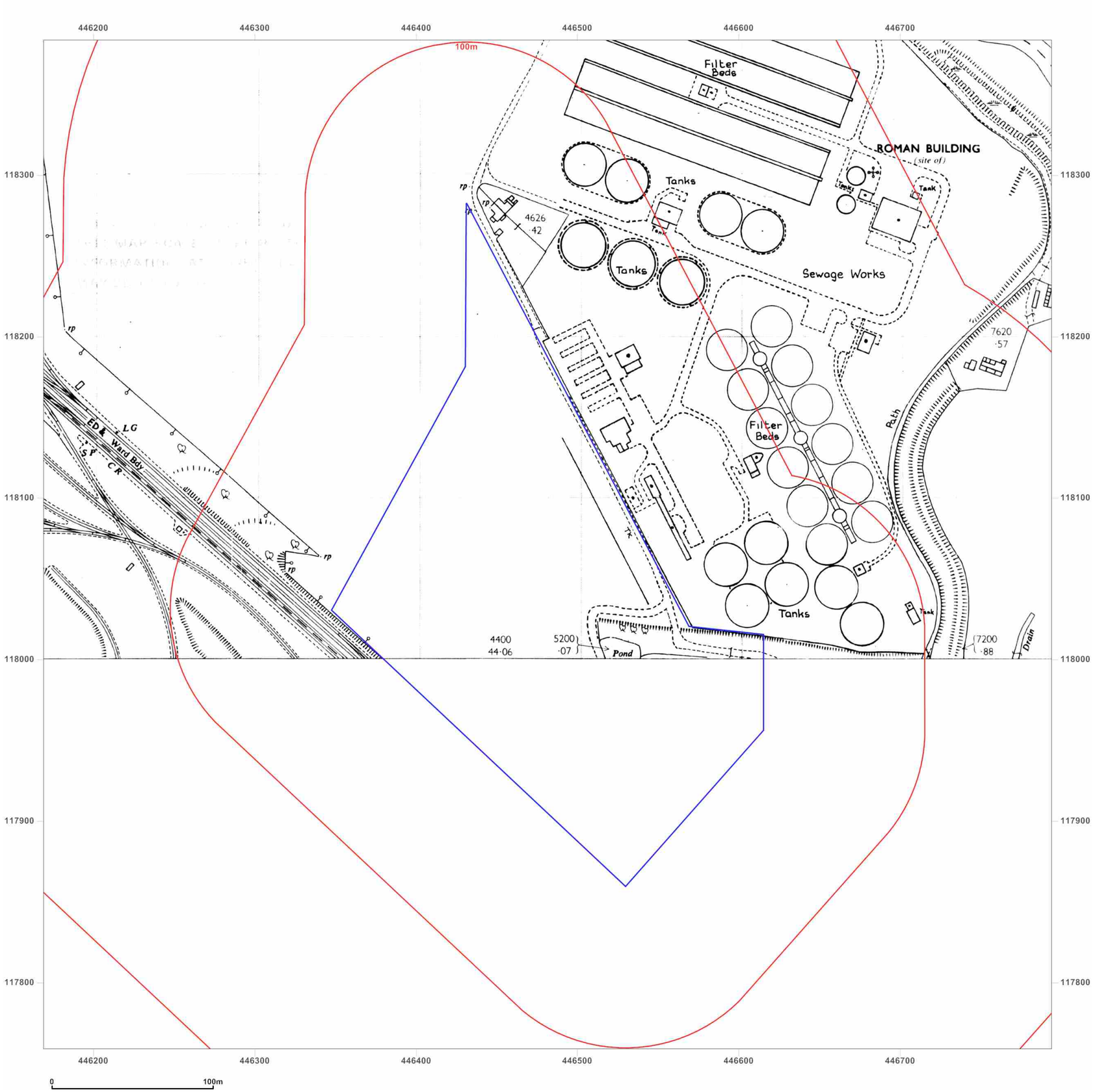
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EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid
Map date: **1988**
Scale: 1:2,500
Printed at: 1:2,500

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Copyright 1988
Levelled 1959

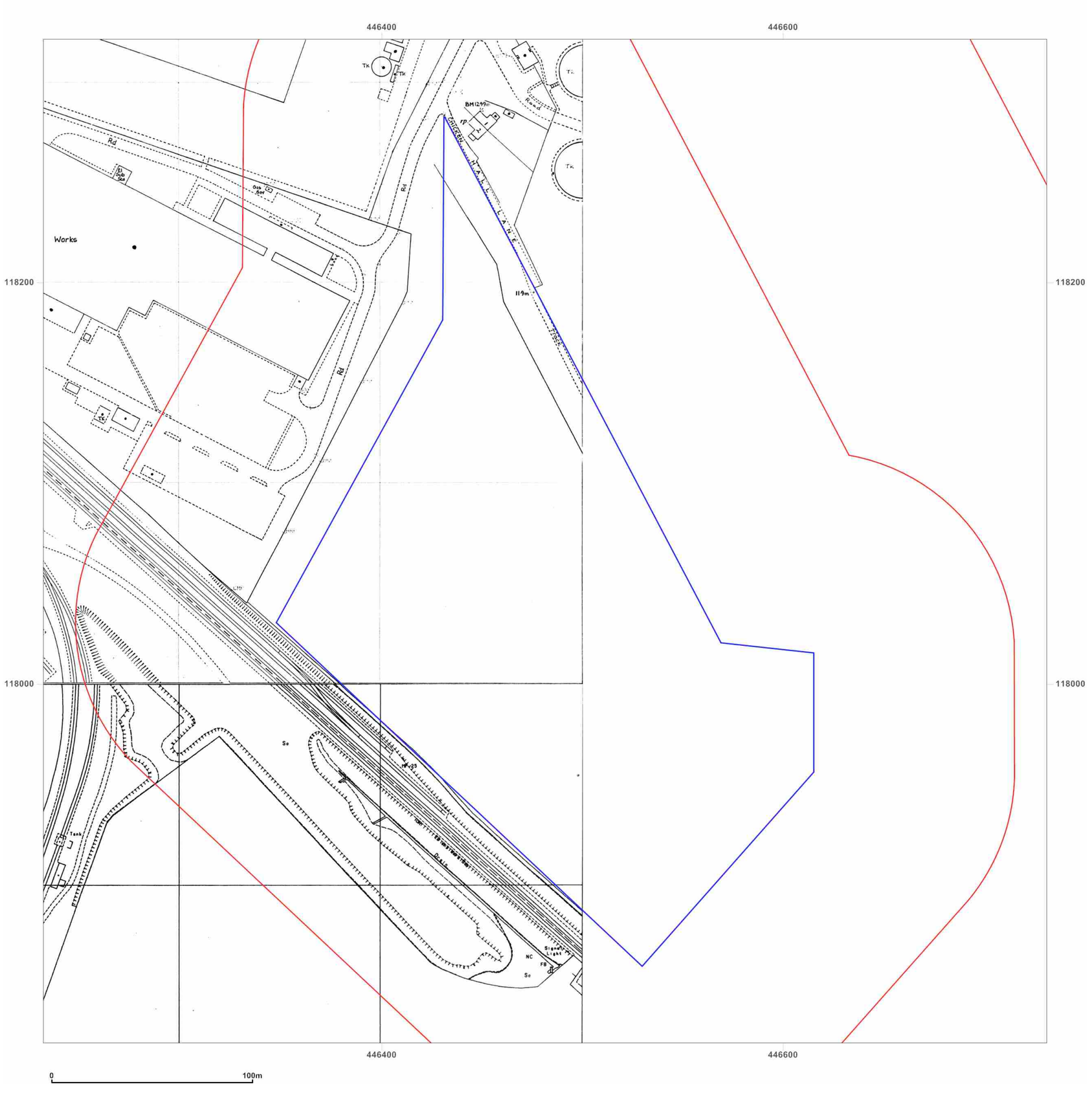
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CHICKENHALL LANE 13M
FROM UNNAMED ROAD,
CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid

Map date: **1986-1991**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
S

Surveyed 1959
Revised 1986
Edition N/A
Copyright 1986
Levelled 1959

Surveyed 1950
Revised 1971
Edition N/A
Copyright 1991
Levelled N/A

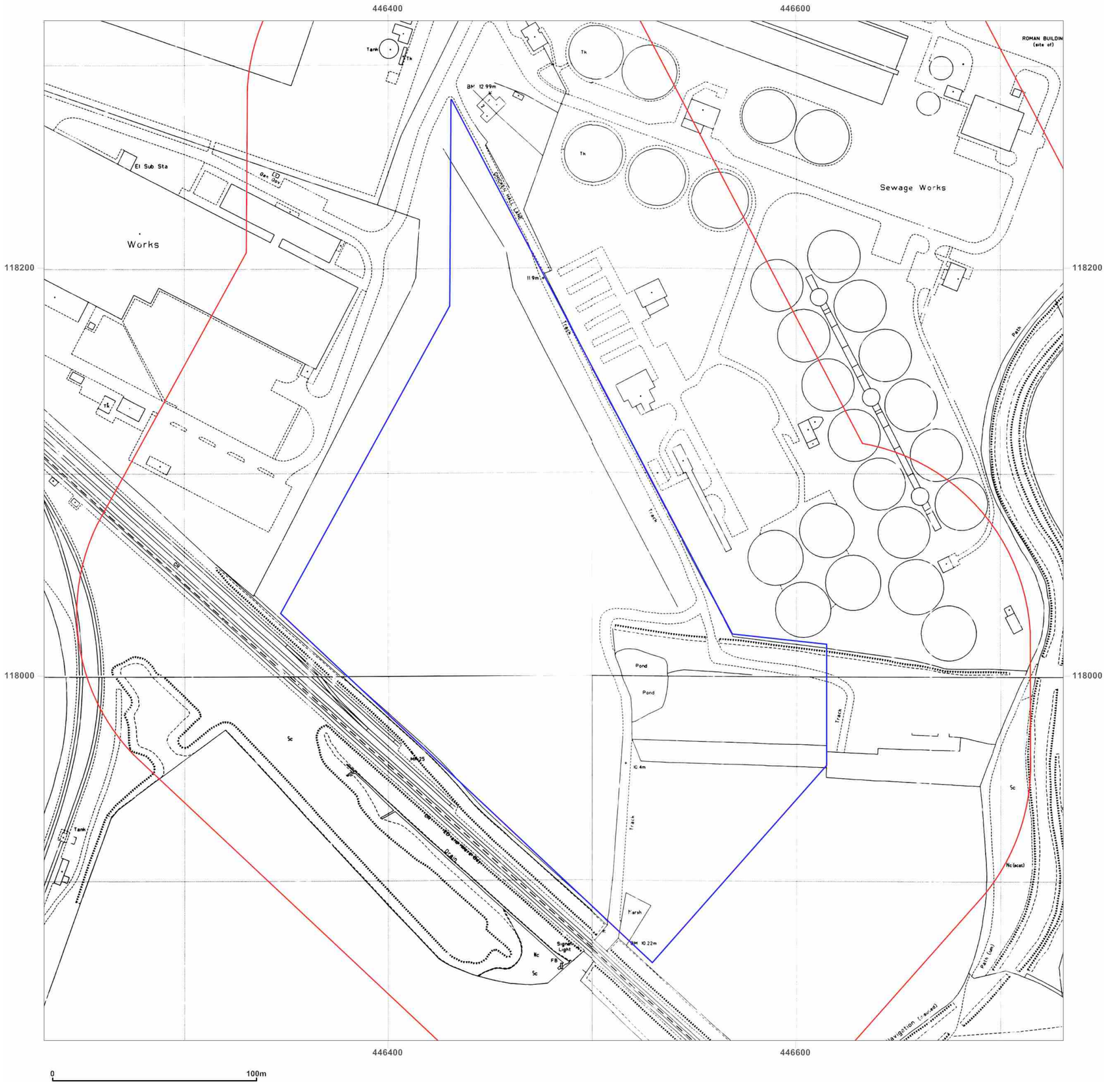
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Site Details:

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FROM UNNAMED ROAD,
CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid

Map date: **1992**

Scale: 1:1,250

Printed at: 1:2,000

N
W E
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Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

Surveyed 1992
Revised N/A
Edition N/A
Copyright 1992
Levelled N/A

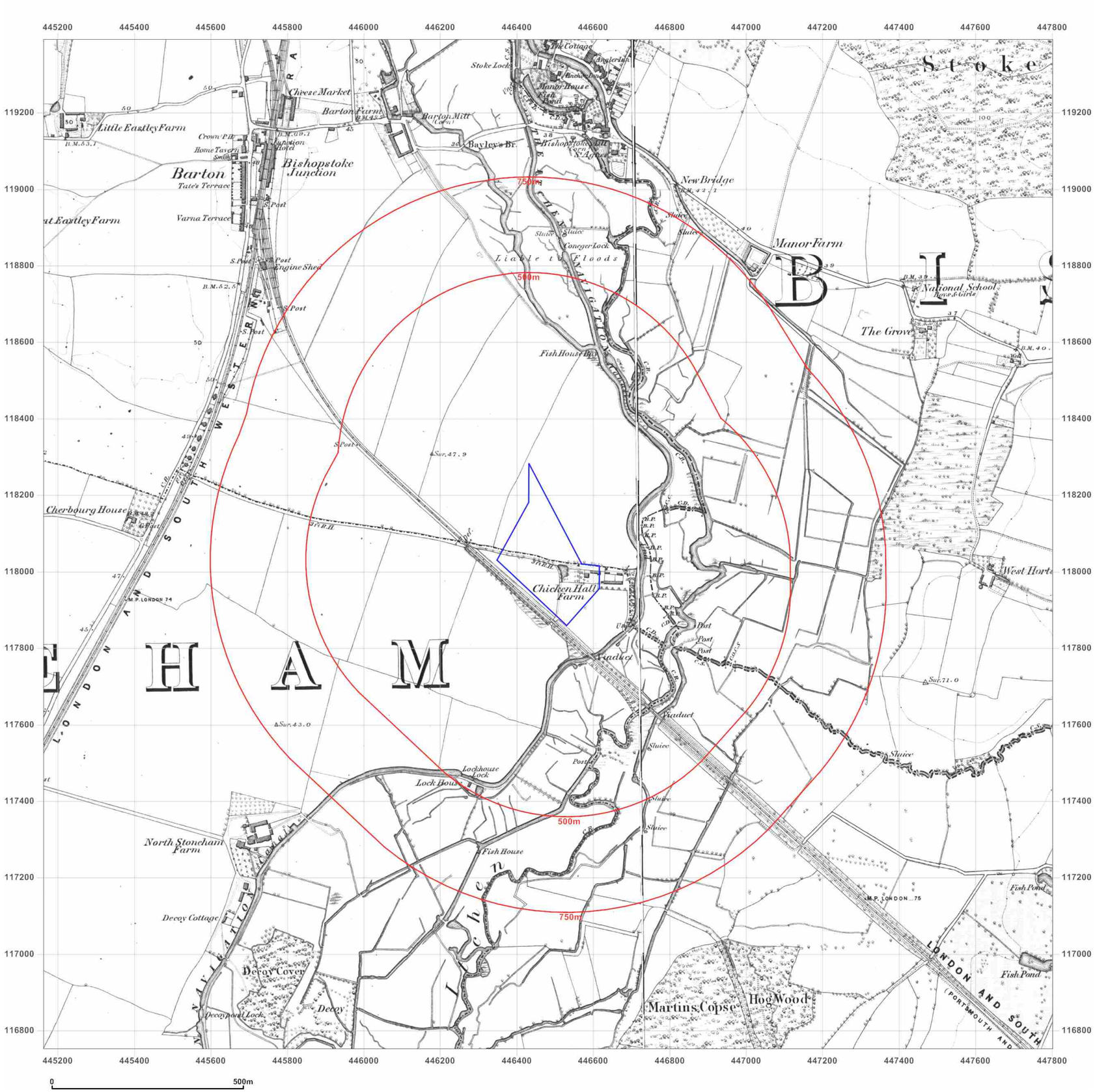
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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series
Map date: **1868**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A

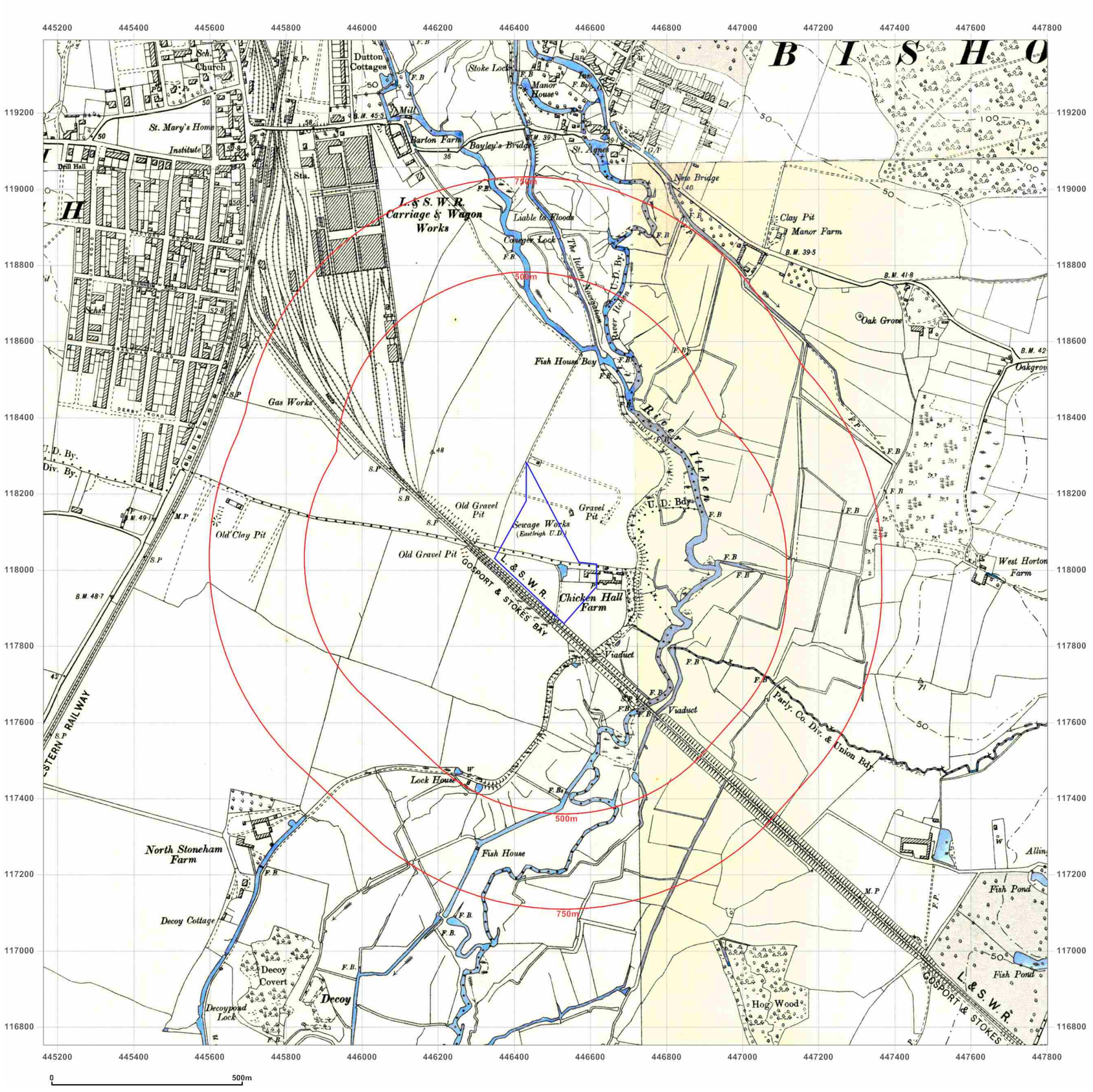
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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series

Map date: **1888**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

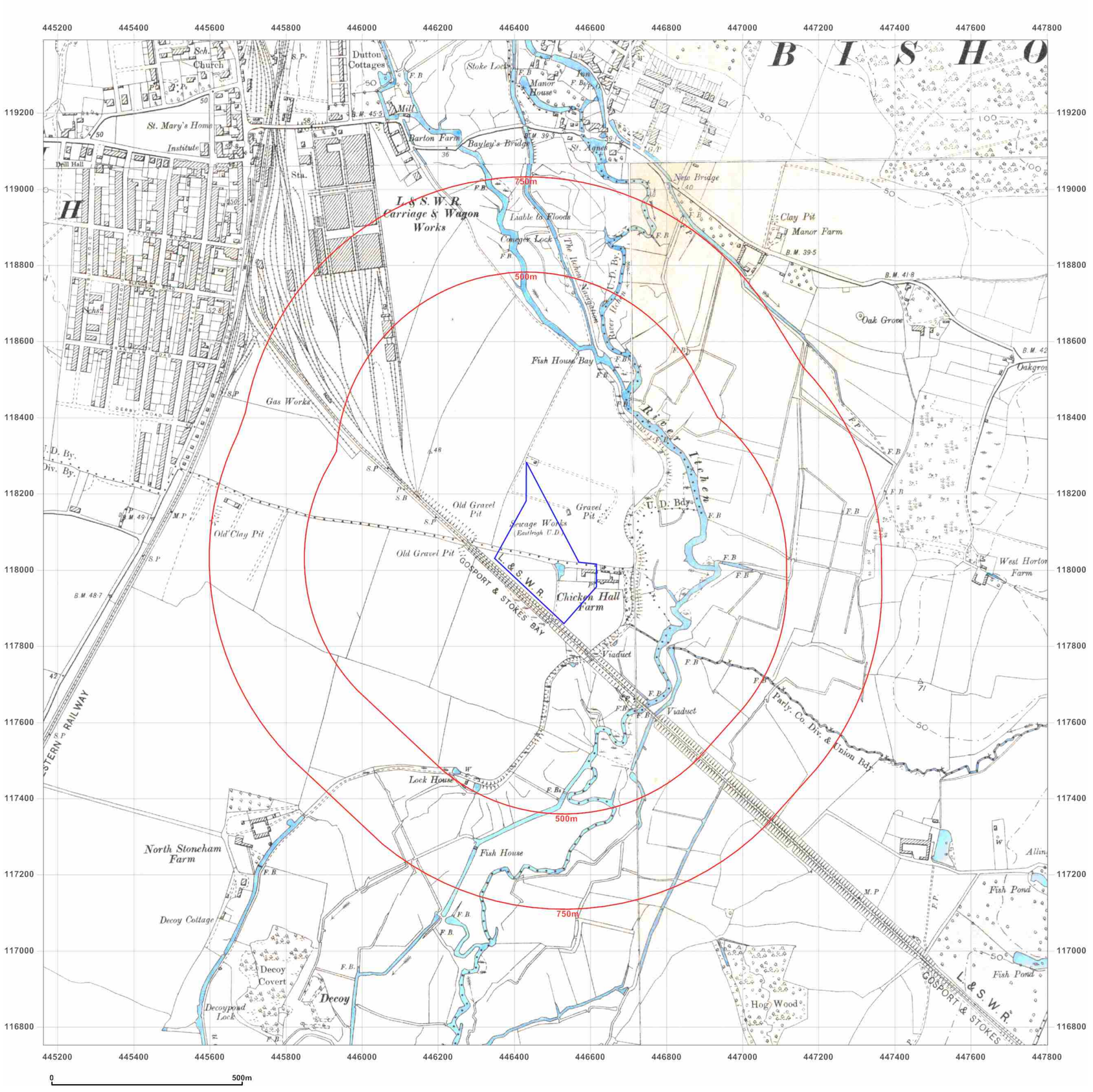
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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

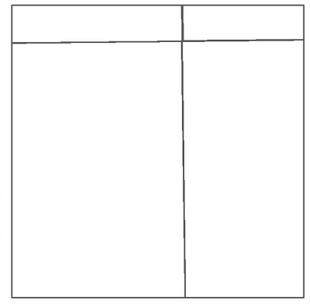
Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series
Map date: **1895**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1869
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1868
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1868
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1868
Revised 1895
Edition N/A
Copyright N/A
Levelled N/A

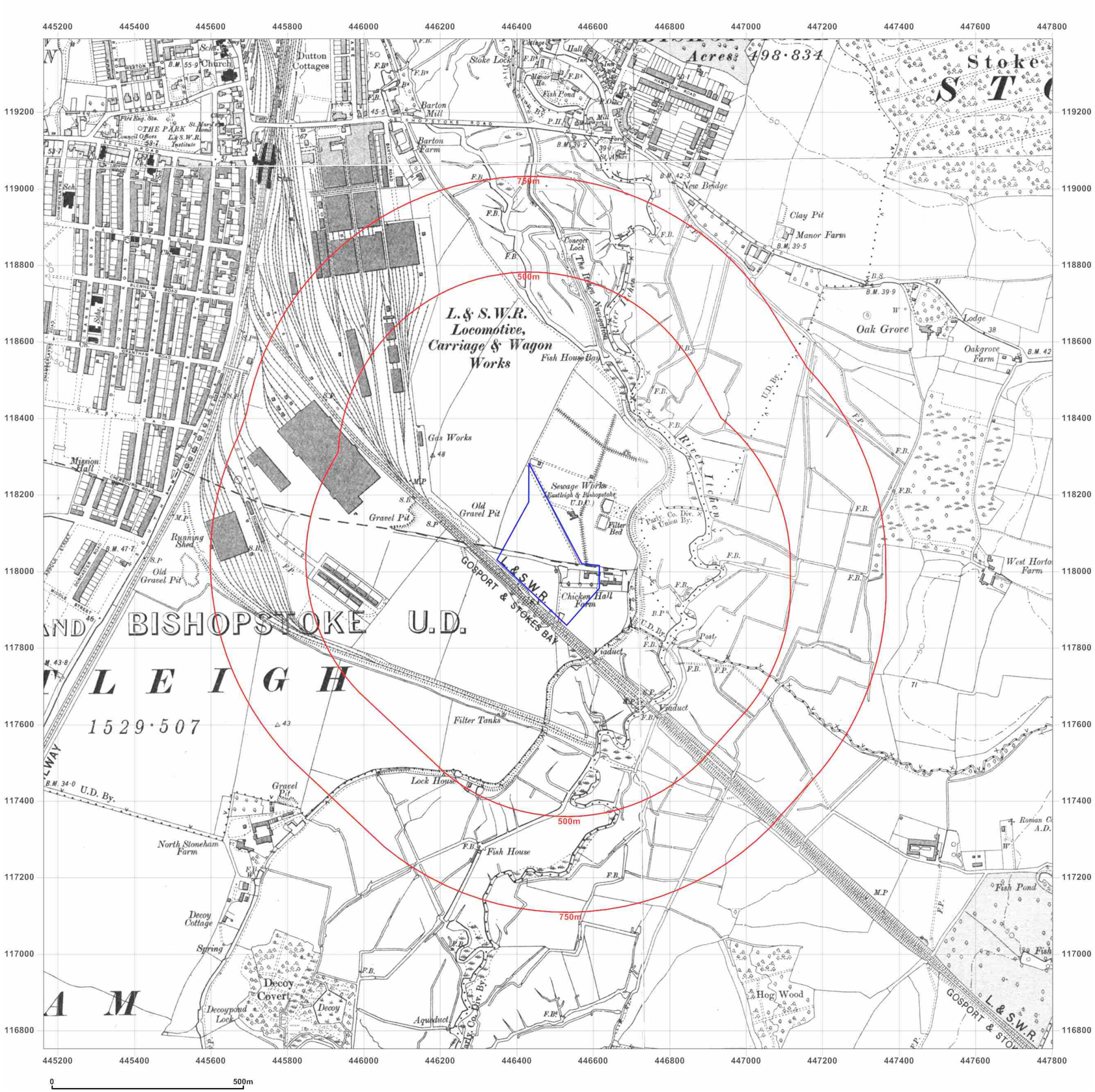
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Site Details:

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Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series

Map date: **1908**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1868
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1868
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

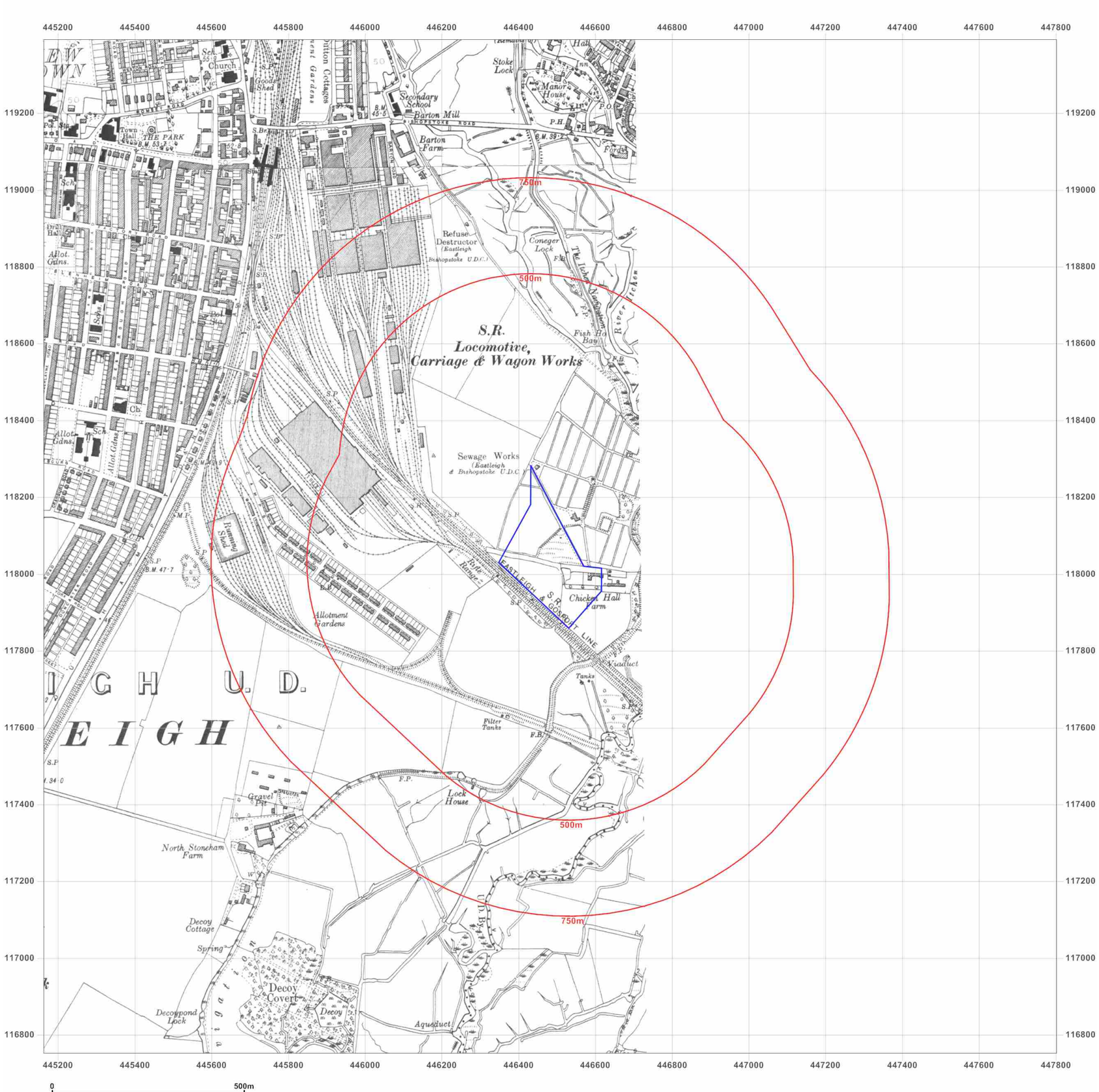
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FROM UNNAMED ROAD,
CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series

Map date: **1931**

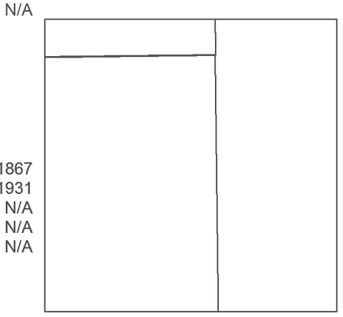
Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1868
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A



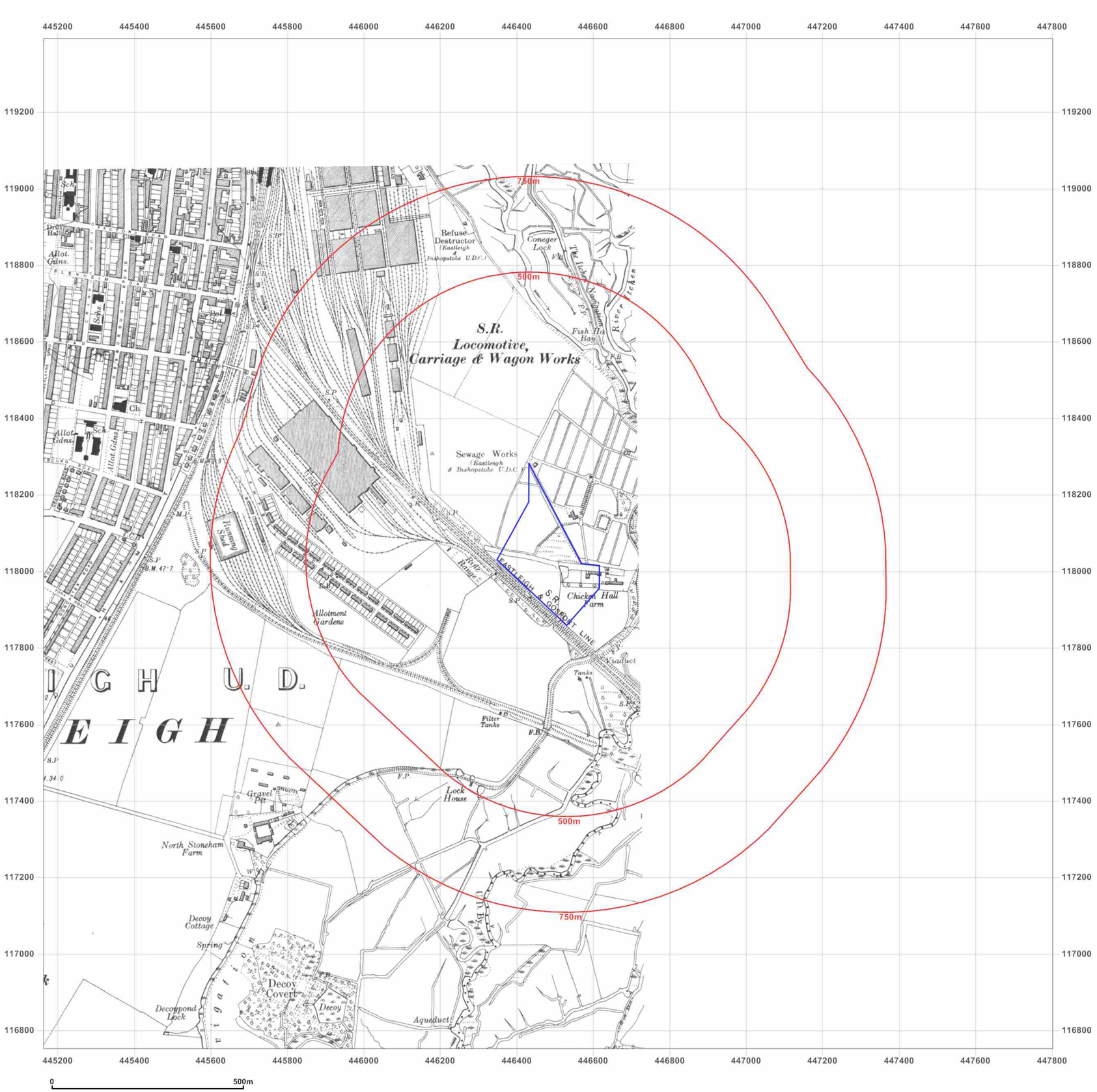
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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

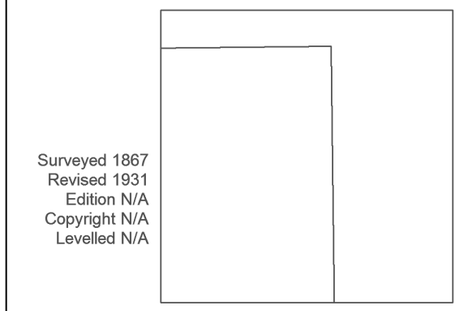
Map Name: County Series

Map date: **1931**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1867
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

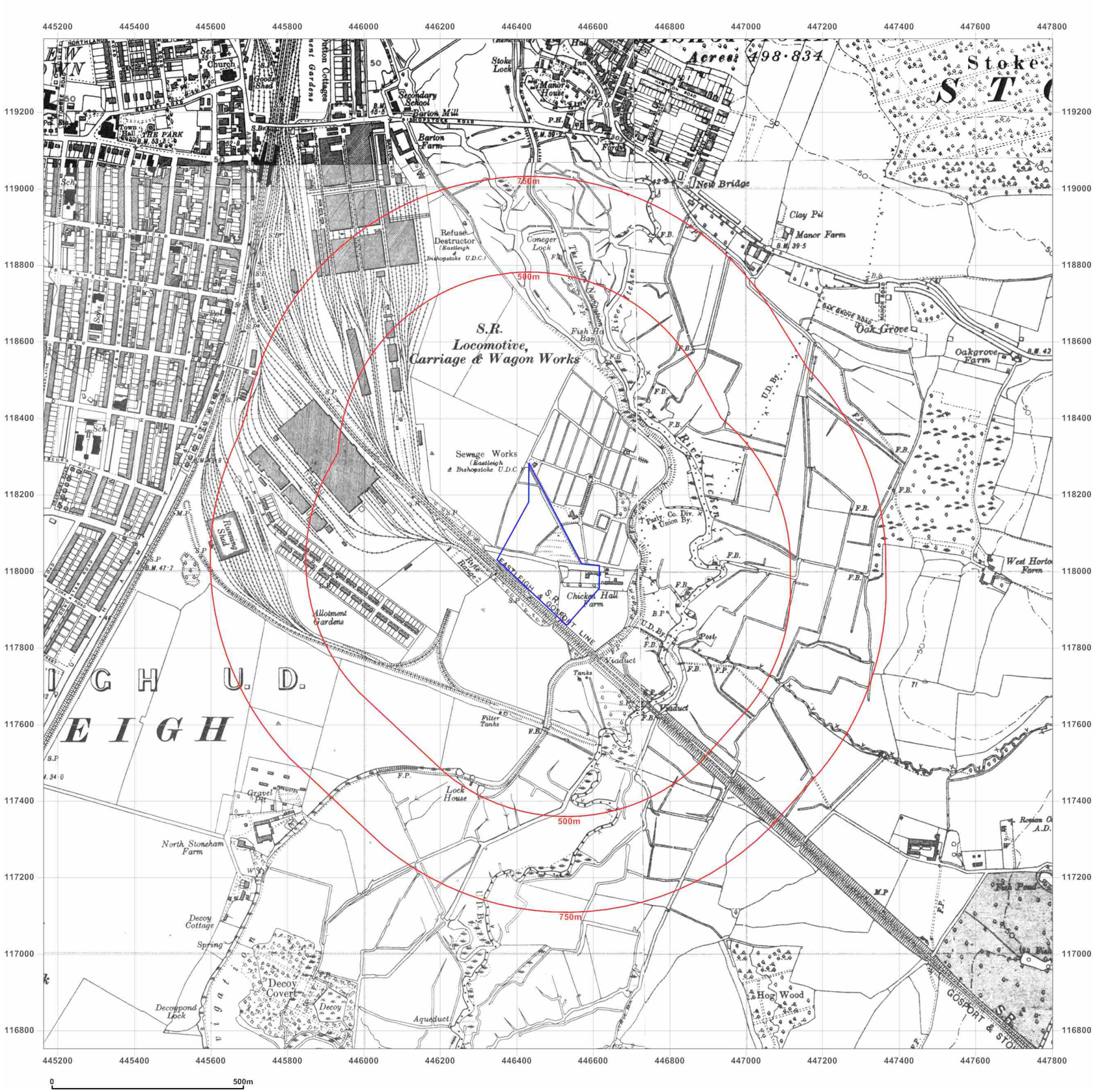
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Site Details:

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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: County Series

Map date: **1938-1939**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1868
Revised 1932
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1868
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

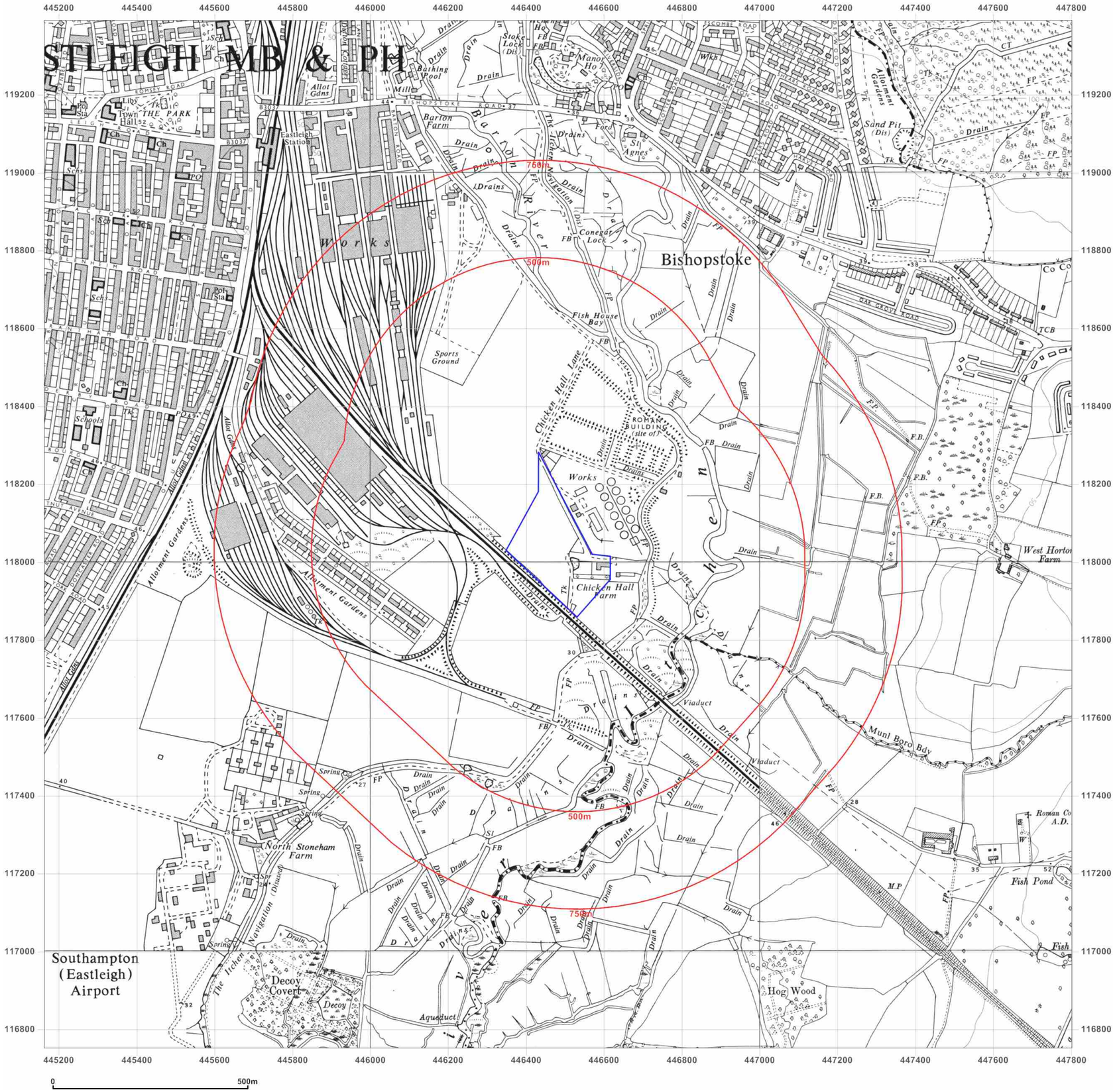
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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: Provisional

Map date: **1957**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
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Surveyed 1868
Revised 1957
Edition N/A
Copyright N/A
Levelled N/A

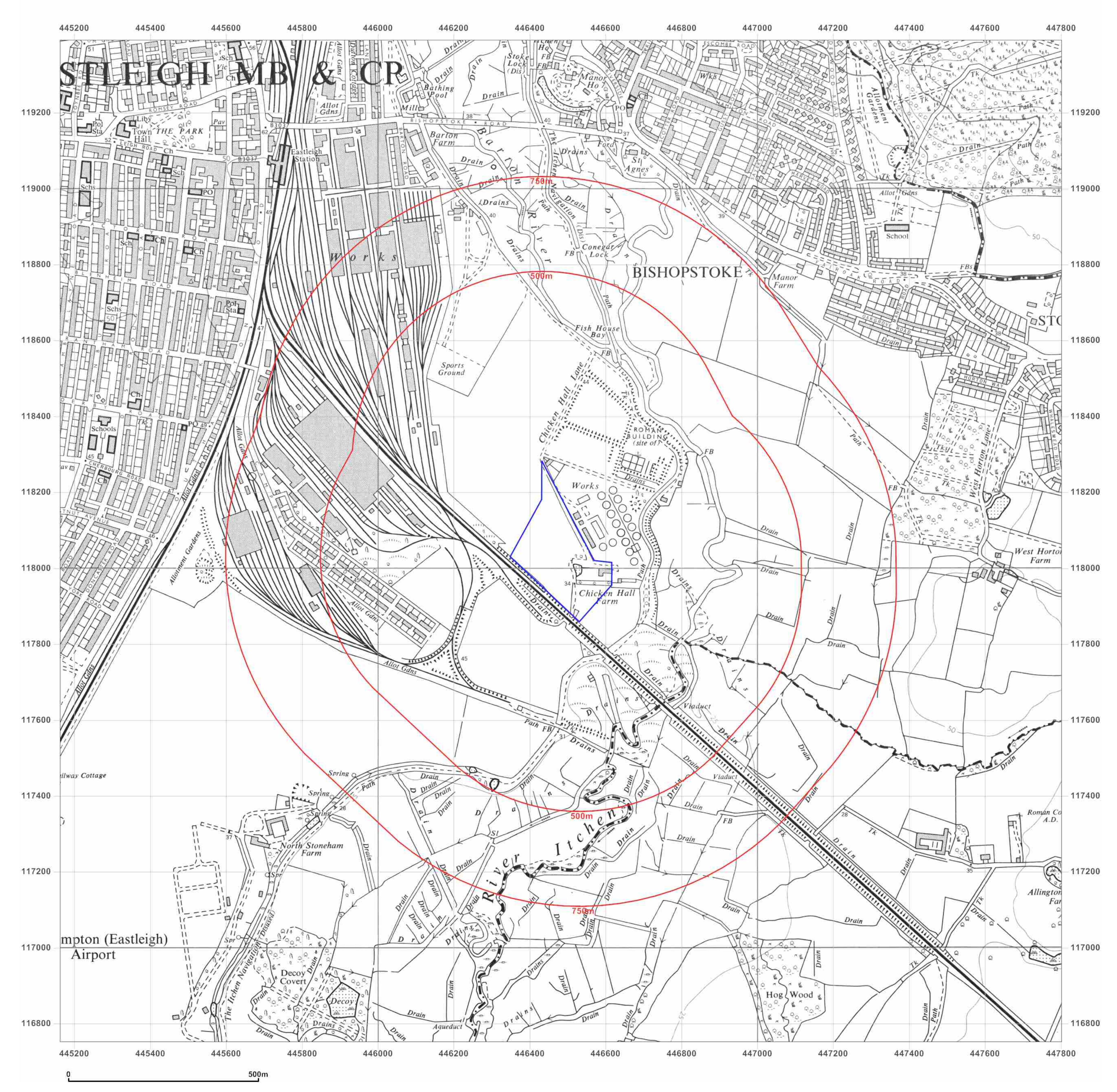
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Site Details:

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Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: Provisional

Map date: **1968**

Scale: 1:10,560

Printed at: 1:10,560

N W E S

Surveyed 1968
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A

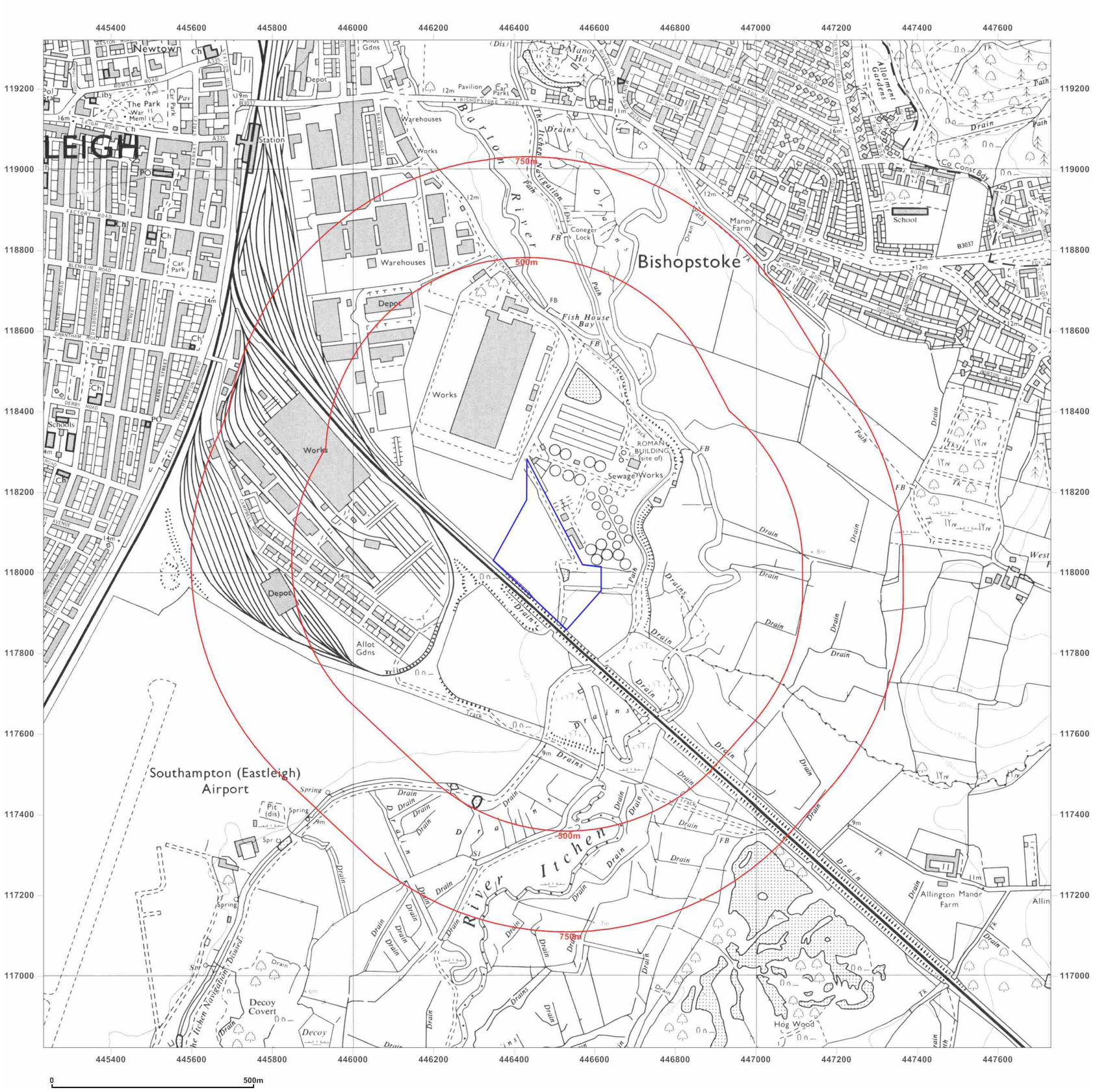
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Site Details:

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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid

Map date: **1981**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1980
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

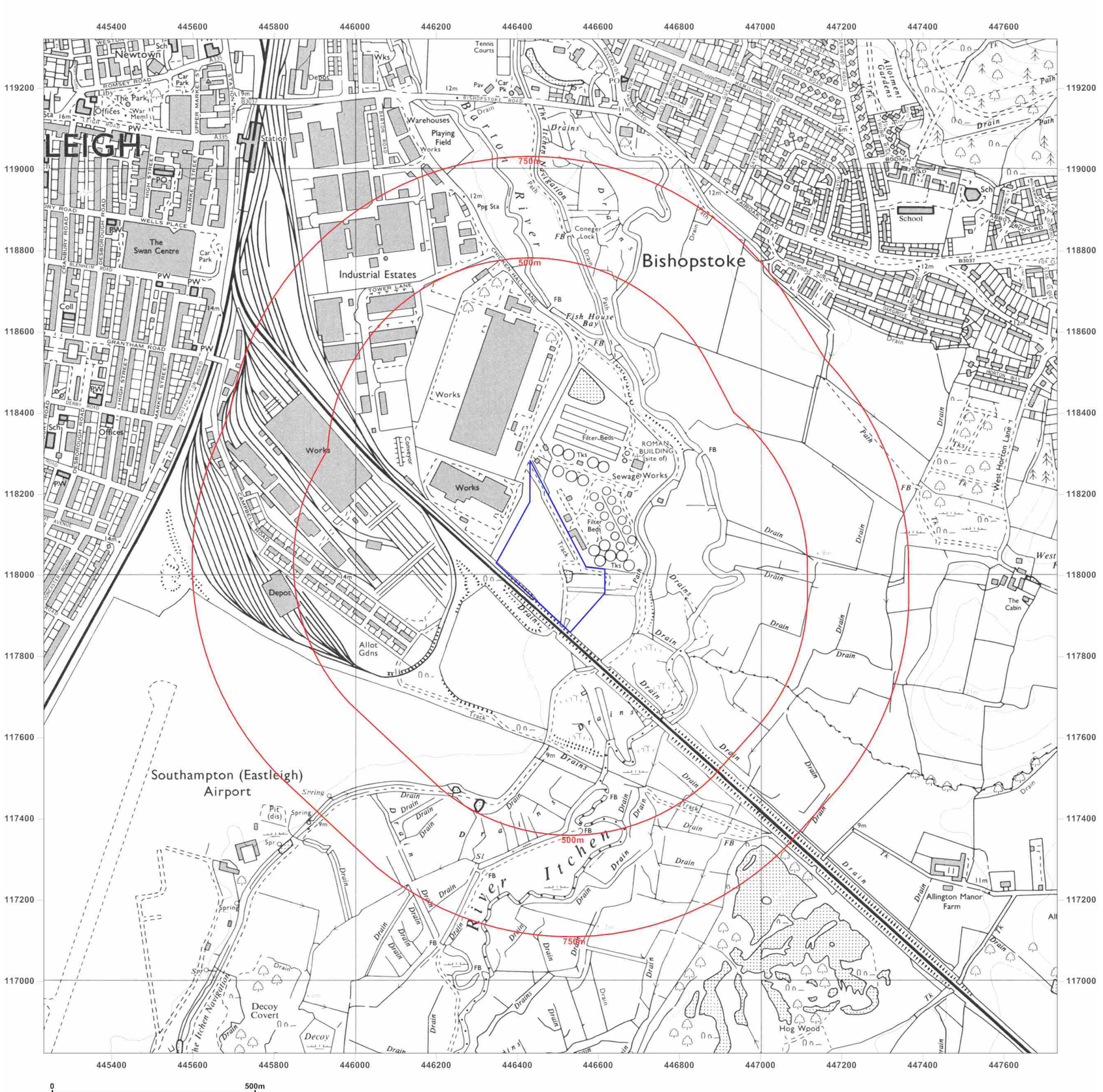
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Site Details:

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EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid

Map date: **1989**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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Surveyed 1988
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

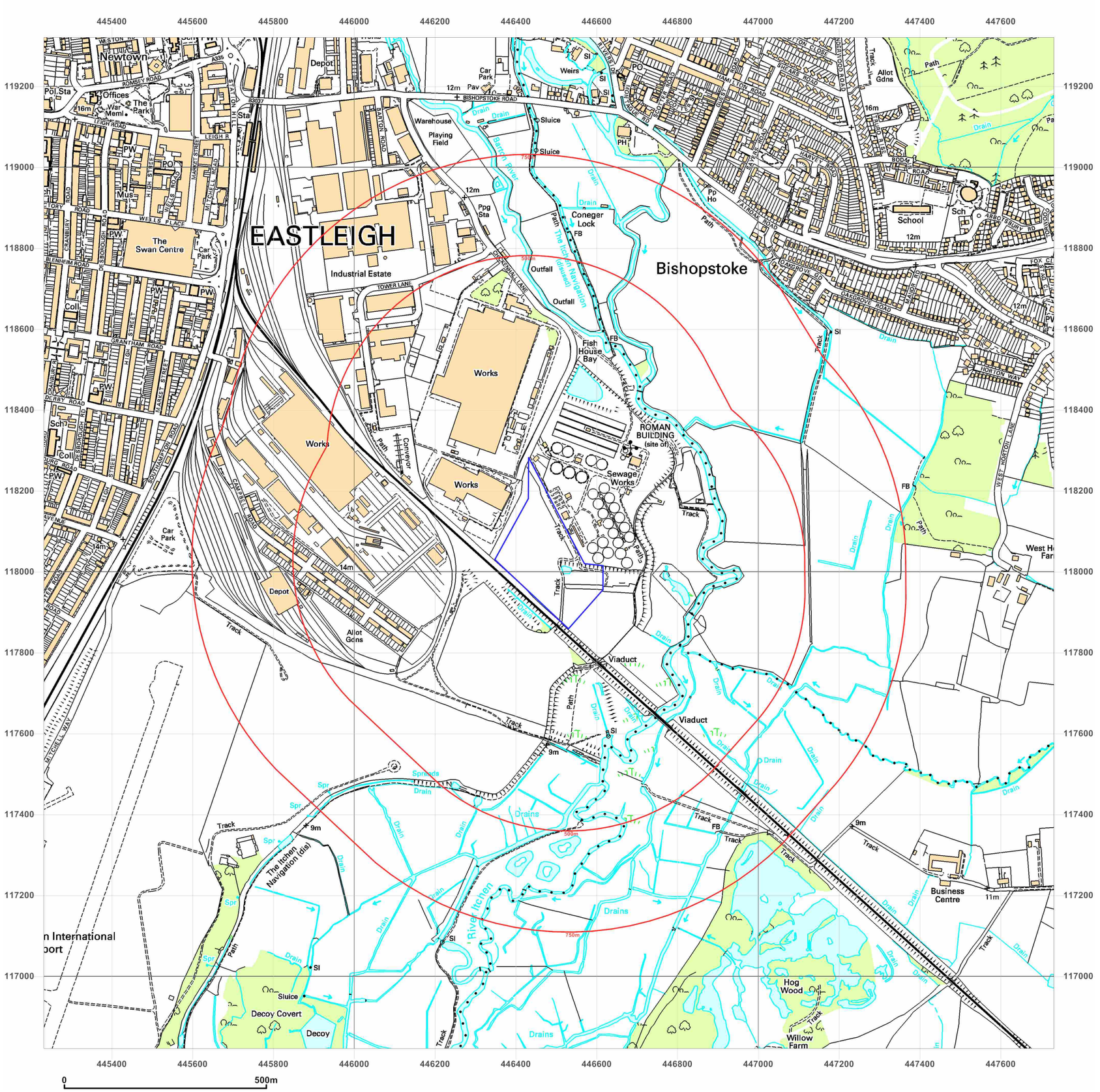
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Site Details:

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Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: 1:10,000 Raster
Map date: **2002**
Scale: 1:10,000
Printed at: 1:10,000

N
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2002

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Site Details:

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Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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2010

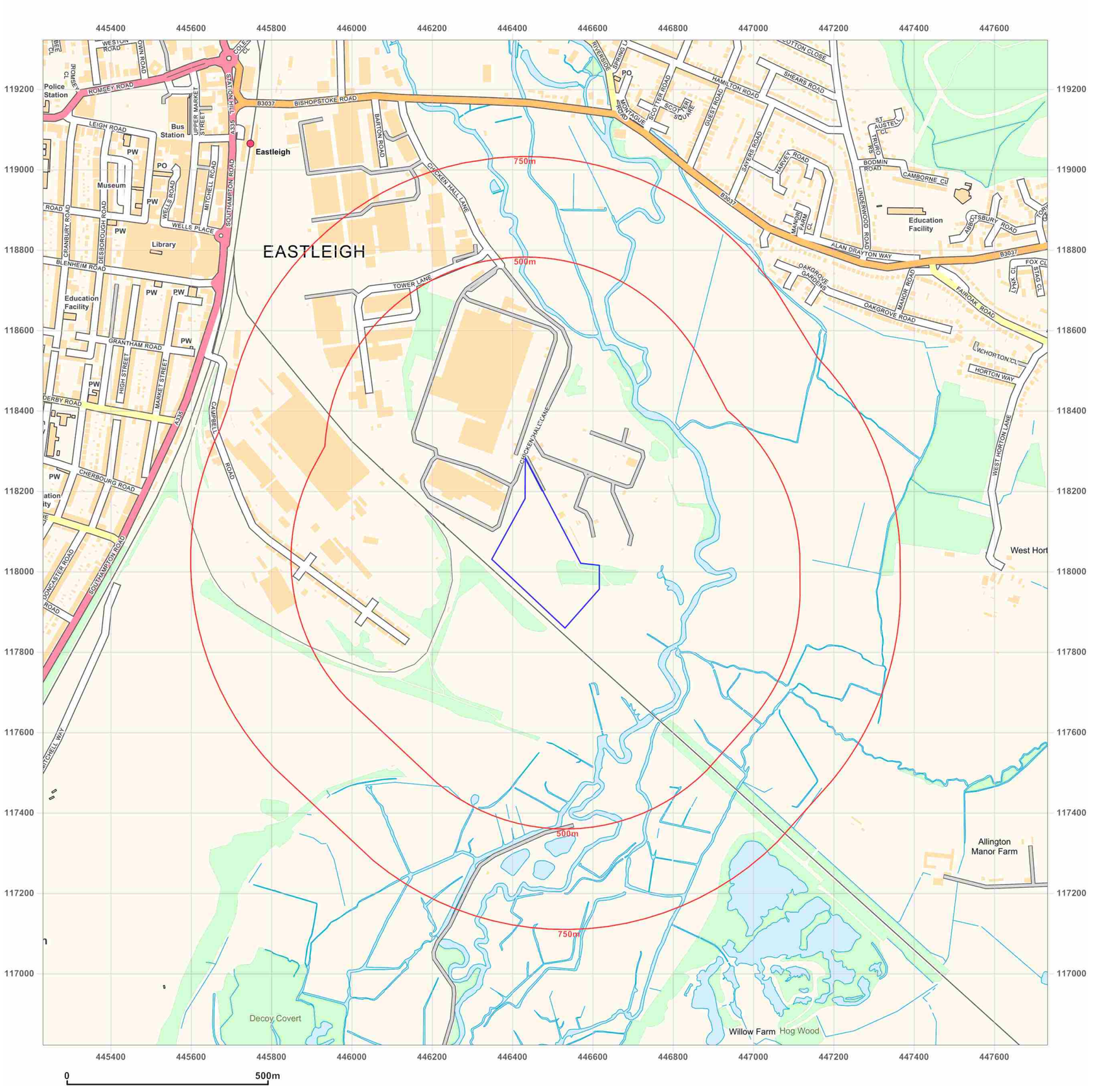
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Site Details:

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CHICKENHALL LANE,
EASTLEIGH, SO50 6YU

Client Ref: 4521_Eastleigh_PO005166
Report Ref: HMD-147-6100765
Grid Ref: 446481, 118071

Map Name: National Grid

Map date: **2014**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
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2014

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Appendix E

Groundsure® Report

Terra Consult

Bold Business Centre, Bold Lane,
Bold Lane,
Sutton, WA9 4TX

Groundsure Reference:	HMD-147-6100763
Your Reference:	4521_Eastleigh_PO005166
Report Date	14 Jun 2019
Report Delivery Method:	Email - pdf

Enviro Insight

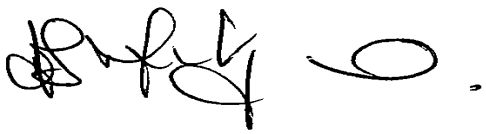
Address: TANK 131M FROM PRYSMIAN CABLES & SYSTEMS, CHICKENHALL LANE 13M FROM UNNAMED ROAD, CHICKENHALL LANE, EASTLEIGH, SO50 6YU

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If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**TANK 131M FROM PRYSMIAN CABLES & SYSTEMS, CHICKENHALL LANE 13M FROM UNNAMED ROAD, CHICKENHALL LANE, EASTLEIGH, SO50 6YU**
Date:	**14 Jun 2019**
Reference:	**HMD-147-6100763**
Client:	**Terra Consult**

NW N NE

W E

SW S SE



Aerial Photograph Capture date:	21-Jun-2017
Grid Reference:	446484,118092
Site Size:	4.8634ha

Report Reference: HMD-147-6100763
Client Reference: 4521_Eastleigh_PO005166

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	18	23	54	26
1.2 Additional Information – Historical Tank Database	0	20	38	81
1.3 Additional Information – Historical Energy Features Database	0	0	4	13
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	2	2	10
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	17	1	35	24

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	9
2.1.2 Records of Part A(1) and IPPC Authorised Activities	2	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	2	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	4	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	16	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	4
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	29	7
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	2	1	6
2.3.2 National Incidents Recording System, List 1	0	1	0	1
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	3
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	1	2	9	0

Section 4: Current Land Use

	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	17	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology

5.1 Records of Artificial Ground and Made Ground present beneath the study site	Identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology

	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	1	0	1	1
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	1	1	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	Yes	Yes	No	Yes
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	14	20	100	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Moderate

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	1	0	0	1
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	1	0	0	1
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	12
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	0	0	3
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Very Low
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

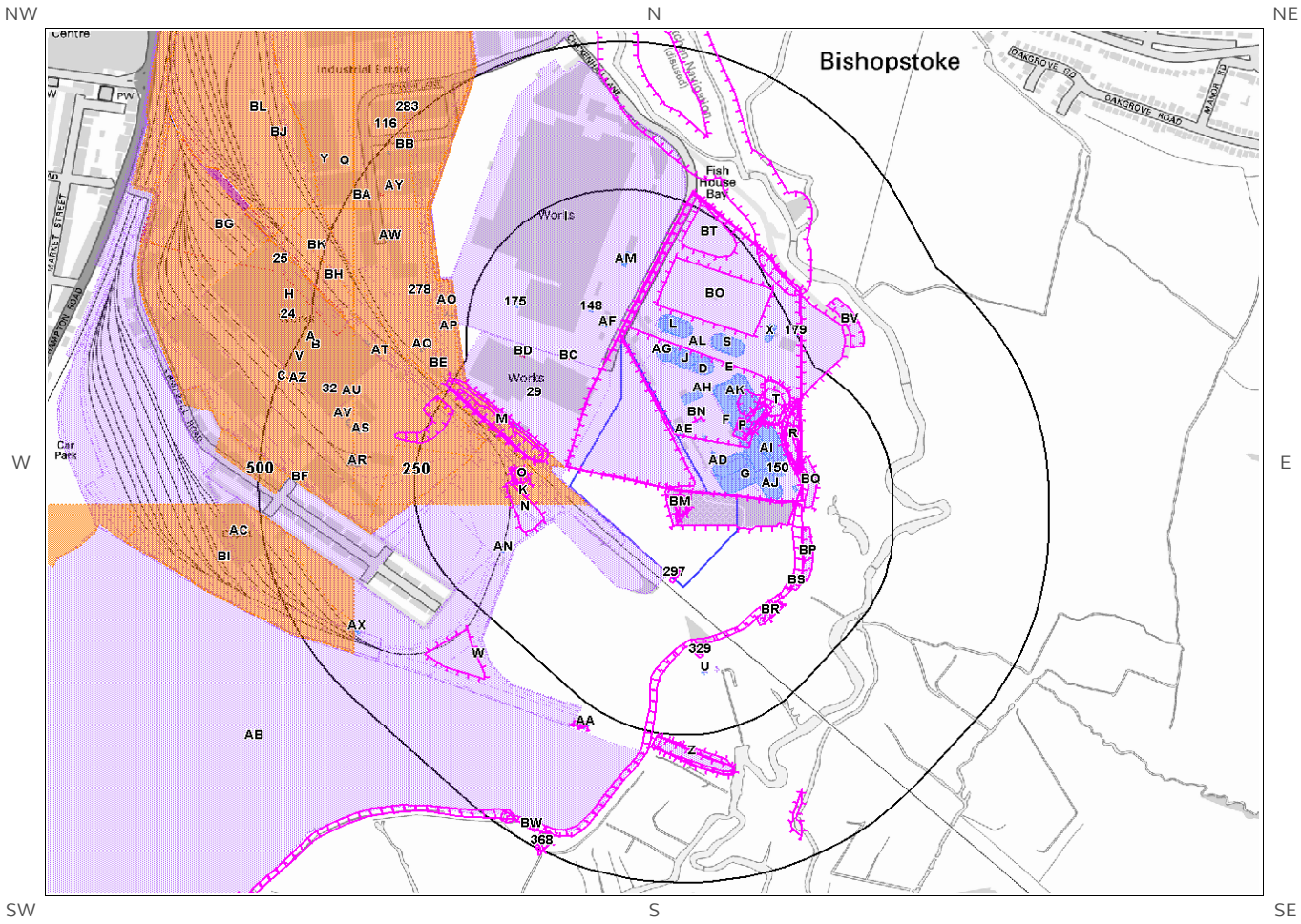
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use



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Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 121

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Railway Sidings	1957
2A	0	On Site	Railway Sidings	1968
3C	0	On Site	Railway Sidings	1989
4B	0	On Site	Unspecified Works	1968
5B	0	On Site	Unspecified Works	1957
6C	0	On Site	Railway Sidings	1981
7D	0	On Site	Sewage Works	1895
8D	0	On Site	Sewage Works	1931
9AH	0	On Site	Sewage Works	1908
10E	0	On Site	Sewage Works	1981
11E	0	On Site	Sewage Works	1989
12F	0	On Site	Unspecified Works	1968
13F	0	On Site	Unspecified Works	1957
14D	0	On Site	Sewage Works	1938
15D	0	On Site	Sewage Works	1931
16D	0	On Site	Sewage Works	1931
17G	0	N	Unspecified Tanks	1989
18G	0	N	Unspecified Tanks	1981
19H	2	SW	Railway Sidings	1931
20H	2	SW	Locomotive Carriage and Wagon Works	1938
21H	2	SW	Railway Sidings	1938
22H	2	SW	Locomotive Carriage and Wagon Works	1931
23Q	2	SW	Railway Sidings	1931
24	4	SW	Locomotive Carriage and Wagon Works	1908
25	4	SW	Railway Sidings	1908
26I	12	NW	Unspecified Works	1989
27I	12	NW	Unspecified Works	1981
28AD	13	NE	Railway Sidings	1957
29	19	NW	Unspecified Works	1989
30V	22	SW	Unspecified Commercial/Industrial	1931
31G	26	N	Unspecified Tanks	1968
32	31	SW	Railway Sidings	1931

33J	33	NE	Unspecified Tanks	1981
34J	33	NE	Unspecified Tanks	1989
35BN	38	NE	Sewage Works	1888
36K	42	SW	Rifle Range	1931
37AJ	43	NE	Unspecified Tanks	1968
38F	50	NE	Unspecified Tanks	1968
39F	50	NE	Unspecified Tanks	1957
40F	50	NE	Unspecified Tanks	1989
41F	50	NE	Unspecified Tanks	1981
42K	52	SW	Rifle Range	1931
43K	52	SW	Rifle Range	1938
44M	55	NW	Old Gravel Pit	1888
45L	55	NE	Unspecified Tanks	1981
46L	55	NE	Unspecified Tanks	1989
47M	62	NW	Old Gravel Pit	1895
48M	62	NW	Old Gravel Pit	1908
49N	63	SW	Unspecified Pit	1957
50N	63	SW	Unspecified Pit	1968
51N	63	SW	Unspecified Pit	1989
52N	63	SW	Unspecified Pit	1981
53O	65	W	Old Gravel Pit	1888
54O	71	W	Old Gravel Pit	1895
55BO	77	NE	Filter Beds	1989
56O	78	W	Unspecified Pit	1908
57P	79	NE	Filter Bed	1908
58P	83	NE	Unspecified Tanks	1968
59P	83	NE	Unspecified Tanks	1957
60P	83	NE	Unspecified Tanks	1981
61P	83	NE	Unspecified Tanks	1989
62P	91	NE	Gravel Pit	1895
63P	95	NE	Gravel Pit	1888
64Q	100	NW	Locomotive Carriage and Wagon Works	1931
65BP	104	E	Unspecified Heap	1908
66R	106	NE	Unspecified Ground Workings	1908
67BQ	106	E	Unspecified Ground Workings	1908
68R	108	NE	Unspecified Ground Workings	1931
69R	108	NE	Unspecified Ground Workings	1895
70R	108	NE	Unspecified Ground Workings	1938
71S	118	NE	Unspecified Tanks	1989
72S	118	NE	Unspecified Tanks	1981
73BR	122	SE	Unspecified Heap	1908
74BS	123	SE	Unspecified Heap	1908

75T	129	N	Unspecified Heap	1938
76T	129	N	Unspecified Heap	1931
77T	129	N	Unspecified Heap	1931
78U	141	S	Unspecified Tanks	1931
79U	141	S	Unspecified Tanks	1938
80U	142	S	Unspecified Tanks	1931
81T	144	N	Unspecified Heap	1957
82T	144	N	Unspecified Heap	1968
83U	144	S	Unspecified Tanks	1938
84U	144	S	Unspecified Tanks	1931
85U	146	S	Unspecified Tanks	1931
86V	149	W	Unspecified Works	1989
87V	149	W	Unspecified Works	1981
88W	168	SW	Railway Sidings	1931
89W	168	SW	Railway Sidings	1938
90X	199	NE	Unspecified Tanks	1989
91X	199	NE	Unspecified Tanks	1981
92BU	225	NW	Gravel Pit	1908
93AP	237	NW	Gas Works	1908
94Y	247	NW	Carriage and Wagon Works	1888
95Y	247	NW	Railway Sidings	1888
96Z	254	S	Unspecified Heap	1957
97Z	254	S	Unspecified Heap	1989
98Z	254	S	Unspecified Heap	1981
99Z	254	S	Unspecified Heap	1968
100Z	257	S	Unspecified Heap	1931
101Z	258	S	Unspecified Heap	1938
102Z	258	S	Unspecified Heap	1931
103Z	258	S	Unspecified Heap	1931
104Y	263	NW	Railway Sidings	1895
105AA	277	SW	Filter Tanks	1931
106AA	277	SW	Filter Tanks	1938
107AA	277	SW	Filter Tanks	1931
108AA	282	SW	Filter Tanks	1908
109AA	283	SW	Filter Tanks	1931
110AB	285	S	Airport	1968
111AB	285	S	Airport	1989
112AB	285	S	Airport	1981
113W	289	SW	Unspecified Pit	1968
114W	289	SW	Unspecified Pit	1957
115AA	291	SW	Filter Tanks	1908
116	300	W	Industrial Estate	1989
117BV	309	NE	Unspecified Pit	1981
118BB	362	NW	Unspecified Depot	1981
119	437	W	Railway Sidings	1888

120AC	496	W	Unspecified Depot	1989
121AC	496	W	Unspecified Depot	1981

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 139

ID	Distance (m)	Direction	Use	Date
122P	1	N	Tanks	1996
123AD	2	N	Tanks	1988
124AE	5	NE	Unspecified Tank	1954
125AE	5	NE	Unspecified Tank	1962
126AE	11	NE	Unspecified Tank	1954
127G	23	NE	Tanks	1962
128AF	30	NW	Unspecified Tank	1996
129AF	30	NW	Unspecified Tank	1986
130AF	34	NW	Unspecified Tank	1996
131AG	34	NE	Unspecified Tank	1996
132AF	35	NW	Unspecified Tank	1986
133AG	35	NE	Unspecified Tank	1984
134AG	35	NE	Unspecified Tank	1986
135AD	35	NE	Unspecified Tank	1954
136AE	35	NE	Unspecified Tank	1954
137AH	36	NE	Tanks	1954
138J	37	NE	Tanks	1988
139AE	38	NE	Unspecified Tank	1954
140P	39	NE	Tanks	1962
141J	41	NE	Unspecified Tank	1996
142P	54	NE	Tanks	1954
143J	57	NE	Unspecified Tank	1996
144L	60	NE	Unspecified Tank	1986
145L	60	NE	Unspecified Tank	1984
146L	60	NE	Unspecified Tank	1996
147L	62	NE	Tanks	1988
148	64	NW	Tanks	1996
149L	65	NE	Tanks	1996
150	67	NE	Tanks	1954
151J	78	NE	Unspecified Tank	1996
152AI	82	NE	Unspecified Tank	1954
153AI	82	NE	Unspecified Tank	1962
154P	83	NE	Tanks	1962

155P	83	NE	Tanks	1954
156AJ	90	E	Unspecified Tank	1988
157AL	96	NE	Unspecified Tank	1988
158P	110	NE	Unspecified Tank	1962
159P	110	NE	Unspecified Tank	1954
160AK	110	NE	Unspecified Tank	1962
161AK	110	NE	Unspecified Tank	1954
162AM	120	N	Tanks	1984
163AL	120	NE	Tanks	1996
164AM	121	N	Tanks	1968
165M	121	NW	Unspecified Tank	1996
166AM	122	N	Tanks	1986
167S	122	NE	Tanks	1988
168AM	122	N	Tanks	1996
169M	123	NW	Unspecified Tank	1986
170AM	130	N	Tanks	1996
171U	145	S	Unspecified Tank	1954
172U	146	S	Tanks	1933
173AN	151	SW	Unspecified Tank	1972
174AN	151	SW	Unspecified Tank	1991
175	174	W	Tanks	1968
176X	200	NE	Unspecified Tank	1996
177X	202	NE	Tanks	1988
178X	214	NE	Unspecified Tank	1996
179	246	NE	Unspecified Tank	1988
180AO	270	W	Gas Works	1909
181AO	274	W	Unspecified Tank	1988
182AP	276	W	Unspecified Tank	1950
183AO	276	W	Unspecified Tank	1962
184AO	276	W	Unspecified Tank	1954
185AA	277	SW	Filter Tanks	1950
186AA	277	SW	Filter Tanks	1954
187AA	277	SW	Filter Tanks	1961
188AA	282	SW	Filter Tanks	1909
189AA	282	SW	Filter Tanks	1933
190AO	284	W	Unspecified Tank	1909
191AO	284	W	Unspecified Tank	1933
192AQ	315	NW	Tanks	1986
193AQ	315	NW	Tanks	1984
194AQ	316	NW	Tanks	1996
195AR	339	W	Tanks	1968
196AR	339	W	Tanks	1996
197AR	339	W	Tanks	1986
198AR	339	W	Tanks	1984
199AR	340	W	Tanks	1996
200AS	345	W	Unspecified Tank	1996

201AS	346	W	Unspecified Tank	1968
202AS	347	W	Unspecified Tank	1986
203AS	347	W	Unspecified Tank	1984
204AR	349	W	Tanks	1967
205AR	349	W	Tanks	1968
206AR	349	W	Tanks	1989
207AR	349	W	Tanks	1989
208AR	349	W	Tanks	1989
209AR	350	W	Tanks	1995
210AS	366	W	Tanks	1950
211AS	370	W	Tanks	1950
212AT	374	NW	Unspecified Tank	1988
213AT	375	NW	Unspecified Tank	1950
214AT	375	NW	Unspecified Tank	1962
215AT	375	NW	Unspecified Tank	1954
216AU	378	NW	Tanks	1950
217AU	378	NW	Tanks	1968
218AU	379	NW	Tanks	1950
219AU	379	NW	Tanks	1968
220AU	379	NW	Tanks	1967
221AU	379	NW	Tanks	1950
222AU	379	NW	Tanks	1995
223AU	379	NW	Tanks	1989
224AU	380	NW	Tanks	1989
225AV	380	W	Tanks	1950
226AV	381	W	Tanks	1950
227AT	398	NW	Tanks	1954
228AT	398	NW	Tanks	1950
229AW	406	NW	Unspecified Tank	1954
230AW	406	NW	Unspecified Tank	1950
231AW	406	NW	Unspecified Tank	1968
232AX	417	SW	Unspecified Tank	1991
233AX	417	SW	Unspecified Tank	1972
234AX	418	SW	Unspecified Tank	1991
235AX	418	SW	Unspecified Tank	1972
236AX	423	SW	Unspecified Tank	1995
237BG	436	W	Gas Works	1897
238AY	441	NW	Unspecified Tank	1950
239AY	441	NW	Unspecified Tank	1968
240AY	441	NW	Unspecified Tank	1954
241AZ	470	W	Unspecified Tank	1950
242AZ	470	W	Unspecified Tank	1968
243AZ	470	W	Unspecified Tank	1967
244AZ	470	W	Unspecified Tank	1950
245AZ	471	W	Unspecified Tank	1989
246AZ	471	W	Unspecified Tank	1989

247AZ	471	W	Unspecified Tank	1989
248BA	476	NW	Unspecified Tank	1968
249BA	476	NW	Unspecified Tank	1950
250BA	476	NW	Unspecified Tank	1954
251AZ	482	NW	Unspecified Tank	1967
252AZ	482	NW	Unspecified Tank	1950
253AZ	482	NW	Unspecified Tank	1950
254AZ	482	NW	Unspecified Tank	1968
255AZ	484	NW	Unspecified Tank	1989
256AZ	484	NW	Unspecified Tank	1989
257AZ	484	NW	Unspecified Tank	1989
258BB	485	NW	Unspecified Tank	1954
259BB	485	NW	Unspecified Tank	1968
260BB	485	NW	Unspecified Tank	1950

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 17

ID	Distance (m)	Direction	Use	Date
261BC	84	W	Gas Governor	1996
262BC	85	W	Gas Governor	1986
263BD	154	W	Electricity Substation	1996
264BD	155	W	Electricity Substation	1986
265AO	270	W	Gas Works	1909
266BE	280	NW	Electricity Substation	1986
267BE	280	NW	Electricity Substation	1984
268BE	281	NW	Electricity Substation	1996
269BF	431	W	Electricity Substation	1995
270BF	433	W	Electricity Substation	1968
271BF	433	W	Electricity Substation	1967
272BF	433	W	Electricity Substation	1989
273BF	433	W	Electricity Substation	1989
274BF	433	W	Electricity Substation	1989
275BG	436	W	Gas Works	1897
276BA	452	NW	Electricity Substation	1992
277BA	453	NW	Electricity Substation	1988

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps

provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 14

ID	Distance (m)	Direction	Use	Date
278	2	SW	Carriage and Wagon Works	1954
279AO	23	NW	Carriage and Wagon Works	1950
280BH	157	NW	Locomotive Carriage and Wagon Works	1909
281BH	157	NW	Locomotive Carriage and Wagon Works	1933
282Q	265	NW	Carriage and Wagon Works	1897
283	376	NW	Carriage and Wagon Works	1950
284BI	380	SW	Maintenance Depot	1971
285BI	416	SW	Maintenance Depot	1995
286BJ	430	W	Carriage and Wagon Works	1950
287BJ	431	W	Carriage Works	1968
288BK	431	W	Carriage and Wagon Works	1950
289BK	436	W	Carriage Works	1967
290BL	482	NW	Carriage and Wagon Works	1950
291BL	482	NW	Carriage Works	1967

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

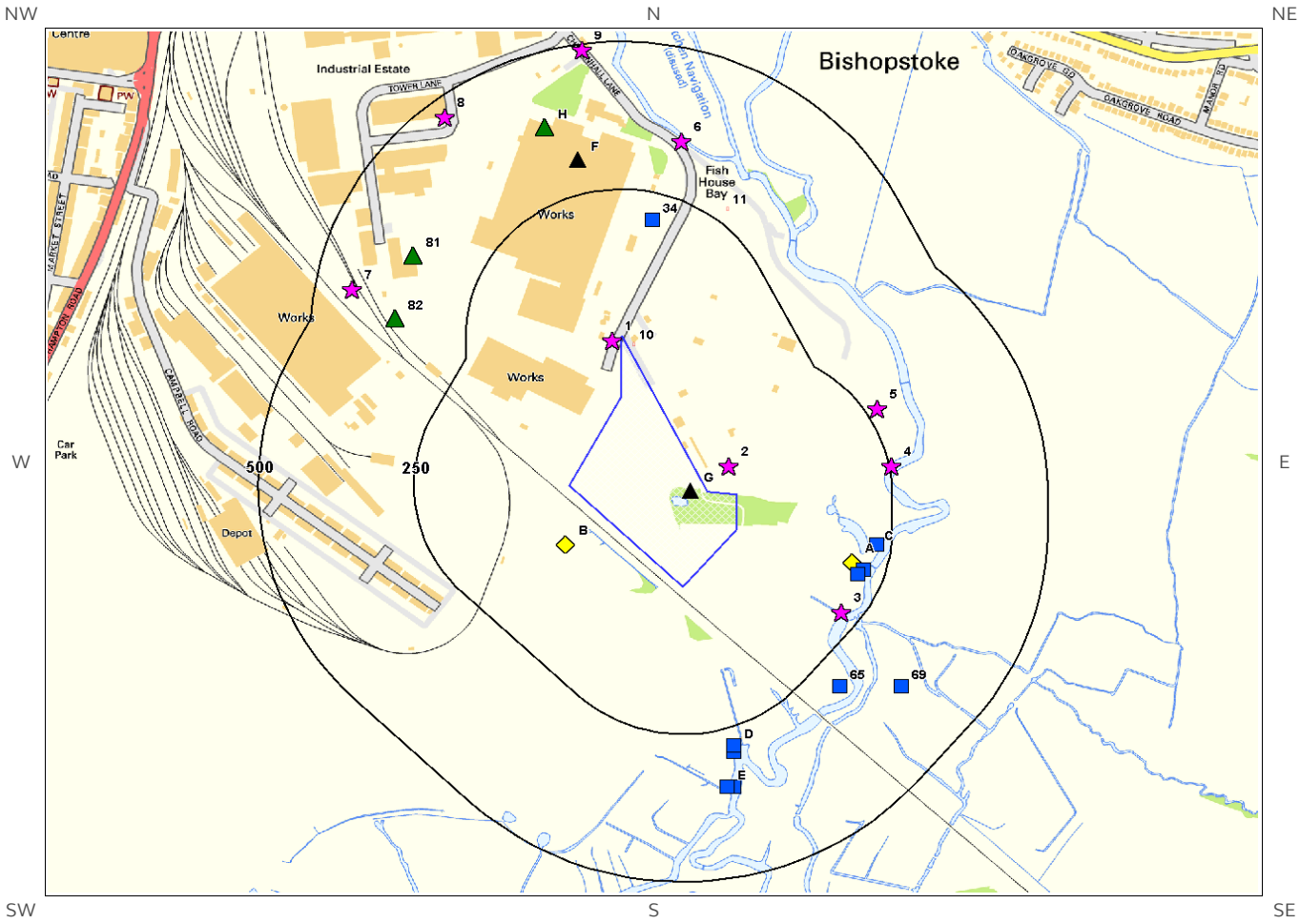
Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 77

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
292E	0	On Site	Sewage Works	1989
293E	0	On Site	Sewage Works	1981
294BM	0	On Site	Pond	1938
295BM	0	On Site	Pond	1895
296BM	0	On Site	Pond	1931
297	0	On Site	Pond	1908
298D	0	On Site	Sewage Works	1895
299D	0	On Site	Sewage Works	1938
300D	0	On Site	Sewage Works	1931
301D	0	On Site	Sewage Works	1931
302AH	0	On Site	Sewage Works	1908
303BM	0	On Site	Pond	1868
304BM	0	On Site	Pond	1888
305BM	0	On Site	Pond	1957
306BM	0	On Site	Pond	1931
307D	0	On Site	Sewage Works	1931
308BM	0	On Site	Pond	1968
309BN	38	NE	Sewage Works	1888
310M	55	NW	Old Gravel Pit	1888
311M	62	NW	Old Gravel Pit	1895
312M	62	NW	Old Gravel Pit	1908
313N	63	SW	Unspecified Pit	1957
314N	63	SW	Unspecified Pit	1981
315N	63	SW	Unspecified Pit	1968
316N	63	SW	Unspecified Pit	1989
317O	65	W	Old Gravel Pit	1888
318O	71	W	Old Gravel Pit	1895
319BO	77	NE	Filter Beds	1989
320O	78	W	Unspecified Pit	1908
321F	79	NE	Filter Bed	1908
322	89	E	Canal	1868
323P	91	NE	Gravel Pit	1895
324P	95	NE	Gravel Pit	1888
325R	101	NE	Canal	1868
326BP	104	E	Unspecified Heap	1908

327R	106	NE	Unspecified Ground Workings	1908
328BQ	106	E	Unspecified Ground Workings	1908
329	107	S	Pond	1908
330AK	107	NE	Pond	1908
331R	108	NE	Unspecified Ground Workings	1931
332R	108	NE	Unspecified Ground Workings	1895
333R	108	NE	Unspecified Ground Workings	1938
334BR	122	SE	Unspecified Heap	1908
335BS	123	SE	Unspecified Heap	1908
336T	129	N	Unspecified Heap	1931
337T	129	N	Unspecified Heap	1938
338BR	129	SE	Pond	1868
339T	129	N	Unspecified Heap	1931
340T	144	N	Unspecified Heap	1968
341T	144	N	Unspecified Heap	1957
342BT	184	NE	Pond	1981
343BT	184	NE	Pond	1989
344BU	225	NW	Gravel Pit	1908
345	253	NE	Canal	1868
346Z	254	S	Unspecified Heap	1981
347Z	254	S	Unspecified Heap	1968
348Z	254	S	Unspecified Heap	1989
349Z	254	S	Unspecified Heap	1957
350Z	257	S	Unspecified Heap	1931
351Z	258	S	Unspecified Heap	1931
352Z	258	S	Unspecified Heap	1931
353Z	258	S	Unspecified Heap	1938
354AA	277	SW	Filter Tanks	1931
355AA	277	SW	Filter Tanks	1931
356AA	277	SW	Filter Tanks	1938
357AA	282	SW	Filter Tanks	1908
358AA	283	SW	Filter Tanks	1931
359W	289	SW	Unspecified Pit	1957
360W	289	SW	Unspecified Pit	1968
361AA	291	SW	Filter Tanks	1908
362BV	309	NE	Unspecified Pit	1981
363	391	SE	Ponds	1895
364BW	466	SW	Pond	1908
365BW	467	SW	Pond	1981
366BW	467	SW	Pond	1989
367BW	474	SW	Pond	1908
368	478	SW	Pond	1908

2. Environmental Permits, Incidents and Registers Map



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- Site Outline
- Search Buffers (m) 250 / 500
- Recorded Pollution Incident
- Dangerous Substances (List 1)
- Dangerous Substances (List 2)
- Water Industry Referrals
- Licenced Discharge Consents
- Red List Discharge Consents
- RAS 3 & 4 Authorisations
- Part A(1) Authorised Processes and Historic IPC Authorisations
- Part A(2) and Part B Authorised Processes
- COMAH / NIHHS Sites
- Sites Determined as Contaminated Land
- Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

9

The following IPC Authorisations are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
87F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: AX1204 Original Permit Number: IPCMINVAR Date Approved: 5-2-1999 Effective Date: 5-2-1999 Status: Superseded By Variation
88F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: AQ4918 Original Permit Number: IPCMAJVAR Date Approved: 5-4-1995 Effective Date: 5-4-1995 Status: Superseded By Variation
89F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: AV4229 Original Permit Number: IPCMINVAR Date Approved: 12-4-1996 Effective Date: 12-4-1996 Status: Superseded By Variation
90F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: AI4212 Original Permit Number: IPCAIRAPP Date Approved: 25-10-1993 Effective Date: 25-10-1993 Status: Superseded By Variation
91F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: AY1706 Original Permit Number: IPCMAJVAR Date Approved: 30-6-1997 Effective Date: 30-6-1997 Status: Superseded By Variation
92F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: BD8843 Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
93F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane,	Permit Number: BH9779 Original Permit Number: IPCMINVAR

ID	Distance (m)	Direction	NGR	Details	
				Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Date Approved: 2-5-2000 Effective Date: 3-5-2000 Status: Superseded By Variation
94F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: BJ2717 Original Permit Number: IPCMAJVAR Date Approved: 5-12-2001 Effective Date: 7-12-2001 Status: Superseded By Variation
95F	306	N	446360 118580	Operator: Pirelli Cables Ltd Address: Optical Fibre Manufacturing Unit, PO Box 23, Chickenhall Lane, Eastleigh, Hampshire, SO50 9NZ Process: Other Mineral Fibres	Permit Number: BR9073 Original Permit Number: IPCMINVAR Date Approved: 12-4-2002 Effective Date: 19-4-2002 Status: Revoked

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

2

The following Part A(1) and IPPC Authorised Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
85G	0	On Site	446540 118020	Operator: CLEAN POWER (UK) LIMITED Installation Name: CHICKEN HALL LANE Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING BIOLOGICAL TREATMENT	Permit Number: VP3534EL Original Permit Number: VP3534EL EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2014-10-01 Status: DETERMINATION
86G	0	On Site	446540 118020	Operator: CLEAN POWER (UK) LIMITED Installation Name: CHICKEN HALL LANE Process: THE INCINERATION OF HAZARDOUS WASTE IN AN INCINERATION OR CO-INCINERATION PLANT WITH A CAPACITY EXCEEDING 10 TONNES PER DAY	Permit Number: VP3534EL Original Permit Number: VP3534EL EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2014-10-01 Status: DETERMINATION

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

2

The following Red List Discharge Consent records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
32C	226	E	446840 117930	Address: SOUTHERN WATER SERVICES LTD (H), EASTLEIGH SEWAGE TREATMENT WORKS, EASTLEIGH,	Discharge Type: Sewage Disposal Works - water company Effluent Type: SEWAGE DISCHARGES -

ID	Distance (m)	Direction	NGR	Details	
				HAMPSHIRE, HAMPSHIRE Permit Number: A00154 Permit Version: 5 Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY)	FINAL/TREATED EFFLUENT - WATER COMPANY Catchment: RIVER ITCHEN (OLD) Approval Date: 31-Dec-2000
33C	226	E	446840 117930	Address: SOUTHERN WATER SERVICES LTD (H), EASTLEIGH SEWAGE TREATMENT WORKS, EASTLEIGH, HAMPSHIRE, HAMPSHIRE Permit Number: A00154 Permit Version: 6 Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995)	Discharge Type: Sewage Disposal Works - water company Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Catchment: RIVER ITCHEN (OLD) Approval Date: 20-Dec-2005

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

4

The following List 1 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
12A	193	E	446800 117900	Name: Pirelli General Plc, Pirelli Cables Ltd, Eastleigh, Hants Status: Not Active Receiving Water: River Itchen	Authorised Substances: -
13A	193	E	446800 117900	Name: Alstom Transport (wessex Traincare Ltd) Status: Not Active Receiving Water: River Itchen	Authorised Substances: -
14A	193	E	446800 117900	Name: Br.rail Engineering Ltd. Cambell Rd. Eastleigh Status: Active Receiving Water: River Itchen	Authorised Substances: Mercury (other), Cadmium
15A	193	E	446800 117900	Name: Eastleigh Stw Status: Active Receiving Water: River Itchen, No Site	Authorised Substances: Mercury (other), Cadmium

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

16

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
16B	78	SW	446340 117930	Name: Eastleigh Stw Status: Active Receiving Water: Itchen	Authorised Substances: Iron
17B	78	SW	446340 117930	Name: Prysmian Cables And Systems Ltd	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc

ID	Distance (m)	Direction	NGR	Details	
				Status: Active Receiving Water: StwR. Itchen	
18B	78	SW	446340 117930	Name: Prysmian Cables And Systems Ltd Status: Active Receiving Water: StwR. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc
19B	78	SW	446340 117930	Name: Pirelli, Opt.fibre Manufact, Chickenhall Lane,eastleigh Status: Not Active Receiving Water: -	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
20B	78	SW	446340 117930	Name: Pirelli Cable Plc Status: Active Receiving Water: ItchenR. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc
21B	78	SW	446340 117930	Name: Onyx Hampshire Ltd Status: Active Receiving Water: ItchenR. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc
22B	78	SW	446340 117930	Name: Vfs (southampton Ltd), 8 Barton Park Ind Est, Eastleigh Status: Active Receiving Water: ItchenR. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
23A	193	E	446800 117900	Name: Intercole Circuits Ltd, Chandlers Ford Status: Not Active Receiving Water: R. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
24A	193	E	446800 117900	Name: Cp Laboratories Ltd Status: Not Active Receiving Water: R. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
25A	193	E	446800 117900	Name: Apw Electronic Solutions Status: Not Active Receiving Water: R. ItchenStw	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc
26A	193	E	446800 117900	Name: Manor Bakeries Ltd, Leigh Road, Eastleigh Status: Active Receiving Water: ItchenR. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
27A	193	E	446800 117900	Name: Pirelli Cable Works, Leigh Road, Eastleigh Status: Active Receiving Water: R. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
28A	193	E	446800 117900	Name: Pirelli General (optical Fibre), Chickenhall Lane, Eastleigh Status: Not Active Receiving Water: -	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc
29A	193	E	446800 117900	Name: Powder Coating, Boyatt Wood Status: Not Active Receiving Water: R. Itchen	Authorised Substances: Chromium, Lead, Nickel, Permethrin, Zinc
30A	193	E	446800 117900	Name: Pirelli Cable Plc Status: Active Receiving Water: ItchenR. Itchen	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc
31A	193	E	446800 117900	Name: Southampton Metal Treatments, The Crescent, Eastleigh Status: Not Active Receiving Water: -	Authorised Substances: Chromium, Copper, Lead, Nickel, Zinc

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

4

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
81	362	W	446094 118417	Address: Wessex Galvanisers, Tower Industrial Estate, Eastleigh, Hampshire, SO50 5NZ Process: Hot Dip Galvanizing Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
82	366	W	446065 118311	Address: Eastleigh Concrete Plant, Eastleigh Depot, Tower Industrial Estate, Eastleigh, Hants, SO50 6NZ Process: Use of Bulk Cement Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
83H	373	N	446307 118635	Address: Prysmian Cables and Systems Ltd (Previously Pirelli Cables), PO BOX 30, Chickenhall Lane, Eastleigh, Hants, SO50 5XA Process: Rubber Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
84H	373	N	446307 118635	Address: Pirelli Cables, Leigh Rd, Eastleigh, SO50 5XA Process: Rubber Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

36

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
34	203	N	446480 118480	Address: PIRELLI GENERAL CABLE WORKS LTD, CHICKENHALL LANE, EASTLEIGH, HAMPSHIRE Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: H02604 Permit Version: 1	Receiving Water: INTO LAND Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 05/07/1967 Effective Date: 05-Jul-1967 Revocation Date: 28/03/1996

ID	Distance (m)	Direction	NGR	Details	
35A	209	E	446810 117880	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 14	Receiving Water: THE RIVER ITCHEN Status: VARIED UNDER EPR 2010 Issue date: 24/10/2018 Effective Date: 24-Oct-2018 Revocation Date: -
36A	209	E	446810 117880	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 14	Receiving Water: THE RIVER ITCHEN Status: VARIED UNDER EPR 2010 Issue date: 24/10/2018 Effective Date: 24-Oct-2018 Revocation Date: -
37A	214	E	446818 117888	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 12	Receiving Water: THE RIVER ITCHEN Status: VARIED UNDER EPR 2010 Issue date: 04/12/2013 Effective Date: 04-Dec-2013 Revocation Date: 30/03/2015
38A	214	E	446818 117888	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 13	Receiving Water: THE RIVER ITCHEN Status: VARIED UNDER EPR 2010 Issue date: 04/12/2013 Effective Date: 31-Mar-2015 Revocation Date: 23/10/2018
39A	214	E	446818 117888	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 13	Receiving Water: THE RIVER ITCHEN Status: VARIED UNDER EPR 2010 Issue date: 04/12/2013 Effective Date: 31-Mar-2015 Revocation Date: 23/10/2018
40A	214	E	446818 117888	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 12	Receiving Water: THE RIVER ITCHEN Status: VARIED UNDER EPR 2010 Issue date: 04/12/2013 Effective Date: 04-Dec-2013 Revocation Date: 30/03/2015
41C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 1	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 22/01/1960 Effective Date: 22-Jan-1960 Revocation Date: 29/07/1979
42C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 9	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 14/10/2008 Effective Date: 01-Apr-2009 Revocation Date: 10/12/2009

ID	Distance (m)	Direction	NGR	Details	
43C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 6	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 20/12/2005 Effective Date: 20-Dec-2005 Revocation Date: 30/12/2008
44C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 3	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 30/03/1982 Effective Date: 30-Mar-1982 Revocation Date: 31/03/1987
45C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 2	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 30/07/1979 Effective Date: 30-Jul-1979 Revocation Date: 29/03/1982
46C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 2	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 30/07/1979 Effective Date: 30-Jul-1979 Revocation Date: 29/03/1982
47C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 5	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 20/12/2000 Effective Date: 31-Dec-2000 Revocation Date: 19/12/2005
48C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 4	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 01/04/1987 Effective Date: 01-Apr-1987 Revocation Date: 30/12/2000
49C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 3	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 30/03/1982 Effective Date: 30-Mar-1982 Revocation Date: 31/03/1987
50C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 1	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 22/01/1960 Effective Date: 22-Jan-1960 Revocation Date: 29/07/1979

ID	Distance (m)	Direction	NGR	Details	
51C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 4	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 01/04/1987 Effective Date: 01-Apr-1987 Revocation Date: 30/12/2000
52C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 8	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 14/09/2007 Effective Date: 31-Dec-2008 Revocation Date: 31/03/2009
53C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 8	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 14/09/2007 Effective Date: 31-Dec-2008 Revocation Date: 31/03/2009
54C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 7	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 30/03/2005 Effective Date: 31-Dec-2008 Revocation Date: 31/12/2008
55C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 6	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 20/12/2005 Effective Date: 20-Dec-2005 Revocation Date: 30/12/2008
56C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 5	Receiving Water: FRESHWATER STREAM OR RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 20/12/2000 Effective Date: 31-Dec-2000 Revocation Date: 19/12/2005
57C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 9	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 14/10/2008 Effective Date: 01-Apr-2009 Revocation Date: 10/12/2009
58C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 10	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 11/12/2009 Effective Date: 11-Dec-2009 Revocation Date: 22/03/2010

ID	Distance (m)	Direction	NGR	Details	
59C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: A00154 Permit Version: 11	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 23/03/2010 Effective Date: 23-Mar-2010 Revocation Date: 03/12/2013
60C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 11	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 23/03/2010 Effective Date: 23-Mar-2010 Revocation Date: 03/12/2013
61C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 7	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 30/03/2005 Effective Date: 31-Dec-2008 Revocation Date: 31/12/2008
62C	226	E	446840 117930	Address: CHICKENHALL EASTLEIGH WWTW, CHICKENHALL LANE, EASTLEIGH, ., HAMPSHIRE, SO50 6RQ Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: A00154 Permit Version: 10	Receiving Water: THE RIVER ITCHEN Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 11/12/2009 Effective Date: 11-Dec-2009 Revocation Date: 22/03/2010
63D	281	S	446610 117590	Address: EASTLEIGH LOCO. & CARRIAGE WORKS, EASTLEIGH, HAMPSHIRE Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: H01213 Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 15/04/1965 Effective Date: 15-Apr-1965 Revocation Date: 01/07/1991
64D	291	S	446610 117580	Address: WAGON WORKS, EASTLEIGH, HAMPSHIRE Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: H01146 Permit Version: 1	Receiving Water: SALINE ESTUARY Status: CONSENT REVOKED - DISCHARGE CEASED (WRA 91, SCHED 10 & 6) Issue date: 12/10/1962 Effective Date: 12-Oct-1962 Revocation Date: 23/01/2006
65	300	SE	446780 117690	Address: PIRELLI CABLES, SPECIAL CABLES DIVISION, CHICKENHALL LANE, EASTLEIGH HAMPSHIRE Effluent Type: TRADE DISCHARGES - SITE DRAINAGE (CONTAM SURFACE WATER, NOT WASTE SIT Permit Number: P06646R Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 01/04/1997 Effective Date: 01-Apr-1997 Revocation Date: -
66E	347	S	446600 117520	Address: EASTLEIGH WORKS, EASTLEIGH, HAMPSHIRE Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: H01214 Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 15/04/1965 Effective Date: 15-Apr-1965 Revocation Date: 01/07/1991
67E	349	S	446610 117520	Address: EASTLEIGH WORKS, EASTLEIGH, HAMPSHIRE Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: N00034 Permit Version: 1	Receiving Water: FRESHWATER STREAM OR RIVER Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 01/09/1986 Effective Date: 01-Sep-1986

ID	Distance (m)	Direction	NGR	Details	
					Revocation Date: 30/10/2006
68E	349	S	446610 117520	Address: EASTLEIGH WORKS, EASTLEIGH, HAMPSHIRE Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: N00034 Permit Version: 1	Receiving Water: FRESHWATER STREAM OR RIVER Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 01/09/1986 Effective Date: 01-Sep-1986 Revocation Date: 30/10/2006
69	375	SE	446880 117690	Address: FACTORY SITE, CHICKENHALL LANE, EASTLEIGH, HAMPSHIRE Effluent Type: TRADE DISCHARGES - UNSPECIFIED Permit Number: P11000L Permit Version: 1	Receiving Water: FRESHWATER RIVER Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 30/01/1985 Effective Date: 30-Jan-1985 Revocation Date: 31/03/1997

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

9

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	17	W	446414.0 118276.0	Incident Date: 24-Jul-2001 Incident Identification: 18756.0	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor)

ID	Distance (m)	Direction	NGR	Details	
				Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Air Impact: Category 4 (No Impact)
2	46	N	446602.0 118063.0	Incident Date: 10-Jan-2002 Incident Identification: 52369.0 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
3	218	SE	446782.0 117816.0	Incident Date: 24-Jul-2003 Incident Identification: 176493.0 Pollutant: Sewage Materials Pollutant Description: Final Effluent	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4	252	E	446863.0 118063.0	Incident Date: 28-May-2015 Incident Identification: 1340488.0 Pollutant: Sewage Materials Pollutant Description: Final Effluent	Water Impact: Category 2 (Significant) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
5	267	NE	446840.0 118160.0	Incident Date: 03-Jan-2003 Incident Identification: 128992.0 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
6	345	N	446526.0 118614.0	Incident Date: 16-Oct-2002 Incident Identification: 115072.0 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
7	441	W	445997.0 118362.0	Incident Date: 15-Aug-2007 Incident Identification: 523569.0 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)
8	469	NW	446145.0 118654.0	Incident Date: 05-Feb-2002 Incident Identification: 56537.0 Pollutant: Oils and Fuel Pollutant Description: Gas and Fuel Oils	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
9	490	N	446366.0 118768.0	Incident Date: 08-Apr-2002 Incident Identification: 69632.0 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

2

The following NIRS List 1 records are represented as points on the Environmental Permits, Incidents and Registers Map:

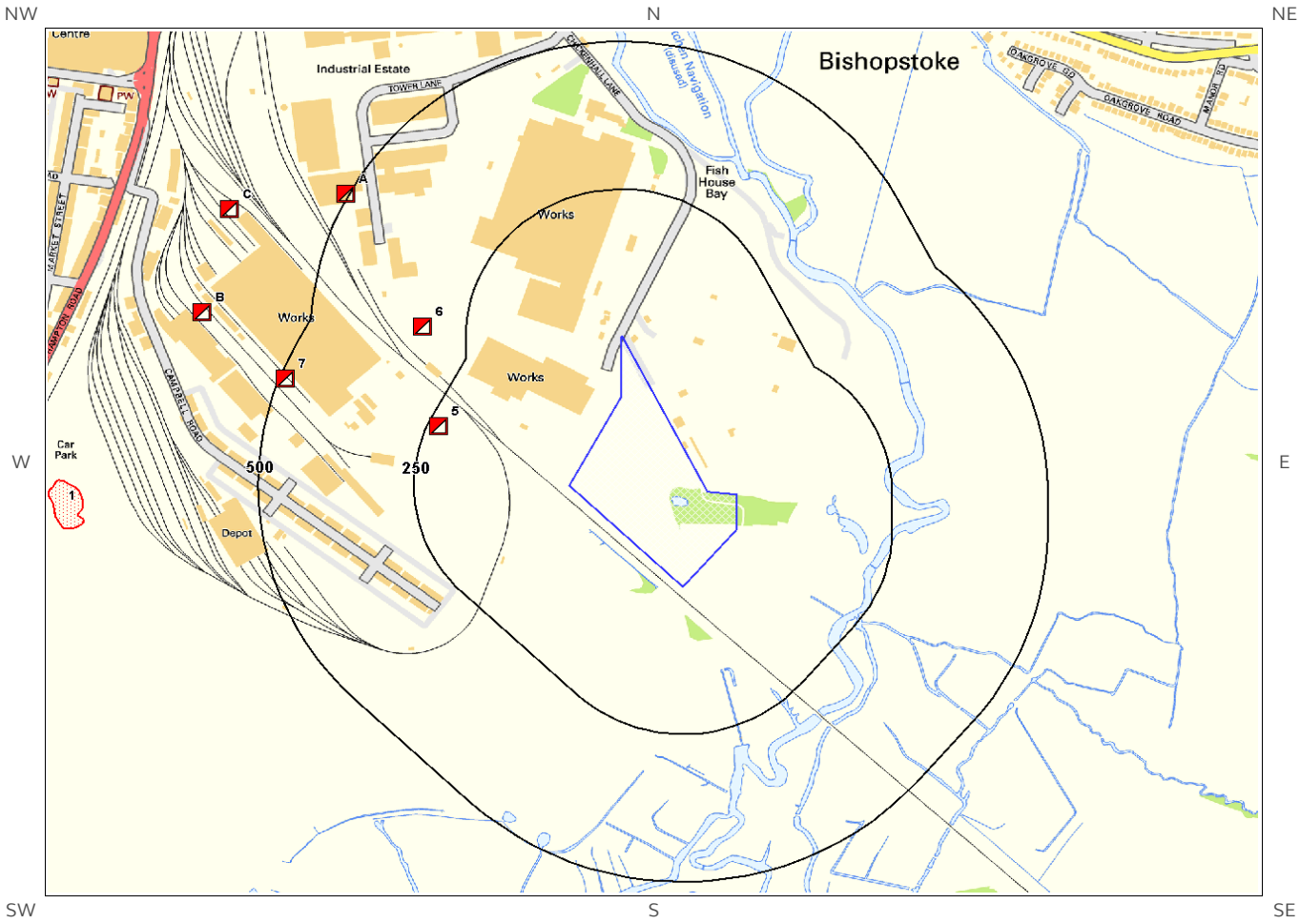
ID	Distance(m)	Direction	NGR	Details	
10	11	NE		Incident Date: 06-Nov-2000 Incident Identification: 8486.0 Catchments Name: ITCHEN (NIRS) Water Description: NOT APPLICABLE Water Course: NOT AFFECTED Incident Substantiated: Yes	Priority Description: 1 Day (24 Hours) Waste Description: Not Available Water Impact: No Impact Land Impact: Significant Impact Air Impact: No Impact Action Taken: Other
11	275	NE		Incident Date: 26-May-2000 Incident Identification: 6052.0 Catchments Name: ITCHEN (NIRS) Water Description: RIVER STRETCH (FRESHWATER) Water Course: MIDDLE ITCHEN (NIRS) Incident Substantiated: Yes	Priority Description: Immediate (2 Hours) Waste Description: Not Available Water Impact: Significant Impact Land Impact: No Impact Air Impact: No Impact Action Taken: Other

2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

4

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
1	782	W		Site Address: Old Gravel Pit, North of Airport on BR Land, West of Southampton Road, Eastleigh, Hampshire Waste Licence: - Site Reference: FEA24, E 2 Waste Type: Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: British Rail First Recorded: - Last Recorded: -
Not shown	1207	W		Site Address: Land at Lakeside, Wide Lane - Doncaster Drove, Eastleigh, Hampshire Waste Licence: Yes Site Reference: FEA34, EA 094 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 24-May-1994 Licence Surrendered: Licence Holder Address: Warren Farm, Down End Road, Fareham Operator: - Licence Holder: H T Hughes and Sons (Transport) Limited First Recorded: - Last Recorded: -
Not shown	1214	NE		Site Address: St Austell Close - Bodmin Road, Stoke Park, Bishopstoke, Eastleigh, Hampshire Waste Licence: - Site Reference: FEA23, E 1 Waste Type: Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: - Last Recorded: -
Not shown	1230	W		Site Address: Land at the west of Wide Lane, Wide Lane - Doncaster Drove, Eastleigh, Hampshire Waste Licence: Yes Site Reference: FEA10, 9/20 Waste Type: Inert, Household	Licence Issue: 19-Jan-1983 Licence Surrendered: Licence Holder Address: Hooton, Little Sutton, South Wirral, Cheshire Operator: - Licence Holder: Sir Alfred McAlpine and

ID	Distance (m)	Direction	NGR	Details	
				Environmental Permitting Regulations (Waste) Reference: -	Son Limited First Recorded: 19-Jan-1983 Last Recorded: -

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

12

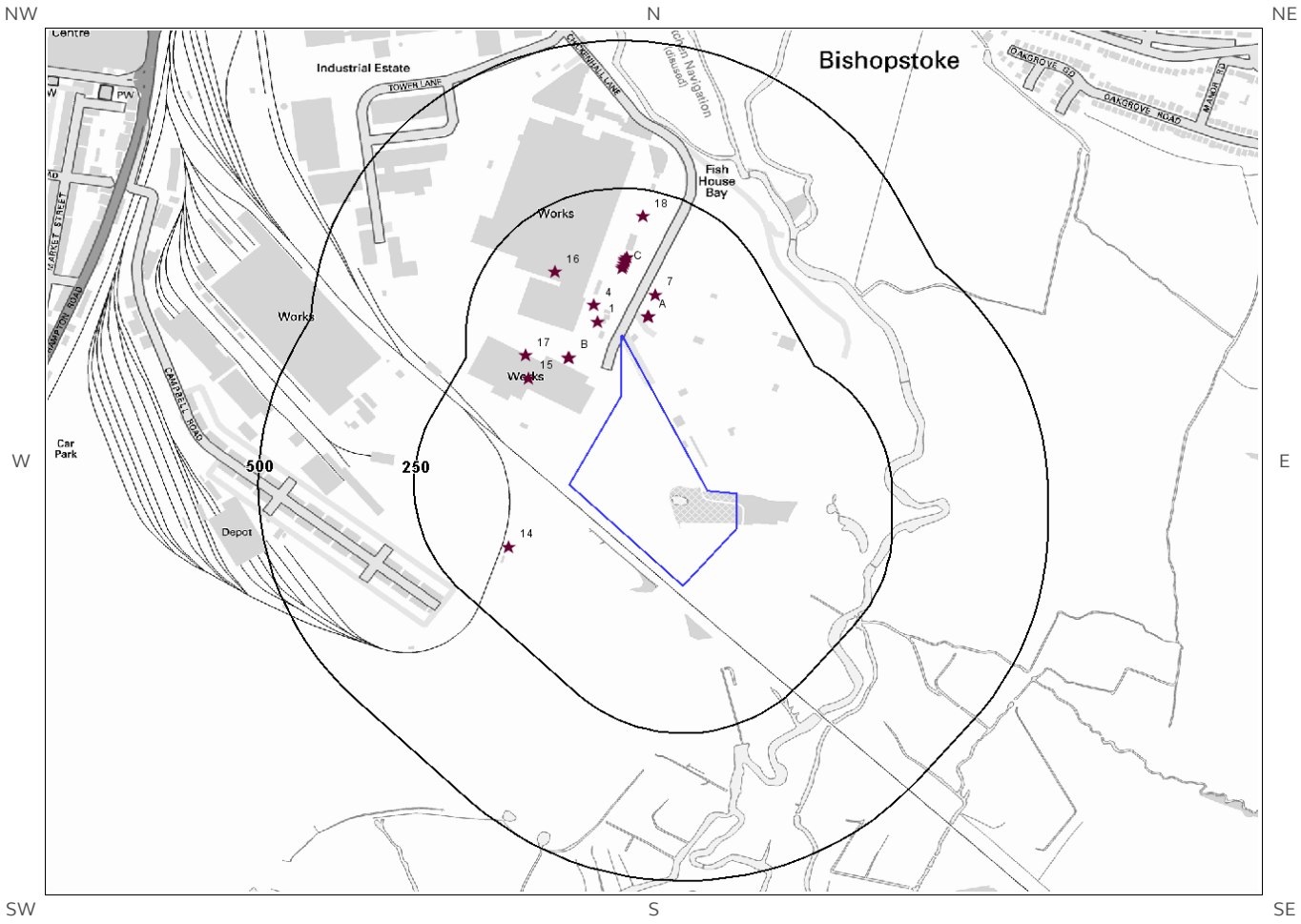
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
5	234	NW	446136 118132	Site Address: Eastleigh Railworks, Campbell Road, Eastleigh, Hampshire, SO50 5AB Type: Treatment of waste to produce soil <75,000 tpy Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HAM004 EPR reference: EA/EPR/FB3803ZU/S002 Operator: Hampshire Environmental Services Ltd Waste Management licence No: 404522 Annual Tonnage: 0.0	Issue Date: 18/01/2018 Effective Date: - Modified: - Surrendered Date: Apr 3 2019 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Eastleigh Railworks Correspondence Address: -
6	321	W	446110 118301	Site Address: Tower Lane, Eastleigh, Hampshire, SO50 6NZ	Issue Date: 03/11/2017 Effective Date: -

ID	Distance (m)	Direction	NGR	Details	
				Type: Inert & Excavation Waste TS Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: AIU002 EPR reference: EA/EPR/FB3605KN/S002 Operator: Aggregate Industries U K Limited Waste Management licence No: 404363 Annual Tonnage: 0.0	Modified: - Surrendered Date: Apr 26 2018 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Limestone Terminal Correspondence Address: -
7	492	W	445890 118212	Site Address: Eastleigh Rail Works, Campbell Road, Eastleigh, Hampshire, SO50 5AD Type: 75kte Metal Recycling Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAX001 EPR reference: EA/EPR/FB3632RA/V002 Operator: Raxstar Limited Waste Management licence No: 103992 Annual Tonnage: 74999.0	Issue Date: 28/03/2012 Effective Date: - Modified: 01/07/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Raxstar Limited Correspondence Address: -
8A	506	NW	445987 118526	Site Address: Tower Industrial Estate, Tower Lane, Eastleigh, Hampshire, SO50 6NZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BIF126 EPR reference: EA/EPR/EB3008UW/A001 Operator: Biffa Waste Services Ltd Waste Management licence No: 403218 Annual Tonnage: 90000.0	Issue Date: 06/09/2016 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Eastleigh Waste Transfer And Recycling Facility Correspondence Address: -
9A	506	NW	445987 118526	Site Address: Tower Industrial Estate, Tower Lane, Eastleigh, Hampshire, SO50 6NZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BIF126 EPR reference: EA/EPR/EB3008UW/A001 Operator: Biffa Waste Services Limited Waste Management licence No: 403218 Annual Tonnage: 90000.0	Issue Date: 06/09/2016 Effective Date: - Modified: - Surrendered Date: 0 Expiry Date: 0 Cancelled Date: 0 Status: Issued Site Name: Eastleigh Waste Transfer And Recycling Facility Correspondence Address: -
10A	506	NW	445987 118526	Site Address: Tower Industrial Estate, Tower Lane, Eastleigh, Hampshire, SO50 6NZ Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BIF126 EPR reference: EA/EPR/EB3008UW/V002 Operator: Biffa Waste Services Ltd Waste Management licence No: 403218 Annual Tonnage: 120000.0	Issue Date: 06/09/2016 Effective Date: - Modified: 08/02/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Eastleigh Waste Transfer And Recycling Facility Correspondence Address: -
11B	660	NW	445756 118324	Site Address: Van Shop, Eastleigh Works, Campbell Road, Eastleigh, Hampshire, SO50 5AD Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KNI021 EPR reference: EA/EPR/CP3598VE/V002 Operator: Knights Rail Services Ltd	Issue Date: 03/11/2009 Effective Date: - Modified: 03/08/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Old Alstom Works Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
				Waste Management licence No: 100948 Annual Tonnage: 10000.0	
12B	660	NW	445756 118324	Site Address: Old Van Shop, Eastleigh Works, Campbell Road, Eastleigh, Hampshire, SO50 5AD Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KRE002 EPR reference: EA/EPR/HB3539RK/S002 Operator: Knights Rail Environmental Services Limited Waste Management licence No: 100948 Annual Tonnage: 0.0	Issue Date: 03/11/2009 Effective Date: 04/08/2012 Modified: 03/08/2011 Surrendered Date: Jul 29 2014 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Old Alstom Works Correspondence Address: -
13C	667	W	445800 118500	Site Address: Land At Eastleigh Sidings, Tower Lane, Chickenhall Lane, Eastleigh, Hampshire, SO50 5AD Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAI007 EPR reference: EA/EPR/DP3695HJ/V002 Operator: Network Rail Infrastructure Ltd Waste Management licence No: 10227 Annual Tonnage: 250000.0	Issue Date: 15/09/2003 Effective Date: - Modified: 02/11/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Eastleigh Railway Sidings Correspondence Address: -
14C	667	W	445800 118500	Site Address: Land At Eastleigh Sidings, Tower Lane, Chickenhall Lane, Eastleigh, Hampshire, SO50 6RP Type: Special Waste Transfer Station Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAI007 EPR reference: - Operator: Network Rail Infrastructure Ltd Waste Management licence No: 10227 Annual Tonnage: 225000.0	Issue Date: 15/09/2003 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Land At Eastleigh Sidings Correspondence Address: -
15C	667	W	445800 118500	Site Address: Land At Eastleigh Sidings, Tower Lane, Eastleigh, Hampshire, SO50 5AD Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAI007 EPR reference: EA/EPR/DP3695HJ/V Operator: Network Rail Infrastructure Limited Waste Management licence No: 10227 Annual Tonnage: 250000.0	Issue Date: 15/09/2003 Effective Date: - Modified: 23/03/2015 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Eastleigh Railway Sidings Correspondence Address: -
16C	667	W	445800 118500	Site Address: Eastleigh Sidings, Tower Lane, Eastleigh, Hampshire, SO50 5AD Type: Inert & Excavation WTS with treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RAI007 EPR reference: EA/EPR/DP3695HJ/V004 Operator: Network Rail Infrastructure Limited Waste Management licence No: 10227 Annual Tonnage: 250000.0	Issue Date: 15/09/2003 Effective Date: - Modified: 23/08/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Eastleigh Railway Sidings Correspondence Address: -

4. Current Land Use Map



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Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 18

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	47	NW	Tank	446392 118308	Hampshire, SO50	Tanks (Generic)	Industrial Features
2A	53	NE	Sewage Works	446472 118316	Hampshire, SO50	Waste Storage, Processing and Disposal	Infrastructure and Facilities
3A	54	NE	Sewage Works	446473 118316	Hampshire, SO50	Waste Storage, Processing and Disposal	Infrastructure and Facilities
4	70	NW	Tanks	446386 118336	Hampshire, SO50	Tanks (Generic)	Industrial Features
5B	85	W	Gas Governor Station	446346 118247	Hampshire, SO50	Gas Features	Infrastructure and Facilities
6B	86	W	Gas Governor Station	446345 118247	Hampshire, SO50	Gas Features	Infrastructure and Facilities
7	89	NE	Filter Beds	446485 118353	Hampshire, SO50	Waste Storage, Processing and Disposal	Infrastructure and Facilities
8C	115	N	Tank	446431 118398	Hampshire, SO50	Tanks (Generic)	Industrial Features
9C	119	N	Tank	446432 118402	Hampshire, SO50	Tanks (Generic)	Industrial Features
10C	124	N	Tank	446434 118406	Hampshire, SO50	Tanks (Generic)	Industrial Features
11C	128	N	Tank	446435 118410	Hampshire, SO50	Tanks (Generic)	Industrial Features
12C	131	N	Tank	446436 118413	Hampshire, SO50	Tanks (Generic)	Industrial Features
13C	134	N	Tank	446438 118416	Hampshire, SO50	Tanks (Generic)	Industrial Features
14	144	SW	Tank	446249 117926	Hampshire, SO18	Tanks (Generic)	Industrial Features
15	146	NW	Works	446280 118212	Hampshire, SO50	Unspecified Works Or Factories	Industrial Features
16	153	NW	Works	446324 118392	Hampshire, SO50	Unspecified Works Or Factories	Industrial Features
17	155	W	Electricity Sub Station	446276 118251	Hampshire, SO50	Electrical Features	Infrastructure and Facilities
18	206	N	Electricity Sub Station	446464 118486	Hampshire, SO50	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

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5. Geology

5.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
RTD1-XCZ	RIVER TERRACE DEPOSITS, 1	CLAY AND SILT
RTD1-XSV	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL

5.3 Bedrock and Solid Geology

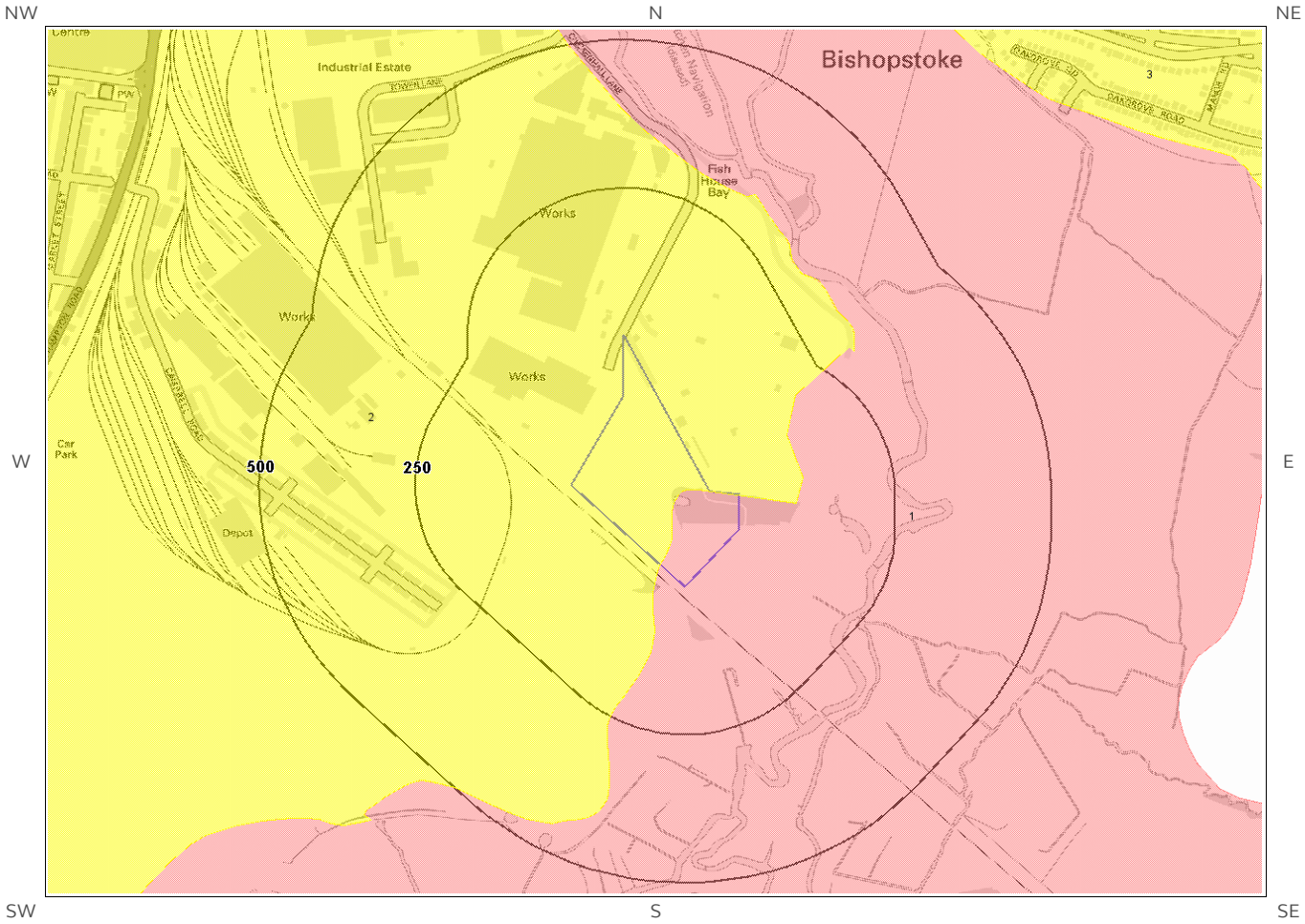
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
WTT-XSZC	WITTERING FORMATION	SAND, SILT AND CLAY

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

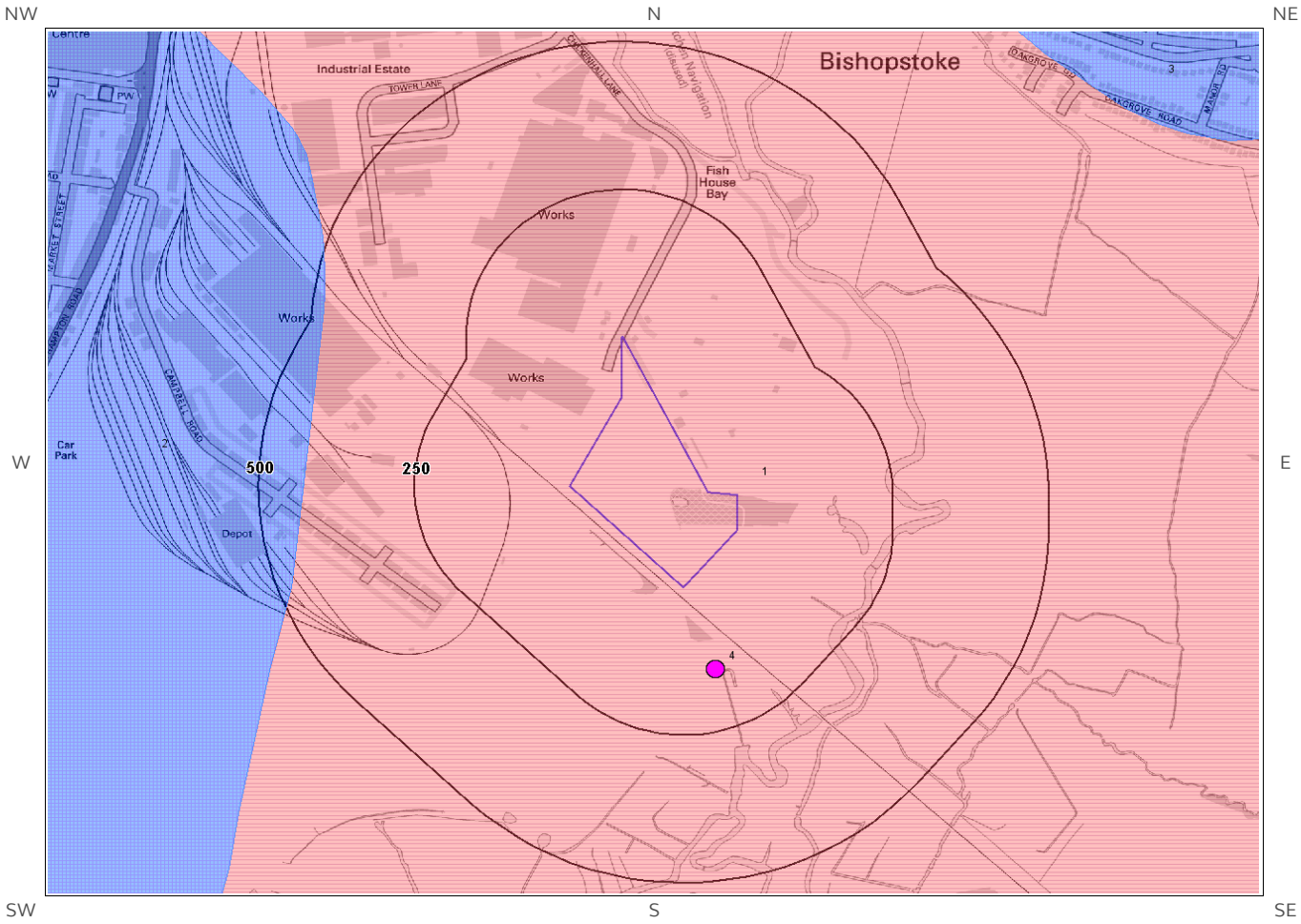
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

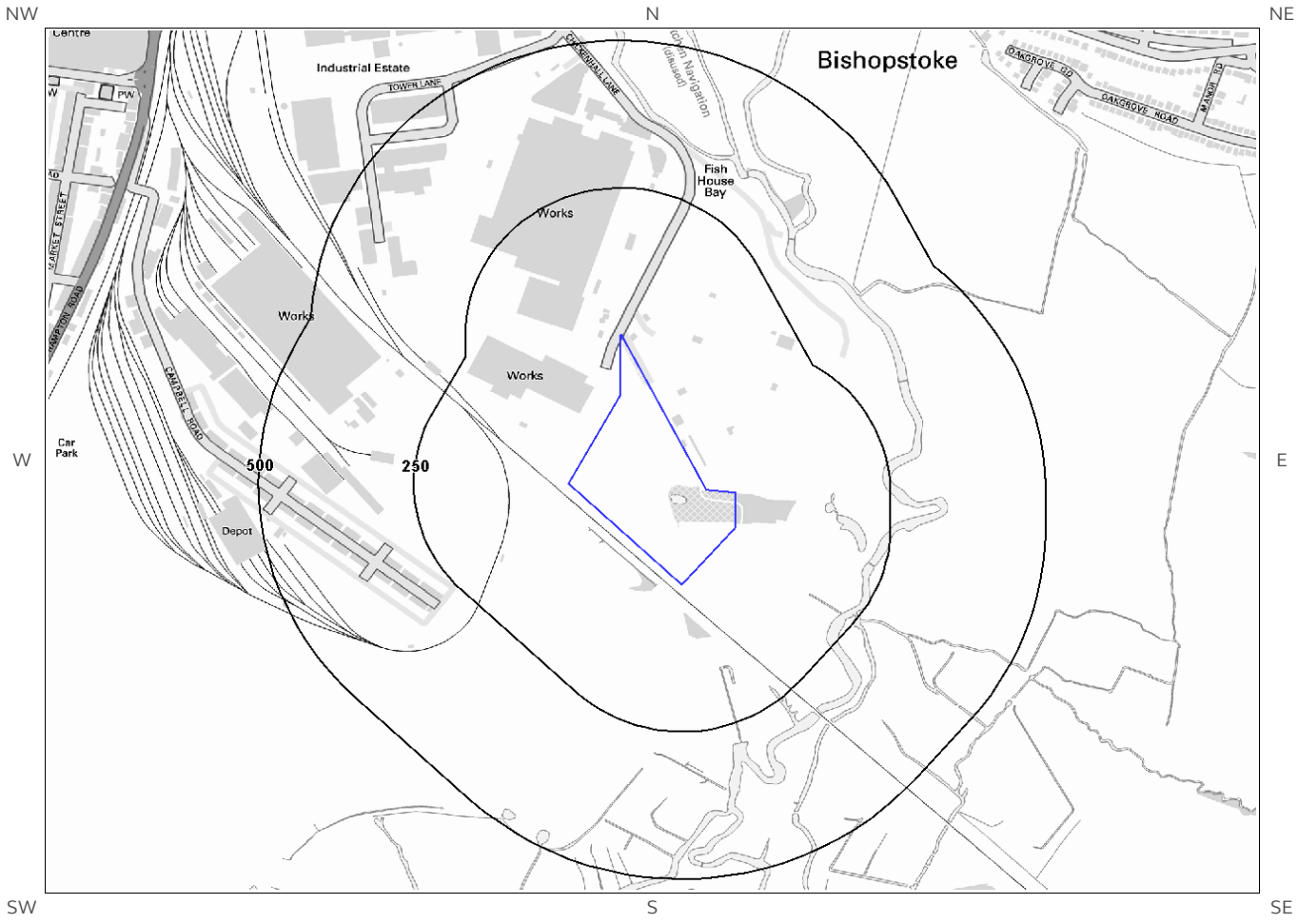
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

Surface Water Abstraction Licence

6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

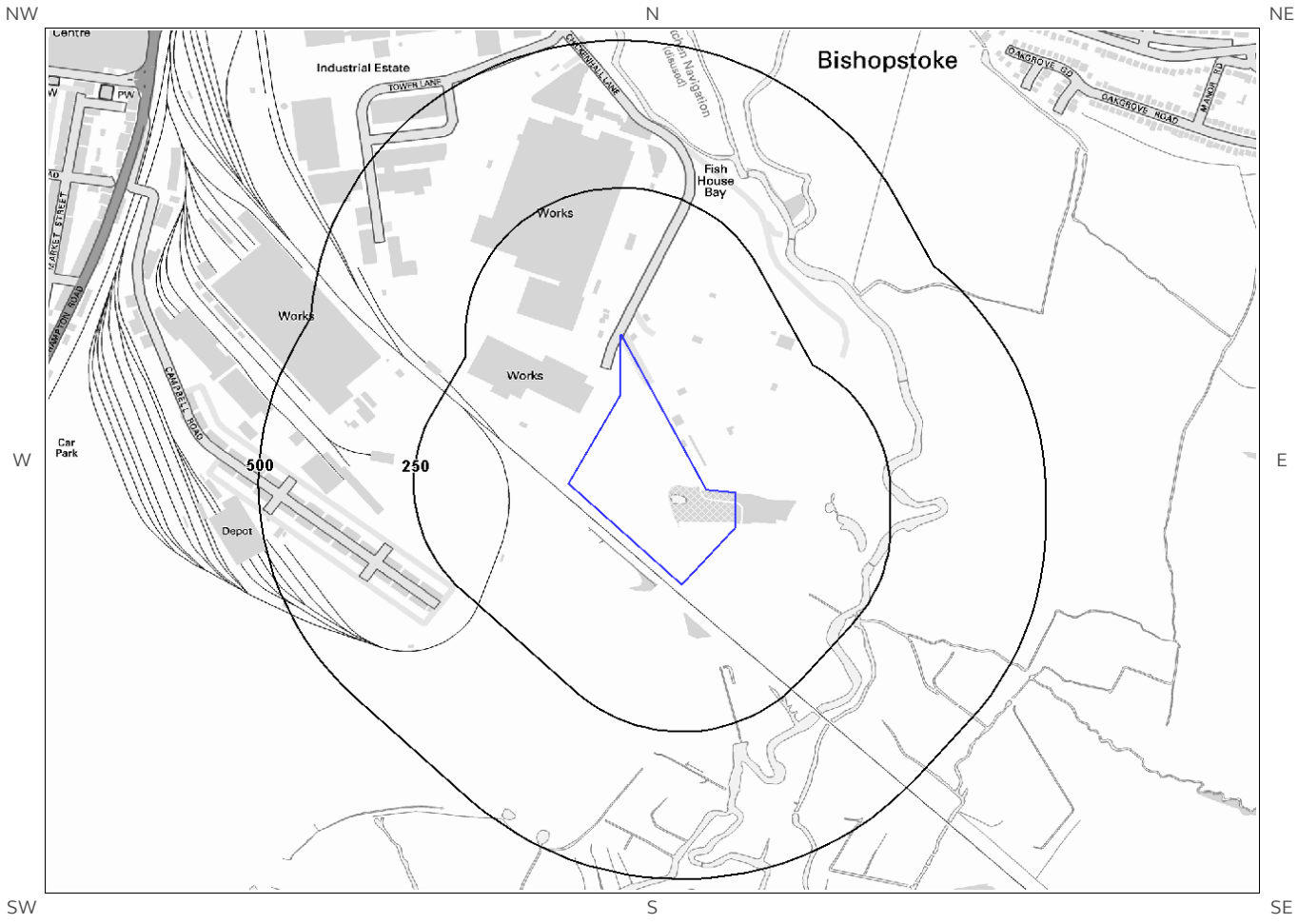
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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Site Outline

250
500
Search Buffers (m)

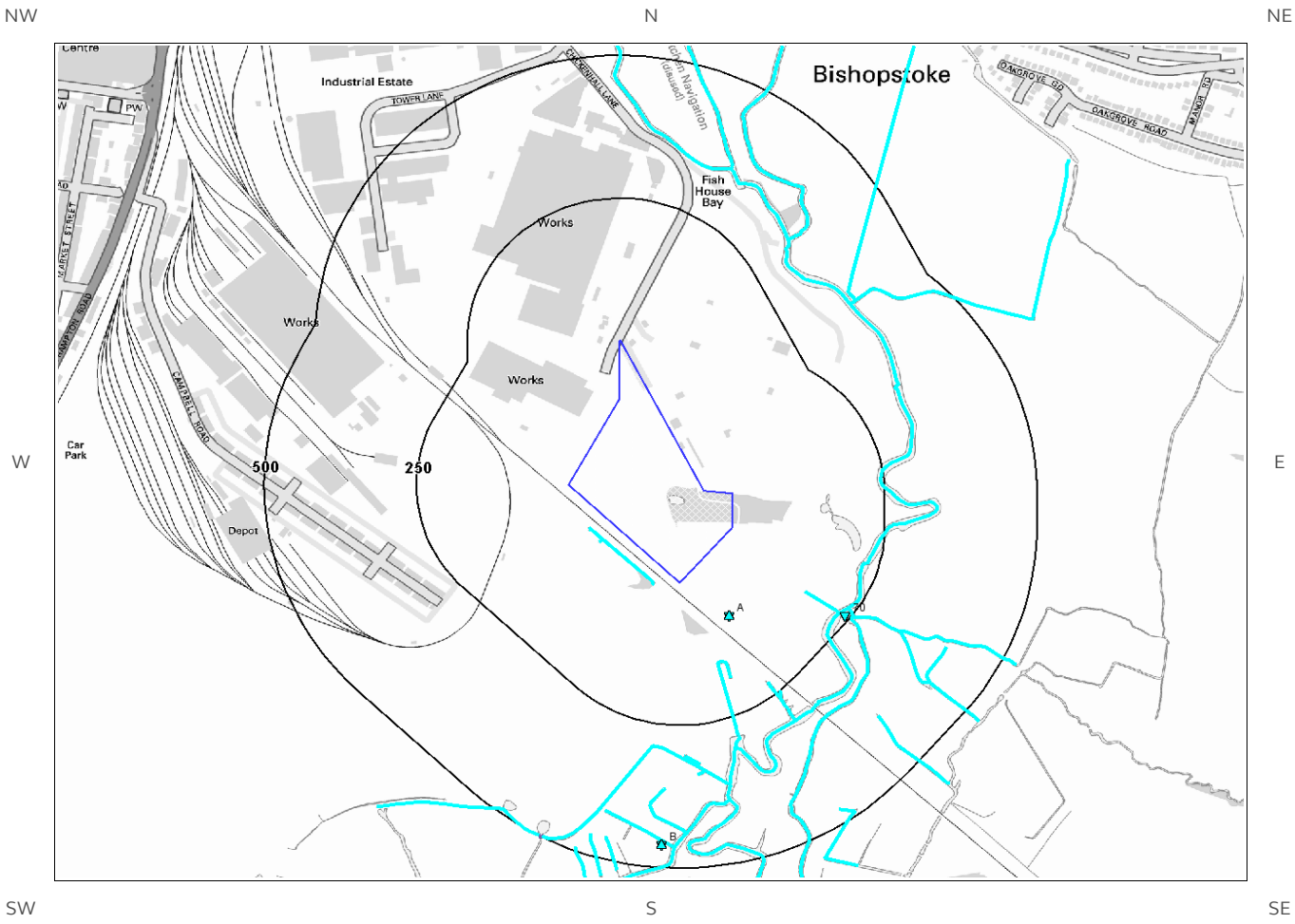
Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality



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Site Outline

250
500
Search Buffers (m)

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	425	W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
4	148	S	446580 117720	Status: Historical Licence No: 11/42/22.10/119 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Southern Region Surface Waters Point: ITCHEN CARRIER AT RAIL WORKSHOP, EASTLEIGH Data Type: Point Name: The Plant Director	Annual Volume (m^3): 105000 Max Daily Volume (m^3): 4091 Application No: - Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: 01/03/2005 Version End Date:
Not shown	792	N	446447 119074	Status: Historical Licence No: SO/042/0031/005 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: Southern Region Surface Waters Point: ITCHEN NAVIGATION IN EASTLEIGH Data Type: Point Name: Eastleigh Borough Council	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 06/10/2009 Expiry Date: 31/03/2019 Issue No: 1 Version Start Date: 06/10/2009 Version End Date:
Not shown	1302	E	447870 117610	Status: Active Licence No: 11/42/22.10/120 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: TRIBUTARY OF RIVER ITCHEN AT ALLINGTON MANOR FARM, FAIR OAK Data Type: Line Name: Arturi	Annual Volume (m^3): 2275 Max Daily Volume (m^3): 100 Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 101 Version Start Date: 23/10/2018 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
53	E	Minor Aquifer/Intermediate Leaching Potential	I2	Soils which can possibly transmit non – or weakly adsorbed pollutants and liquid discharges but are unlikely to transmit adsorbed pollutants.
333	E	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site Identified

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
68A	100	SE	446610 117800	River Name: Itchen Reach: Eastleigh Stw - Highbridge End/Start of Stretch: End of Stretch NGR	A	A	A	A	A
69A	100	SE	446610 117800	River Name: Itchen Reach: British Rail Outfalls - Eastleigh Stw End/Start of Stretch: Start of Stretch NGR	A	A	A	A	A
70	242	SE	446800 117800	River Name: Allington Lane Stream Reach: R. Itchen Conf - Quob Farm End/Start of Stretch: End of Stretch NGR	C	C	D	D	D
71B	460	S	446500 117400	River Name: Itchen Reach: British Rail Outfalls - Eastleigh Stw End/Start of Stretch: End of Stretch NGR	A	A	A	A	A

6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
72A	100	SE	446610 117800	River Name: R. Itchen Reach: Eastleigh Stw - Highbridge End/Start of Stretch: End of Stretch NGR	A	A	A	A	A
73B	460	S	446500 117400	River Name: R. Itchen Reach: Woodmill - D/s British Rail Outfalls End/Start of Stretch: Start of Stretch NGR	A	B	B	B	A
Not shown	1129	N	446461 119411	River Name: R. Itchen Reach: Eastleigh Stw - Highbridge End/Start of Stretch: Sample Point NGR	A	A	A	A	A

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	29 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
2	29 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
3	29 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
12	29 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
13	29 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
14	29 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
4	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
5	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
6	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
7	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
15	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
16	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
17	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
18	32 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
8	154 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
19	154 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
9	164 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
20	164 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
10	219 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
21	219 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
11	224 E	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.5
22	224	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	E			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.5
12	225 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.7
23	225 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.7
13	231 SE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.9
14	231 SE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.3
24	231 SE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.9
25	231 SE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.3
15	232 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.7
26	232 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.7
16	237 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.5
27	237 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.5
17	250 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.4
28	250 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 5.4
18	251 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.8
19	251 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.5
29	251 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.8
30	251 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.5
20	259 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.5
31	259 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.5
21	268 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.5
32	268 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.5
22	273 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
33	273 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
23	283 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.8
34	283 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.8

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
24	284 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	284 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
25	288 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.5
Not shown	288 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 17.5
26	289 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
Not shown	289 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
27	303 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
28	303 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
Not shown	303 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
39	303 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
29	304 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
30	304 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	304	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	S			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
Not shown	304 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	305 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.2
42	305 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.2
32	327 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.2
33	327 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.8
43	327 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.2
44	327 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.8
34	331 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
35	331 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.9
45	331 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
46	331 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.9
36	332 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 2.0
37	332 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
Not shown	332 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	332 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
38	337 NE	Barton River	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.0
Not shown	337 NE	Barton River	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.0
39	346 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
50	346 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
40	350 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
51	350 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
41	351 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.6
Not shown	351 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.6
42	357 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.1

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	357 NE	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.1
43	361 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	361 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
44	362 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
Not shown	362 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
45	364 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
46	364 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
Not shown	364 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
57	364 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
47	371 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
58	371 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
48	374 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.8
59	374	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	NE			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.8
49	389 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.6
50	389 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.0
Not shown	389 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.6
Not shown	389 S	River Itchen	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.0
51	398 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
62	398 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
52	409 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
63	409 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
53	418 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
Not shown	418 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
54	422 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
65	422 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 3.0
55	439 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 11.3
Not shown	439 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 11.3
56	460 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	460 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
57	463 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	463 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
58	464 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
Not shown	464 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.5
59	475 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
Not shown	475 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
60	491 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	491 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
61	493 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	493 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
62	496 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
Not shown	496 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
63	498 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
64	498 SW	-	Lake, loch or reservoir.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
65	498 SW	-	Lake, loch or reservoir.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
66	498 SW	-	Lake, loch or reservoir.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	498 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	498 SW	-	Lake, loch or reservoir.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	498 SW	-	Lake, loch or reservoir.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	498 SW	-	Lake, loch or reservoir.	Catchment Area: Itchen Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
67	499	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: Underground

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	499 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Itchen Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

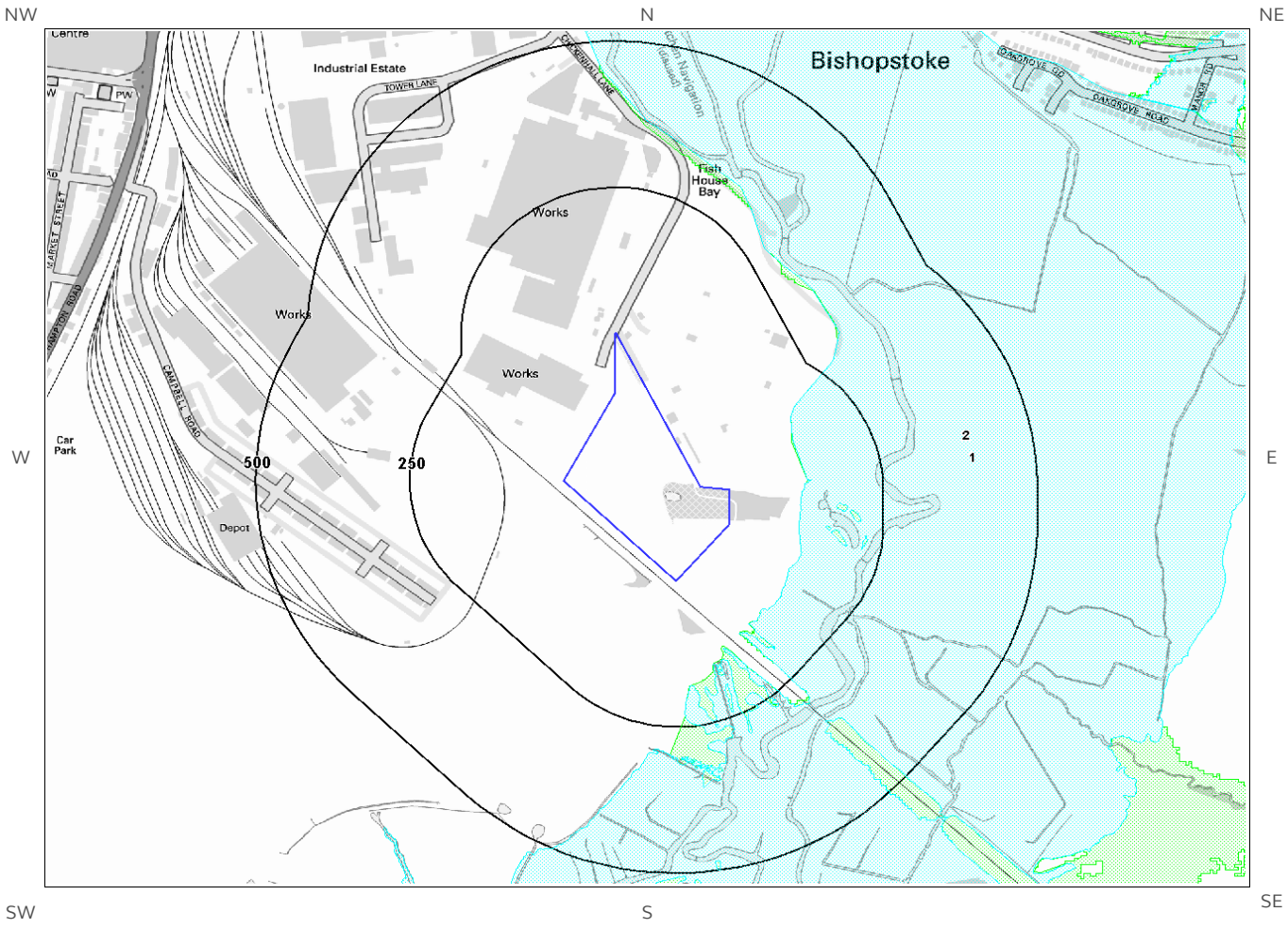
6.11 Surface Water Features

Surface water features within 250m of the study site Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
145	E
152	SE
153	SE
164	SE
222	SE

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

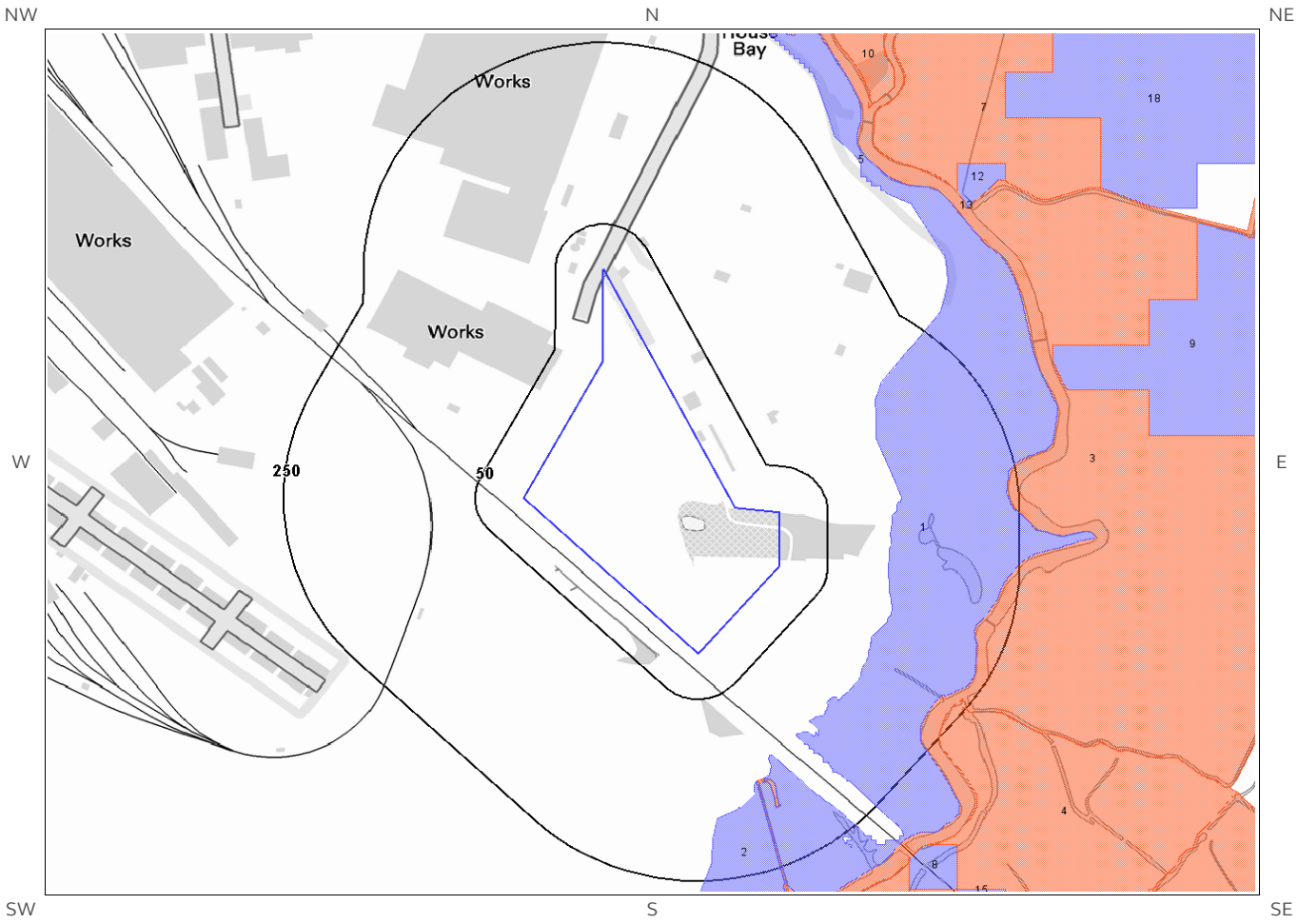
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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Site Outline

100
250
Search Buffers (m)

RoFRaS Rating

Very Low

Low

Medium

High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	113	E	21-Feb-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	113	E	21-Feb-2019	Zone 3 - (Fluvial /Tidal Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite — Very Low

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Flood Defences within 250m of the study site	None identified
Database searched and no data found.	

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site	None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site	None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site: Identified

Clearwater Flooding or Superficial Deposits Flooding	Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

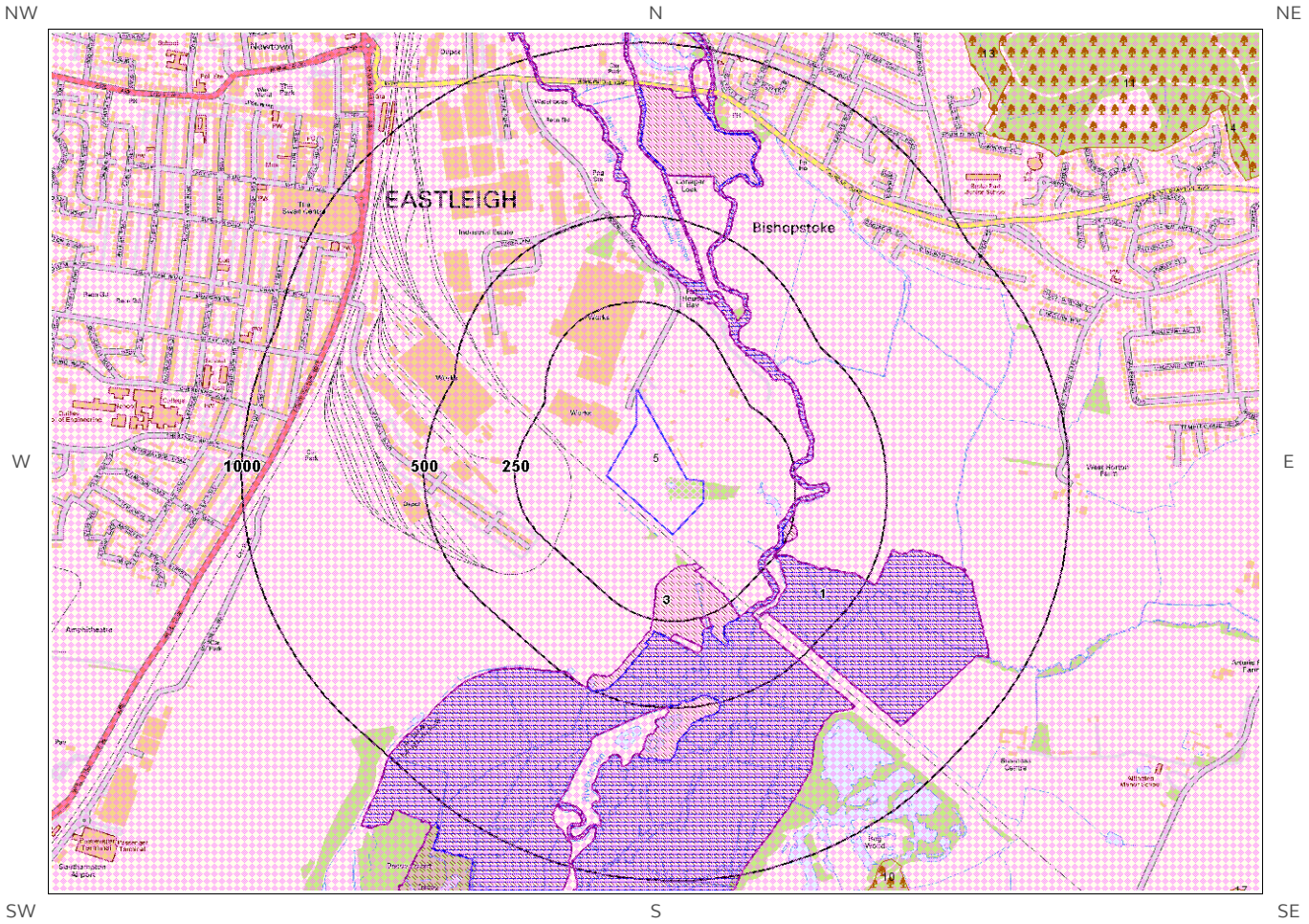
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result	Moderate

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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Site Outline

100
250
Search Buffers (m)

AONB
National Park
SSSI
Special Protection Areas
Nitrate Vulnerable Zones
Green Belt
Environmentally Sensitive Areas
Special Areas of Conservation
World Heritage Sites
Nitrate Sensitive Areas
Ancient Woodland
National Nature Reserve
Local Nature Reserves
Ramsar Sites

8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site | Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

2

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
3	94	S	River Itchen	Natural England
Not shown	1723	N	River Itchen	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

2

The following Special Area of Conservation (SAC) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SAC Name	Data Source
1	215	E	River Itchen	Natural England
Not shown	1723	N	River Itchen	Natural England

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

8.6 Records of Ancient Woodland within 2000m of the study site:

12

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
Not shown	1104	S	PAYNES ROW	Ancient and Semi-Natural Woodland
10	1106	SE	PAYNES ROW	Ancient and Semi-Natural Woodland
11	1207	NE	STOKE PARK WOOD	Ancient Replanted Woodland
Not shown	1241	S	RIVER/HIGH WOOD/VOCUS COPSES	Ancient Replanted Woodland
13	1263	NE	STOKE PARK WOOD	Ancient and Semi-Natural Woodland
14	1721	NE	STOKE PARK WOOD	Ancient and Semi-Natural Woodland
Not shown	1732	S	BUSHY/WITHYBED COPSES	Ancient and Semi-Natural Woodland
Not shown	1807	NE	STOKE PARK WOOD	Ancient and Semi-Natural Woodland
17	1821	SE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1895	N	BREACH COPSE	Ancient and Semi-Natural Woodland
Not shown	1923	NE	STOKE PARK WOOD	Ancient and Semi-Natural Woodland
Not shown	1995	S	UNKNOWN	Ancient Replanted Woodland

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

4

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
5	0	On Site	Existing	DEFRA
Not shown	1679	NE	New	DEFRA
Not shown	1717	N	Existing	DEFRA
Not shown	1806	N	New	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell* hazard rating identified on the study site — Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

9.1.6 Running Sand

Maximum Running Sand*[*] hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

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info@groundsure.com

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Keyworth, Nottingham NG12 5GG
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Fax: 0115 936 3276.
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BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
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Email:**enquiries@phe.gov.uk**
Main switchboard**: 020 7654 8000**

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www.coal.gov.uk

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Local Authority
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Phone: 023 8068 8000
Web: http://www.eastleigh.gov.uk/
Address: Eastleigh House, Upper Market Street, Eastleigh, Hampshire,

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.
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https://www.groundsure.com/terms-and-conditions-feb11-2019

Groundsure
LOCATION INTELLIGENCE

Terra Consult

Bold Business Centre, Bold Lane,
Bold Lane,
Sutton, WA9 4TX

Groundsure Reference:	HMD-147-6100764
Your Reference:	4521_Eastleigh_PO005166
Report Date	14 Jun 2019
Report Delivery Method:	Email - pdf

Geo Insight

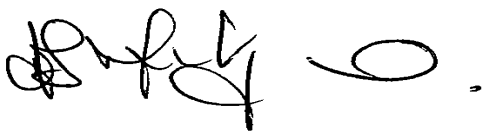
Address: TANK 131M FROM PRYSMIAN CABLES & SYSTEMS, CHICKENHALL LANE 13M FROM UNNAMED ROAD, CHICKENHALL LANE, EASTLEIGH, SO50 6YU

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**TANK 131M FROM PRYSMIAN CABLES & SYSTEMS, CHICKENHALL LANE 13M FROM UNNAMED ROAD, CHICKENHALL LANE, EASTLEIGH, SO50 6YU**
Date:	**14 Jun 2019**
Reference:	**HMD-147-6100764**
Client:	**Terra Consult**

NW N NE

W E



SW S SE

Aerial Photograph Capture date: 21-Jun-2017

Grid Reference: 446484,118092

Site Size:	4.8634ha

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Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	Yes
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	Yes
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	17	1	35	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	4	1	6

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

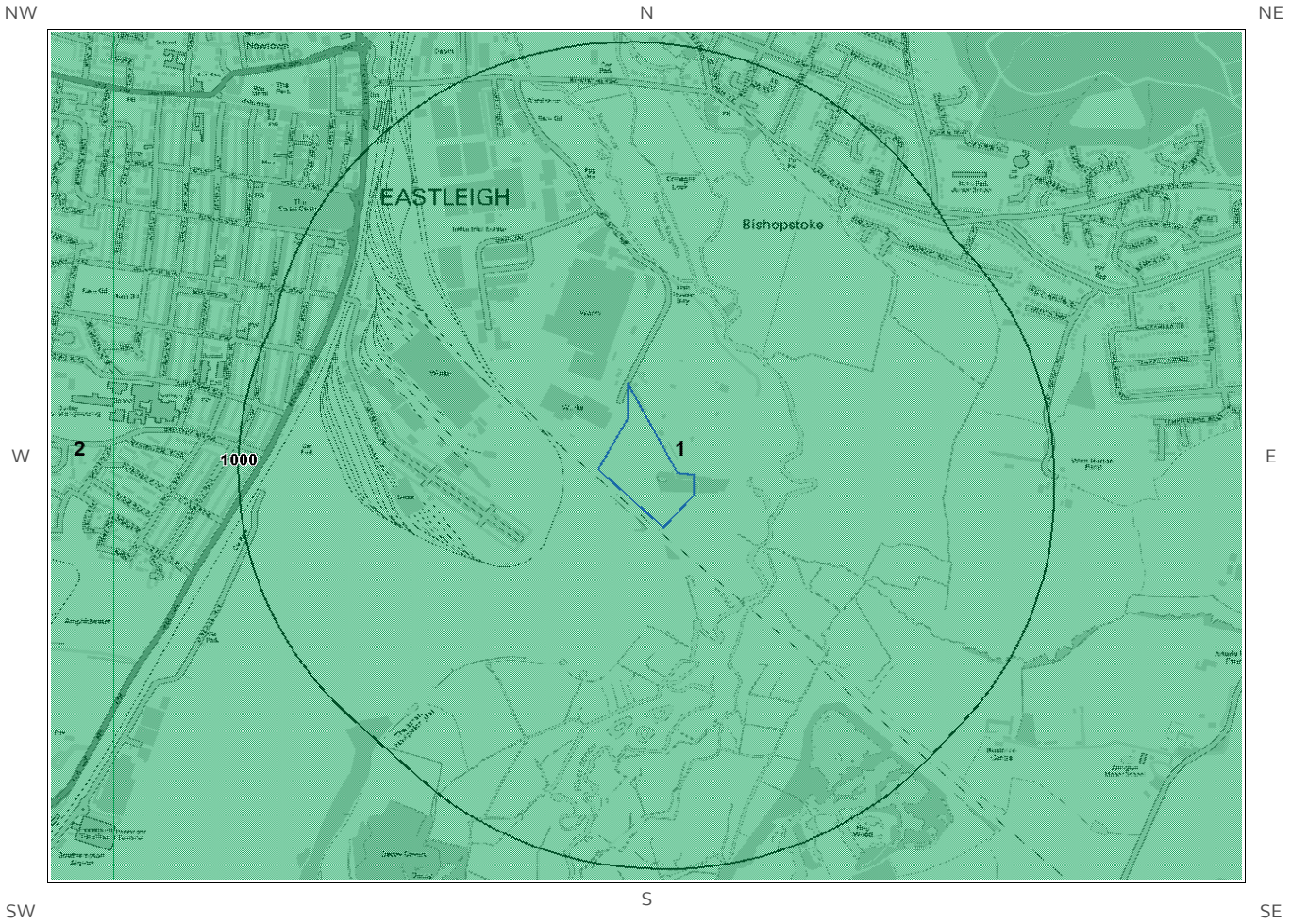
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Moderate
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Very Low
6.5 Collapsible Deposits	Low
6.5 Running Sand	Very Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	1	5	13

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	7	0	0

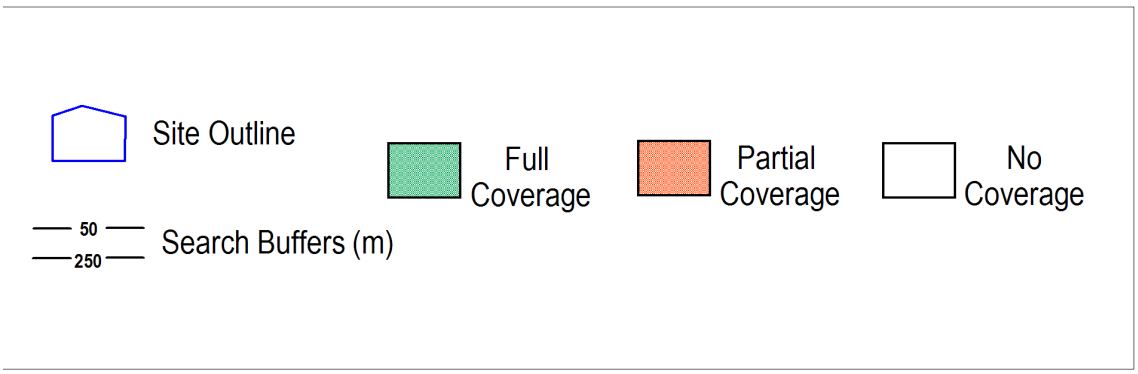
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	4	20	28	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	18	70	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	Some deposits are mapped	Full	Full	No coverage
2	1347.0	Some deposits are mapped	Full	Full	No coverage
N3	1717.0	Some deposits are mapped	Full	Full	No coverage

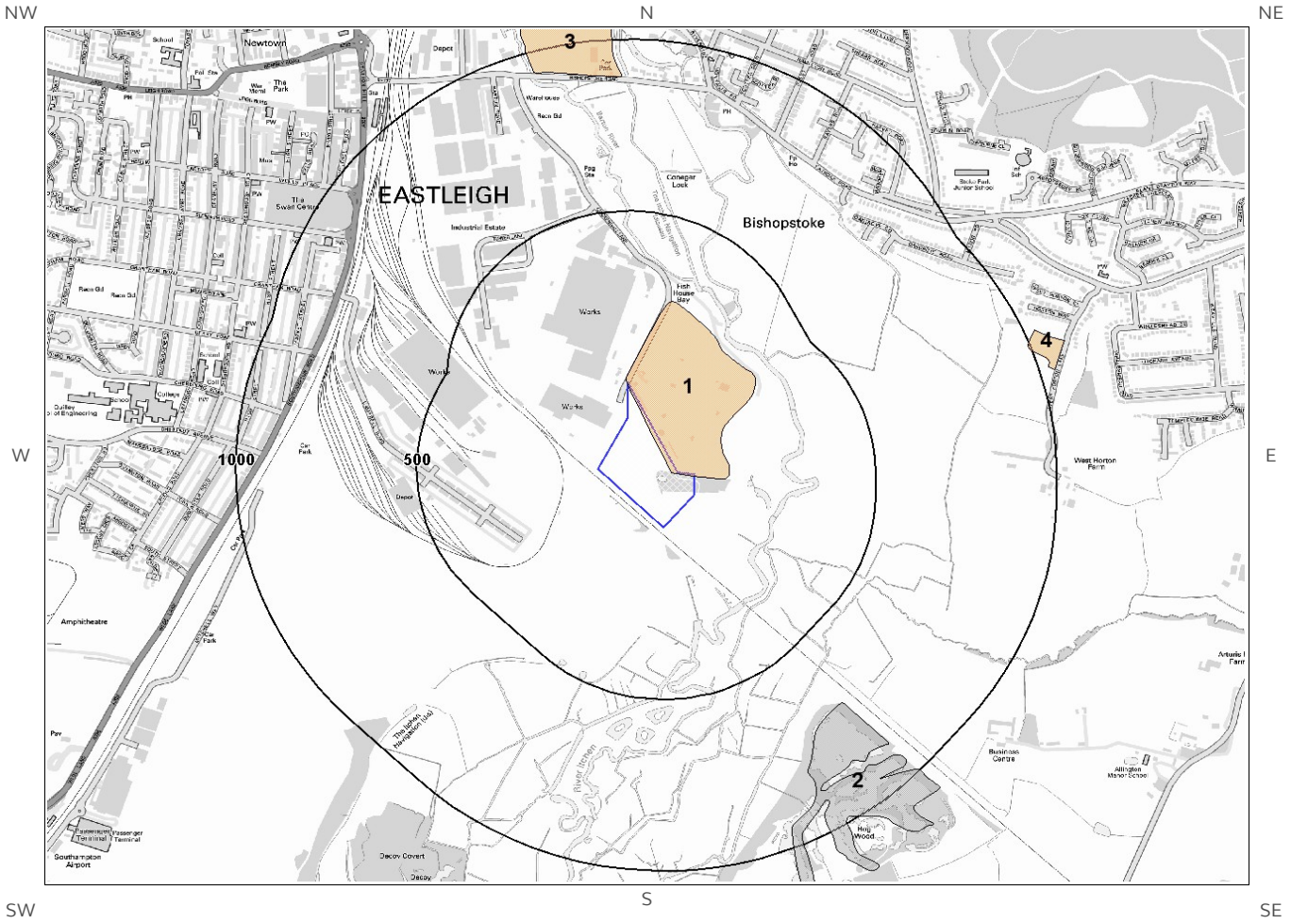
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

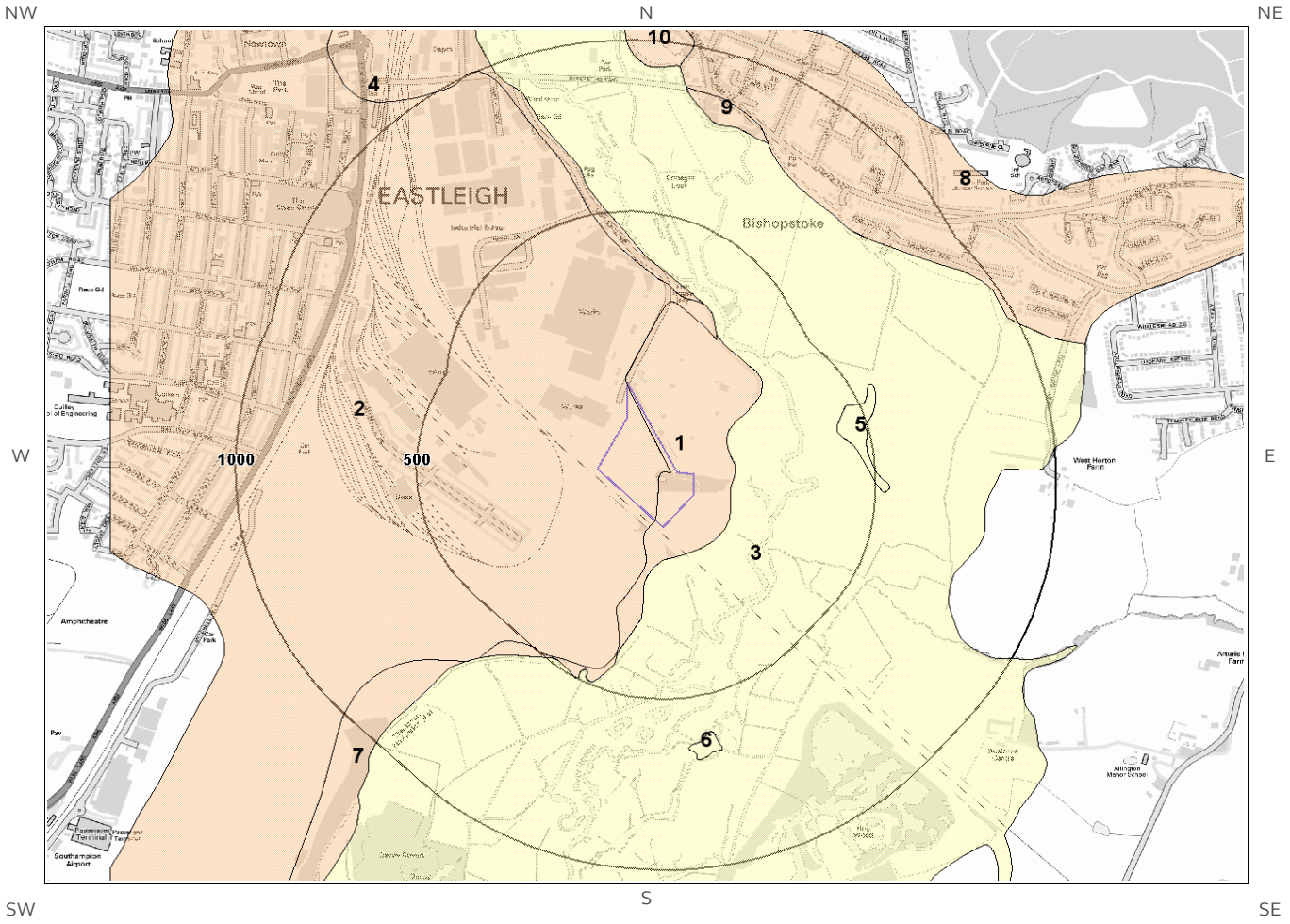
1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel
2	0.0	On Site	RTDU-Z	River Terrace Deposits (undifferentiated) - Silt (unlithified Deposits Coding Scheme)	Silt
3	90.0	S	ALV-Z	Alluvium - Silt (unlithified Deposits Coding Scheme)	Silt
4	293.0	NE	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel
5	414.0	E	TUFA-CATUFA	Tufa - Calcareous Tufa	Tufa, Calcareous

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

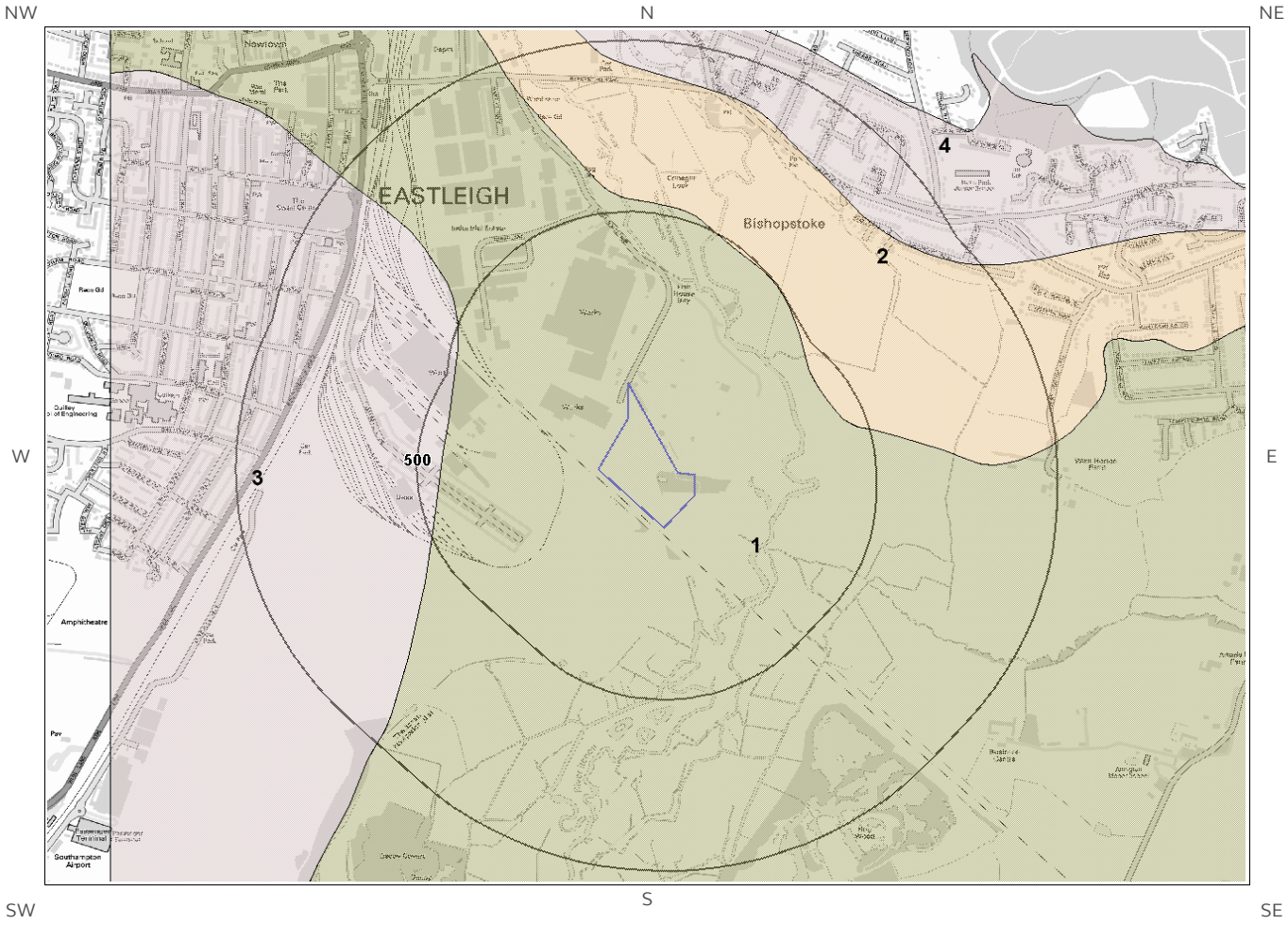
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	WTT-SACL	Wittering Formation - Sandy Clay	Lutetian Age - Ypresian Age
2	423.0	NE	WHI-SV	Whitecliff Sand Member - Gravelly Sand	Palaeogene Period
3	431.0	W	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	Eocene Epoch

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

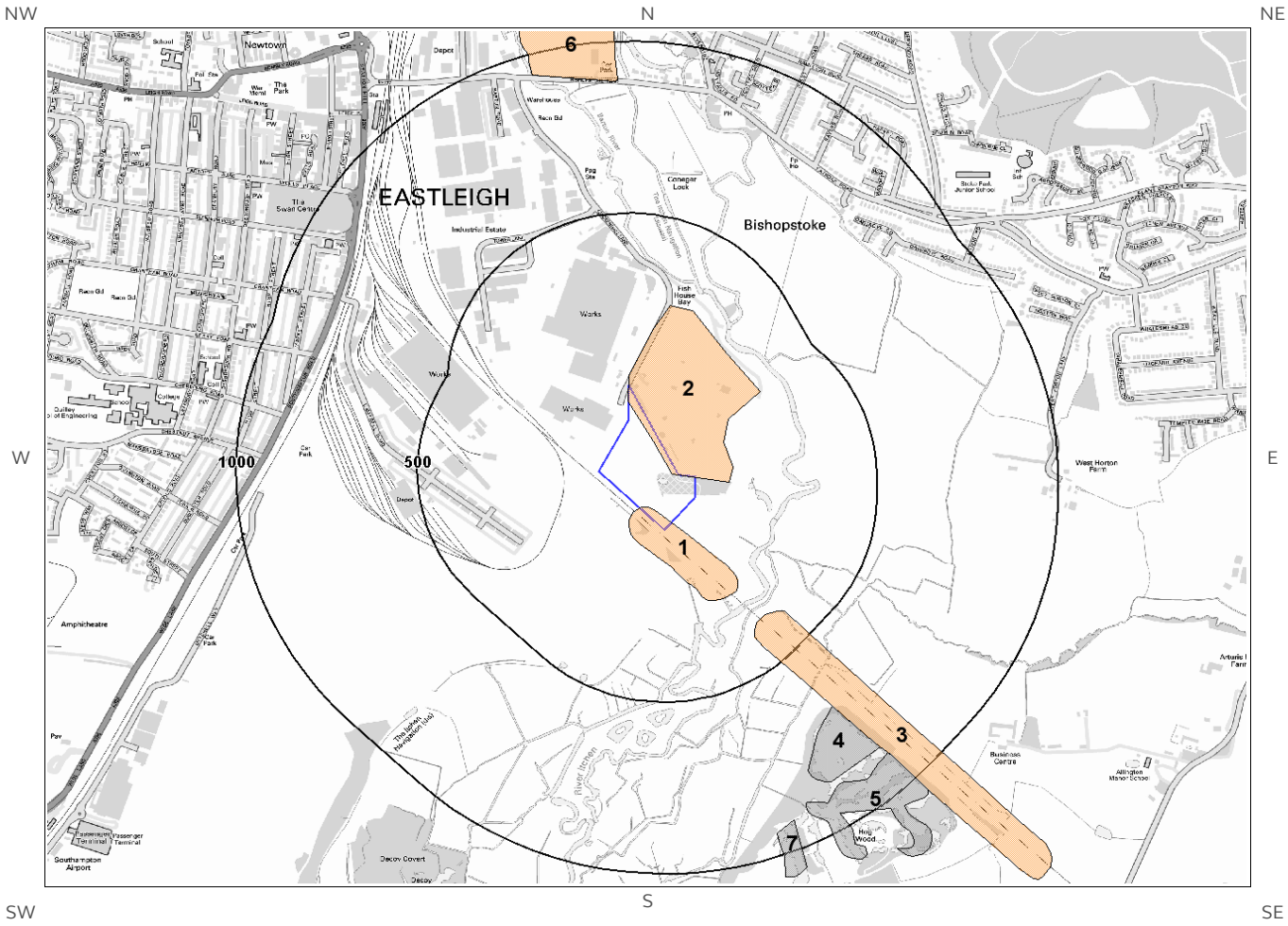
Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 315

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

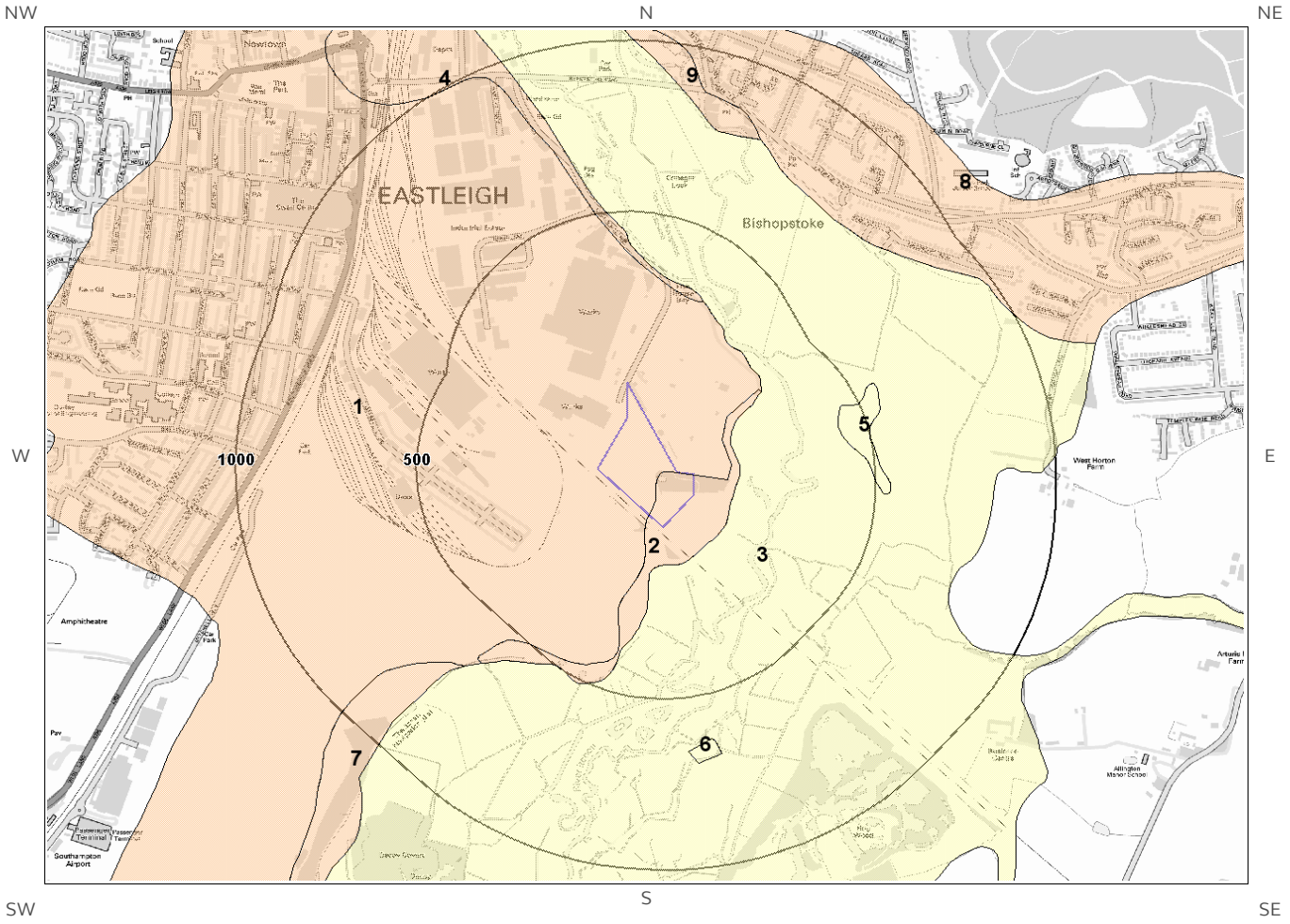
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	369.0	SE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Very High	Low
0.0	On Site	Mixed	Very High	Low

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTD1-XCZ	RIVER TERRACE DEPOSITS, 1	CLAY AND SILT
2	0.0	On Site	RTD1-XSV	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL
3	103.0	E	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	300.0	NE	RTD1-XSV	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL
5	423.0	E	TUFA-CATUFA	TUFA	TUFA, CALCAREOUS

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Low	Very Low
0.0	On Site	Intergranular	Very High	High

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

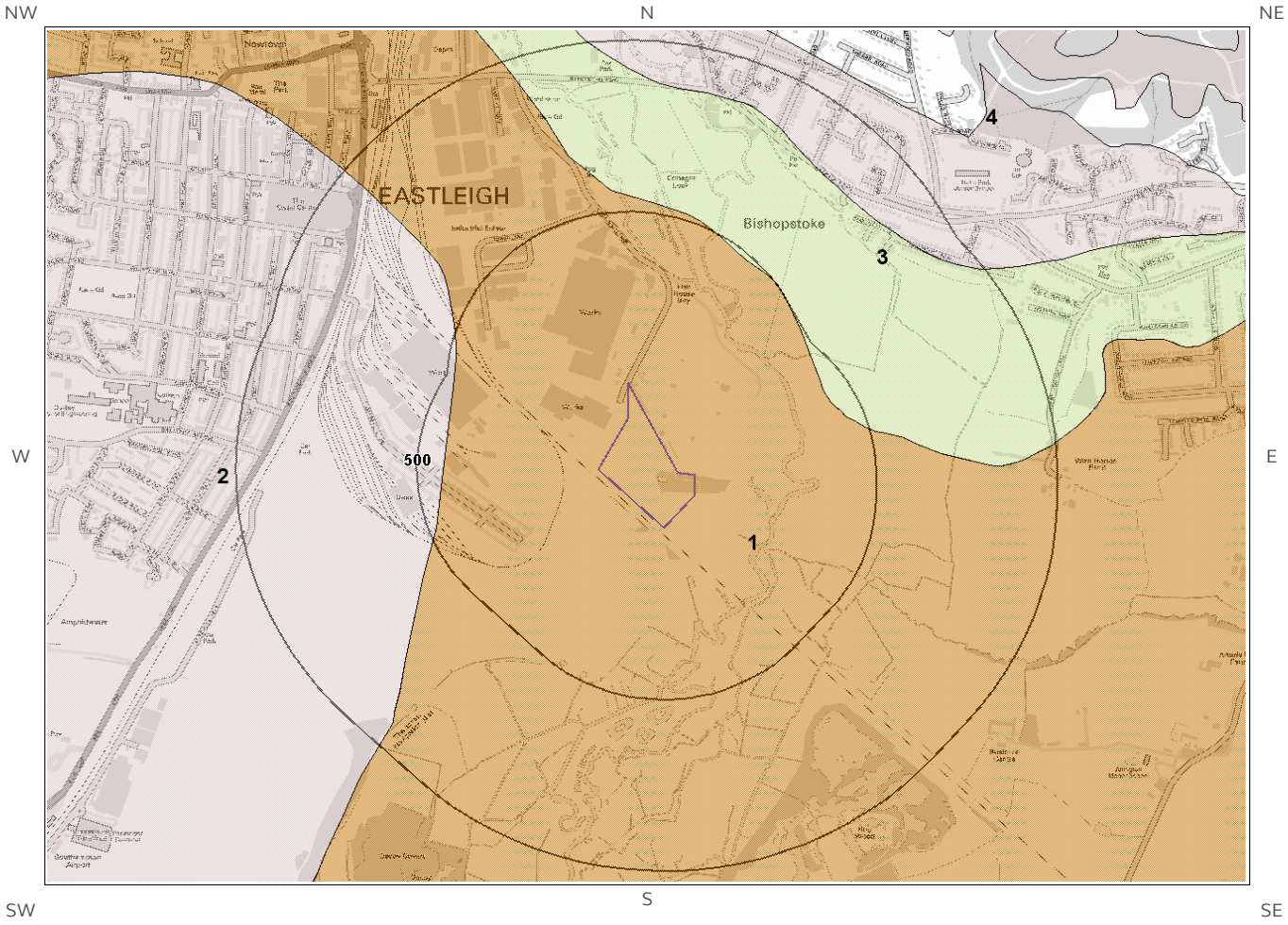
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 315

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	WTT-XSZC	WITTERING FORMATION - SAND, SILT AND CLAY	YPRESIAN
2	425.0	W	LC-XCZS	LONDON CLAY FORMATION - CLAY, SILT AND SAND	YPRESIAN
3	430.0	NE	WHI-S	WHITECLIFF SAND MEMBER - SAND	-

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

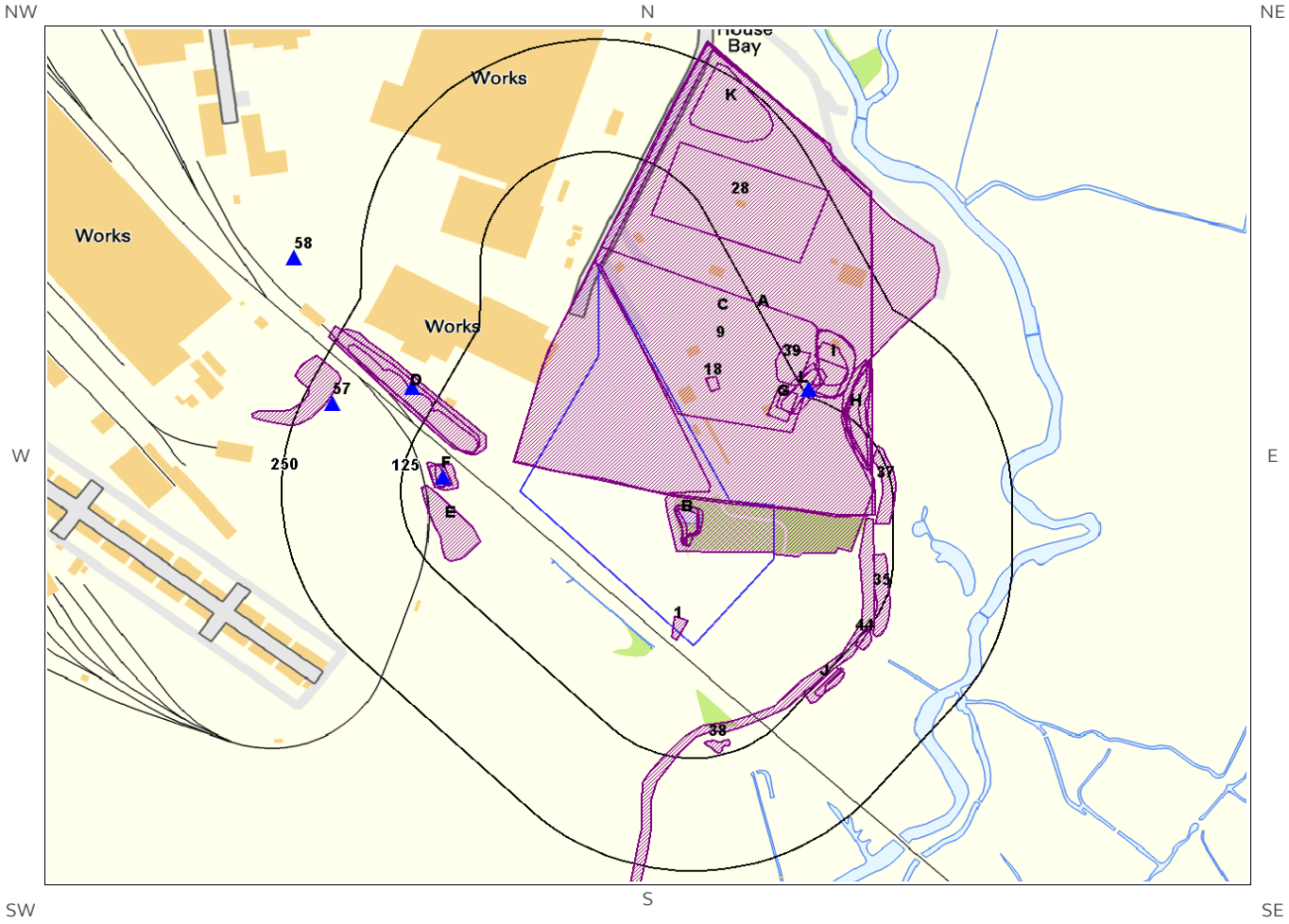
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

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4 Ground Workings map



Ground Workings Legend

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	446516 117879	Pond	1908
2A	0.0	On Site	446610 118240	Sewage Works	1981
3A	0.0	On Site	446610 118240	Sewage Works	1989
4B	0.0	On Site	446522 117993	Pond	1868
5B	0.0	On Site	446522 117993	Pond	1931
6B	0.0	On Site	446523 117994	Pond	1957
7B	0.0	On Site	446523 117994	Pond	1968
8B	0.0	On Site	446527 117993	Pond	1888
9	0.0	On Site	446559 118200	Sewage Works	1908
10C	0.0	On Site	446530 118266	Sewage Works	1895
11C	0.0	On Site	446530 118266	Sewage Works	1931
12C	0.0	On Site	446530 118266	Sewage Works	1938
13C	0.0	On Site	446530 118266	Sewage Works	1931
14B	0.0	On Site	446522 117993	Pond	1938
15B	0.0	On Site	446522 117993	Pond	1895
16B	0.0	On Site	446524 117994	Pond	1931
17C	0.0	On Site	446532 118266	Sewage Works	1931
18	38.0	NE	446550 118150	Sewage Works	1888
19D	55.0	NW	446234 118141	Old Gravel Pit	1888
20D	62.0	NW	446226 118144	Old Gravel Pit	1895
21D	62.0	NW	446235 118133	Old Gravel Pit	1908

ID	Distance (m)	Direction	NGR	Use	Date
22E	63.0	SW	446275 117995	Unspecified Pit	1981
23E	63.0	SW	446275 117995	Unspecified Pit	1957
24E	63.0	SW	446275 117995	Unspecified Pit	1968
25E	63.0	SW	446275 117995	Unspecified Pit	1989
26F	65.0	W	446271 118047	Old Gravel Pit	1888
27F	71.0	W	446264 118048	Old Gravel Pit	1895
28	77.0	NE	446579 118351	Filter Beds	1989
29F	78.0	W	446260 118049	Unspecified Pit	1908
30G	79.0	NE	446624 118127	Filter Bed	1908
31	89.0	E	445590 116916	Canal	1868
32G	91.0	NE	446639 118146	Gravel Pit	1895
33L	95.0	NE	446646 118141	Gravel Pit	1888
34H	101.0	NE	446700 118115	Canal	1868
35	104.0	E	446728 117915	Unspecified Heap	1908
36H	106.0	NE	446704 118112	Unspecified Ground Workings	1908
37	106.0	E	446731 118038	Unspecified Ground Workings	1908
38	107.0	S	446555 117748	Pond	1908
39	107.0	NE	446635 118171	Pond	1908
40H	108.0	NE	446705 118115	Unspecified Ground Workings	1931
41H	108.0	NE	446705 118115	Unspecified Ground Workings	1895
42H	108.0	NE	446705 118115	Unspecified Ground Workings	1938
43J	122.0	SE	446668 117816	Unspecified Heap	1908
44	123.0	SE	446709 117867	Unspecified Heap	1908
45I	129.0	N	446677 118173	Unspecified Heap	1931
46I	129.0	N	446677 118173	Unspecified Heap	1938
47J	129.0	SE	446672 117819	Pond	1868
48I	129.0	N	446676 118173	Unspecified Heap	1931
49I	144.0	N	446676 118173	Unspecified Heap	1957
50I	144.0	N	446676 118173	Unspecified Heap	1968

ID	Distance (m)	Direction	NGR	Use	Date
51K	184.0	NE	446570 118462	Pond	1981
52K	184.0	NE	446570 118462	Pond	1989
53	225.0	NW	446140 118145	Gravel Pit	1908

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

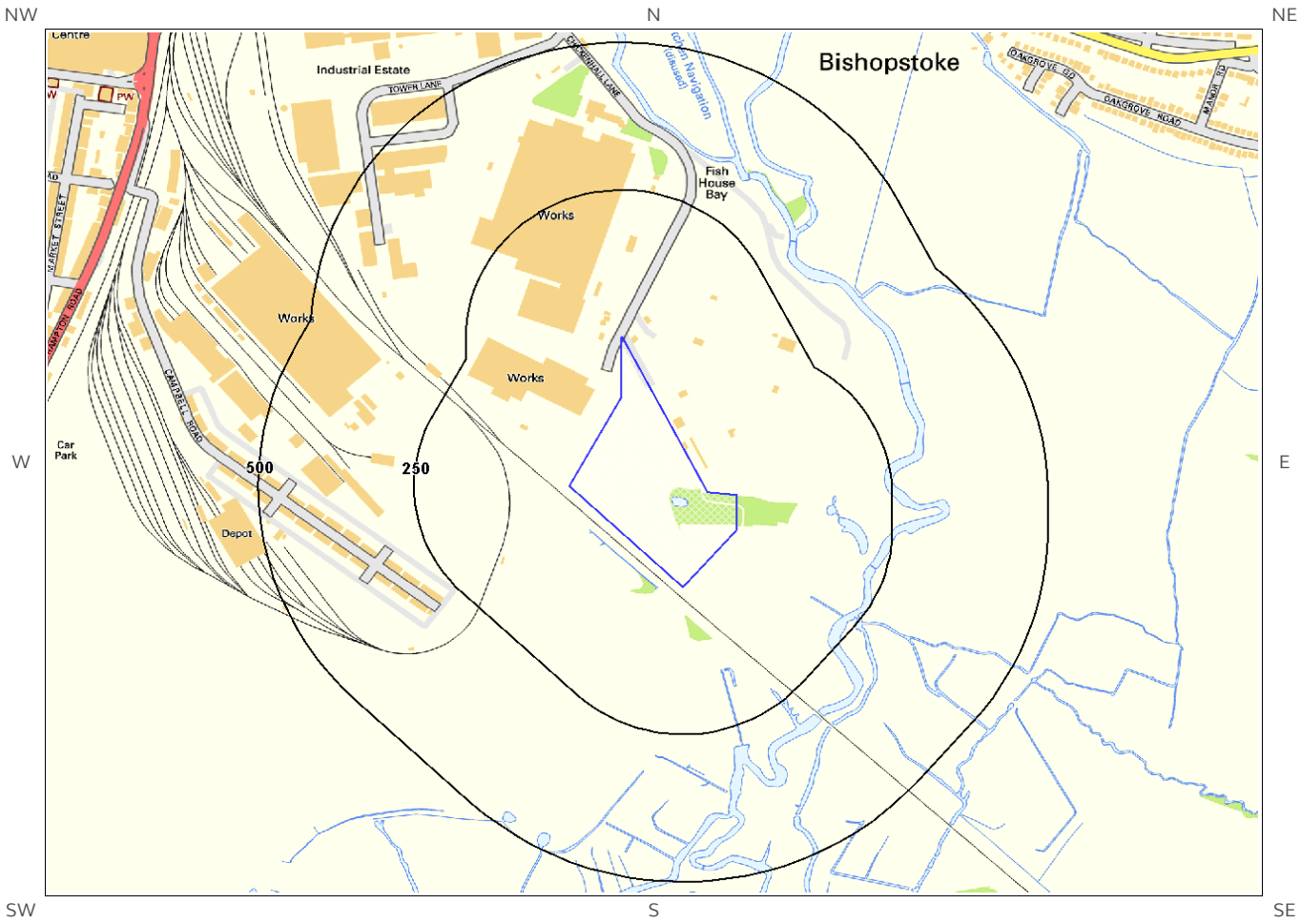
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
54F	83.0	W	446266 118046	Sand & Gravel	Chicken Hall Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
55L	130.0	NE	446651 118144	Sand & Gravel	Chicken Hall Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
56D	155.0	NW	446234 118146	Sand & Gravel	Chicken Hall Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
57	220.0	NW	446150 118128	Sand & Gravel	Chicken Hall Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
58	321.0	W	446110 118290	Crushed Rock	Eastleigh Rail Depot	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	687.0	NW	445850 118650	Crushed Rock	Eastleigh LDC	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	687.0	NW	445850 118650	Secondary	Eastleigh LDC	A site where mineral commodities are unloaded from rail trucks and stored	Active
Not shown	740.0	W	445615 118134	Clay & Shale	Chicken Hall Farm Clay Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	806.0	W	445542 118001	Sand & Gravel	Chicken Hall Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	830.0	SW	445808 117399	Sand & Gravel	North Stoneham Farm Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	913.0	NE	447084 118921	Clay & Shale	Manor Farm Clay Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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Site Outline

Search Buffers (m)

250

500

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

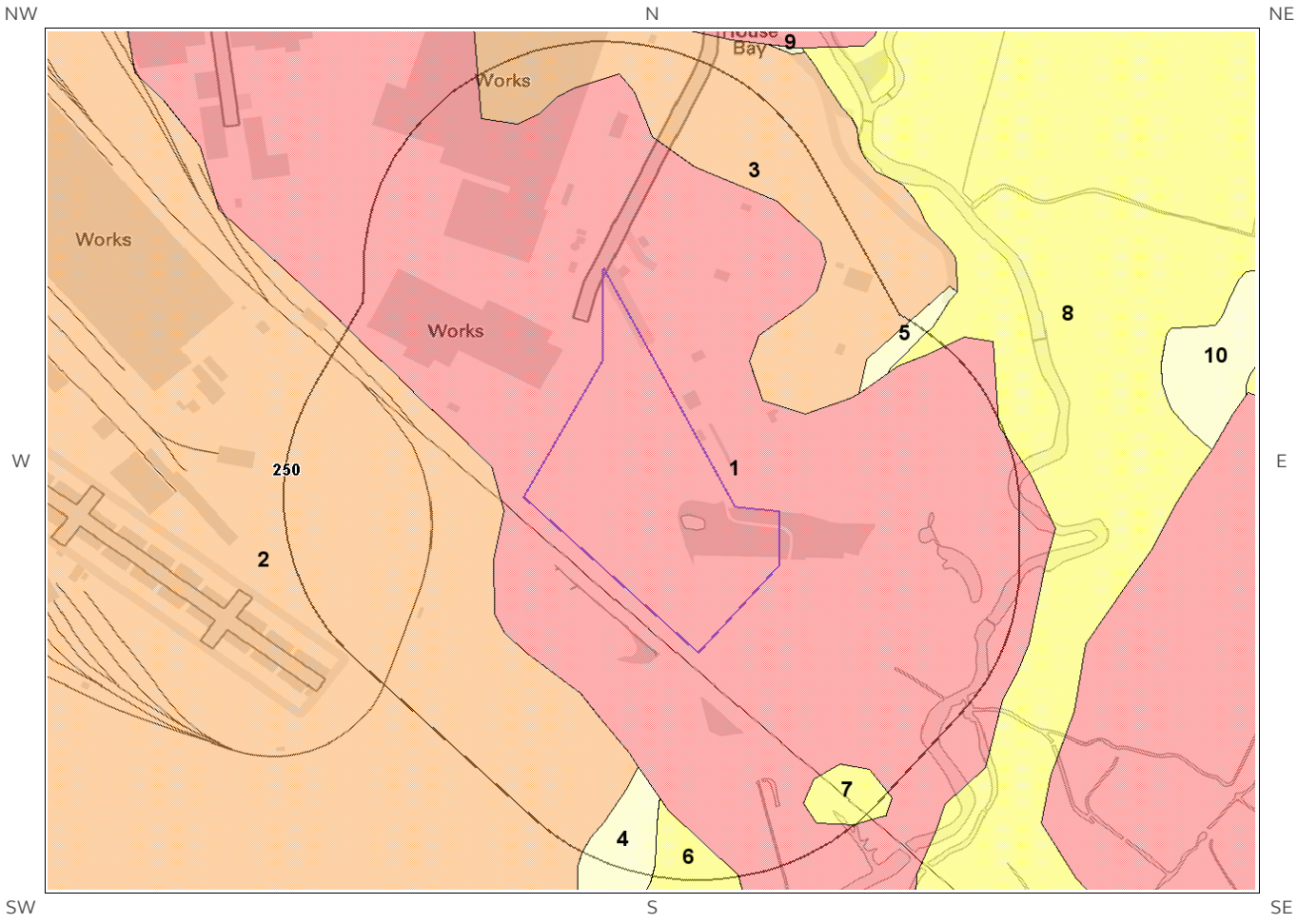
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

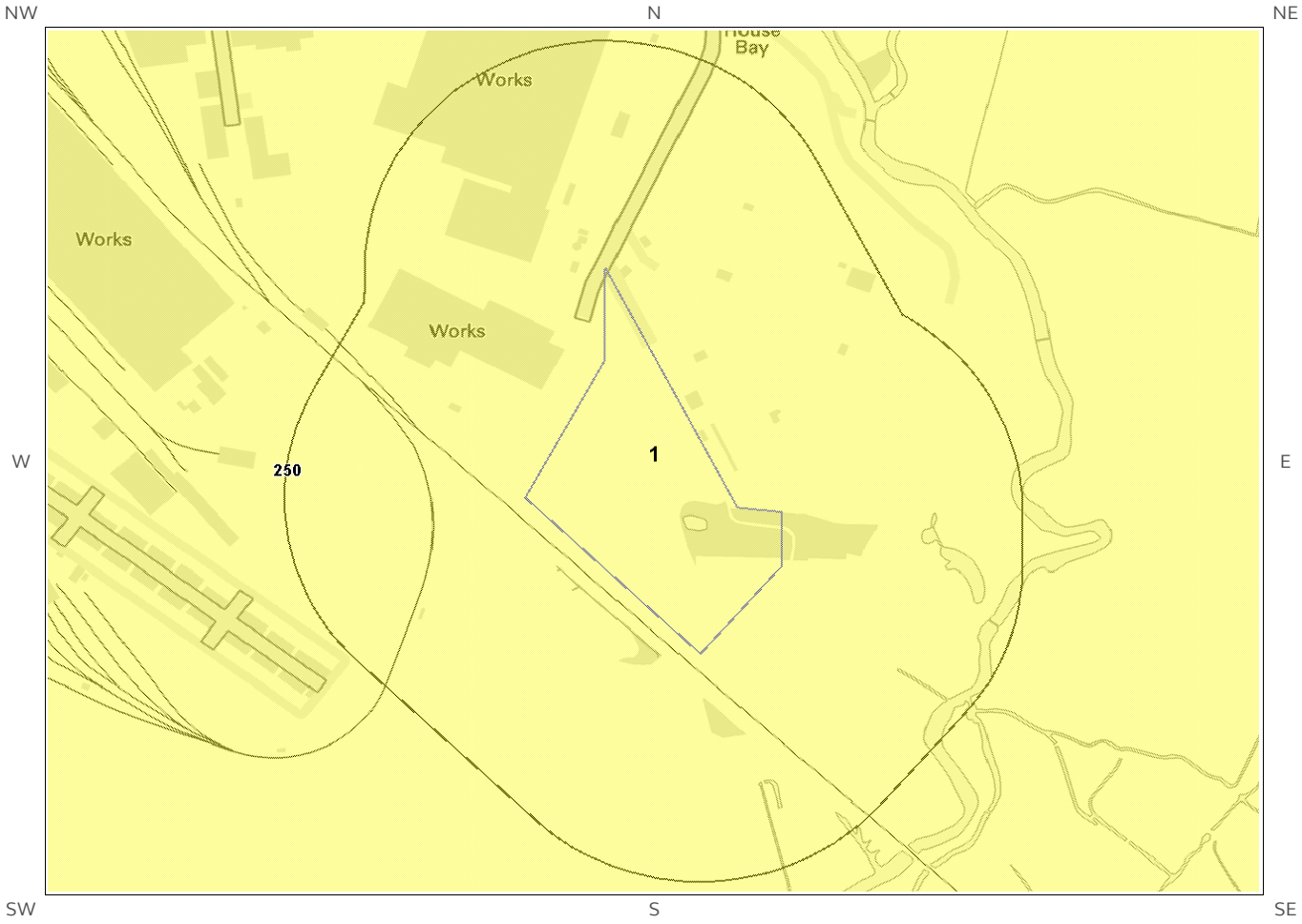


Shrink Swell Clay Legend

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6.2 Landslides map

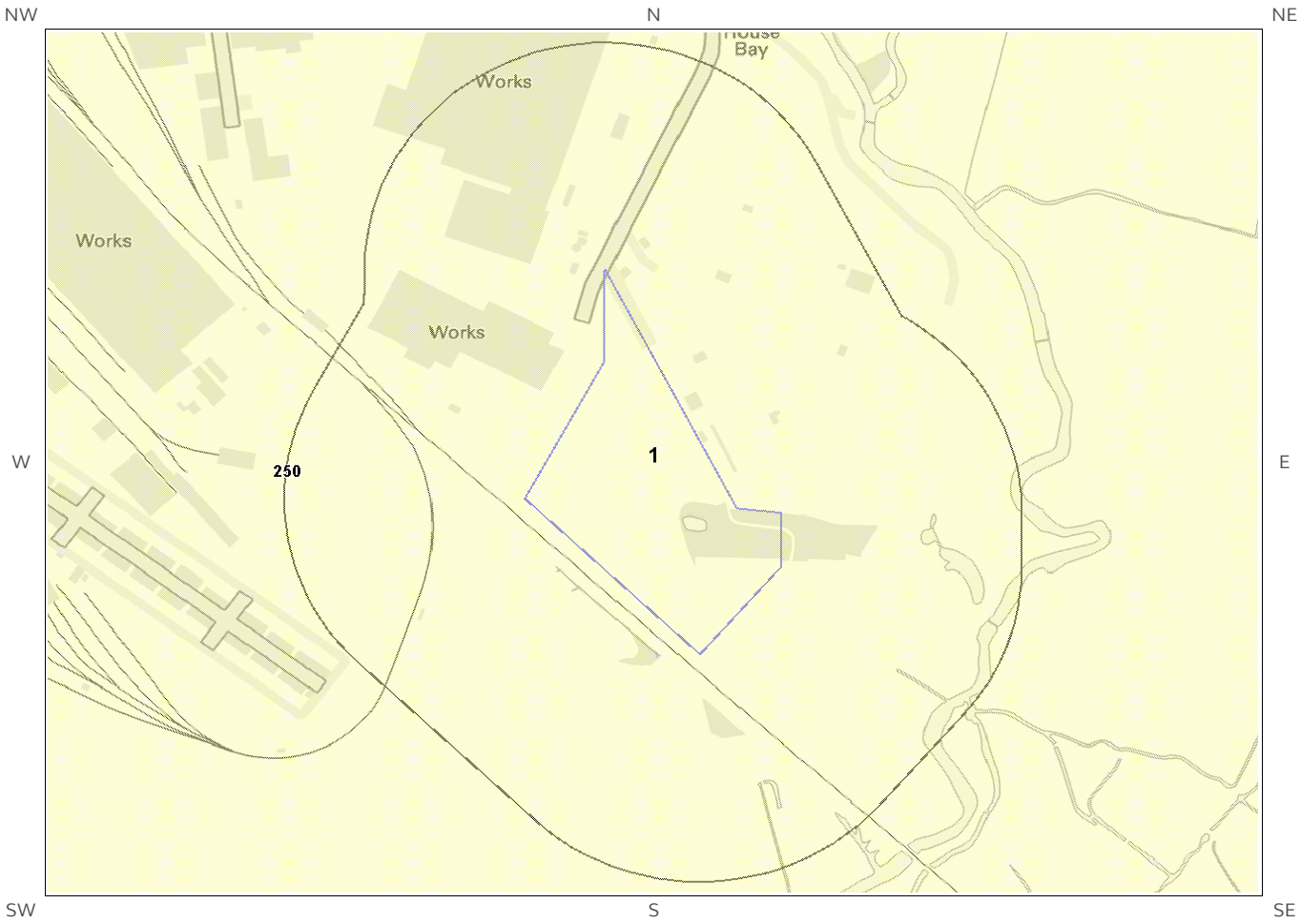


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Landslides Legend



6.3 Ground Dissolution of Soluble Rocks map

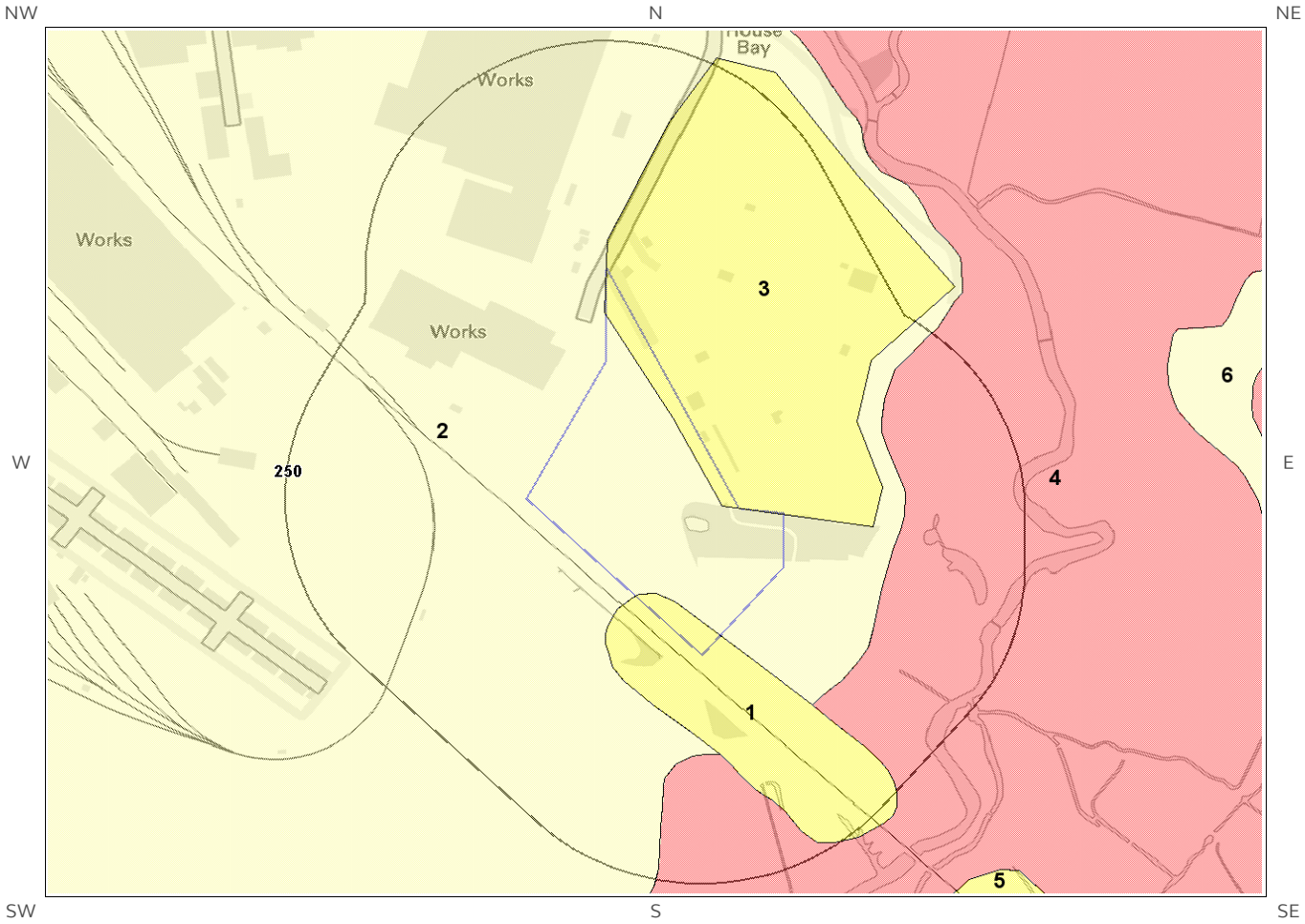


Ground Dissolution
Soluble Rocks Legend

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6.4 Compressible Deposits map

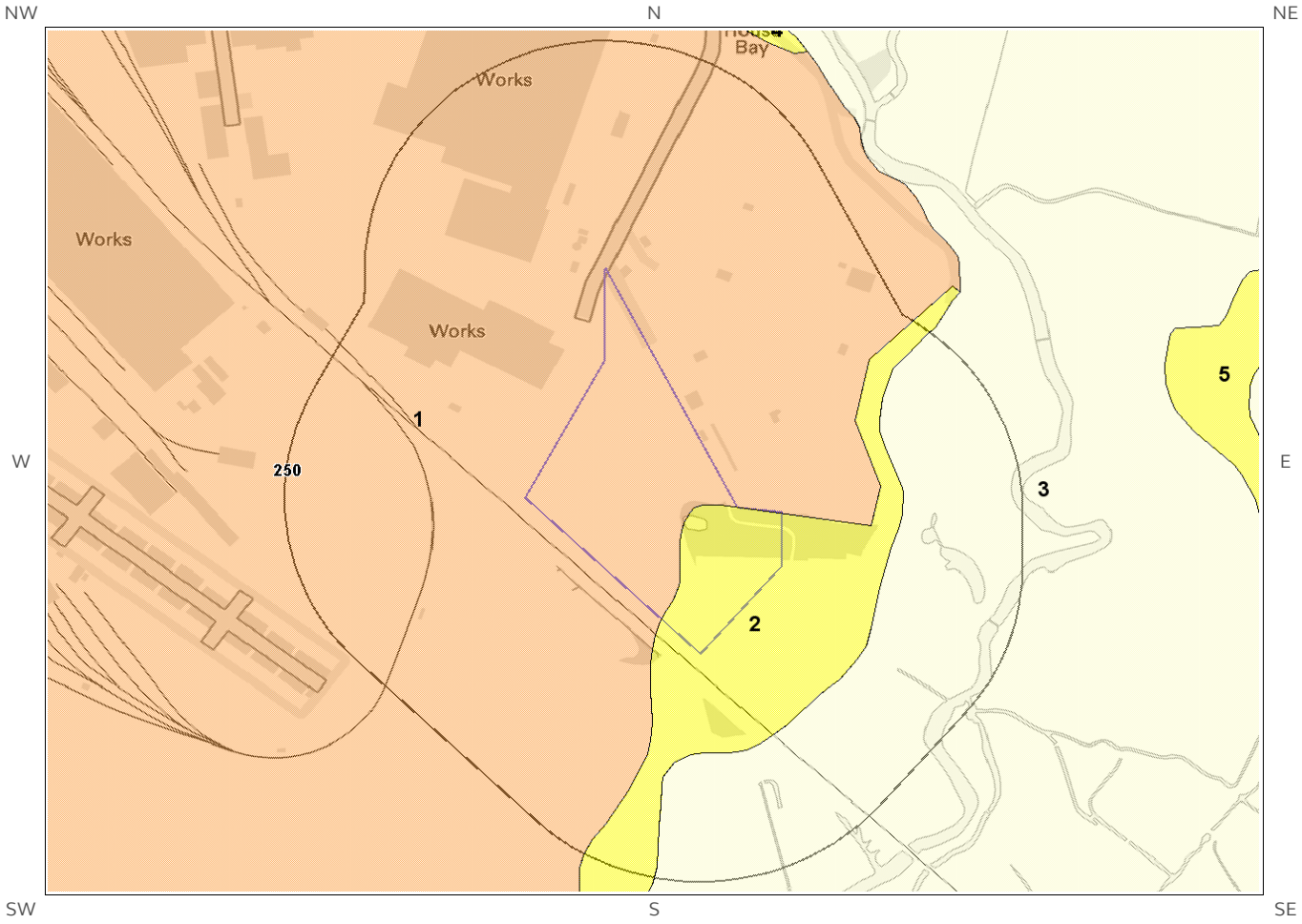


Compressible Deposits Legend

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6.5 Collapsible Deposits map

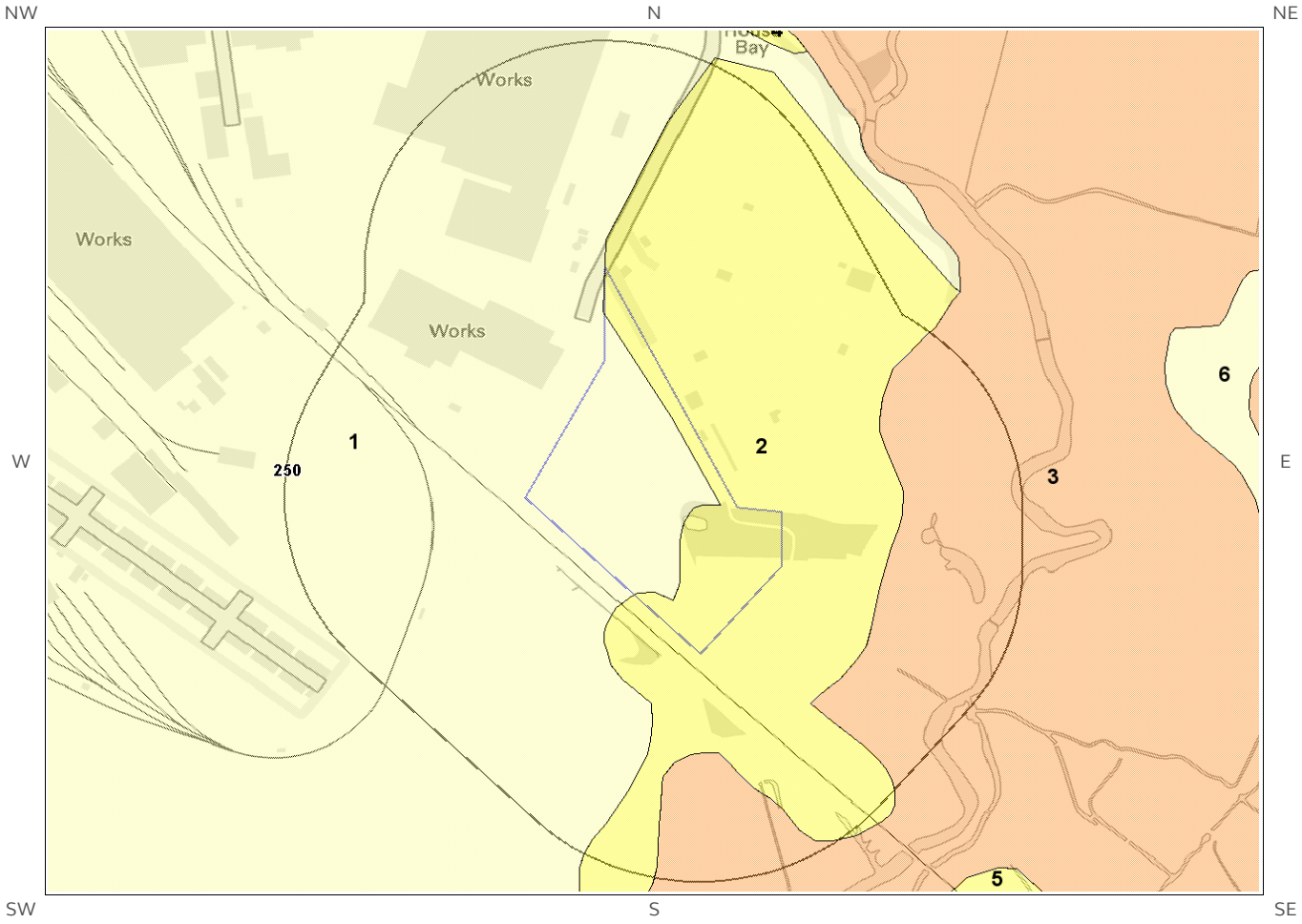


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Collapsible Deposits Legend



6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.
2	23.0	W	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

* This includes an automatically generated 50m buffer zone around the site

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
3	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

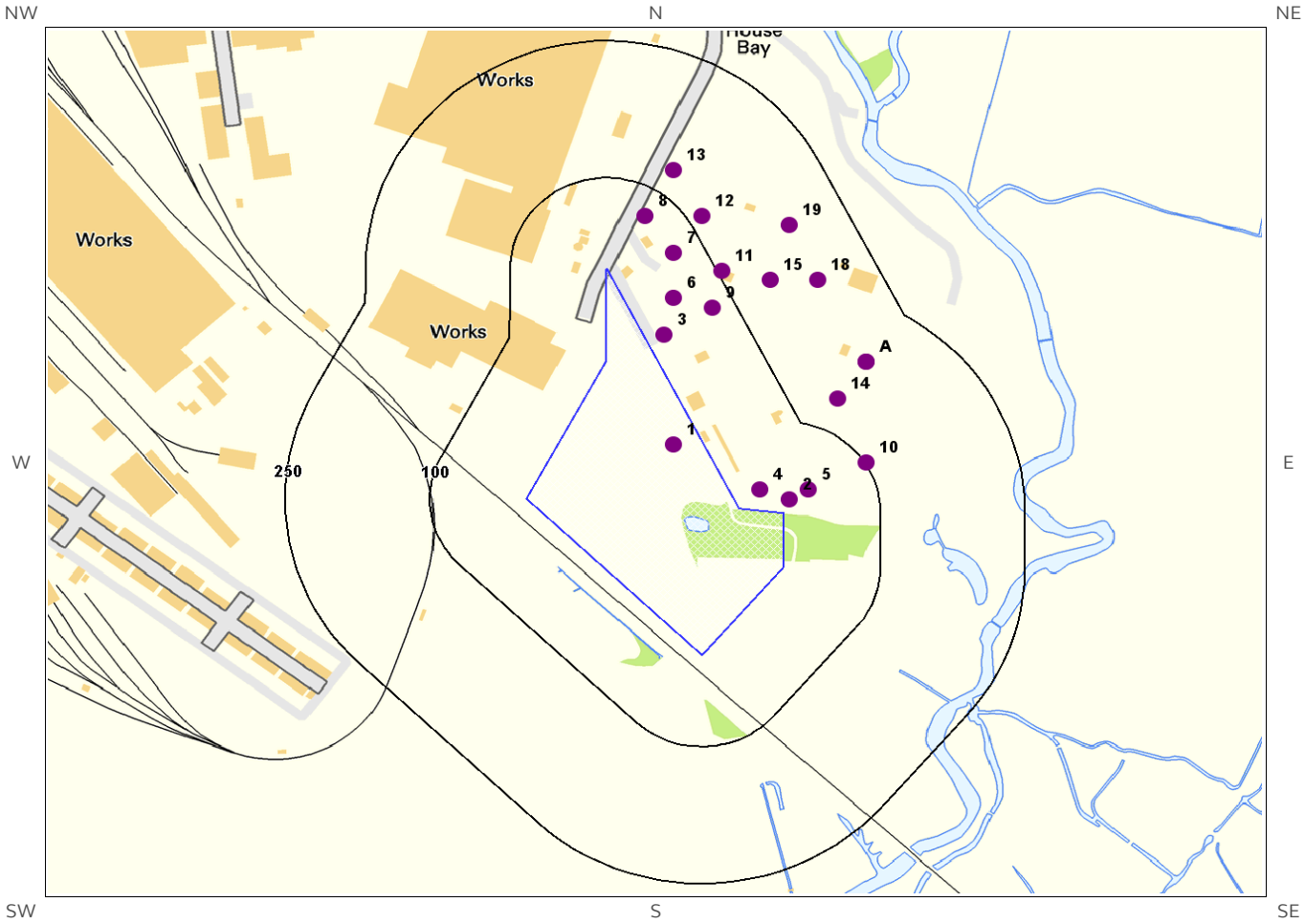
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.
2	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 19

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	0.0	On Site	446500 118090	SU41NE140	3	CHICKEN HALL FARM SEWAGE WORKS NO.1
2	15.0	N	446620 118030	SU41NE142	9	CHICKEN HALL FARM SEWAGE WORKS NO.4
3	18.0	NE	446490 118210	SU41NE146	8	CHICKEN HALL FARM SEWAGE WORKS NO.8
4	22.0	N	446590 118040	SU41NE141	3	CHICKEN HALL FARM SEWAGE WORKS NO.3
5	35.0	NE	446640 118040	SU41NE143	9	CHICKEN HALL FARM SEWAGE WORKS NO.5
6	46.0	NE	446500 118250	SU41NE145	8	CHICKEN HALL FARM SEWAGE WORKS NO.7
7	69.0	NE	446500 118300	SU41NE147	Not available	CHICKEN HALL FARM SEWAGE WORKS NO.9
8	69.0	NE	446470 118340	SU41NE151	6	CHICKEN HALL FARM SEWAGE WORKS NO.13
9	77.0	NE	446540 118240	SU41NE144	8	CHICKEN HALL FARM SEWAGE WORKS NO.6
10	101.0	NE	446700 118070	SU41NE155	4	CHICKEN HALL FARM SEWAGE WORKS NO.18
11	104.0	NE	446550 118280	SU41NE148	12	CHICKEN HALL FARM SEWAGE WORKS NO.10
12	114.0	NE	446530 118340	SU41NE154	6	CHICKEN HALL FARM SEWAGE WORKS NO.16
13	128.0	NE	446500 118390	SU41NE152	6	CHICKEN HALL FARM SEWAGE WORKS NO.14
14	136.0	NE	446670 118140	SU41NE333	11	EASTLEIGH MAIN DRAINAGE STAGE 3 1
15	144.0	NE	446600 118270	SU41NE149	12	CHICKEN HALL FARM SEWAGE WORKS NO.11
16A	185.0	NE	446700 118180	SU41NE102	11	EASTLEIGH-FAIR OAK SEWER BH1
17A	185.0	NE	446700 118180	SU41NE187	8	CHICKEN HALL FARM SEWAGE WKS NO 17
18	188.0	NE	446650 118270	SU41NE150	6	CHICKEN HALL FARM SEWAGE WORKS NO.12
19	189.0	NE	446620 118330	SU41NE153	6	CHICKEN HALL FARM SEWAGE WORKS NO.15

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/409277
#2: scans.bgs.ac.uk/sobi_scans/boreholes/409279
#3: scans.bgs.ac.uk/sobi_scans/boreholes/409283
#4: scans.bgs.ac.uk/sobi_scans/boreholes/409278
#5: scans.bgs.ac.uk/sobi_scans/boreholes/409280
#6: scans.bgs.ac.uk/sobi_scans/boreholes/409282
#7: scans.bgs.ac.uk/sobi_scans/boreholes/409284
#8: scans.bgs.ac.uk/sobi_scans/boreholes/409288
#9: scans.bgs.ac.uk/sobi_scans/boreholes/409281
#10: scans.bgs.ac.uk/sobi_scans/boreholes/409292
#11: scans.bgs.ac.uk/sobi_scans/boreholes/409285
#12: scans.bgs.ac.uk/sobi_scans/boreholes/409291
#13: scans.bgs.ac.uk/sobi_scans/boreholes/409289
#14: scans.bgs.ac.uk/sobi_scans/boreholes/17564030
#15: scans.bgs.ac.uk/sobi_scans/boreholes/409286
#16A: scans.bgs.ac.uk/sobi_scans/boreholes/409239
#17A: scans.bgs.ac.uk/sobi_scans/boreholes/409324
#18: scans.bgs.ac.uk/sobi_scans/boreholes/409287
#19: scans.bgs.ac.uk/sobi_scans/boreholes/409290

8 Estimated Background Soil Chemistry

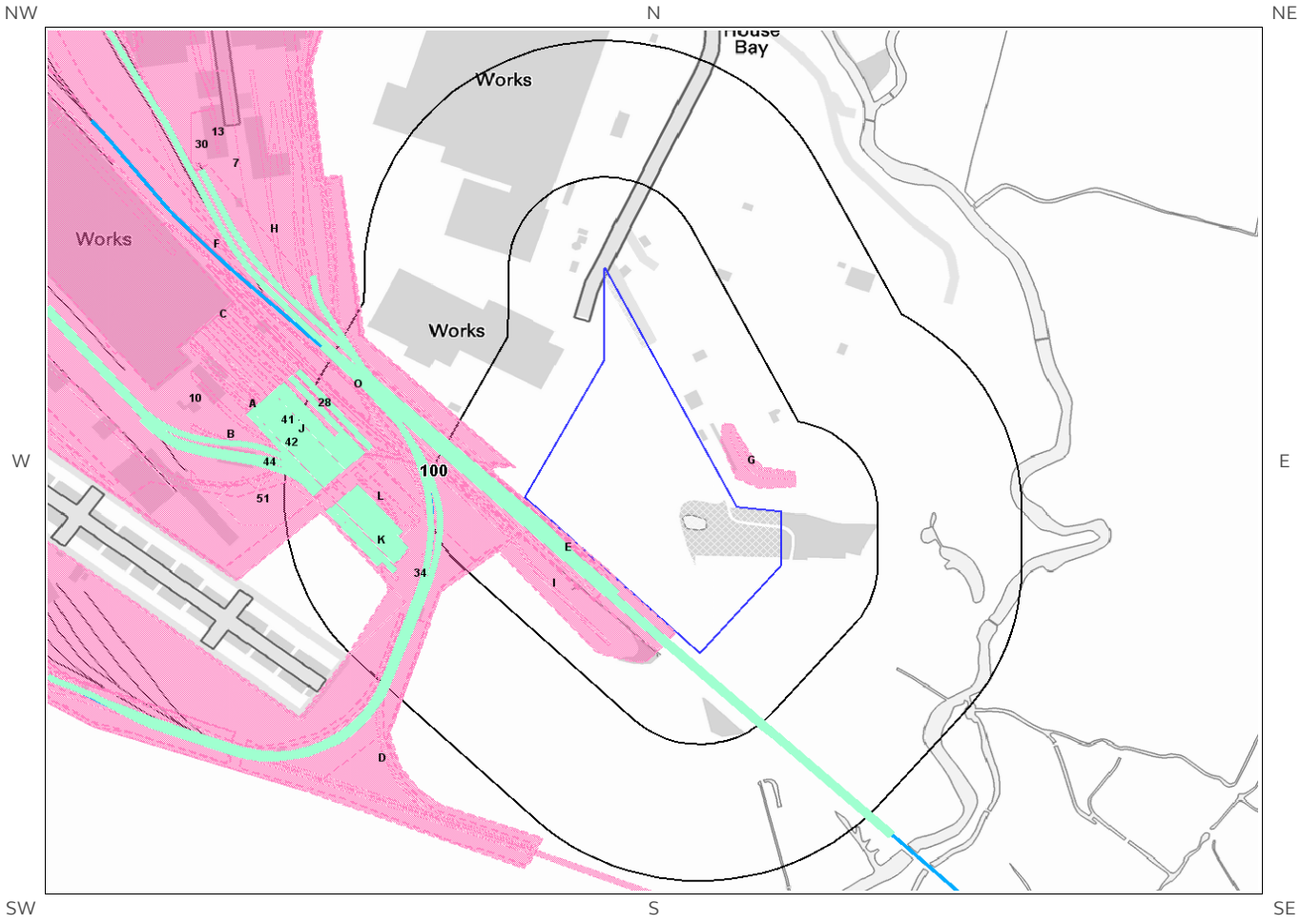
Records of background estimated soil chemistry within 250m of the study site boundary: 7

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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- Site Outline
- Search Buffers (m) 250 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? Yes

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1B	0	On Site	445841 118812	Railway Sidings	1989
2A	0	On Site	446015 118812	Railway Sidings	1968
3A	0	On Site	446015 118812	Railway Sidings	1957
4B	0	On Site	445841 118812	Railway Sidings	1981
5C	2	SW	445980 118402	Railway Sidings	1938
6C	2	SW	445980 118402	Railway Sidings	1931

ID	Distance (m)	Direction	NGR	Details	Date
7	2	SW	446068 118504	Railway Sidings	1931
8F	4	SW	445984 118400	Railway Sidings	1908
14E	5	SW	446395 117967	Railway Sidings	1950
15E	5	SW	446395 117967	Railway Sidings	1972
16E	6	SW	446395 117966	Railway Sidings	1954
17E	6	SW	446395 117966	Railway Sidings	1961
18E	6	SW	446397 117966	Railway Sidings	1991
19F	11	SW	446085 118301	Railway Sidings	1909
20C	11	SW	445995 118350	Railway Sidings	1933
9G	13	NE	446572 118073	Railway Sidings	1957
21G	28	NE	446575 118078	Tramway Sidings	1954
10	31	SW	445961 118182	Railway Sidings	1931
22H	34	SW	446011 118500	Railway Sidings	1988
23H	36	SW	446013 118500	Railway Sidings	1962
24H	36	SW	446013 118500	Railway Sidings	1954
25I	37	SW	446375 117934	Railway Sidings	1954
26I	37	SW	446375 117934	Railway Sidings	1961
27I	37	SW	446374 117934	Railway Sidings	1950
28	93	W	446120 118143	Railway Sidings	1968
29	93	W	446001 118170	Railway Sidings	1950
30	95	NW	445940 118576	Railway Sidings	1897
31J	111	W	446120 118122	Railway Sidings	1984
32J	111	W	446120 118122	Railway Sidings	1986
33J	117	W	446122 118116	Railway Sidings	1968
34	117	SW	446238 117944	Railway Sidings	1972
35K	119	W	446194 117970	Railway Sidings	1972
36K	133	SW	446191 117974	Railway Sidings	1991
37L	134	W	446200 118029	Railway Sidings	1988
38L	136	W	446198 118029	Railway Sidings	1962

ID	Distance (m)	Direction	NGR	Details	Date
39L	136	W	446198 118029	Railway Sidings	1954
40L	136	W	446199 118029	Railway Sidings	1950
41	139	W	446106 118122	Railway Sidings	1996
42	161	W	446095 118103	Railway Sidings	1968
11D	168	SW	446158 117765	Railway Sidings	1931
12D	168	SW	446158 117765	Railway Sidings	1938
43N	177	NW	446083 118270	Railway Sidings	1996
44	178	W	446086 118064	Railway Sidings	1968
45M	184	NW	446045 118322	Railway Sidings	1950
46M	184	NW	446045 118322	Railway Sidings	1968
47N	184	NW	446082 118274	Railway Sidings	1986
48N	184	NW	446082 118274	Railway Sidings	1984
49O	205	NW	446175 118152	Railway Sidings	1986
50O	205	NW	446175 118152	Railway Sidings	1984
51	225	W	446061 118030	Railway Sidings	1996
52	237	SW	446085 117742	Railway Sidings	1950
13	247	NW	445934 118628	Railway Sidings	1888

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
8	SW	Not given	rail
8	SW	Not given	rail
10	SW	Not given	rail
10	SW	Not given	rail
13	SW	Eastleigh to Fareham Line	rail
13	SW	Eastleigh to Fareham Line	rail
13	SW	Eastleigh to Fareham Line	rail
13	SW	Eastleigh to Fareham Line	rail
13	SW	Eastleigh to Fareham Line	rail
13	SW	Eastleigh to Fareham Line	rail
15	SW	Not given	Multi Track
15	SW	Not given	Multi Track
16	SW	Eastleigh to Fareham Line	rail
16	SW	Eastleigh to Fareham Line	rail
16	SW	Eastleigh to Fareham Line	rail
16	SW	Eastleigh to Fareham Line	rail
16	SW	Eastleigh to Fareham Line	rail
16	SW	Eastleigh to Fareham Line	rail
90	W	Not given	rail
90	W	Not given	rail
97	W	Not given	Multi Track
97	W	Not given	Multi Track
99	W	Not given	rail
99	W	Not given	rail
108	SE	Eastleigh to Fareham Line	rail
108	SE	Eastleigh to Fareham Line	rail
108	SE	Eastleigh to Fareham Line	rail
108	SE	Eastleigh to Fareham Line	rail
119	SE	Eastleigh to Fareham Line	rail
119	SE	Eastleigh to Fareham Line	rail
120	SE	Eastleigh to Fareham Line	rail
120	SE	Eastleigh to Fareham Line	rail
135	W	Not given	rail
135	SW	Not given	rail
135	NW	Not given	Multi Track
135	NW	Not given	Multi Track
135	NW	Not given	Multi Track
135	NW	Not given	Multi Track
135	W	Not given	rail
135	SW	Not given	rail
140	SW	Not given	rail
140	SW	Not given	rail
147	SW	Not given	rail

Distance (m)	Direction	Name	Type
147	SW	Not given	rail
151	SW	Not given	rail
151	SW	Not given	rail
157	SW	Not given	rail
157	SW	Not given	rail
167	SW	Not given	rail
167	SW	Not given	rail
169	W	Not given	rail
169	W	Not given	rail
174	W	Not given	rail
174	W	Not given	rail
177	W	Not given	rail
177	W	Not given	rail
179	W	Not given	rail
179	W	Not given	rail
182	W	Not given	rail
182	W	Not given	rail
184	W	Not given	rail
184	W	Not given	rail
185	NW	Not given	rail
185	NW	Not given	rail
187	W	Not given	rail
187	W	Not given	rail
192	W	Not given	rail
192	W	Not given	rail
196	W	Not given	rail
196	W	Not given	rail
199	W	Not given	rail
199	W	Not given	rail
204	W	Not given	rail
204	W	Not given	rail
207	W	Not given	rail
207	W	Not given	rail
209	NW	Not given	Multi Track
209	NW	Not given	Multi Track
213	W	Not given	rail
213	W	Not given	rail
215	W	Not given	rail
215	W	Not given	rail
217	NW	Not given	rail
217	NW	Not given	rail
218	W	Not given	rail
218	W	Not given	rail
230	W	Not given	rail
230	W	Not given	rail

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project?	No
Is the study site within 500m of the route of the Crossrail 1 rail project?	No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a ***Groundsure HS2 and Crossrail 1 Report****.*

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

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Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

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Mansfield
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DX 716176 Mansfield 5
www.coal.gov.uk

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https://www.gov.uk/government/organisations/public-health-england
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https://www.groundsure.com/terms-and-conditions-feb11-2019

Appendix F

Exploratory Hole Logs

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	01-07-19	01-07-19	MJ	Hand tools	n/a	n/a	01-07-19	TM	
CP	0.00	15.00	01-07-19	01-07-19	MJ	Dando 2000	n/a	n/a	01-07-19	TM	Hammer ID: SI 5 Er(%) 66

Location details:

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Water	Casing	Depth	Type & No	Results/Remarks
				(0.40)	Firm brown slightly sandy gravelly CLAY. Gravel is angular to subangular of medium to coarse flint brick and concrete. (MADE GROUND)			0.20 - 0.40	B1	
				0.40	Firm brown slightly gravelly CLAY. Gravel is angular to subrounded of medium flint. (RIVER TERRACE DEPOSITS)			0.50	D1	
				(0.90)						
	(63)							1.00	D2	
				1.30						
				(0.30)	Dense brown gravelly clayey SAND. Gravel is angular to subrounded of fine to medium flint. (RIVER TERRACE DEPOSITS)	Dry		1.50 - 1.95	C	N=18 (4,5/4,4,5,5)
				1.60	Firm locally stiff grey sandy CLAY. (WITTERING FORMATION)			1.50 - 1.95	B2	
								2.00	D3	
								2.50 - 2.95	U1	60 (100%)
								3.00	D4	
						Dry	3.00	3.50 - 3.95	S	N=23 (3,4/5,5,6,7)
								3.50 - 3.95	D5	
								4.50 - 4.95	U2	68 (100%)
	SP (63)							5.00	D6	
						Dry	4.40	5.50 - 5.95	S	N=28 (3,4/5,7,7,9)
								5.50 - 5.95	D7	
								7.00 - 7.45	U3	80 (100%)
								7.50	D8	
				(13.40)						
						Dry	4.40	8.50 - 8.95	S	N=32 (4,6/6,8,9,9)
								8.50 - 8.95	D9	
	Inst (Ø)					Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
3.30	2.80	3.00	3.50

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	15.00	4.40

Depth related remarks:

From: To: Remarks:

Chiselling details:

From: to: Duration: Tool:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP01

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	01-07-19	01-07-19	MJ	Hand tools	n/a	n/a	01-07-19	TM	
CP	0.00	15.00	01-07-19	01-07-19	MJ	Dando 2000	n/a	n/a	01-07-19	TM	Hammer ID: SI 5 Er(%) 66

Location details:

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results/Remarks
					Firm locally stiff grey sandy CLAY. (WITTERING FORMATION)			10.00 - 10.45	U4	95 (100%)
								10.50	D10	
						Dry	4.40	11.50 - 11.95	S	N=35 (4,5/7,8,9,11)
								11.50 - 11.95	D11	
								13.00 - 13.45	U5	100 (100%)
								13.50	D12	
						Dry	4.40	14.50 - 14.95	S	N=40 (5,7/8,9,11,12)
								14.50 - 14.95	D13	
				15.00	Borehole ends at 15.00m (Target depth)					
	Inst (Ø)					Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	15.00	4.40

Depth related remarks:

From:	To:	Remarks:

Chiselling details:

From:	to:	Duration:	Tool:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP01

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	02-07-19	02-07-19	MJ	Hand tools	n/a	n/a	02-07-19	TM	
CP	0.00	15.00	02-07-19	02-07-19	MJ	Dando 2000	n/a	n/a	02-07-19	TM	Hammer ID: SI 5 Er(%) 66

Location details:

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results/Remarks
				(0.50)	Firm greyish brown slightly sandy gravelly CLAY. Gravel is subangular to subrounded of medium to coarse flint. (TOPSOIL)					
				0.50	Dense brown clayey SAND and GRAVEL. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			0.50 - 0.90	B1	
	(63)							1.00	D1	
						Dry		1.50 - 1.95	C	N=36 (5,7/8,8,10,10)
								1.50 - 1.95	B2	
				(2.50)				1.50 - 1.95	D2	
								2.00	B3	
						Dry	1.50	2.50 - 2.95	C	N=30 (4,5/7,7,8,8)
								2.50 - 2.95	D3	
				3.00	Stiff blueish grey sandy CLAY. (RIVER TERRACE DEPOSITS)			3.00	U1	65 (100%)
				(0.50)						
				3.50	Dense grey clayey SAND. (RIVER TERRACE DEPOSITS)			3.50 - 3.95	D4	
								4.00	D5	
				(1.50)						
						3.20	4.40	4.50 - 4.95	S	N=21 (3,4/4,5,5,7)
								4.50 - 4.95	B4	80 (100%)
								4.50 - 4.95	U2	
	SP (63)			5.00	Stiff grey CLAY with sandy laminations. (WITTERING FORMATION)					
								5.50 - 5.95	D6	
								6.00	D7	
						Dry	6.00	7.00 - 7.45	S	N=21 (3,4/4,5,5,7)
								7.00 - 7.45	U3	100 (100%)
								8.50 - 8.95	D8	
								9.00	D9	
	Inst (Ø)			(10.00)		Dry	6.00	10.00 - 10.45	S	N=36 (4,6/7,9,10,10)

Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:
3.60	2.80	3.00	5.00

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	15.00	6.00

Depth related remarks:

From:	To:	Remarks:

Chiselling details:

From:	to:	Duration:	Tool:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP02

Borehole Log

TerraConsult

Borehole formation details: | **Location details:**

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	02-07-19	02-07-19	MJ	Hand tools	n/a	n/a	02-07-19	TM	
CP	0.00	15.00	02-07-19	02-07-19	MJ	Dando 2000	n/a	n/a	02-07-19	TM	Hammer ID: SI 5 Er(%) 66

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing				
						Water	Casing	Depth	Type & No	Results/Remarks
					Stiff grey CLAY with sandy laminations. (WITTERING FORMATION)			10.00 - 10.45	U4	100 (100%)
								11.50 - 11.95	D10	
								12.00	D11	
						Dry	6.00	13.00 - 13.45	S	N=35 (5,6/7,8,9,11)
								13.00 - 13.45	U5	100 (100%)
								14.50 - 14.95	D12	
				15.00	Borehole ends at 15.00m (Target depth)			15.00	D12	
	Inst (Ø)					Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	15.00	6.00

Depth related remarks:

From:	To:	Remarks:

Chiselling details:

From:	to:	Duration:	Tool:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP02

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	03-07-19	03-07-19	MJ	Hand tools	n/a	n/a	03-07-19	TM	
CP	0.00	15.00	03-07-19	03-07-19	MJ	Dando 2000	n/a	n/a	03-07-19	TM	Hammer ID: SI 5 Er(%) 66

Location details:

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results/Remarks
				(0.30)	Soft brown slightly sandy CLAY. (TOPSOIL)					
				0.30	Firm brown sandy CLAY. (RIVER TERRACE DEPOSITS)			0.40	D1	
				(0.60)				0.50 - 0.90	B1	
				0.90	Dense brown clayey gravelly SAND. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			1.00	D2	
	(63)					Dry		1.50 - 1.95	C	N=39 (5,7/8,10,10,11)
								1.50 - 1.95	B2	
								2.00	D3	
				(3.00)		Dry	2.40	2.50 - 2.95	C	N=29 (4,5/6,6,8,9)
								2.50 - 2.95	B3	
								3.00	D4	
						Dry	3.00	3.50 - 3.95	C	N=32 (4,4/7,8,9,8)
								3.50 - 3.95	B4	
				3.90	Stiff grey CLAY. (WITTERING FORMATION)			4.00	D5	
								4.50 - 4.95	U1	50 (100%)
	SP (63)							5.00	D6	
						Dry	4.20	5.50 - 5.95	S	N=20 (3,4/4,5,5,6)
								5.50 - 5.95	D7	
								7.00 - 7.45	U2	70 (100%)
								7.50	D8	
						Dry	4.20	8.50 - 8.95	S	N=28 (4,5/6,6,8,8)
								8.50 - 8.95	D9	
				(11.10)						
	Inst (Ø)					Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	15.00	4.20

Depth related remarks:

From:	To:	Remarks:

Chiselling details:

From:	to:	Duration:	Tool:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP03

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	03-07-19	03-07-19	MJ	Hand tools	n/a	n/a	03-07-19	TM	
CP	0.00	15.00	03-07-19	03-07-19	MJ	Dando 2000	n/a	n/a	03-07-19	TM	Hammer ID: SI 5 Er(%) 66

Location details:

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results/Remarks
					Stiff grey CLAY. (WITTERING FORMATION)			10.00 - 10.45	U3	95 (100%)
								10.50	D10	
						Dry	4.20	11.50 - 11.95	S	N=33 (4,5/6,8,9,10)
								11.50 - 11.95	D11	
								13.00 - 13.45	U4	100 (100%)
								13.50	D12	
						Dry	4.20	14.50 - 14.95	S	N=41 (5,6/8,9,11,13)
								14.50 - 14.95	D13	
				15.00	Borehole ends at 15.00m (Target depth)					
	Inst (Ø)					Water	Casing	Depth	Type & No	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	15.00	4.20

Depth related remarks:

From:	To:	Remarks:

Chiselling details:

From:	to:	Duration:	Tool:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP03

Borehole Log

TerraConsult

Borehole formation details:

Type:	From:	To:	Start date:	End date:	Crew:	Plant:	Barrel type:	Drill Bit:	Logged:	Logger:	Remarks:
IP	0.00	1.20	04-07-19	04-07-19	MJ	Hand tools	n/a	n/a	04-07-19	TM	
CP	0.00	10.00	04-07-19	04-07-19	MJ	Dando 2000	n/a	n/a	04-07-19	TM	Hammer ID: SI 5 Er(%) 66

Location details:

Grid:

Backfill/ Instal'n	Water-strike	Legend	Level	Depth (thick-ness)	Stratum Description	Samples & In Situ Testing: Water	Casing	Depth	Type & No	Results/Remarks
					Firm brown sandy CLAY. Rare fine gravel of brick. (MADE GROUND)			0.30 - 0.60	B1	
				(1.40)				1.00	D1	
				1.40	Dense brown clayey SAND and GRAVEL. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)	Dry		1.50 - 1.95	C	N=45 (5,7/9,11,13,12)
								1.50 - 1.95	B2	
								2.00	D2	
						Dry	2.40	2.50 - 2.95	C	N=32 (4,6/7,7,9,9)
								2.50 - 2.95	B3	
				(3.30)				3.00	D3	
						Dry	3.00	3.50 - 3.95	C	N=34 (4,5/7,8,9,10)
								3.50 - 3.95	B4	
								4.00	D4	
						Dry	4.50	4.50 - 4.95	C	N=22 (4,6/7,6,5,4)
				4.70	Stiff grey CLAY. (WITTERING FORMATION)			5.00	D5	
						Dry	5.00	5.50 - 5.95	S	N=21 (3,4/4,5,6,6)
								5.50 - 5.95	D6	
								7.00 - 7.45	U1	
				(5.30)				7.50	D7	
						Dry	5.00	8.50 - 8.95	S	N=31 (4,6/6,7,8,10)
								8.50 - 8.95	D8	
	Inst (Ø)			10.00	Borehole ends at 10.00m (Target depth)	Water	Casing	10.00	D9	Results

Groundwater entries:

Struck:	Rose to:	Casing:	Sealed:

Diameter & casing:

Dia (mm):	Depth:	Casing:
150	10.00	5.00

Depth related remarks:

From:	To:	Remarks:

Chiselling details:

From:	to:	Duration:	Tool:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:50

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

CP04

Exploratory Hole Key Sheet

TerraConsult

SAMPLES:

Undisturbed:	
U	Driven tube sample
UT	Thin wall driven tube sample
TW	Pushed thin wall tube sample
P	Pushed piston sample
L	Liner sample (from windowless or similar sampler), full recovery unless otherwise stated
CBR	CBR mould sample
BLK	Block sample
C	Core sample (from rotary core) taken for laboratory testing
Disturbed:	
D	Small sample
B	Bulk sample
AMAL	Amalgamated sample
Environmental:	
ES	Environmental soil sample
EW	Environmental water sample
Comments:	Sample reference numbers are assigned to every sample taken. A sample reference of 'NR' indicates that an attempt was made to take a tube sample; however, there was no recovery. Sample recovery is given as a percentage.

TESTS:

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C)
	The Standard Penetration Test is defined in BS EN ISO 22476-3 (2005). The incremental blow counts are given in the Field Records column; each increment is 75mm unless stated otherwise and any penetration under self weight in mm (SW) is noted. Where the full 300mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach 50 (either in total or for a single increment) the total blow count beyond the seating drive is given (without the N = prefix).
ICBR	In situ CBR
IV	In situ vane shear strength, peak (p) and remoulded (r), kPa
HV	Hand vane shear strength, peak (p) and remoulded (r), kPa
PP	Pocket penetrometer test, converted to shear strength, kPa
KFH, KRH, KPI	Variable head permeability tests (KFH = falling head test, KRH = rising head test, KPI = packer test), permeability value
PID/FID	Photo-ionisation detector/Flame-ionisation detector
	Test results provided in Field Records column

DRILLING RECORDS:

The mechanical indices (TCR/SCR/RQD & If) are defined in BS 5930: 2015 and BS EN ISO 22575-1 (2006)

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm. Minimum, typical and maximum spacings are presented.
NI	Non intact is used where the core is fragmented.
CRF	Core recovered (length in m) in the following run
AZCL	Assessed zone of core loss
NR	Not recovered

GROUNDWATER:

▽	Groundwater strike
▼	Groundwater level after standing period

DEPTH REMARKS:

EoS	End of Shift
SoS	Start of Shift
EoBH	End of Borehole

INSTRUMENTATION:

Details of installations are given on the Record. Legend column shows installed instrument depths including slotted pipe section or tip depth, response zone filter material type and layers of backfill. The type of instrument installed is indicated by a code adjacent to the Legend column at the base of the instrument.

SP	Standpipe
SPIE	Standpipe piezometer
PPIE	Pneumatic piezometer
EPIE	Electronic piezometer
AP	Access pipe
GMP	Gas monitoring standpipe
(xx)	Internal diameter (mm)
ICE	Biaxial inclinometer
ICM	Inclinometer tubing for use with probe
SLIP	Slip indicator
ESET	Electronic settlement cell/gauge
ETM	Magnetic extensometer settlement point
ETR	Rod extensometer

EXPLORATORY HOLE TYPE:

CP	Cable percussion
DP	Dynamic probe
DCP	Dynamic cone penetrometer
HA	Hand auger
IP	Inspection pit
OP	Observation pit/trench
PC	Pavement core
RC	Rotary core
RO	Rotary open hole
SH	Shaft
SNC	Sonic (resonance)
TP	Trial pit/trench
TRAV	Traverse
WLS	Windowless (dynamic) sample
WS	Window (dynamic) sample

AGS

Project: **Hampshire MRF**

Project No: **4521**

Client: **Veolia Environmental Services**

Reference

KEY SHEET

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	02/07/2019
Checked by:	DD			Length:	3.00		End:	02/07/2019
		Plant:	Tracked excavator	**Orientation:**			Logged:	02/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.30)	Greyish brown slightly gravelly CLAY. Gravel is subangular to subrounded flint and rare brick. Abundant roots and rootlets. (MADE GROUND)			
			0.30				
			(0.70)	Brown sandy very gravelly CLAY. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
			1.00				
			(0.60)	Orange slightly clayey sandy GRAVEL of subangular to subrounded flint. (RIVER TERRACE DEPOSITS)	1.20	B1	
			1.60				
			(1.00)	Blueish grey sandy CLAY. Frequent bands and pockets of sandy silt. (WITTERING FORMATION)			
			2.60	Trial pit ends at 2.60m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:

Depth related remarks:

From	to:	Remarks:

General remarks:

Weather: Dry, sunny

Stability: Stable

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP01

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	02/07/2019
Checked by:	DD			Length:	3.00		End:	02/07/2019
		Plant:	Tracked excavator	**Orientation:**			Logged:	02/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			0.25	Greyish brown slightly gravelly CLAY. Gravel is subangular to subrounded flint. Abundant roots and rootlets. (TOPSOIL)			
			(0.95)	Brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)	0.50	ES1	
			1.20				
			(1.10)	Orangish brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
			2.30				
			(0.40)	Blueish grey thickly laminated very sandy CLAY. Laminations of fine to coarse sand. (WITTERING FORMATION)	2.50	D1	
			2.70	Trial pit ends at 2.70m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:

Depth related remarks:

From	to:	Remarks:

General remarks:

Weather: Dry, sunny

Stability: Stable

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP02

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	02/07/2019
Checked by:	DD			Length:	3.00		End:	02/07/2019
		Plant:	Tracked excavator	**Orientation:**			Logged:	02/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.30)	Greyish brown slightly gravelly CLAY. Gravel is subangular to subrounded flint and rare angular brick. Abundant roots and rootlets. (MADE GROUND)			
			0.30				
			(0.30)	Greyish brown very gravelly CLAY. Gravel is subangular to subrounded flint. Occasional rootlet. (RIVER TERRACE DEPOSITS)			
			0.60				
			(1.70)	Orangish brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)	1.00	B1	
	▼		2.30	Trial pit ends at 2.30m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
2.20	2.20	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny

Stability: Unstable

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP03

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	02/07/2019
Checked by:	DD			Length:	3.00		End:	02/07/2019
		Plant:	Tracked excavator	Orientation:			Logged:	02/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.35)	Greyish brown slightly gravelly CLAY. Gravel is subangular to subrounded flint. Abundant roots and rootlets. (TOPSOIL)			
			0.35				
			(0.75)	Brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
			1.10				
			(0.75)	Greyish brown very gravelly CLAY. Gravel is subangular to subrounded flint. Occasional rootlet. (RIVER TERRACE DEPOSITS)			
			1.85				
	▼		(1.25)	Orangish brown sandy GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
			3.10				
			(0.40)	Blueish grey CLAY. (WITTERING FORMATION)			
			3.50	Trial pit ends at 3.50m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
2.90	2.90	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny

Stability: Stable

Remarks:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP04

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	03/07/2019
Checked by:	DD			Length:	3.00		End:	03/07/2019
		Plant:	Tracked excavator	**Orientation:**			Logged:	03/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.30)	Greyish brown slightly sandy CLAY. Abundant roots and rootlets. (TOPSOIL)			
			0.30				
			(1.40)	Brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium subangular to subrounded flint and rare brick. Occasional rootlet. (MADE GROUND)	1.00	D1	
					1.50	ES1	
			1.70				
			(0.40)	Greyish black slightly sandy very gravelly CLAY. Gravel is subangular to subrounded flint and fine to medium chalk flecks. Rare relic root. (MADE GROUND)	1.90	D2	
					2.00	B1	
	▼		2.10				
			(0.90)	Brown clayey slightly sandy GRAVEL. (RIVER TERRACE DEPOSITS)			
			3.00	Trial pit ends at 3.00m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
2.30	2.30	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny spells

Stability: Unstable

Remarks:

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP05

Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	03/07/2019
Checked by:	DD			Length:	3.00		End:	03/07/2019
		Plant:	Tracked excavator	Orientation:			Logged:	03/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.30)	Greyish brown slightly sandy CLAY. Abundant roots and rootlets. (TOPSOIL)			
			0.30				
			(0.70)	Orangish brown sandy CLAY. (RIVER TERRACE DEPOSITS)	0.50	ES1	
			1.00				
			(1.50)	Orange silty SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
	▼		2.50				
			2.65	Grey sandy very gravelly CLAY. (RIVER TERRACE DEPOSITS)			
			(0.65)	Sandy silty GRAVEL. (RIVER TERRACE DEPOSITS)			
			3.30	Trial pit ends at 3.30m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
2.50	2.50	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny spells

Stability: Unstable

Remarks:

AGS

Notes: For explanation of symbols and abbreviations see Key Sheet.
All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP06

Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	03/07/2019
Checked by:	DD			Length:	3.00		End:	03/07/2019
		Plant:	Tracked excavator	Orientation:			Logged:	03/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.30)	Greyish brown slightly sandy CLAY. Abundant roots and rootlets. (TOPSOIL)			
			0.30				
			(1.40)	Brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)	0.50	D1	
			1.70				
			(1.50)	Orange sandy clayey GRAVEL of subangular to subrounded flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	2.50 - 3.00	B1	
	▼		3.20				
			(0.50)	Blueish grey sandy laminated CLAY. Laminations of fine to coarse sand. Rare iron stained laminations. (WITTERING FORMATION)	3.50	D2	
			3.70	Trial pit ends at 3.70m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
3.10	3.10	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny spells

Stability: Stable

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP07

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	03/07/2019
Checked by:	DD			Length:	3.00		End:	03/07/2019
		Plant:	Tracked excavator	**Orientation:**			Logged:	03/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
			(0.40)	Greyish brown gravelly CLAY. Gravel is subangular to subrounded flint, brick, concrete and rare metal. Abundant roots and rootlets. (MADE GROUND)	0.25	ES1	
			0.40				
			(0.80)	Orangish brown CLAY. Occasional rootlet. (RIVER TERRACE DEPOSITS)			
			1.20				
			(1.10)	Orangish brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
			2.30				
				Grey fine to coarse SAND. (RIVER TERRACE DEPOSITS)			
			2.50				
			(0.80)	Orangish brown silty SAND and GRAVEL. Sand is fine to coarse. Gravel is subangular to subrounded flint. (RIVER TERRACE DEPOSITS)			
			3.30				
				Trial pit ends at 3.30m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:

Depth related remarks:

From	to:	Remarks:

General remarks:

Weather: Dry, sunny spells

Stability: Stable

Remarks:

AGS Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP08

Sheet 1 of 1

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	03/07/2019
Checked by:	DD			Length:	3.00		End:	03/07/2019
		Plant:	Tracked excavator	Orientation:			Logged:	03/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing: Depth	Type & No	Results
			0.05	Greyish brown CLAY. Abundant roots and rootlets. (TOPSOIL)			
			(0.35)	Orangish brown very gravelly CLAY. Gravel is subangular to subrounded flint, brick and concrete. (MADE GROUND)			
			0.40	Dark grey gravelly CLAY. Gravel is angular to subrounded brick, concrete, asphalt and tile. (MADE GROUND)			
			(0.60)				
			1.00	Black gravelly CLAY. Gravel is angular to subrounded flint, brick, plastic, glass and concrete. Heavy hydrocarbon odour. (MADE GROUND)	1.20	ES1	
			(1.00)				
			2.00	Grey very clayey GRAVEL of medium to coarse flint. (WITTERING FORMATION)	2.10	B1	
			(0.30)				
			2.30	Grey sandy CLAY and clayey SAND. (WITTERING FORMATION)	2.50	D1	
	▼		(0.80)				
			3.10	Trial pit ends at 3.10m (Target depth)			

Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
2.80	2.80	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny spells

Stability: Stable

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP09

Trial Pit Log

TerraConsult

Personnel:		Equipment & methods:		Dimensions:		Coordinates & level:	Dates:	
Logged by:	TM	Method:	Mechanical	Width:	0.70		Start:	04/07/2019
Checked by:	DD			Length:	3.00		End:	04/07/2019
		Plant:	Tracked excavator	Orientation:			Logged:	04/07/2019
		Shoring:	None	Bearing =		Grid:		

Backfill/ Instal'n	Water-strike	Legend	Level & Depth (Thickness)	Stratum Description	Samples & In Situ Testing		
					Depth	Type & No	Results
				Greyish brown CLAY. Abundant roots and rootlets. (TOPSOIL)			
			0.20				
			(0.30)	Orangish brown very gravelly CLAY. Gravel is subangular to subrounded flint, brick and concrete. (MADE GROUND)	0.40	ES1	
			0.50				
				Dark greyish black gravelly CLAY. Gravel is angular to subrounded brick, concrete, ceramic, plastic and glass. (MADE GROUND)			
			(0.90)				
			1.40				
				Green and blueish grey mottled black sandy CLAY. (MADE GROUND)			
			(0.50)				
			1.90				
				Blueish grey sandy laminated CLAY. Laminations of fine to coarse sand. (WITTERING FORMATION)			
	▼		(0.90)				
			2.80	Trial pit ends at 2.80m (Target depth)			
					Depth	Type & No	Results

Groundwater entries:

Depth:	Rose to:	Remarks:
2.60	2.60	

Depth related remarks:

From to: Remarks:

General remarks:

Weather: Dry, sunny spells

Stability: Stable

Remarks:

Notes: For explanation of symbols and abbreviations see Key Sheet. All depths and reduced levels are in metres.

Log issue: DRAFT

Scale: 1:25

Project: Hampshire MRF

Project No: 4521

Client: Veolia Environmental Services

Exploratory position reference:

TP10

SPT Calibration Report

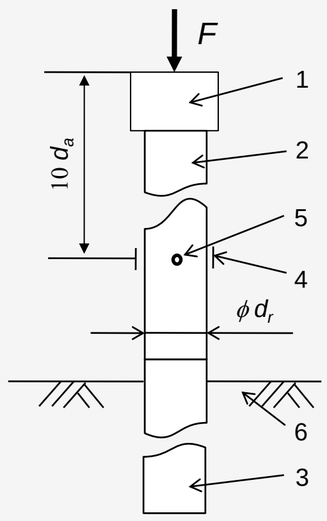
www.equipegroup.com

Hammer Energy Measurement Report

Type of Hammer		SPT HAMMER
Client		SI DRILLING
Test No		EQU2227
Test Depth (m)		8.40
Mass of hammer	m =	63.5kg
Falling height	h =	0.76m
E_{theor} =	$m \times g \times h$ =	473J

Characteristics of the instrumented rod

Diameter	d_r =	0.052 m
Length of instrumented rod		0.558 m
Area	A =	11.61 cm²
Modulus	E_a =	206843 MPa



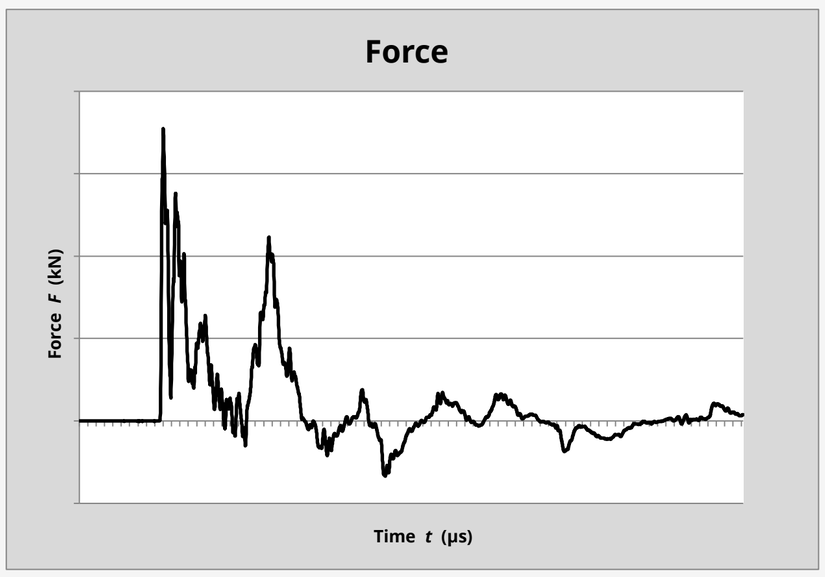
Key

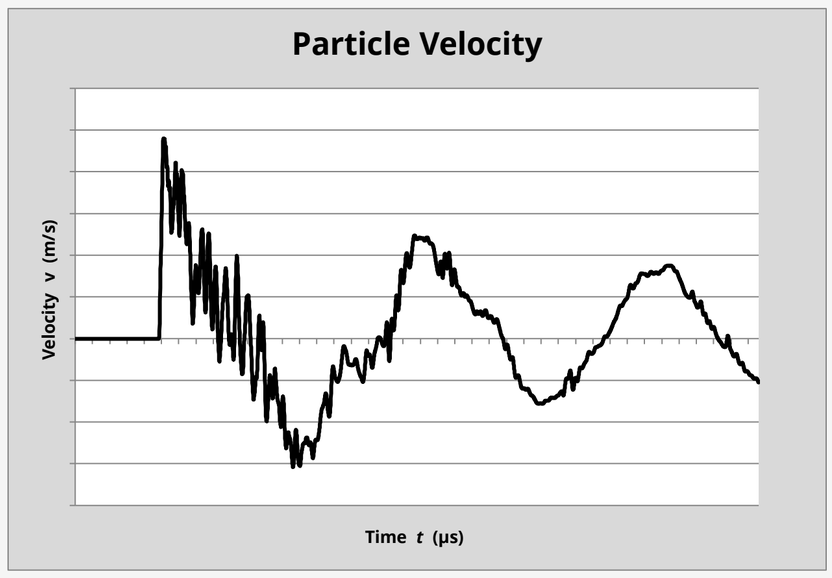
1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground

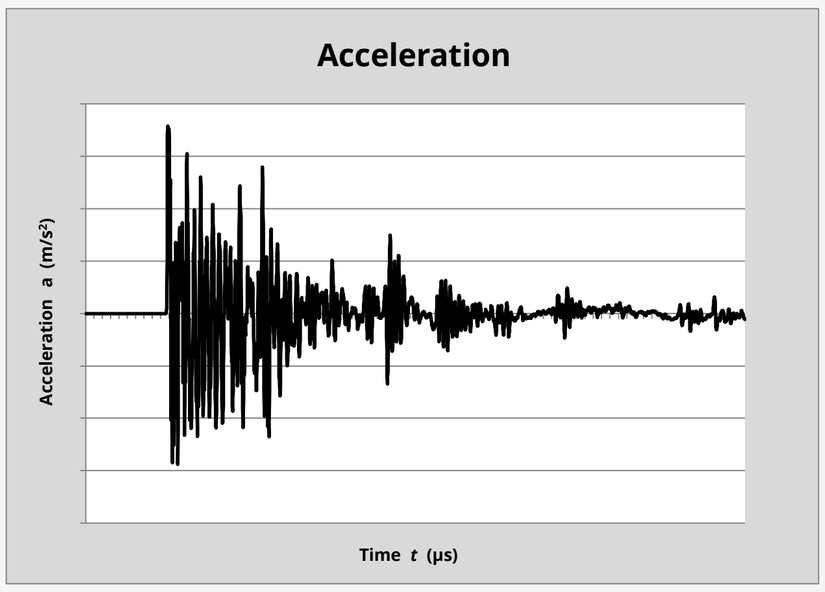
F Force
d_r Diameter of rod

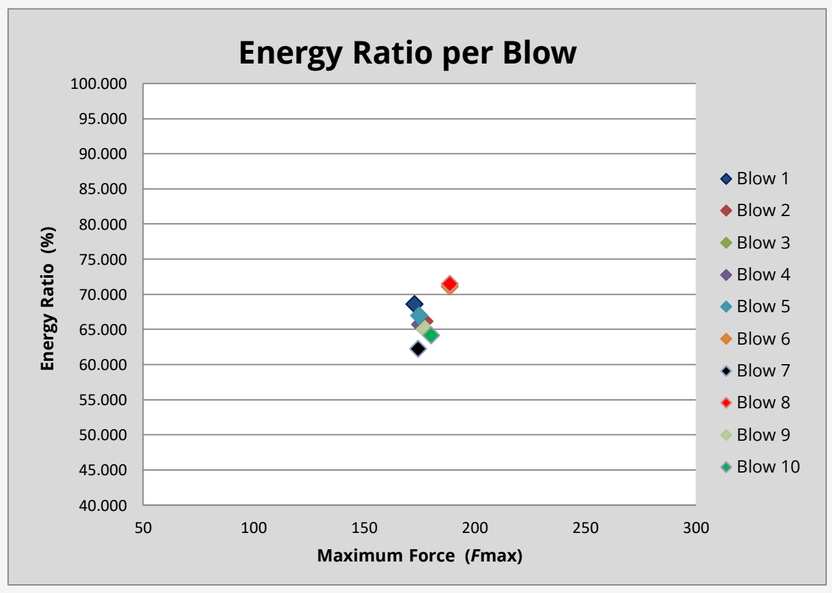
Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

DATE OF TEST	VALID UNTIL	HAMMER ID
28/12/2018	28/12/2019	SI 5









Observations:
1.

E_{meas} = **0.314** kN-m

E_{theor} = **0.473** kN-m

Energy Ratio = $\frac{E_{meas}}{E_{theor}}$ (E_r) **66.46%**

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Equipe SPT Analyzer Operators: **AF**

Prepared by: 03/01/2019 **Checked by:** 03/01/2019 **Date:** 03/01/2019

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Tel: +44 (0)1295 670990 Fax: +44 (0)1295 678232 Email: info@equipegroup.com

Appendix G

Geotechnical Laboratory Data

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Windmill Road
Ponswood Industrial Estate
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Telephone: (01424) 718618

cs@elab-uk.co.uk
info@elab-uk.co.uk

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number:	19-24102
Issue:	1
Date of Issue:	26/07/2019
Contact:	James Phaure
Customer Details:	K4 Soils Laboratory Ltd Unit 8 Watford HertfordshireWD18 9RU
Quotation No:	Q16-00568
Order No:	Not Supplied
Customer Reference:	26821
Date Received:	24/07/2019
Date Approved:	26/07/2019
Details:	Hampshire MRF
Approved by:	

Mike Varley, Technical Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

Sample Summary

Report No.: 19-24102, issue number 1

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
179560	BH1 - U 2 2.50	Not Provided	24/07/2019	Sandy loam	a
179561	BH2 - U 11 5.50	Not Provided	24/07/2019	Sandy silty loam	a
179562	BH3 - U 19 4.50	Not Provided	24/07/2019	Sandy silty loam	a
179563	BH4 - U 26 7.00	Not Provided	24/07/2019	Silty clayey loam	a

Results Summary

2683

Report No.: 19-24102, issue number 1

			ELAB Reference	179560	179561	179562	179563
			Customer Reference	2	11	19	26
			Sample ID				
			Sample Type	SOIL	SOIL	SOIL	SOIL
			Sample Location	BH1 - U	BH2 - U	BH3 - U	BH4 - U
			Sample Depth (m)	2.50	5.50	4.50	7.00
			Sampling Date	Not Provided	Not Provided	Not Provided	Not Provided
Determinand	**Codes**	**Units**	**LOD**				
Soil sample preparation parameters							
Material removed	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Description of Inert material removed	N		0	None	None	None	None
Anions							
Water Soluble Sulphate	M	g/l	0.02	0.54	0.44	0.60	0.27
Inorganics							
Total Sulphur	N	%	0.01	0.27	0.40	0.60	0.58
Acid Soluble Sulphate (SO4)	U	%	0.02	0.12	0.09	0.12	0.07
Miscellaneous							
pH	M	pH units	0.1	7.8	7.8	7.9	8.2

Method Summary

Report No.: 19-24102, issue number 1

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
pH	M	Air dried sample	26/07/2019	113	Electromeric
Acid Soluble Sulphate	U	Air dried sample	26/07/2019	115	Ion Chromatography
Water soluble anions	M	Air dried sample	25/07/2019	172	Ion Chromatography
Total organic carbon/Total sulphur	N	Air dried sample	25/07/2019	216	IR

Tests marked N are not UKAS accredited

Report Information

Report No.: 19-24102, issue number 1

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
*	UKAS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
NS	Subcontracted to approved laboratory. UKAS accreditation is not applicable.
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Soil sample results are expressed on an air dried basis (dried at < 30°C), and are uncorrected for inert material removed.
ELAB are unable to provide an interpretation or opinion on the content of this report.
The results relate only to the sample received.
PCB congener results may include any coeluting PCBs
Uncertainty of measurement for the determinands tested are available upon request
Unless otherwise stated, sample information has been provided by the client

Deviation Codes

a	No date of sampling supplied
b	No time of sampling supplied (Waters Only)
c	Sample not received in appropriate containers
d	Sample not received in cooled condition
e	The container has been incorrectly filled
f	Sample age exceeds stability time (sampling to receipt)
g	Sample age exceeds stability time (sampling to analysis)

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month
All water samples will be retained for 7 days following the date of the test report
Charges may apply to extended sample storage

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
26821	Hampshire MRF	Samples received	12/07/2019
		Schedule received	12/07/2019
Project No.	Client	Project started	15/07/2019
4521	TerraConsult South	Testing Started	01/08/2019

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH1	2	2.50	2.95	U	Medium strength greenish grey slightly sandy silty CLAY with grey sand pockets	28	100	59	20	39	
BH1	3	4.50	4.95	U	Medium strength grey slightly sandy silty CLAY	24	100	51	21	30	
BH1	4	7.00	7.45	U	High strength greenish grey slightly sandy silty CLAY	28					
BH1	5	10.00	10.45	U	High strength greenish grey slightly sandy silty CLAY with grey sand pockets	28	100	70	26	44	
BH1	6	13.00	13.45	U	Medium strength grey slightly sandy silty CLAY	25	100	63	23	40	
BH2	11	5.50	5.95	U	High strength greenish grey slightly sandy silty CLAY	24	100	46	21	25	
BH2	12	8.50	8.95	U	Medium strength greenish grey slightly sandy silty CLAY	28	100	78	25	53	
BH2	13	11.50	11.95	U	High strength greenish grey slightly sandy silty CLAY	26	100	53	23	30	
BH2	14	14.50	14.95	U	Very high strength grey slightly sandy silty CLAY	26	100	69	23	46	
BH3	19	4.50	4.95	U	Medium strength bluish grey slightly sandy silty CLAY with brown sand pockets	23	100	56	21	35	
BH3	20	7.00	7.45	U	High strength grey slightly sandy silty CLAY	26	100	72	24	48	
BH3	21	10.00	10.45	U	High strength bluish grey slightly sandy silty CLAY	24	100	59	22	37	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3 and 5.0

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved
Initials **J.P**
Date: 09/08/2019

Summary of Natural Moisture Content, Liquid Limit and Plastic Limit Results

Job No.	Project Name	Programme	
26821	Hampshire MRF	Samples received	12/07/2019
		Schedule received	12/07/2019
Project No.	Client	Project started	15/07/2019
4521	TerraConsult South	Testing Started	01/08/2019

Hole No.	Sample				Soil Description	NMC	Passing 425µm	LL	PL	PI	Remarks
	Ref	Top m	Base m	Type		%	%	%	%	%	
BH3	22	13.00	13.45	U	Very high strength dark grey silty CLAY	28	100	80	27	53	
BH4	26	7.00	7.45	U	High strength grey slightly sandy silty CLAY	26	100	68	26	42	

Test Methods: BS1377: Part 2: 1990:
Natural Moisture Content : clause 3.2
Atterberg Limits: clause 4.3 and 5.0

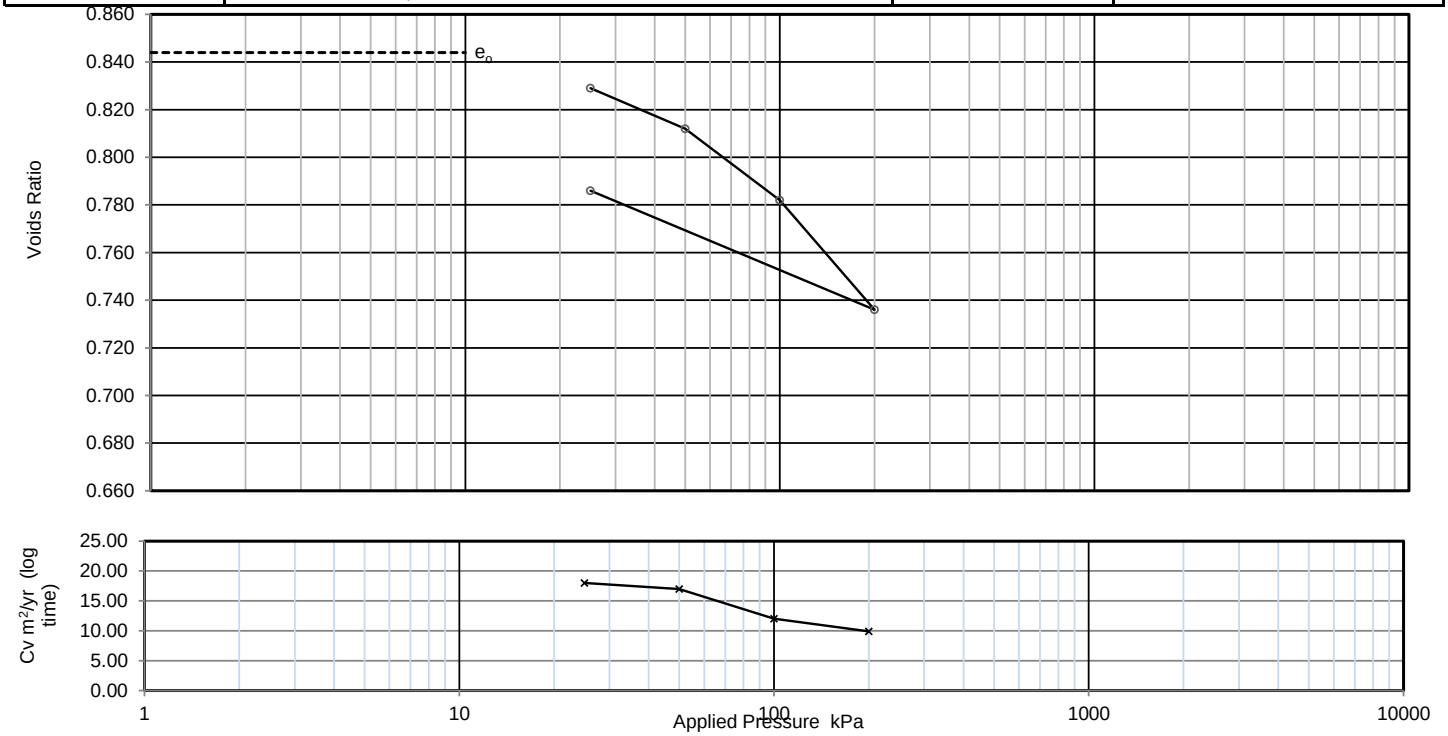
Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU

Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved
Initials **J.P**
Date: 09/08/2019

ONE DIMENSIONAL CONSOLIDATION TEST

			Job Ref	26821	
			Borehole/Pit No.	BH1	
			Sample No.	2	
Site Name	Hampshire MRF		Depth Top	2.50	m
Project ID	4521	Client TerraConsult South	Depth Base	2.95	m
Soil Description	Medium strength greenish grey slightly sandy silty CLAY with grey sand pockets		Sample Type	U	
			Sample Received	12/07/2019	
			Schedule received	12/07/2019	
			Project Started	15/07/2019	
Test Method	BS1377:Part 5: 1990, clause 3		Date Test started	22/07/2019	



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.844	-	-	-
25	0.829	0.36	18	21
50	0.812	0.38	17	20
100	0.782	0.33	12	18
200	0.736	0.25	9.9	9.9
25	0.786	0.16		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.67 Mg/m3

Specimen details	Initial	Final	
Diameter	75.05	-	mm
Height	19.90	19.27	mm
Moisture Content	28.9	30.7	%
Bulk density	1.87	1.95	Mg/m3
Dry density	1.45	1.50	Mg/m3
Voids Ratio	0.844	0.786	
Saturation	92	104	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials kp

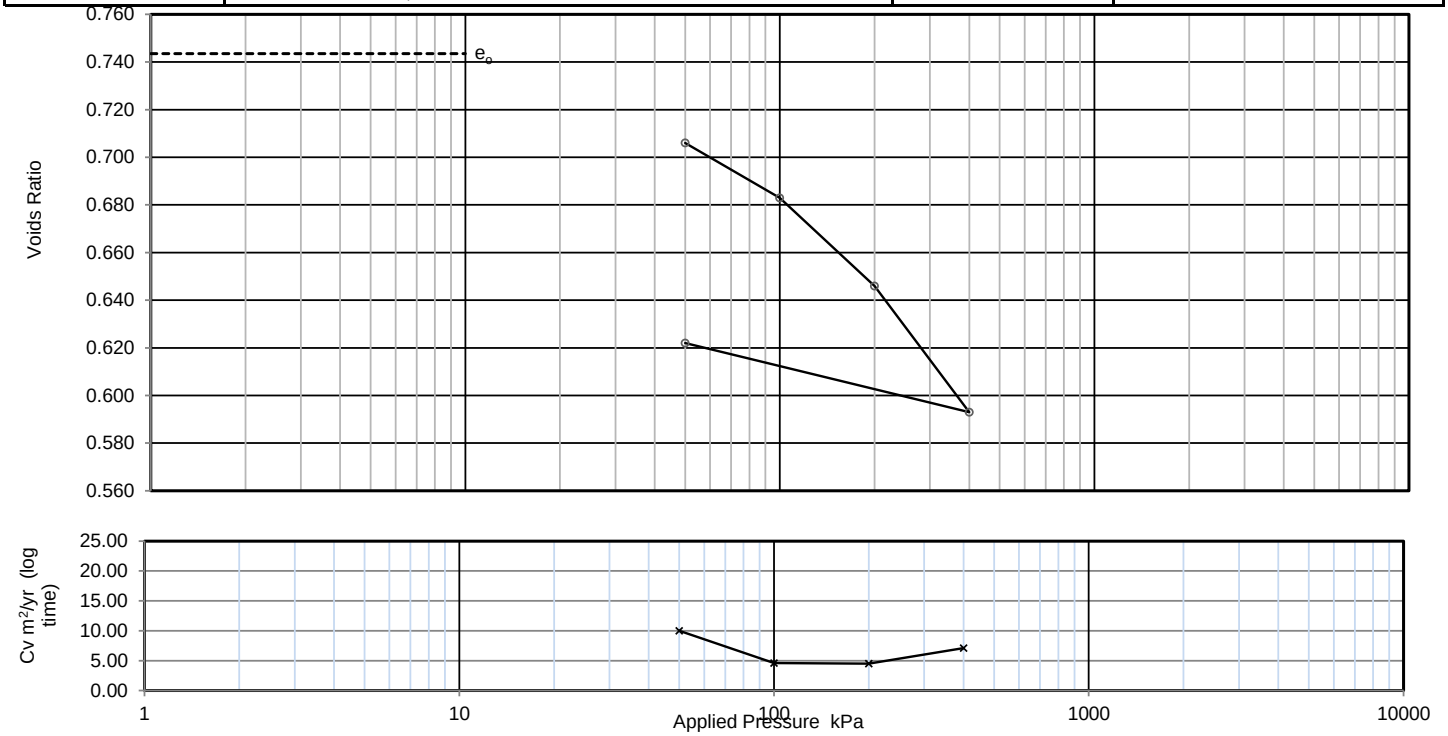
Date: 02/08/2019

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

ONE DIMENSIONAL CONSOLIDATION TEST

				Job Ref	26821
				Borehole/Pit No.	BH1
				Sample No.	3
Site Name	Hampshire MRF			Depth Top	4.50 m
Project ID	4521	Client	TerraConsult South	Depth Base	4.95 m
Soil Description	Medium strength grey slightly sandy silty CLAY			Sample Type	U
				Sample Received	12/07/2019
				Schedule received	12/07/2019
				Project Started	15/07/2019
Test Method	BS1377:Part 5: 1990, clause 3			Date Test started	23/07/2019



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.743	-	-	-
50	0.706	0.45	10	15
100	0.683	0.27	4.6	4.6
200	0.646	0.22	4.5	3.6
400	0.593	0.16	7.1	7.7
50	0.622	0.053		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.70 Mg/m3

Specimen details	Initial	Final	
Diameter	74.95	-	mm
Height	18.80	17.49	mm
Moisture Content	25.5	24.9	%
Bulk density	1.94	2.08	Mg/m3
Dry density	1.55	1.66	Mg/m3
Voids Ratio	0.743	0.622	
Saturation	92	108	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved

Initials kp

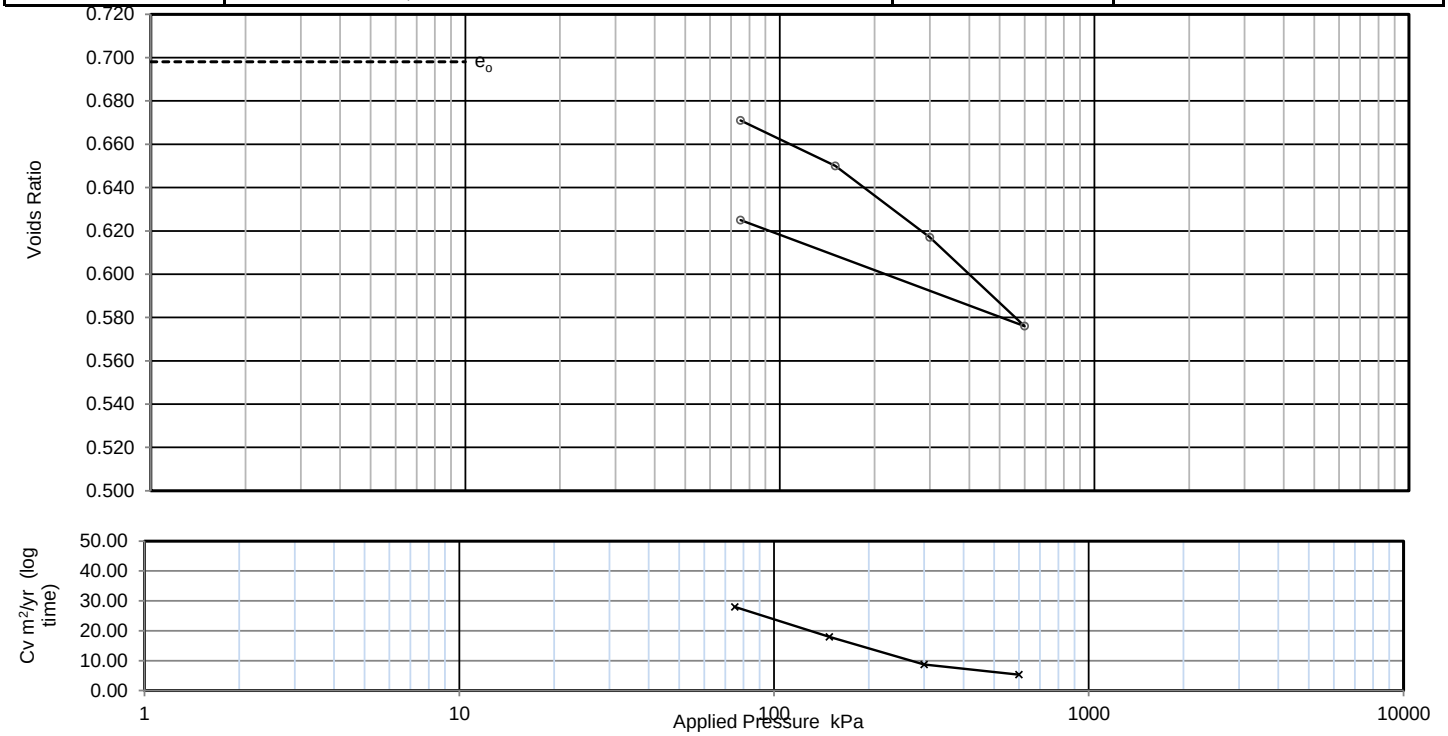
Date: 02/08/2019

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

ONE DIMENSIONAL CONSOLIDATION TEST

			Job Ref	26821	
			Borehole/Pit No.	BH2	
			Sample No.	12	
Site Name	Hampshire MRF		Depth Top	8.50	m
Project ID	4521	Client TerraConsult South	Depth Base	8.95	m
Soil Description	Medium strength greenish grey slightly sandy silty CLAY		Sample Type	U	
			Sample Received	12/07/2019	
			Schedule received	12/07/2019	
			Project Started	15/07/2019	
Test Method	BS1377:Part 5: 1990, clause 3		Date Test started	24/07/2019	



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.698	-	-	-
75	0.671	0.22	28	20
150	0.650	0.17	18	17
300	0.617	0.13	8.7	10
600	0.576	0.085	5.3	5.4
75	0.625	0.059		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.68 Mg/m3

Specimen details	Initial	Final	
Diameter	75.00	-	mm
Height	18.91	18.09	mm
Moisture Content	24.8	26.0	%
Bulk density	1.97	2.08	Mg/m3
Dry density	1.58	1.65	Mg/m3
Voids Ratio	0.698	0.625	
Saturation	95	112	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

Test Report by K4 SOILS LABORATORY
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Checked and Approved

Initials kp

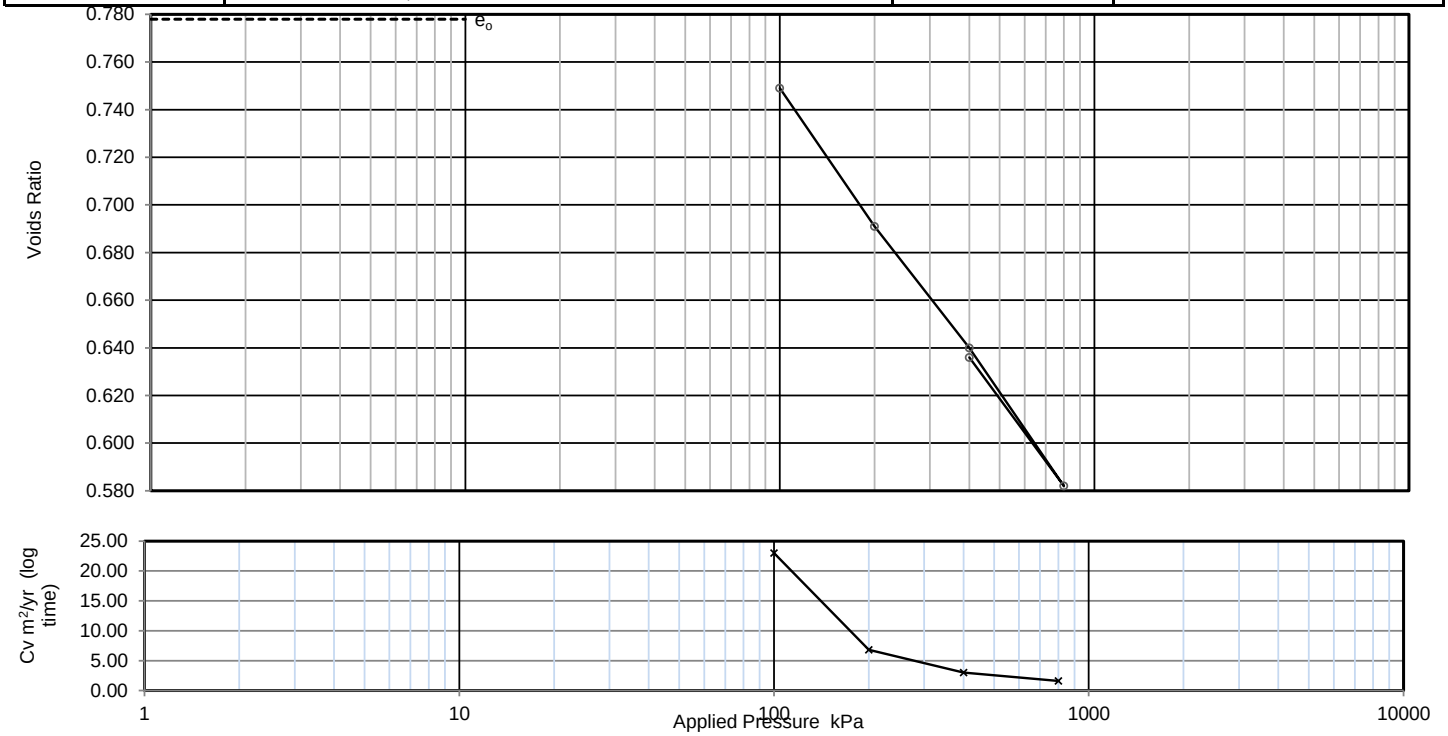
Date: 02/08/2019

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

ONE DIMENSIONAL CONSOLIDATION TEST

				Job Ref	26821
				Borehole/Pit No.	BH2
				Sample No.	13
Site Name	Hampshire MRF			Depth Top	11.50 m
Project ID	4521	Client	TerraConsult South	Depth Base	11.95 m
Soil Description	High strength greenish grey slightly sandy silty CLAY			Sample Type	U
				Sample Received	12/07/2019
				Schedule received	12/07/2019
				Project Started	15/07/2019
Test Method	BS1377:Part 5: 1990, clause 3			Date Test started	23/07/2019



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.778	-	-	-
100	0.749	0.17	23	22
200	0.691	0.33	6.8	6.6
400	0.640	0.15	3	4.1
800	0.582	0.089	1.6	3
400	0.636	0.086		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.67 Mg/m3

Specimen details	Initial	Final	
Diameter	75.00	-	mm
Height	18.93	17.42	mm
Moisture Content	26.2	25.7	%
Bulk density	1.90	2.05	Mg/m3
Dry density	1.50	1.63	Mg/m3
Voids Ratio	0.778	0.636	
Saturation	90	108	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

Test Report by K4 SOILS LABORATORY
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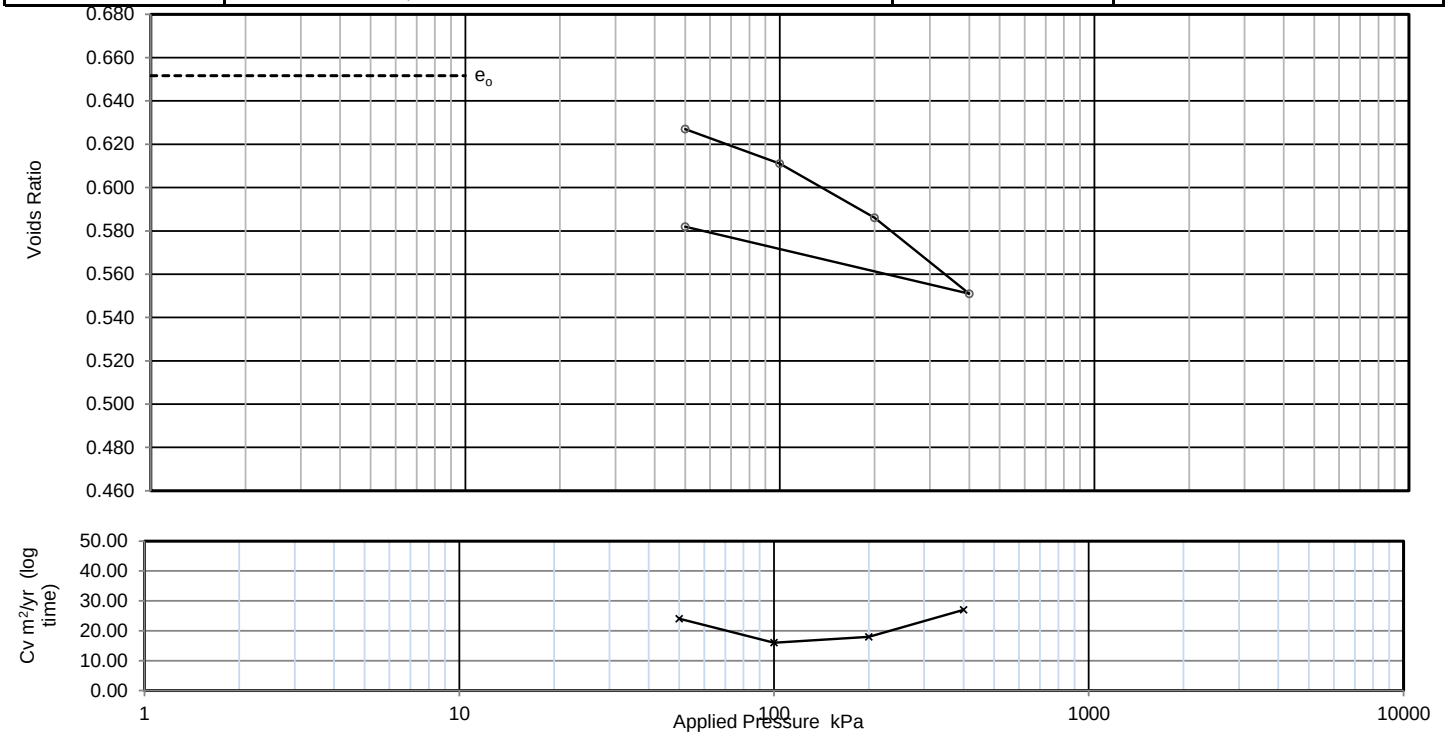
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UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

ONE DIMENSIONAL CONSOLIDATION TEST

				Job Ref	26821
				Borehole/Pit No.	BH3
				Sample No.	20
Site Name	Hampshire MRF			Depth Top	7.00 m
Project ID	4521	Client	TerraConsult South	Depth Base	7.45 m
Soil Description	High strength grey slightly sandy silty CLAY			Sample Type	U
				Sample Received	12/07/2019
				Schedule received	12/07/2019
				Project Started	15/07/2019
Test Method	BS1377:Part 5: 1990, clause 3			Date Test started	



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.652	-	-	-
50	0.627	0.31	24	24
100	0.611	0.21	16	18
200	0.586	0.15	18	13
400	0.551	0.11	27	22
50	0.582	0.056		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.70 Mg/m3

Specimen details	Initial	Final	
Diameter	74.95	-	mm
Height	18.84	18.04	mm
Moisture Content	23.7	24.6	%
Bulk density	2.02	2.13	Mg/m3
Dry density	1.63	1.71	Mg/m3
Voids Ratio	0.652	0.582	
Saturation	98	114	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

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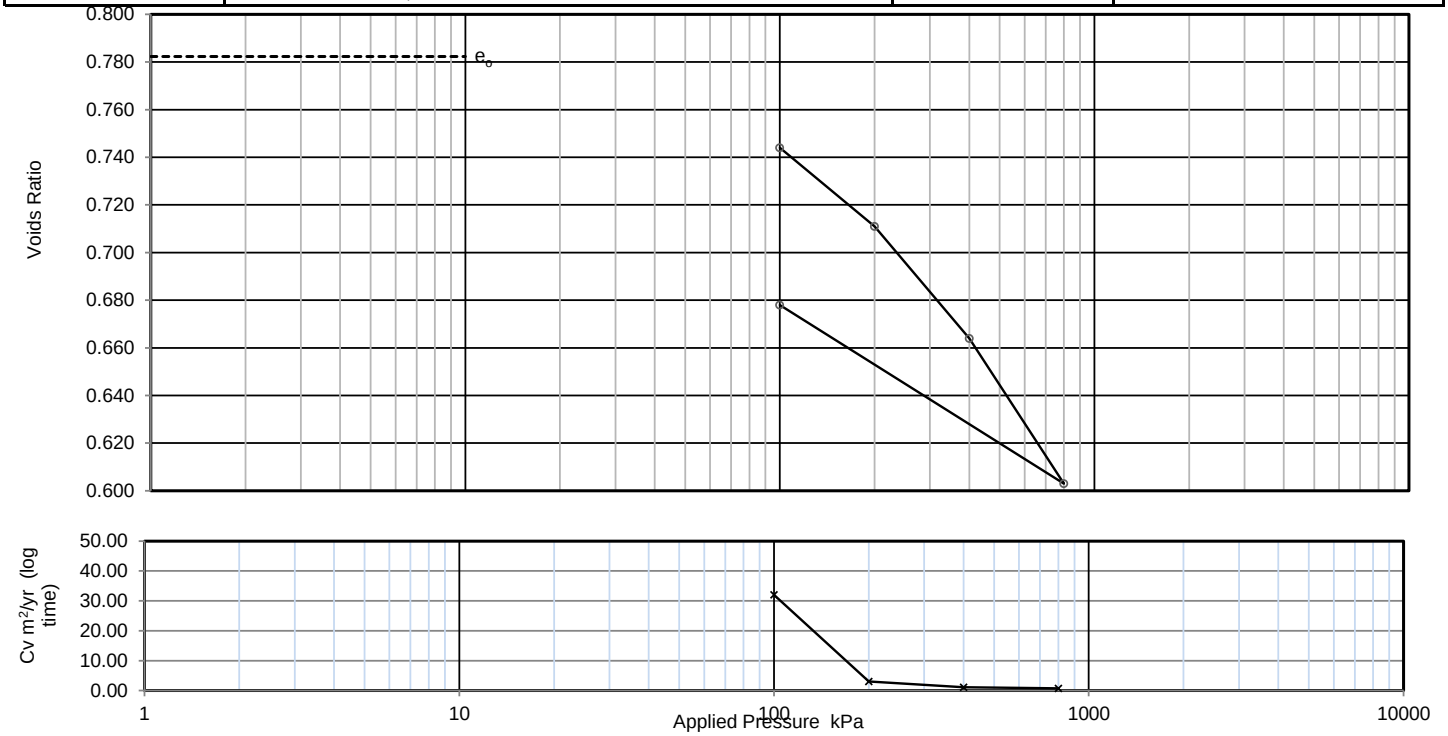
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

ONE DIMENSIONAL CONSOLIDATION TEST

			Job Ref	26821	
			Borehole/Pit No.	BH3	
			Sample No.	22	
Site Name	Hampshire MRF		Depth Top	13.00	m
Project ID	4521	Client TerraConsult South	Depth Base	13.45	m
Soil Description	Very high strength dark grey silty CLAY		Sample Type	U	
			Sample Received	12/07/2019	
			Schedule received	12/07/2019	
			Project Started	15/07/2019	
Test Method	BS1377:Part 5: 1990, clause 3		Date Test started	23/07/2019	



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.782	-	-	-
100	0.744	0.22	32	30
200	0.711	0.18	3	3.9
400	0.664	0.14	1.1	2.8
800	0.603	0.091	0.73	2.1
100	0.678	0.067		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.70 Mg/m3

Specimen details	Initial	Final	
Diameter	74.70	-	mm
Height	18.93	17.82	mm
Moisture Content	28.0	28.4	%
Bulk density	1.94	2.07	Mg/m3
Dry density	1.51	1.61	Mg/m3
Voids Ratio	0.782	0.678	
Saturation	97	113	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

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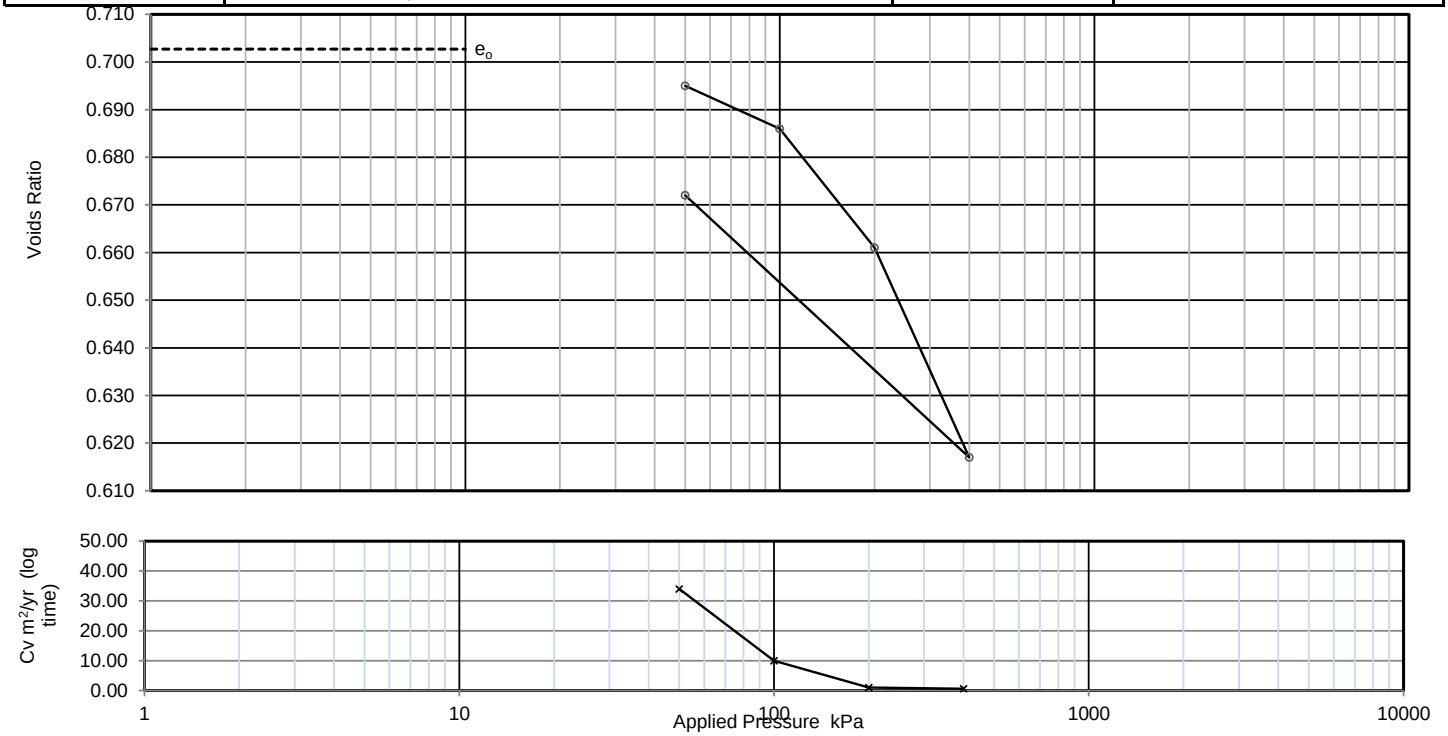
Date: 02/08/2019

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

ONE DIMENSIONAL CONSOLIDATION TEST

				Job Ref	26821
				Borehole/Pit No.	BH4
				Sample No.	26
Site Name	Hampshire MRF			Depth Top	7.00 m
Project ID	4521	Client	TerraConsult South	Depth Base	7.45 m
Soil Description	High strength grey slightly sandy silty CLAY			Sample Type	U
				Sample Received	12/07/2019
				Schedule received	12/07/2019
				Project Started	15/07/2019
Test Method	BS1377:Part 5: 1990, clause 3			Date Test started	23/07/2019



Applied Pressure	Voids ratio	Mv	Cv (t50, log)	Cv (t90, root)
kPa		m2/MN	m2/yr	m2/yr
2.0	0.703	-	-	-
50	0.695	0.1	34	39
100	0.686	0.1	10	11
200	0.661	0.14	0.95	2.3
400	0.617	0.13	0.59	0.74
50	0.672	0.097		

Preparation

Orientation wthin sample: Vertical

Particle density: assumed 2.70 Mg/m3

Specimen details	Initial	Final	
Diameter	75.00	-	mm
Height	20.07	19.71	mm
Moisture Content	26.3	26.8	%
Bulk density	2.00	2.05	Mg/m3
Dry density	1.59	1.61	Mg/m3
Voids Ratio	0.703	0.672	
Saturation	101	108	%
Average temperature for test	20.0		oC
Swelling Pressure			kPa
Settlement on saturation			%

Remarks

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Date: 02/08/2019

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Particle Density Test Results

Job No.	Project Name	Programme	
26821	Hampshire MRF	Samples received	12/07/2019
		Schedule received	12/07/2019
Project No.	Client	Project started	15/07/2019
4521	TerraConsult South	Testing Started	22/07/2019

Hole No.	Sample				Soil Description	Particle density Mg/m3	Method	Remarks
	Ref	Top m	Base m	Type				
BH2	7	0.50	0.90	B	Brown very clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.62	gas jar	
BH2	8	1.50	1.95	B	Yellowish brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.64	gas jar	
BH2	9	2.50	2.95	B	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.61	gas jar	
BH3	16	1.50	1.95	B	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.62	gas jar	
BH3	17	2.50	2.95	B	Light brown clayey very sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)	2.60	gas jar	
BH3	18	3.50	3.95	B	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.62	gas jar	
BH4	23	1.50	1.95	B	Greysih brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.61	gas jar	
BH4	24	2.50	2.95	B	Greysih brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.65	gas jar	
BH4	25	3.50	3.95	B	Greyish brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)	2.64	gas jar	
TP1	27	1.20	-	B	Brown slightly clayey sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)	2.68	gas jar	
TP3	28	1.00	-	B	Brown slightly clayey sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)	2.64	gas jar	
TP5	29	2.00	-	B	Dark grey slightly clayey sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)	2.61	gas jar	
TP7	30	2.50	3.00	B	Brown clayey sandy GRAVEL with ocasional cobbles (gravel is fmc and sub-rounded to sub-angular)	2.65	gas jar	
TP9	31	2.10	-	B	Bluish grey clayey sandy GRAVEL with pockets of dark grey gravelly silty clay (gravel is fmc and sub-rounded to sub-angular)	2.69	gas jar	

UKAS TESTING
2519

Test Methods: BS1377: Part 2: 1990:
Particle Density: (gas jar) clause 8.2 (pyknometer) 8.3
Density: (linear) clause 7.2 (immersion) clause 7.3

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Initials **J.P**

Date: 09/08/2019

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Summary of Particle Density Test Results

Job No.	Project Name	Programme	
26821	Hampshire MRF	Samples received	12/07/2019
		Schedule received	12/07/2019
Project No.	Client	Project started	15/07/2019
4521	TerraConsult South	Testing Started	30/07/2019

Hole No.	Sample				Soil Description	Particle density	Method	Remarks
	Ref	Top m	Base m	Type		Mg/m3		
BH1	1	1.50	1.95	B	Brownish grey and bluish grey slightly sandy silty CLAY with rare fmc sub-rounded gravel	2.67	small pyknometer	
BH2	10	4.50	4.95	B	Bluish grey silty clayey SAND	2.68	small pyknometer	
BH3	15	0.50	0.90	B	Brown silty sandy CLAY	2.68	small pyknometer	

Test Methods: BS1377: Part 2: 1990:
Particle Density: (gas jar) clause 8.2 (pyknometer) 8.3
Density: (linear) clause 7.2 (immersion) clause 7.3

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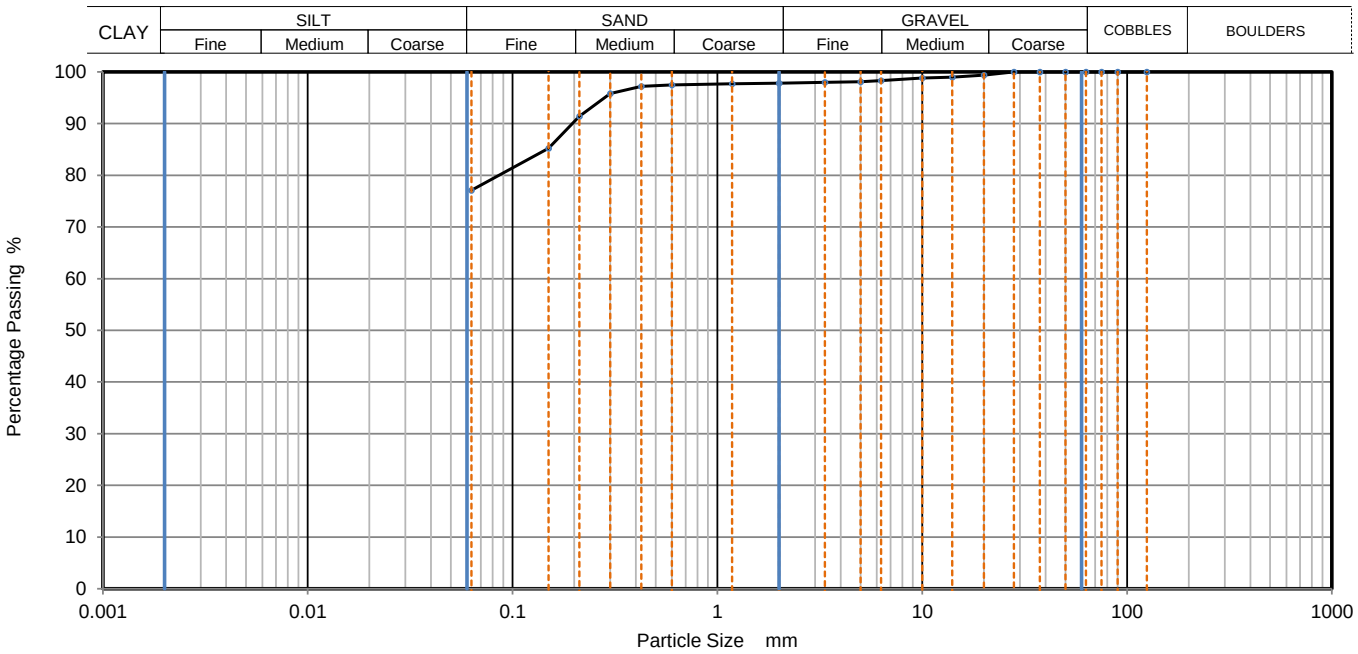
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UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH1
Project No.	4521	Client	TerraConsult South	Sample No.	1
				Depth Top	1.50 m
Soil Description	Brownish grey and bluish grey slightly sandy silty CLAY with rare fmc sub-rounded gravel			Depth Base	1.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	23/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	99		
14	99		
10	99		
6.3	98		
5	98		
3.35	98		
2	98		
1.18	98		
0.6	98		
0.425	97		
0.3	96		
0.212	91		
0.15	85		
0.063	77		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	2.2
Sand	20.8
Fines <0.063mm	77.1

Grading Analysis		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

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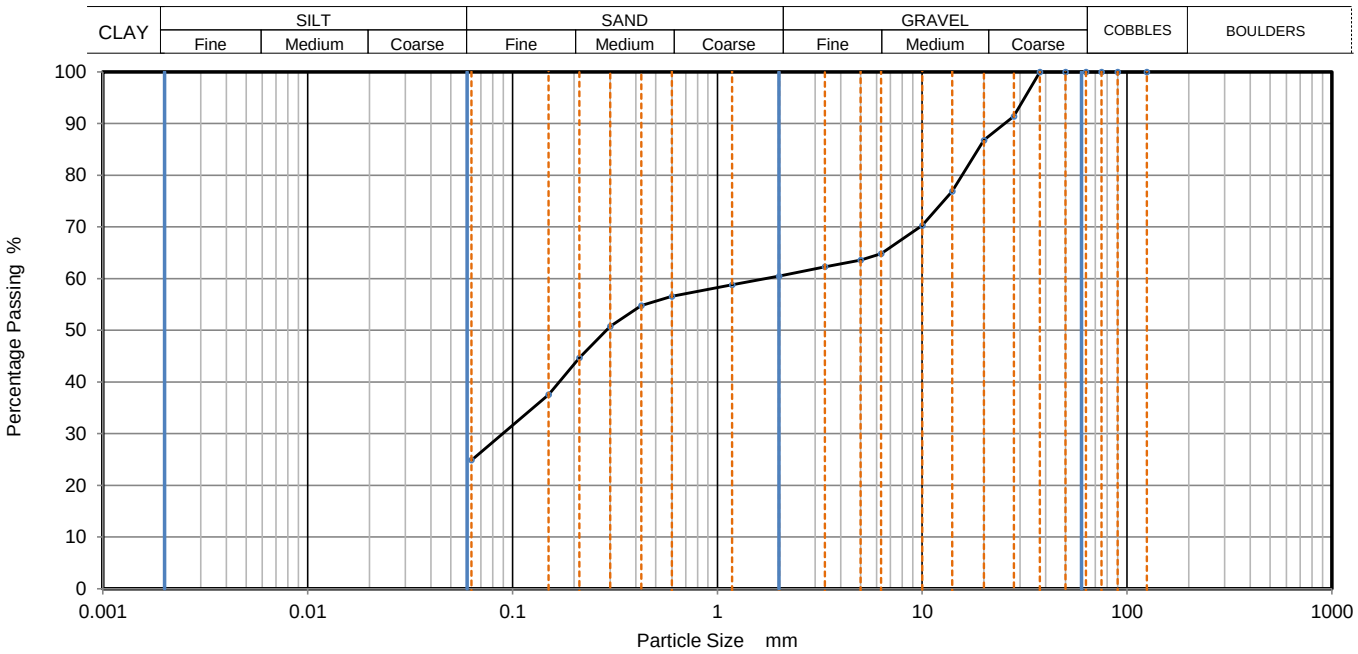
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UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH2
Project No.	4521	Client	TerraConsult South	Sample No.	7
				Depth Top	0.50 m
Soil Description	Brown very clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	0.90 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	91		
20	87		
14	77		
10	70		
6.3	65		
5	64		
3.35	62		
2	61		
1.18	59		
0.6	57		
0.425	55		
0.3	51		
0.212	45		
0.15	38		
0.063	25		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	39.5
Sand	35.6
Fines <0.063mm	24.9

Grading Analysis		
D100	mm	
D60	mm	1.7
D30	mm	0.0891
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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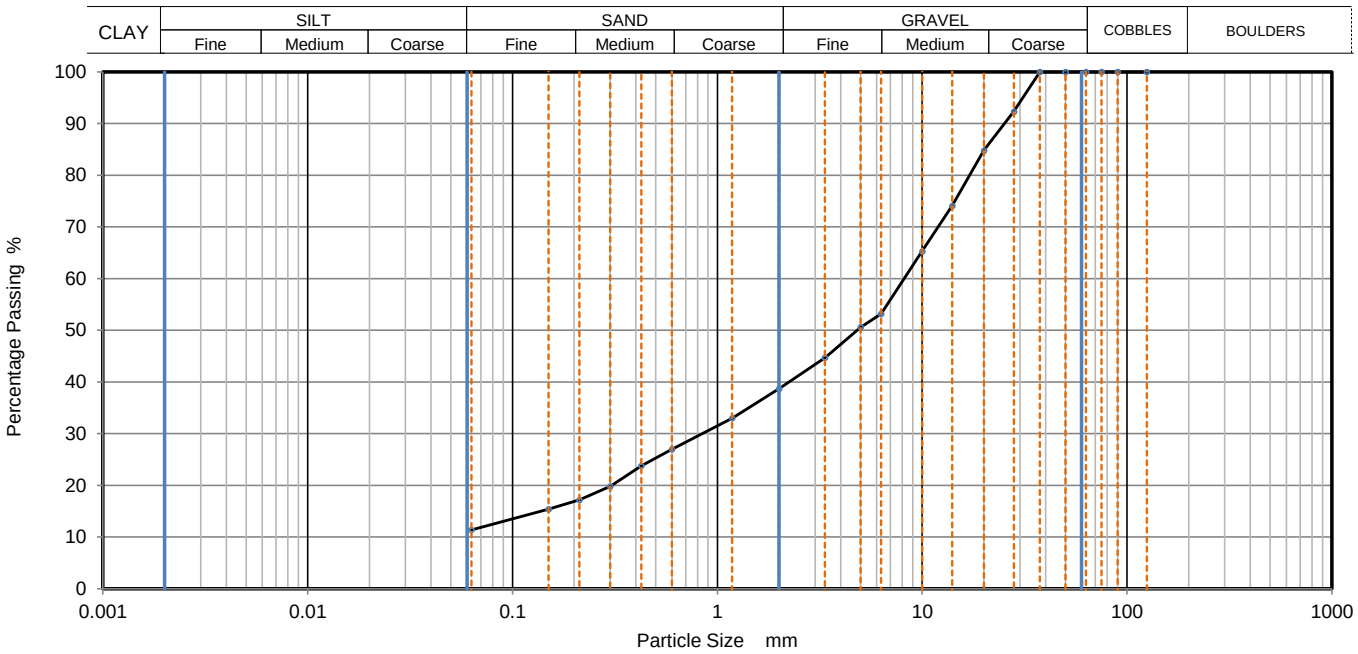
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UKAS TESTING 2519

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PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH2
Project No.	4521	Client	TerraConsult South	Sample No.	8
				Depth Top	1.50 m
Soil Description	Yellowish brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	92		
20	85		
14	74		
10	65		
6.3	53		
5	51		
3.35	45		
2	39		
1.18	33		
0.6	27		
0.425	24		
0.3	20		
0.212	17		
0.15	15		
0.063	11		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	61.3
Sand	27.3
Fines <0.063mm	11.5

Grading Analysis		
D100	mm	
D60	mm	8.17
D30	mm	0.844
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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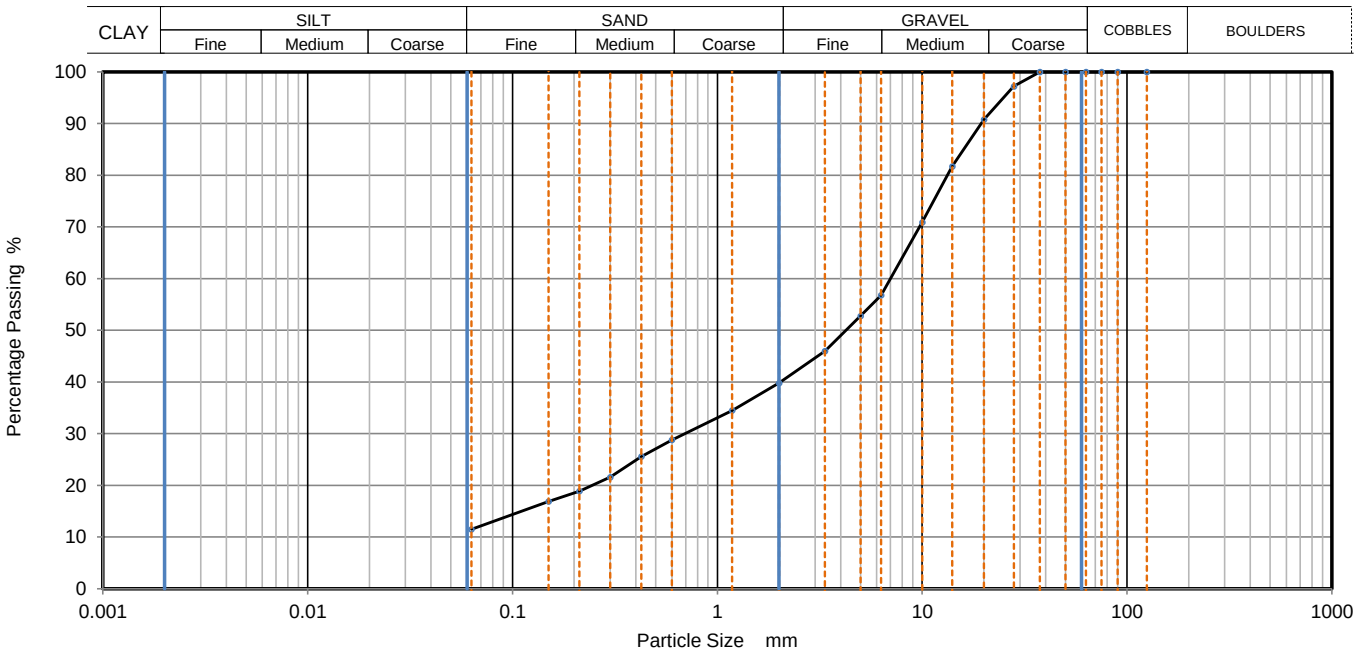
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MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH2
Project No.	4521	Client	TerraConsult South	Sample No.	9
				Depth Top	2.50 m
Soil Description	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	97		
20	91		
14	82		
10	71		
6.3	57		
5	53		
3.35	46		
2	40		
1.18	35		
0.6	29		
0.425	26		
0.3	22		
0.212	19		
0.15	17		
0.063	12		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	60.2
Sand	28.3
Fines <0.063mm	11.5

Grading Analysis		
D100	mm	
D60	mm	7.01
D30	mm	0.693
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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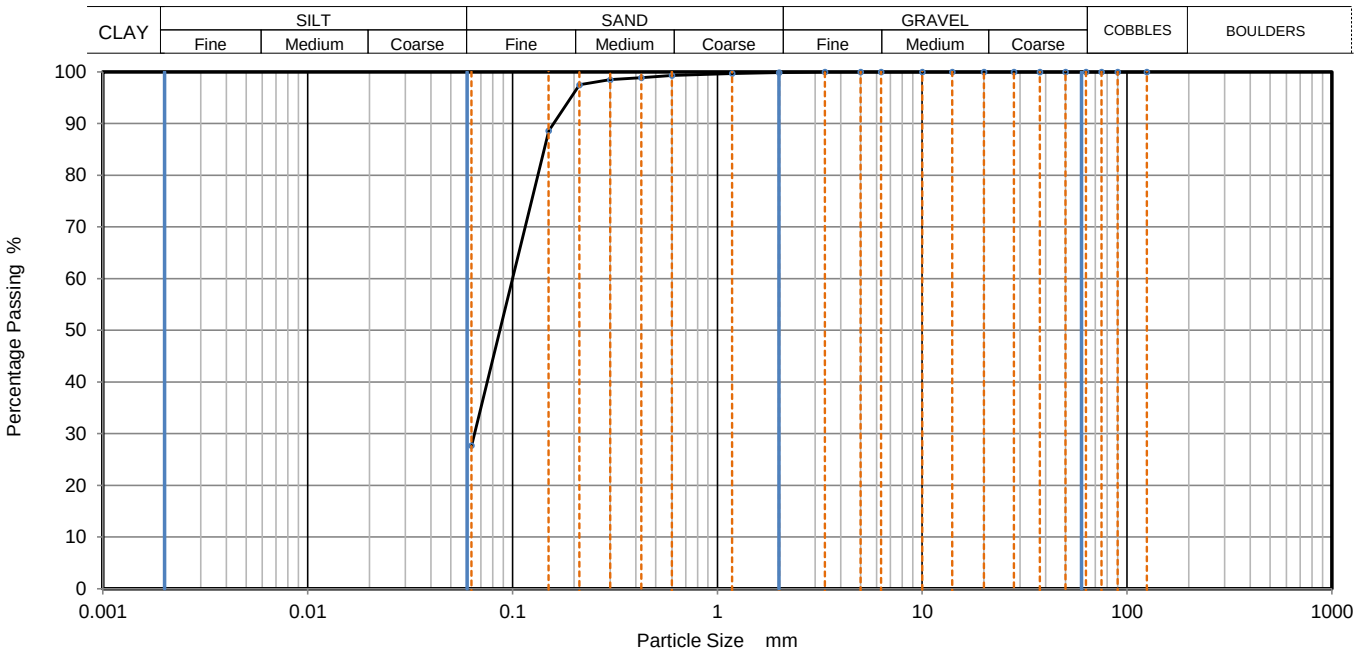
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UKAS TESTING 2519

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PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH2
Project No.	4521	Client	TerraConsult South	Sample No.	10
				Depth Top	4.50 m
Soil Description	Bluish grey silty clayey SAND			Depth Base	4.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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	99		
0.425	99		
0.3	99		
0.212	98		
0.15	89		
0.063	28		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.1
Sand	72.2
Fines <0.063mm	27.7

Grading Analysis		
D100	mm	
D60	mm	0.0998
D30	mm	0.0651
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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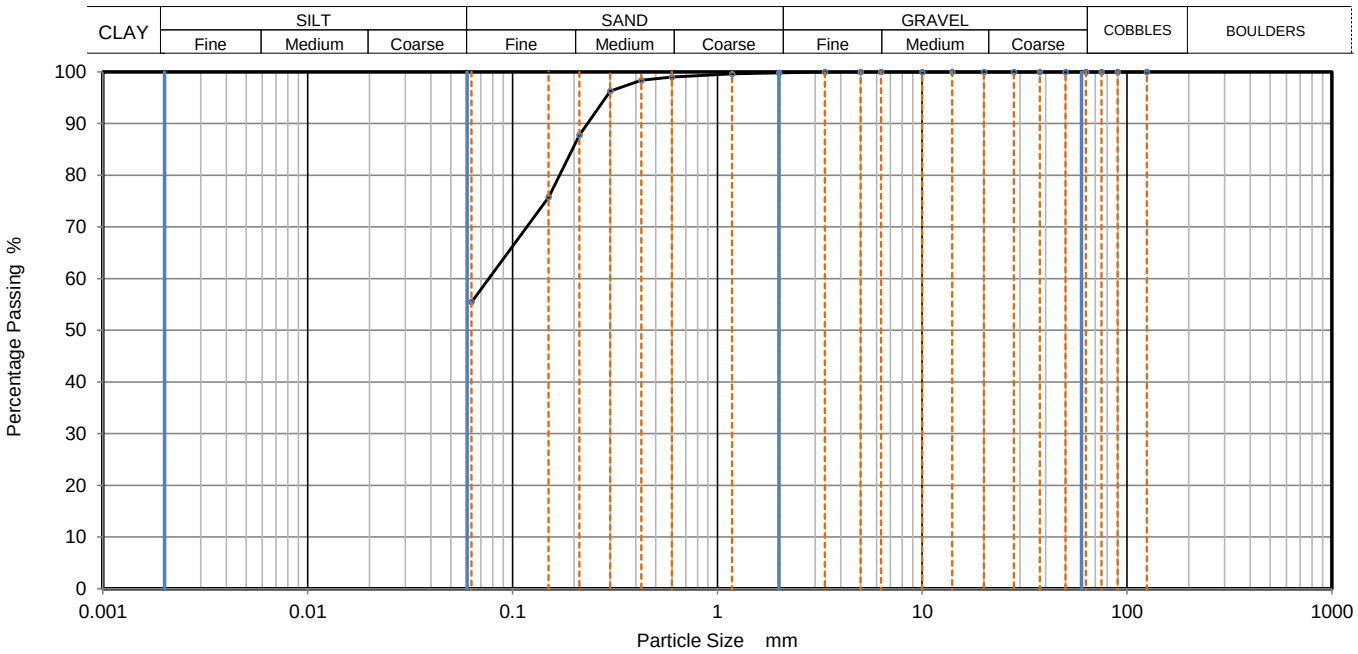
Date: 09/08/2019

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH3
Project No.	4521	Client	TerraConsult South	Sample No.	15
				Depth Top	0.50 m
Soil Description	Brown silty sandy CLAY			Depth Base	0.90 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
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	99		
0.425	98		
0.3	96		
0.212	88		
0.15	76		
0.063	56		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	0.2
Sand	44.4
Fines <0.063mm	55.5

Grading Analysis		
D100	mm	
D60	mm	0.0763
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

K4 Soils Laboratory

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Initials: **J.P**

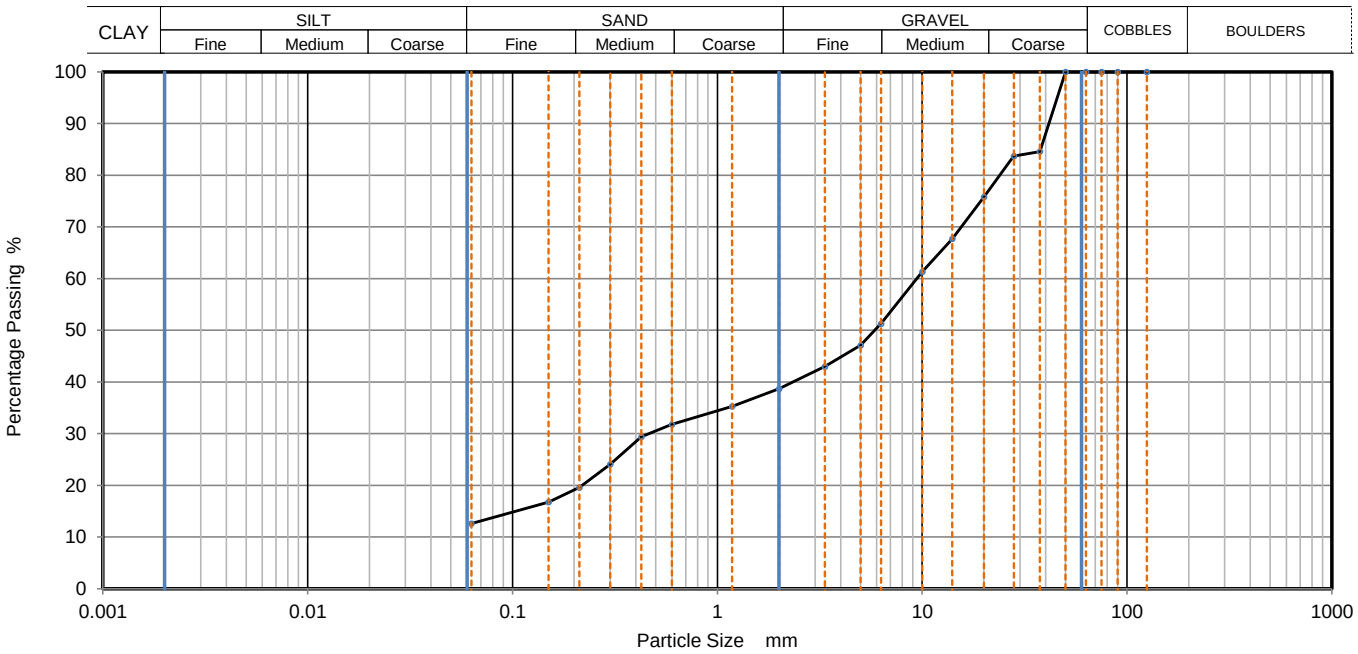
Date: 09/08/2019

UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH3
Project No.	4521	Client	TerraConsult South	Sample No.	16
				Depth Top	1.50 m
Soil Description	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	85		
28	84		
20	76		
14	68		
10	61		
6.3	51		
5	47		
3.35	43		
2	39		
1.18	35		
0.6	32		
0.425	29		
0.3	24		
0.212	20		
0.15	17		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	61.3
Sand	26.1
Fines <0.063mm	12.6

Grading Analysis		
D100	mm	
D60	mm	9.44
D30	mm	0.46
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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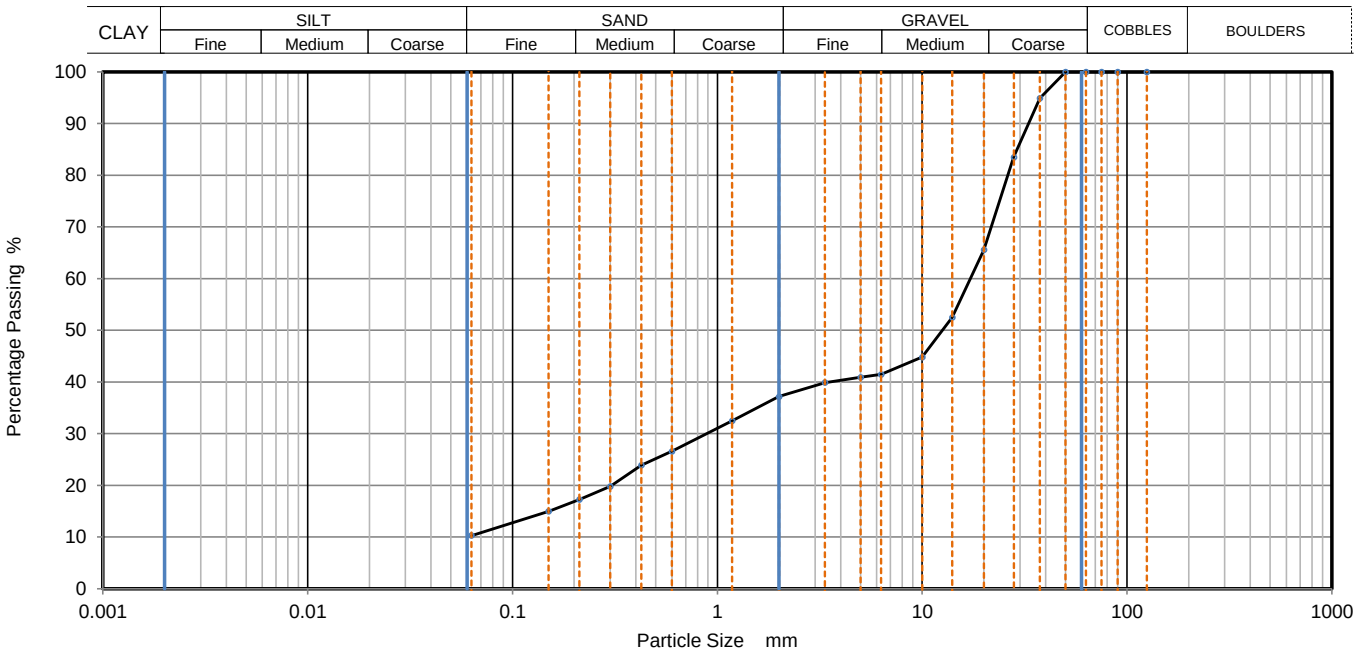
UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH3
Project No.	4521	Client	TerraConsult South	Sample No.	17
				Depth Top	2.50 m
Soil Description	Light brown clayey very sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)			Depth Base	2.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	95		
28	84		
20	66		
14	53		
10	45		
6.3	42		
5	41		
3.35	40		
2	37		
1.18	33		
0.6	27		
0.425	24		
0.3	20		
0.212	17		
0.15	15		
0.063	10		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	62.8
Sand	26.9
Fines <0.063mm	10.3

Grading Analysis		
D100	mm	
D60	mm	17.2
D30	mm	0.884
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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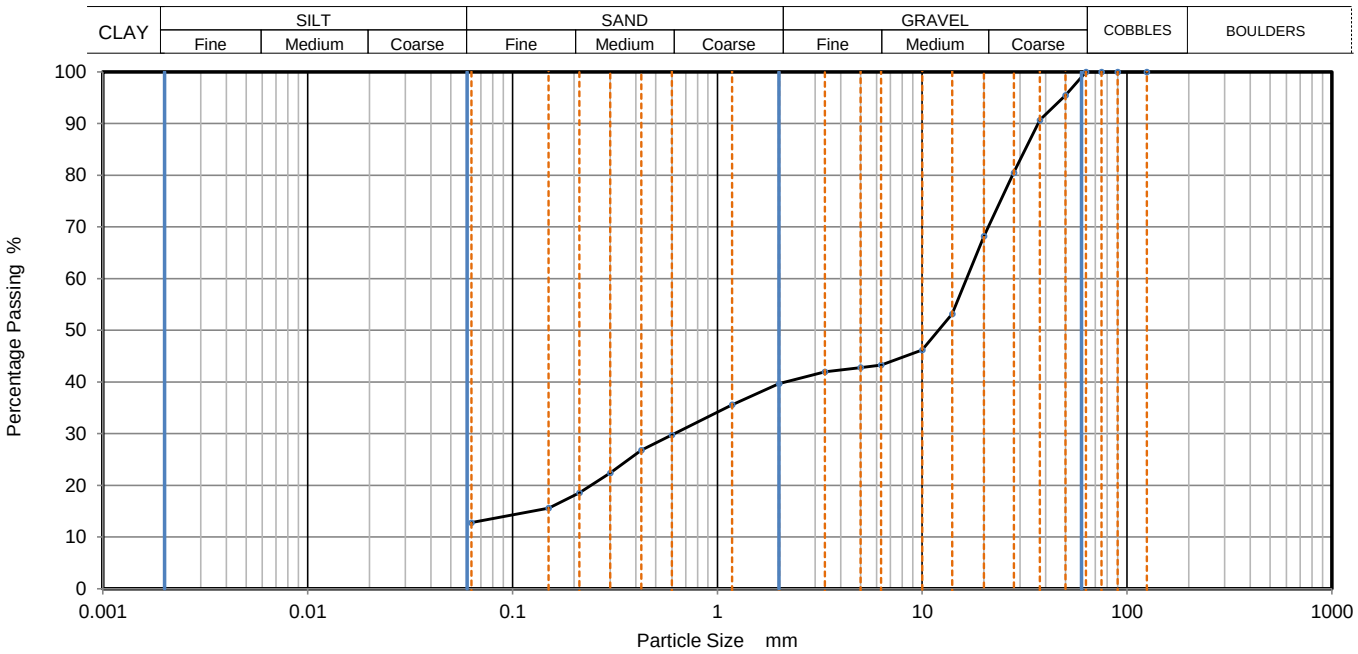
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH3
Project No.	4521	Client	TerraConsult South	Sample No.	18
				Depth Top	3.50 m
Soil Description	Brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	23/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	91		
28	81		
20	68		
14	53		
10	46		
6.3	43		
5	43		
3.35	42		
2	40		
1.18	36		
0.6	30		
0.425	27		
0.3	22		
0.212	19		
0.15	16		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	60.3
Sand	27.0
Fines <0.063mm	12.8

Grading Analysis		
D100	mm	
D60	mm	16.5
D30	mm	0.613
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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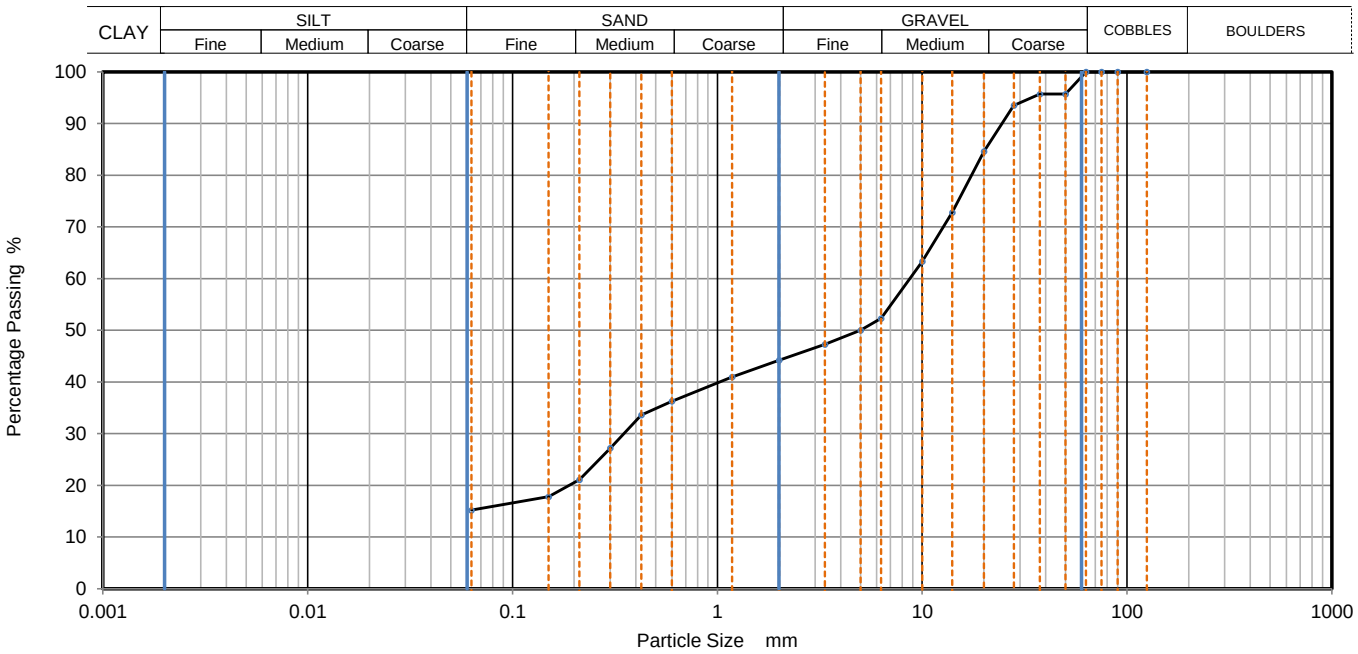
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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH4
Project No.	4521	Client	TerraConsult South	Sample No.	23
				Depth Top	1.50 m
Soil Description	Greysih brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	1.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	23/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	96		
37.5	96		
28	94		
20	85		
14	73		
10	63		
6.3	52		
5	50		
3.35	47		
2	44		
1.18	41		
0.6	36		
0.425	34		
0.3	27		
0.212	21		
0.15	18		
0.063	15		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	55.8
Sand	29.0
Fines <0.063mm	15.2

Grading Analysis		
D100	mm	
D60	mm	8.71
D30	mm	0.349
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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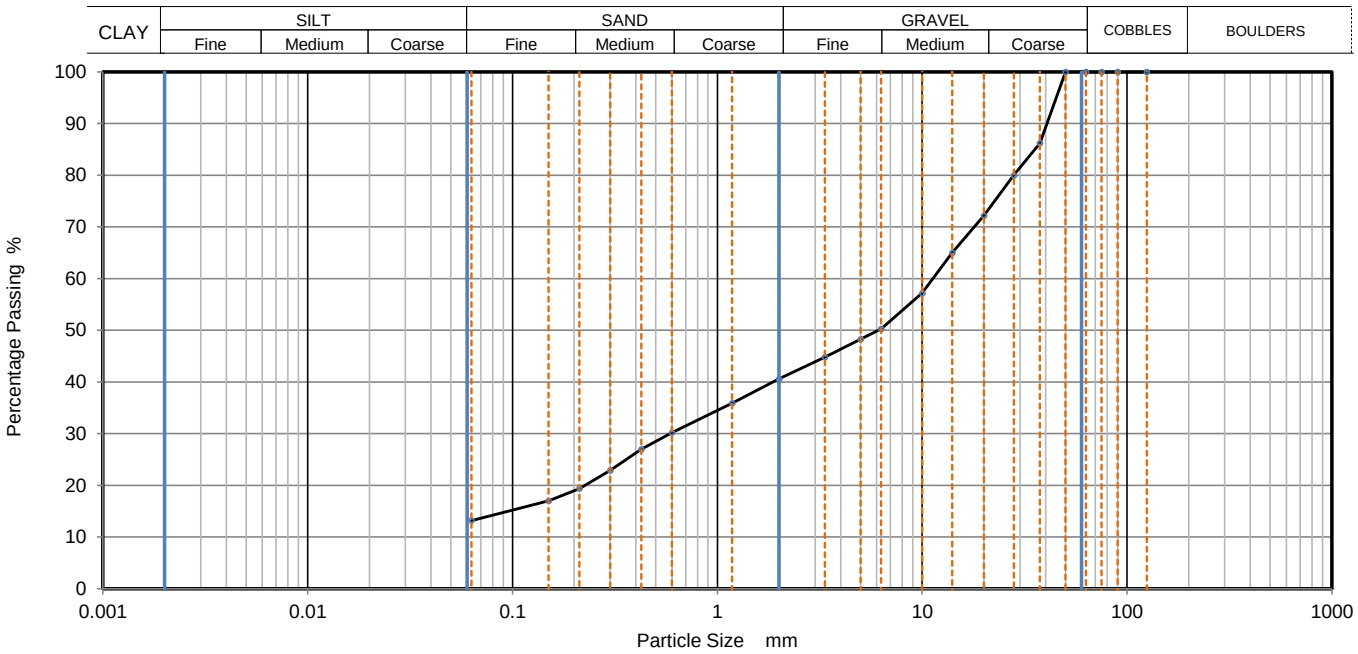
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PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH4
Project No.	4521	Client	TerraConsult South	Sample No.	24
				Depth Top	2.50 m
Soil Description	Greysih brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	2.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	86		
28	80		
20	72		
14	65		
10	57		
6.3	50		
5	48		
3.35	45		
2	41		
1.18	36		
0.6	30		
0.425	27		
0.3	23		
0.212	19		
0.15	17		
0.063	13		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	59.4
Sand	27.4
Fines <0.063mm	13.2

Grading Analysis		
D100	mm	
D60	mm	11.3
D30	mm	0.589
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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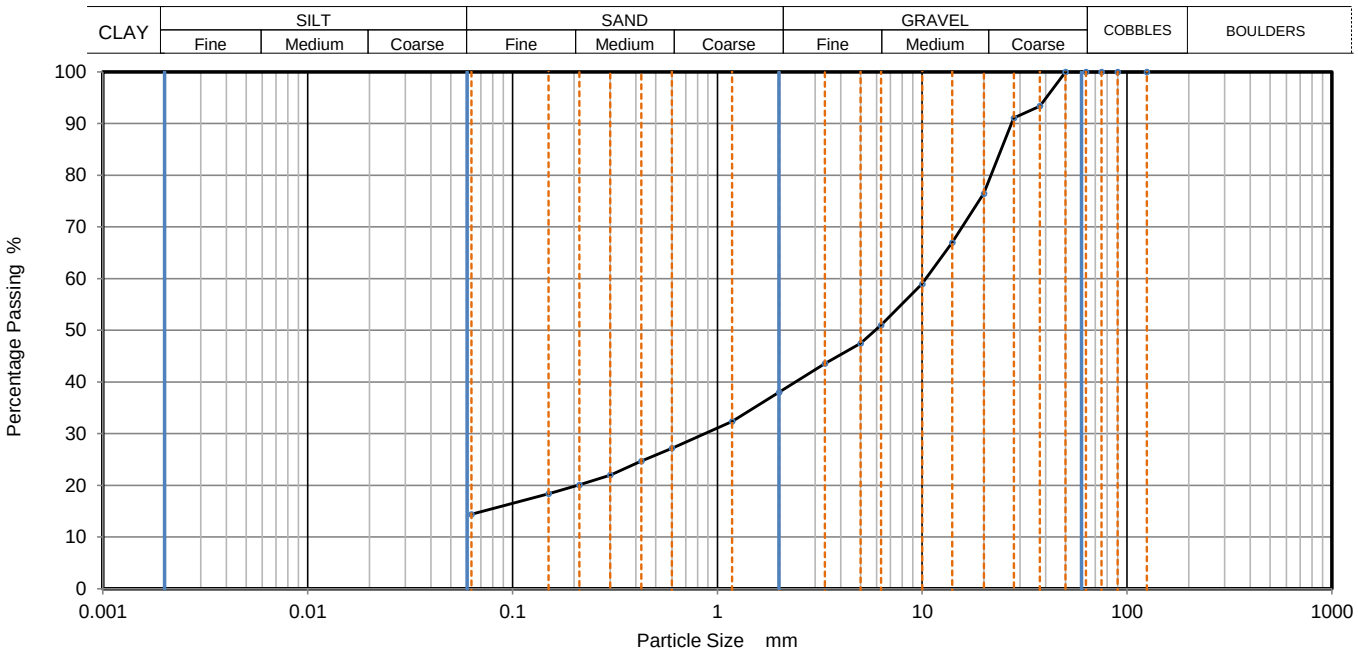
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UKAS TESTING 2519

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PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	BH4
Project No.	4521	Client	TerraConsult South	Sample No.	25
				Depth Top	3.50 m
Soil Description	Greyish brown clayey very sandy GRAVEL (gravel is fmc and sub-angular to sub-rounded)			Depth Base	3.95 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	91		
20	77		
14	67		
10	59		
6.3	51		
5	48		
3.35	44		
2	38		
1.18	32		
0.6	27		
0.425	25		
0.3	22		
0.212	20		
0.15	18		
0.063	14		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	62.0
Sand	23.6
Fines <0.063mm	14.4

Grading Analysis		
D100	mm	
D60	mm	10.4
D30	mm	0.864
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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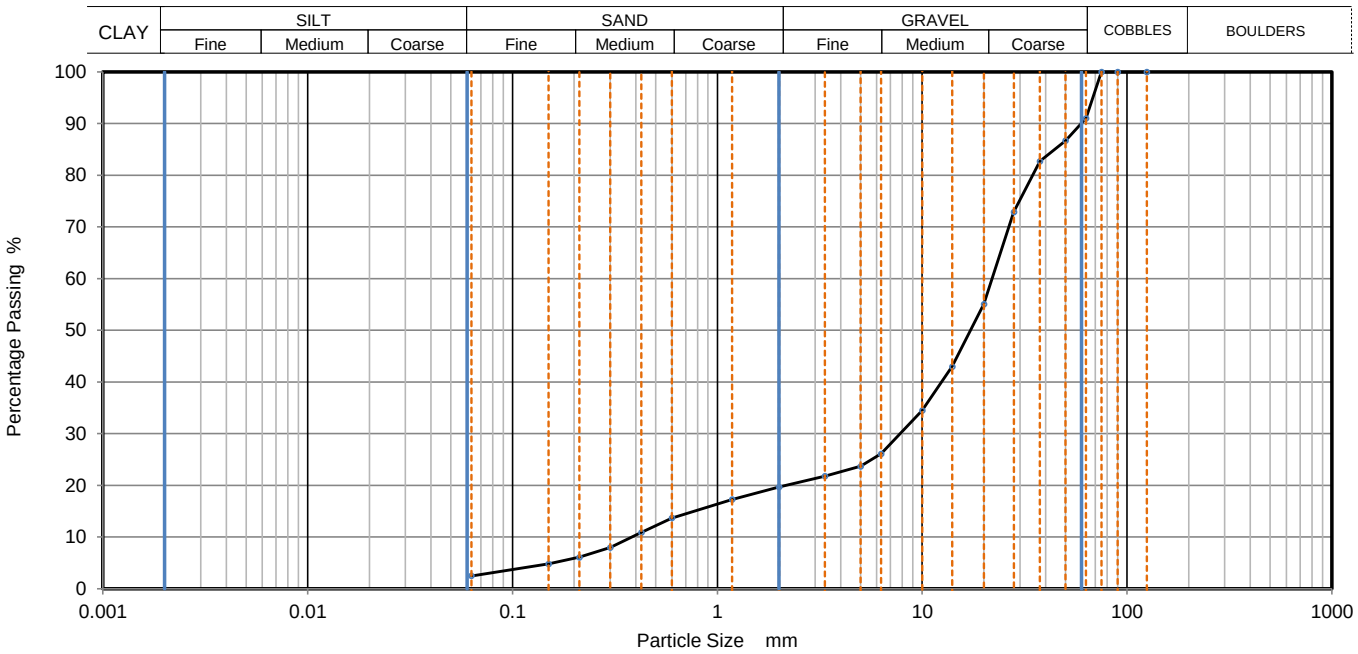
UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

MSF-5-R3

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	TP1
Project No.	4521	Client	TerraConsult South	Sample No.	27
				Depth Top	1.20 m
Soil Description	Brown slightly clayey sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)			Depth Base	m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	91		
50	87		
37.5	83		
28	73		
20	55		
14	43		
10	35		
6.3	26		
5	24		
3.35	22		
2	20		
1.18	17		
0.6	14		
0.425	11		
0.3	8		
0.212	6		
0.15	5		
0.063	3		

Sample Proportions	% dry mass
Very coarse	9.0
Gravel	71.4
Sand	17.1
Fines <0.063mm	2.5

Grading Analysis		
D100	mm	
D60	mm	21.9
D30	mm	7.81
D10	mm	0.381
Uniformity Coefficient		58
Curvature Coefficient		7.3

Remarks

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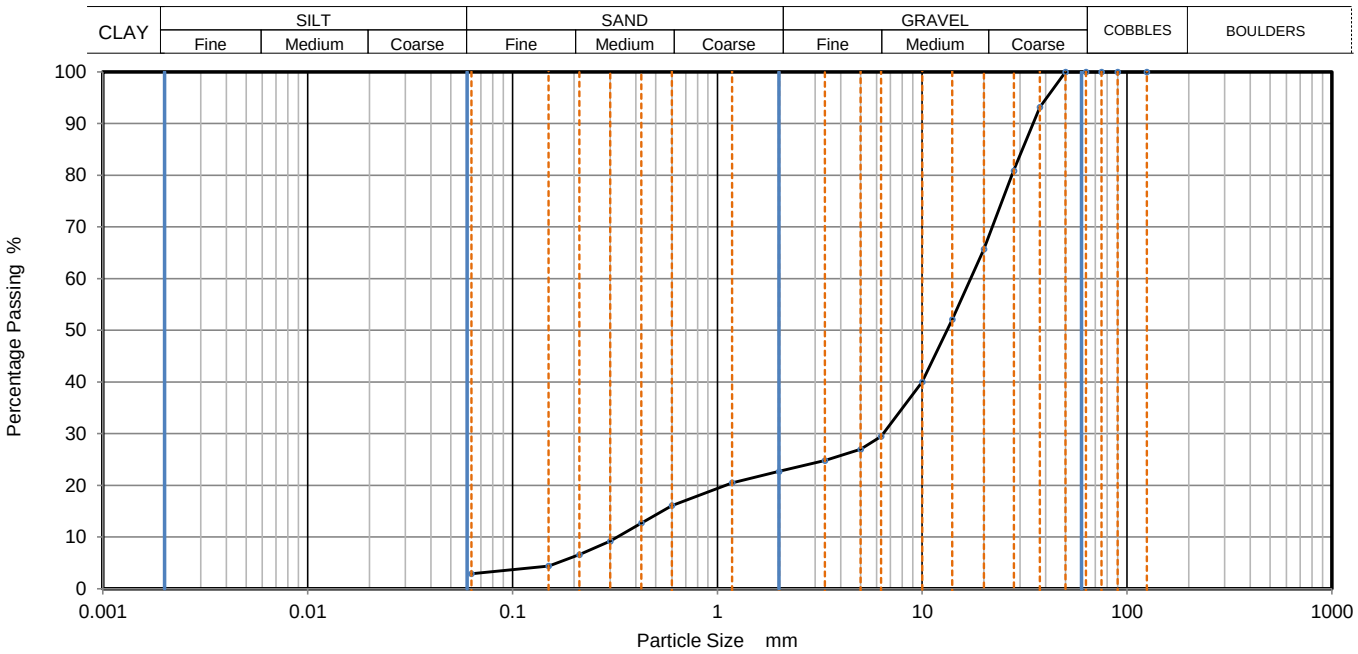
Date: 09/08/2019

UKAS TESTING 2519

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PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	TP3
Project No.	4521	Client	TerraConsult South	Sample No.	28
				Depth Top	1.00 m
Soil Description	Brown slightly clayey sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)			Depth Base	m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	22/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	93		
28	81		
20	66		
14	52		
10	40		
6.3	30		
5	27		
3.35	25		
2	23		
1.18	21		
0.6	16		
0.425	13		
0.3	9		
0.212	7		
0.15	4		
0.063	3		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	77.3
Sand	19.8
Fines <0.063mm	2.9

Grading Analysis		
D100	mm	
D60	mm	17.2
D30	mm	6.44
D10	mm	0.326
Uniformity Coefficient		53
Curvature Coefficient		7.4

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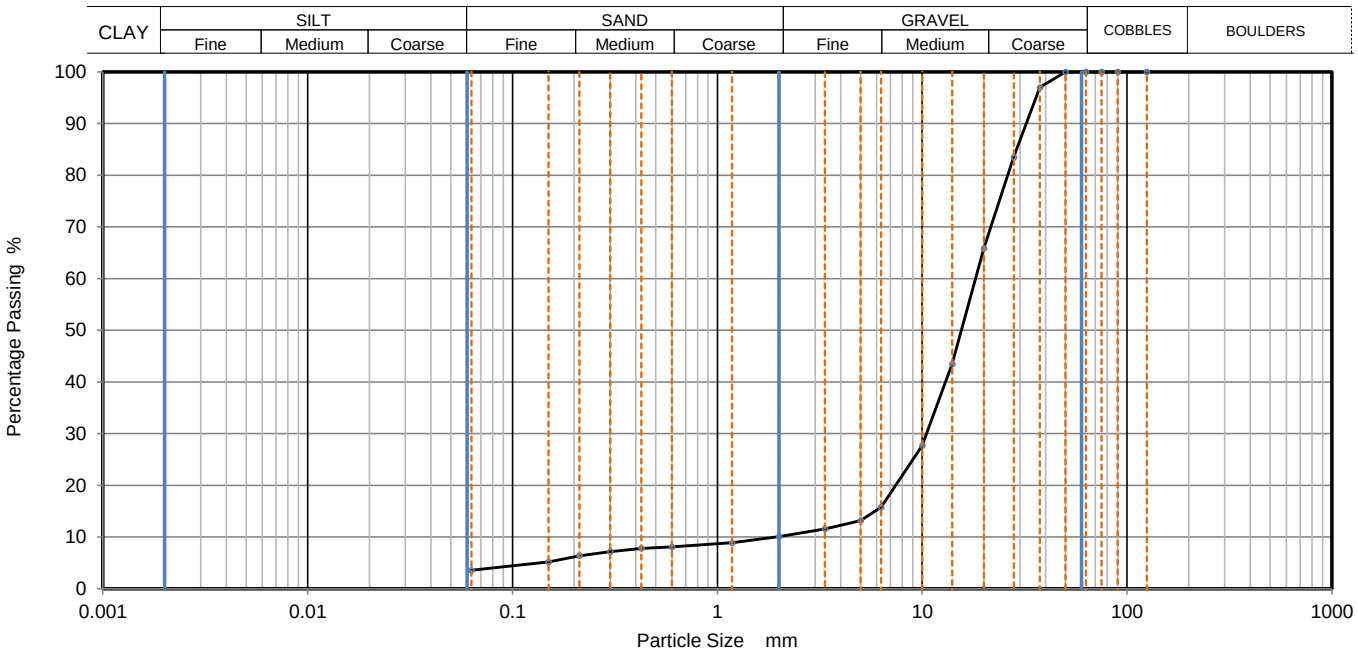
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Date: 09/08/2019

PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	TP5
Project No.	4521	Client	TerraConsult South	Sample No.	29
				Depth Top	2.00 m
Soil Description	Dark grey slightly clayey sandy GRAVEL (gravel is fmc and sub-rounded to sub-angular)			Depth Base	m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	23/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	97		
28	84		
20	66		
14	44		
10	28		
6.3	16		
5	13		
3.35	12		
2	10		
1.18	9		
0.6	8		
0.425	8		
0.3	7		
0.212	6		
0.15	5		
0.063	4		

Sample Proportions	% dry mass
Very coarse	0.0
Gravel	89.9
Sand	6.4
Fines <0.063mm	3.6

Grading Analysis		
D100	mm	
D60	mm	18.2
D30	mm	10.5
D10	mm	1.94
Uniformity Coefficient		9.4
Curvature Coefficient		3.1

Remarks

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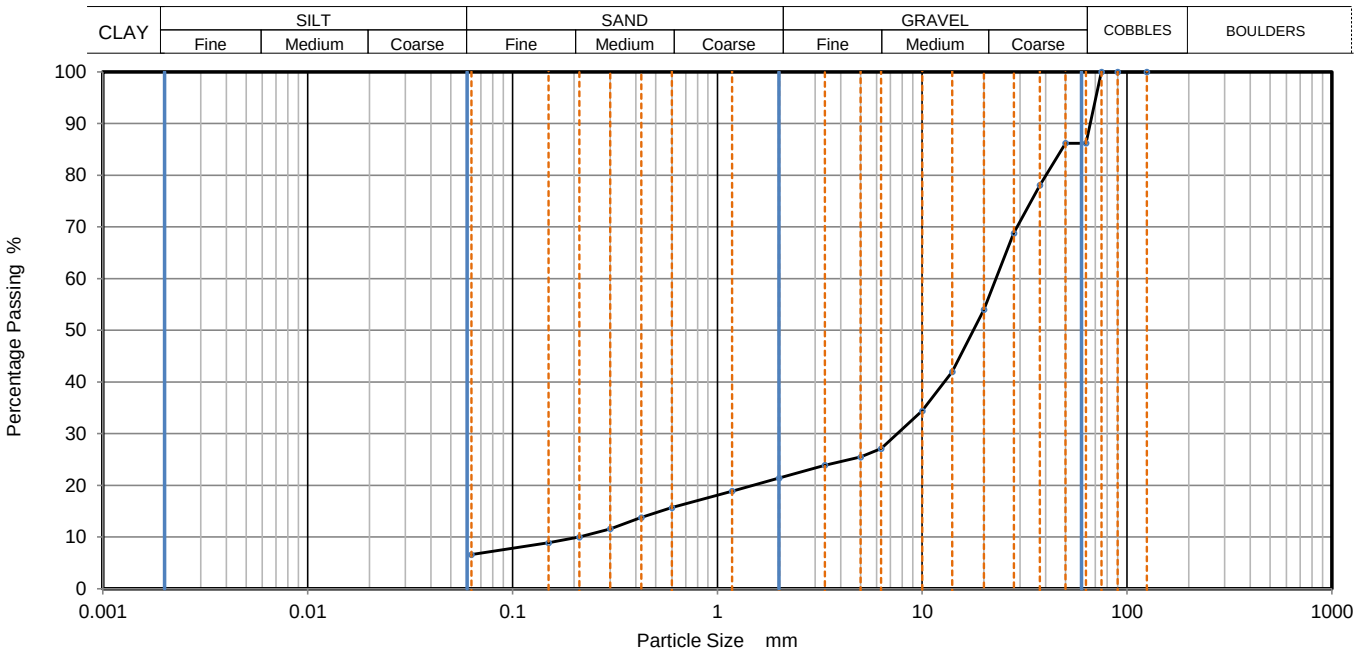
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UKAS TESTING 2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

PARTICLE SIZE DISTRIBUTION

				Job Ref	26821
				Borehole/Pit No.	TP7
Site Name	Hampshire MRF			Sample No.	30
Project No.	4521	Client	TerraConsult South	Depth Top	2.50 m
Soil Description	Brown clayey sandy GRAVEL with ocasional cobbles (gravel is fmc and sub-rounded to sub-angular)			Depth Base	3.00 m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	23/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	86		
50	86		
37.5	78		
28	69		
20	54		
14	42		
10	34		
6.3	27		
5	26		
3.35	24		
2	21		
1.18	19		
0.6	16		
0.425	14		
0.3	12		
0.212	10		
0.15	9		
0.063	7		

Sample Proportions	% dry mass
Very coarse	13.8
Gravel	64.7
Sand	14.9
Fines <0.063mm	6.6

Grading Analysis		
D100	mm	
D60	mm	22.9
D30	mm	7.57
D10	mm	0.212
Uniformity Coefficient		110
Curvature Coefficient		12

Remarks

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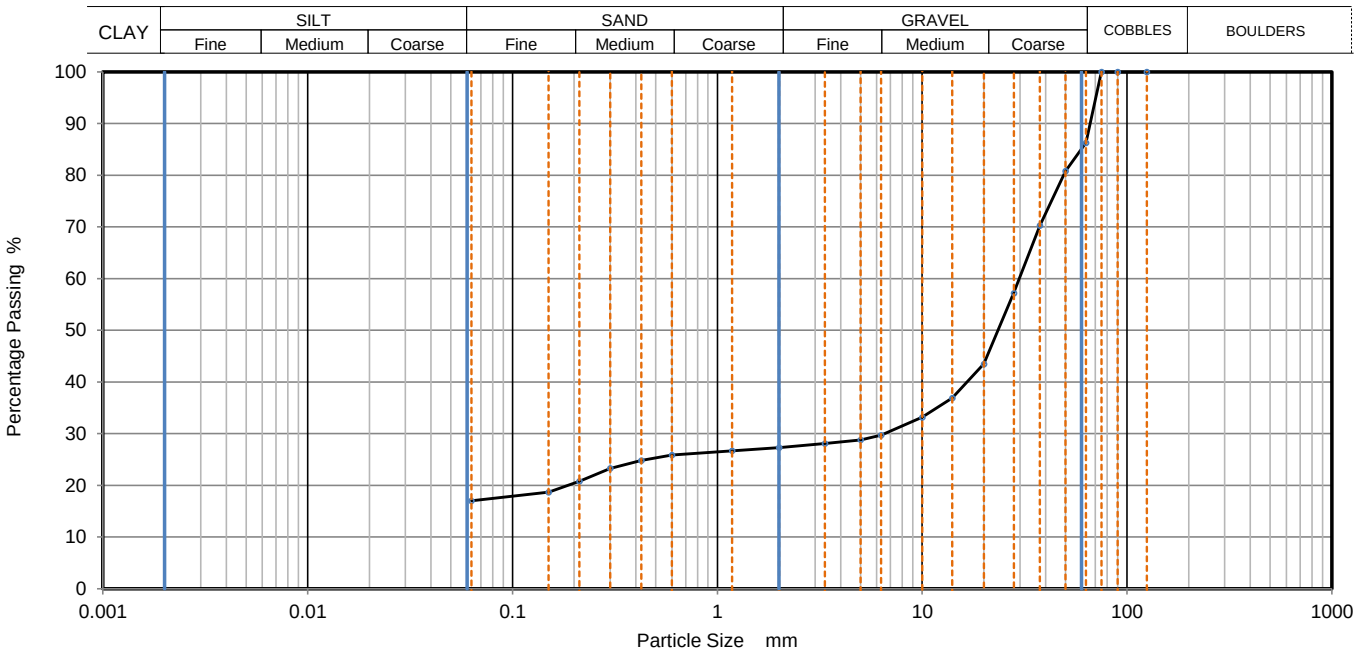
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PARTICLE SIZE DISTRIBUTION

Site Name	Hampshire MRF			Job Ref	26821
				Borehole/Pit No.	TP9
Project No.	4521	Client	TerraConsult South	Sample No.	31
				Depth Top	2.10 m
Soil Description	Bluish grey clayey sandy GRAVEL with pockets of dark grey gravelly silty clay (gravel is fmc and sub-rounded to sub-angular)			Depth Base	m
				Sample Type	B
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377:Part 2: 1990, clause 9.0			Project started	15/07/2019
				Date tested	24/07/2019



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	86		
50	81		
37.5	70		
28	57		
20	44		
14	37		
10	33		
6.3	30		
5	29		
3.35	28		
2	27		
1.18	27		
0.6	26		
0.425	25		
0.3	23		
0.212	21		
0.15	19		
0.063	17		

Sample Proportions	% dry mass
Very coarse	13.7
Gravel	59.0
Sand	10.3
Fines <0.063mm	17.0

Grading Analysis		
D100	mm	
D60	mm	29.8
D30	mm	6.53
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

K4 Soils Laboratory

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Initials: **J.P**

Date: 09/08/2019

UKAS TESTING 2519

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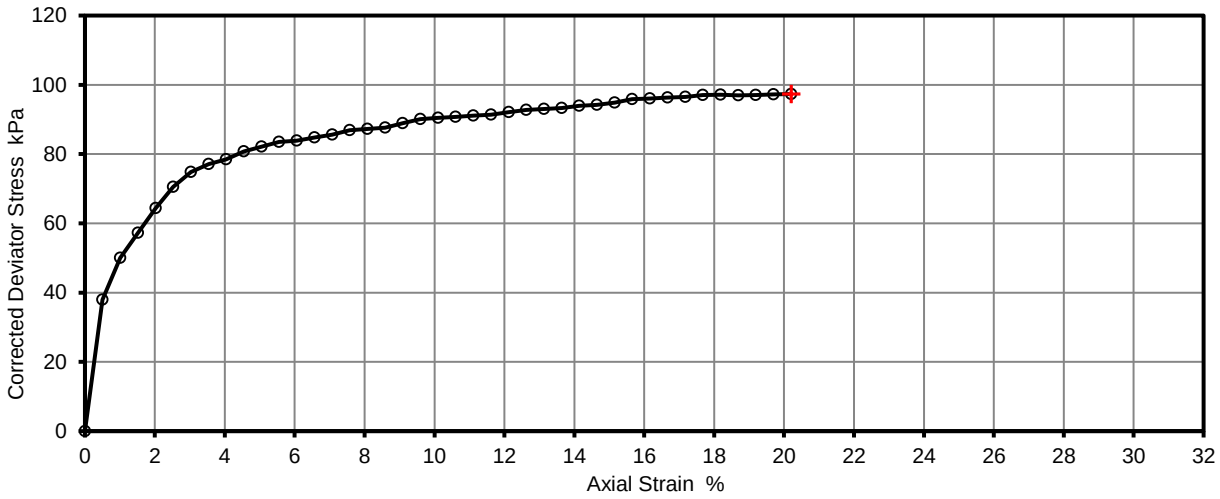
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH1
Site Name	Hampshire MRF			Sample No.	2
Project No.	4521	Client	TerraConsult South	Depth Top	2.50 m
Soil Description	Medium strength greenish grey slightly sandy silty CLAY with grey sand pockets			Depth Base	2.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

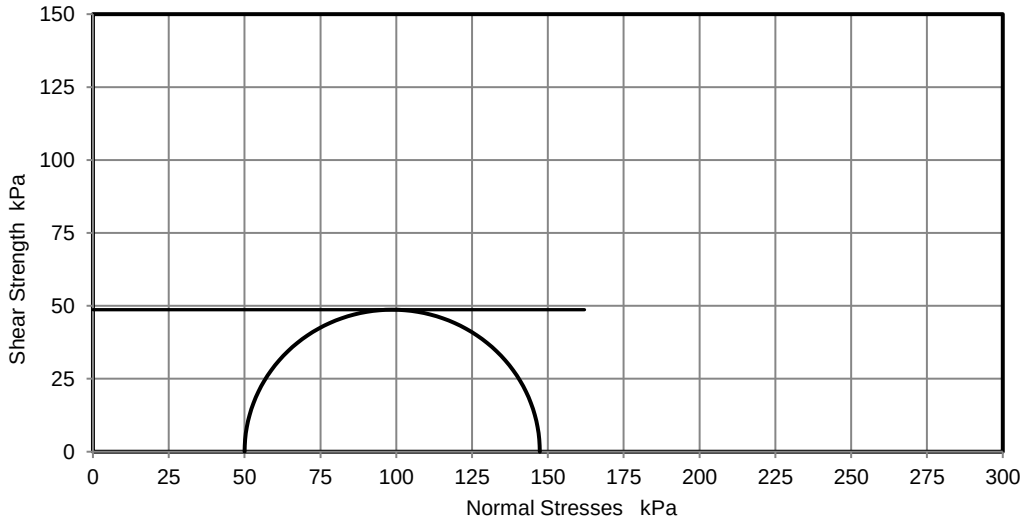
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.95	Mg/m3
Moisture Content	28	%
Dry Density	1.52	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	50	kPa
Axial Strain	20	%
Deviator Stress, (σ1 - σ3)f	97	kPa
Undrained Shear Strength, cu	49	kPa ½(σ1 - σ3)f
Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



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.

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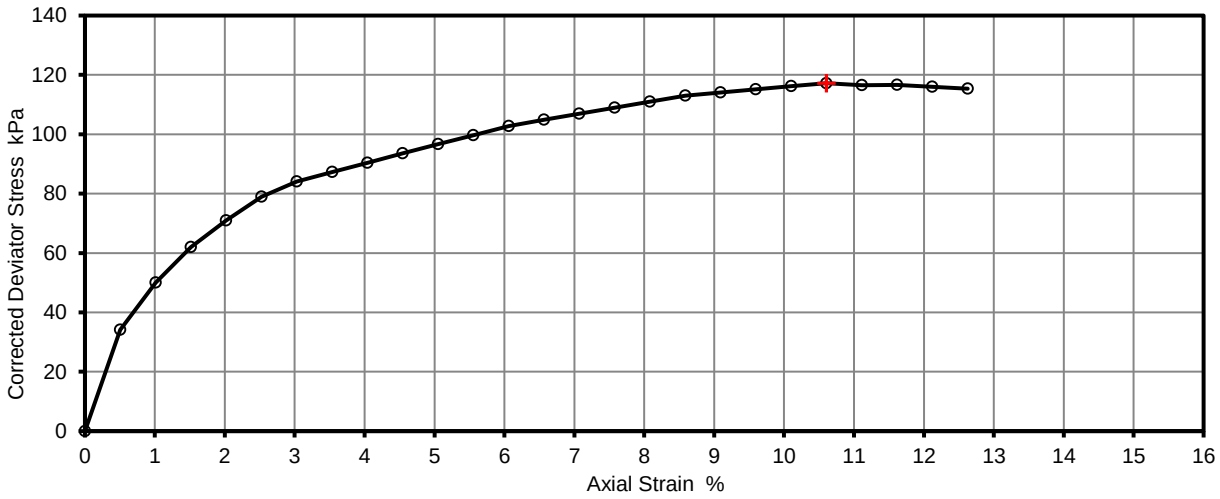
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				Borehole/Pit No.	BH1
Site Name	Hampshire MRF			Sample No.	3
Project No.	4521	Client	TerraConsult South	Depth Top	4.50 m
Soil Description	Medium strength grey slightly sandy silty CLAY			Depth Base	4.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

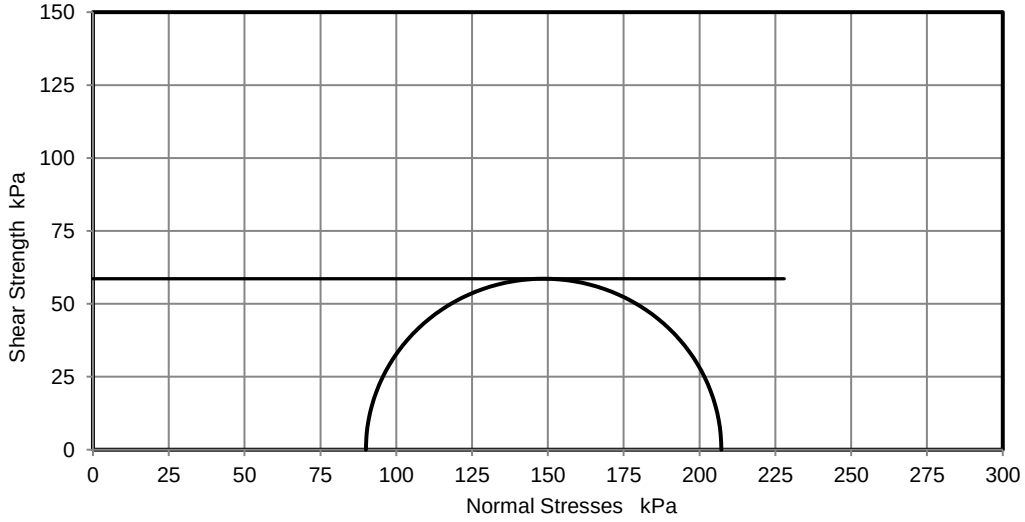
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.85	Mg/m3
Moisture Content	25	%
Dry Density	1.48	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	90	kPa
Axial Strain	11	%
Deviator Stress, (σ1 - σ3)f	117	kPa
Undrained Shear Strength, cu	59	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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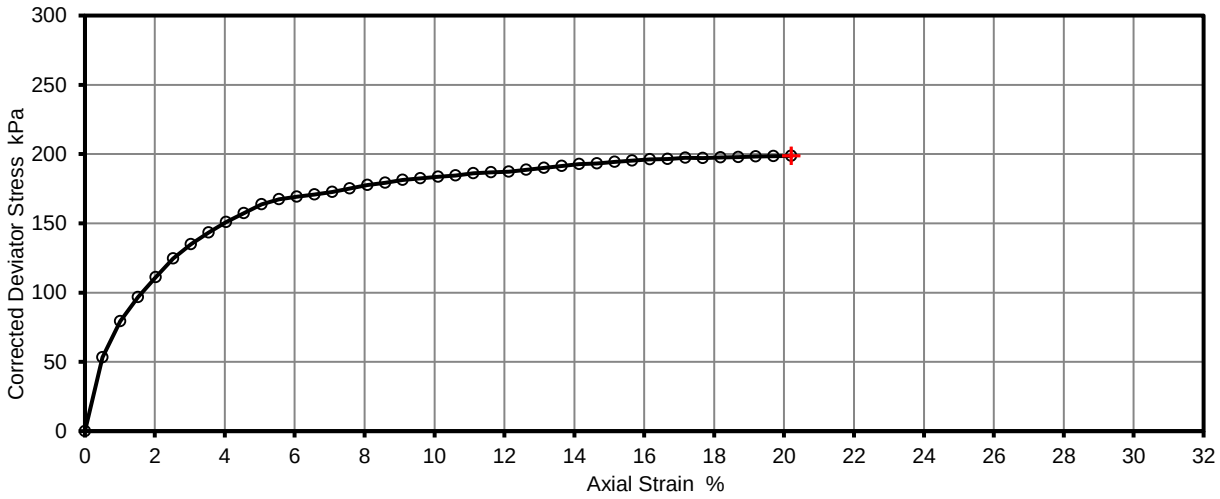
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH1
Site Name	Hampshire MRF			Sample No.	4
Project No.	4521	Client	TerraConsult South	Depth Top	7.00 m
Soil Description	High strength greenish grey slightly sandy silty CLAY			Depth Base	7.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

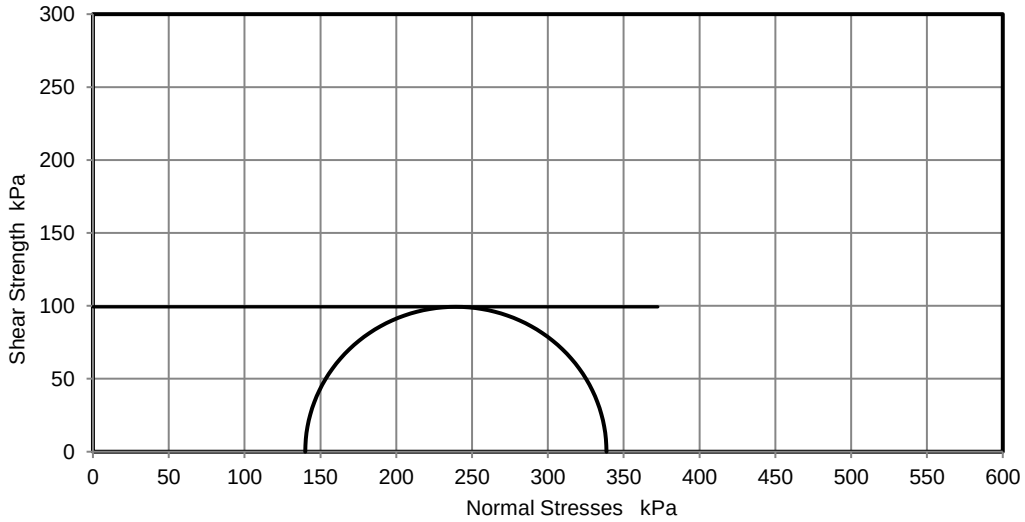
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.90	Mg/m3
Moisture Content	28	%
Dry Density	1.48	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	140	kPa
Axial Strain	20	%
Deviator Stress, (σ1 - σ3)f	199	kPa
Undrained Shear Strength, cu	99	kPa ½(σ1 - σ3)f
Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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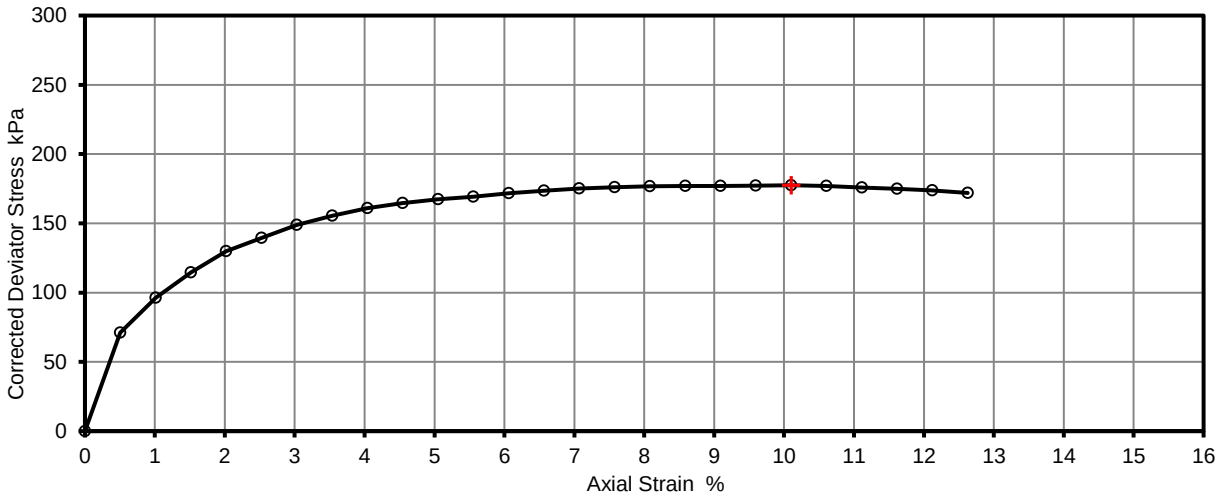
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				Borehole/Pit No.	BH1
Site Name	Hampshire MRF			Sample No.	5
Project No.	4521	Client	TerraConsult South	Depth Top	10.00 m
Soil Description	High strength greenish grey slightly sandy silty CLAY with grey sand pockets			Depth Base	10.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

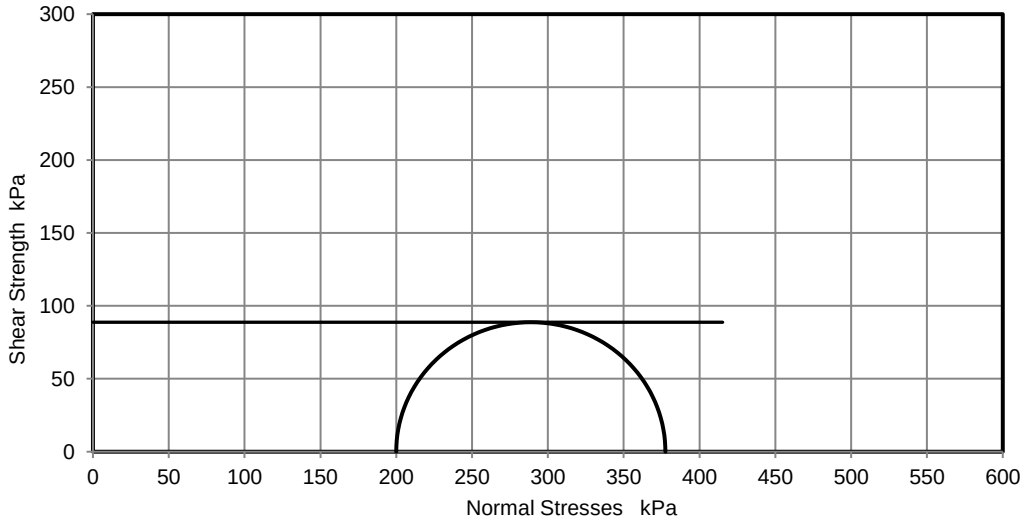
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.97	Mg/m3
Moisture Content	28	%
Dry Density	1.53	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	200	kPa
Axial Strain	10	%
Deviator Stress, (σ1 - σ3)f	178	kPa
Undrained Shear Strength, cu	89	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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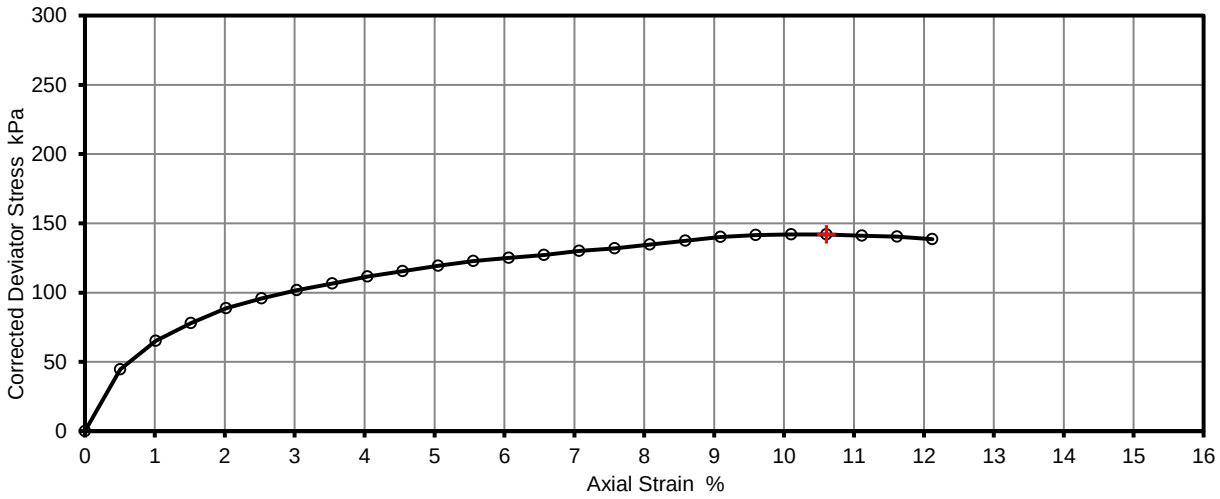
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH1
Site Name	Hampshire MRF			Sample No.	6
Project No.	4521	Client	TerraConsult South	Depth Top	13.00 m
Soil Description	Medium strength grey slightly sandy silty CLAY			Depth Base	13.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

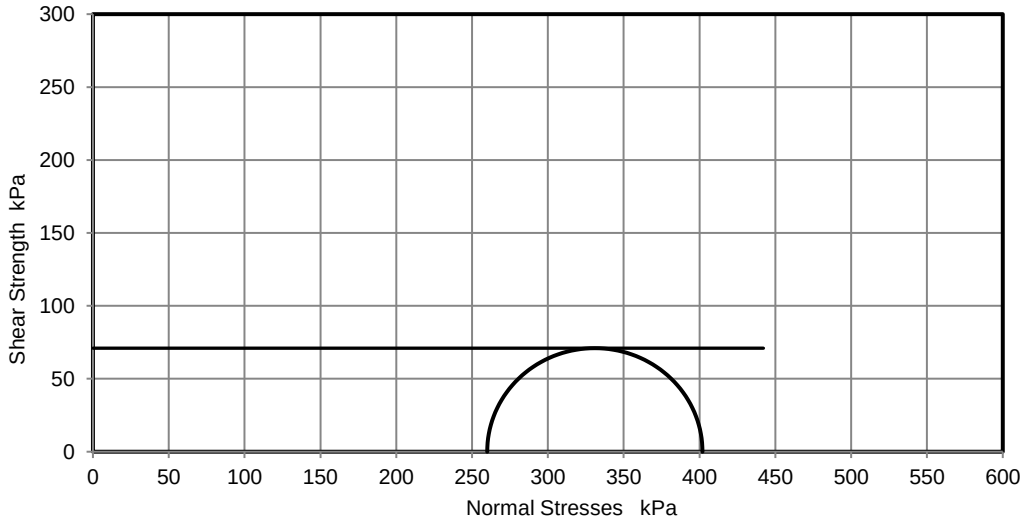
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	2.00	Mg/m3
Moisture Content	26	%
Dry Density	1.59	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	260	kPa
Axial Strain	11	%
Deviator Stress, (σ1 - σ3)f	142	kPa
Undrained Shear Strength, cu	71	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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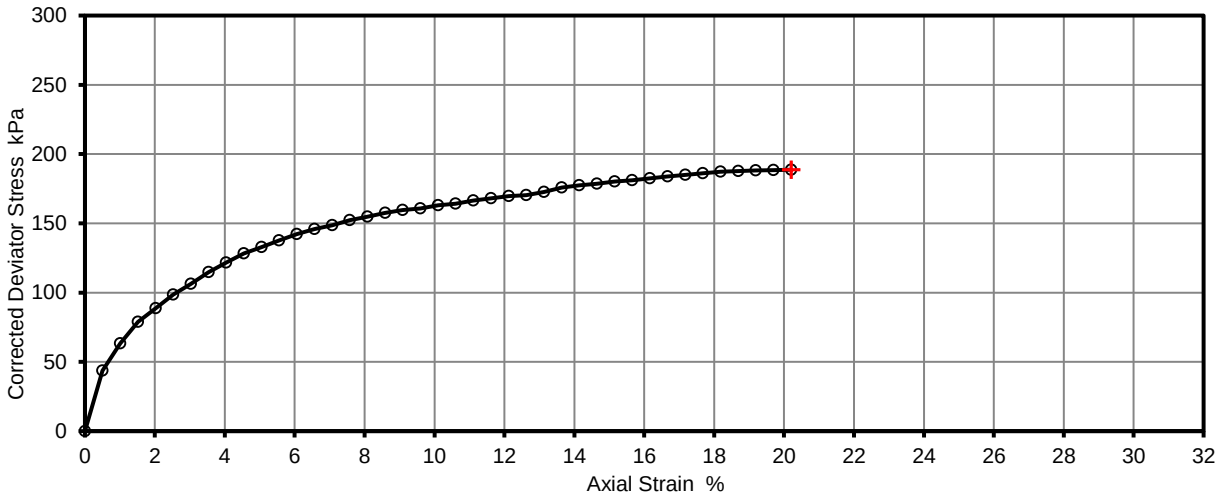
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH2
Site Name	Hampshire MRF			Sample No.	11
Project No.	4521	Client	TerraConsult South	Depth Top	5.50 m
Soil Description	High strength greenish grey slightly sandy silty CLAY			Depth Base	5.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

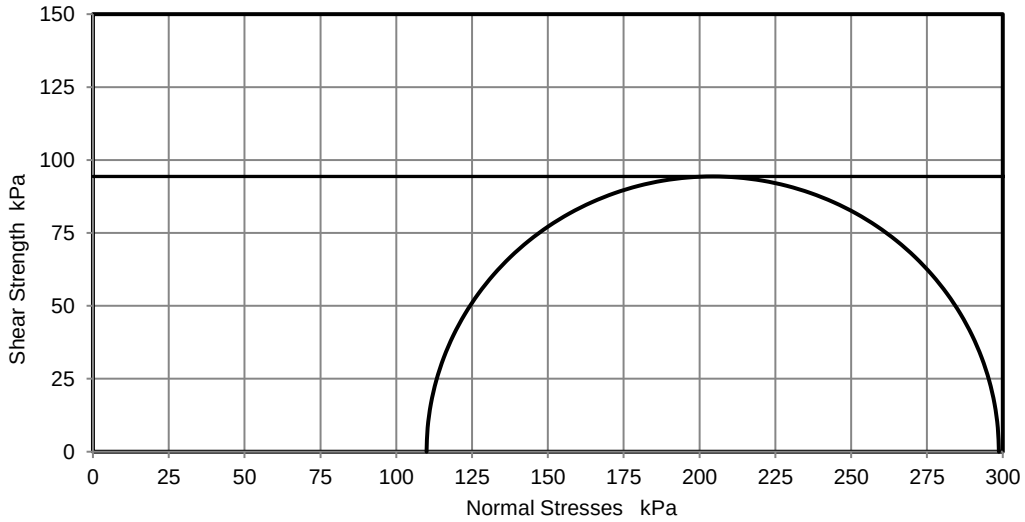
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	2.05	Mg/m3
Moisture Content	25	%
Dry Density	1.63	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	110	kPa
Axial Strain	20	%
Deviator Stress, (σ1 - σ3)f	189	kPa
Undrained Shear Strength, cu	94	kPa ½(σ1 - σ3)f
Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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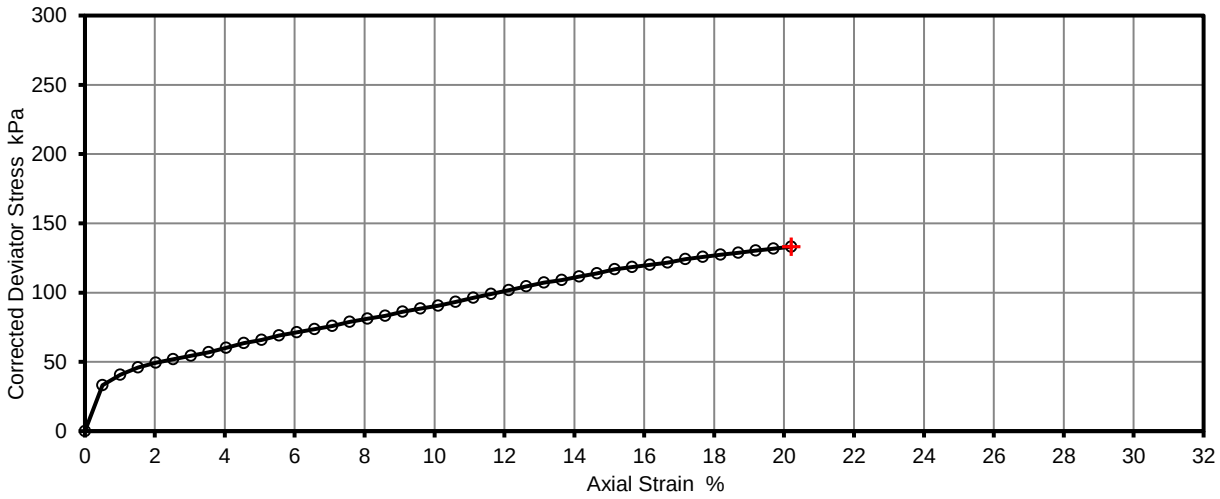
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				Borehole/Pit No.	BH2
Site Name	Hampshire MRF			Sample No.	12
Project No.	4521	Client	TerraConsult South	Depth Top	8.50 m
Soil Description	Medium strength greenish grey slightly sandy silty CLAY			Depth Base	8.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

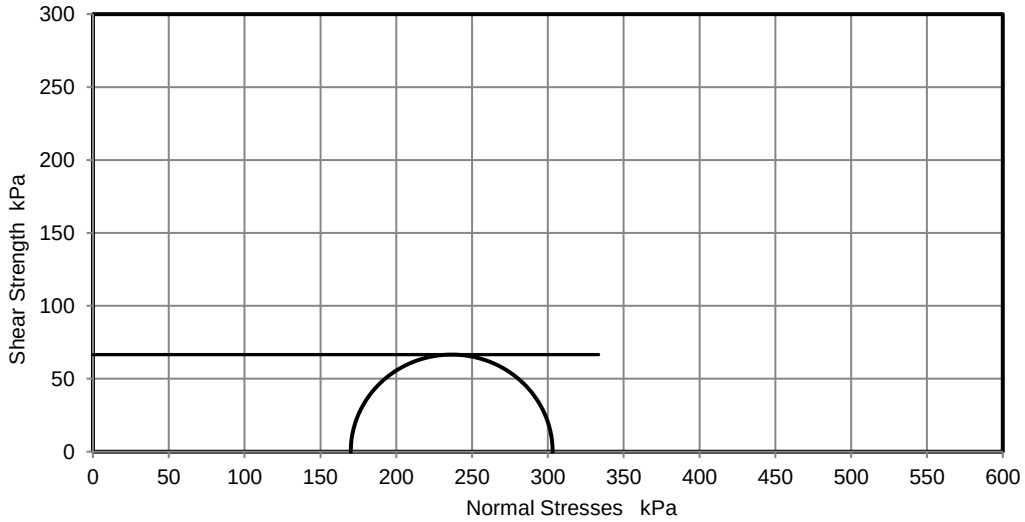
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.98	Mg/m3
Moisture Content	25	%
Dry Density	1.59	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	170	kPa
Axial Strain	20	%
Deviator Stress, (σ1 - σ3)f	133	kPa
Undrained Shear Strength, cu	67	kPa ½(σ1 - σ3)f
Mode of Failure	Plastic	

Deviator Stress v Axial Strain



Mohr Circles



Deviator stress corrected for area change and membrane effects

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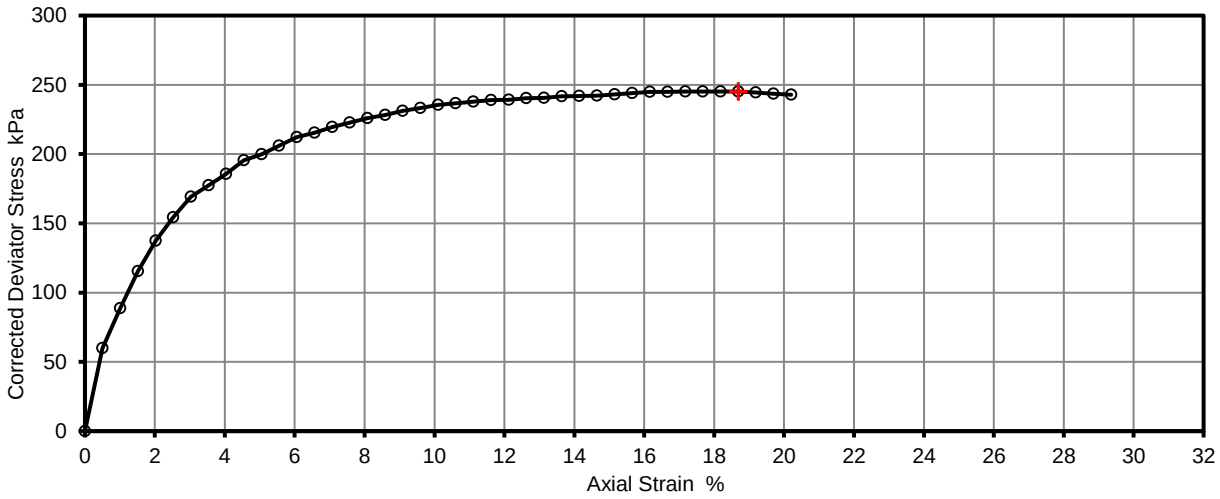
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				Borehole/Pit No.	BH2
Site Name	Hampshire MRF			Sample No.	13
Project No.	4521	Client	TerraConsult South	Depth Top	11.50 m
Soil Description	High strength greenish grey slightly sandy silty CLAY			Depth Base	11.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

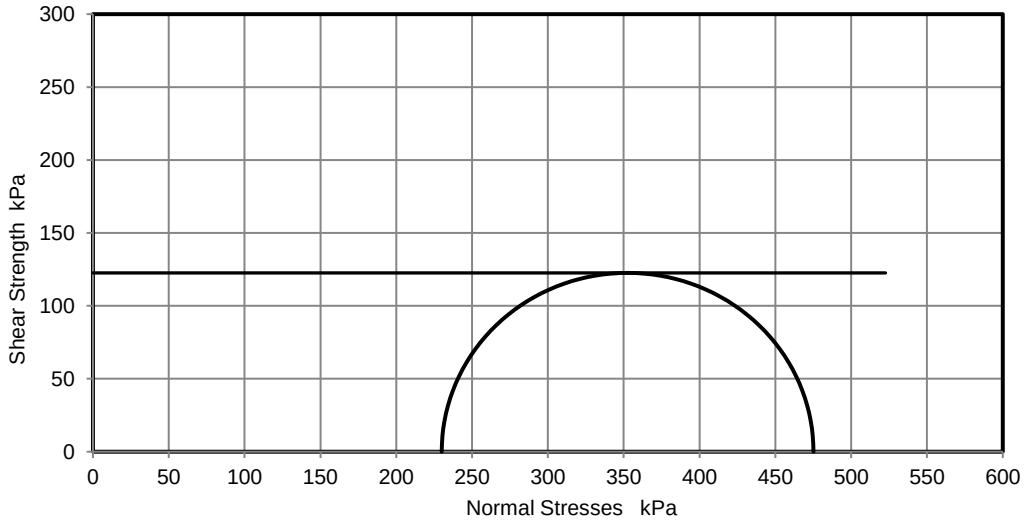
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.89	Mg/m3
Moisture Content	25	%
Dry Density	1.52	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	230	kPa
Axial Strain	19	%
Deviator Stress, (σ1 - σ3)f	245	kPa
Undrained Shear Strength, cu	123	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



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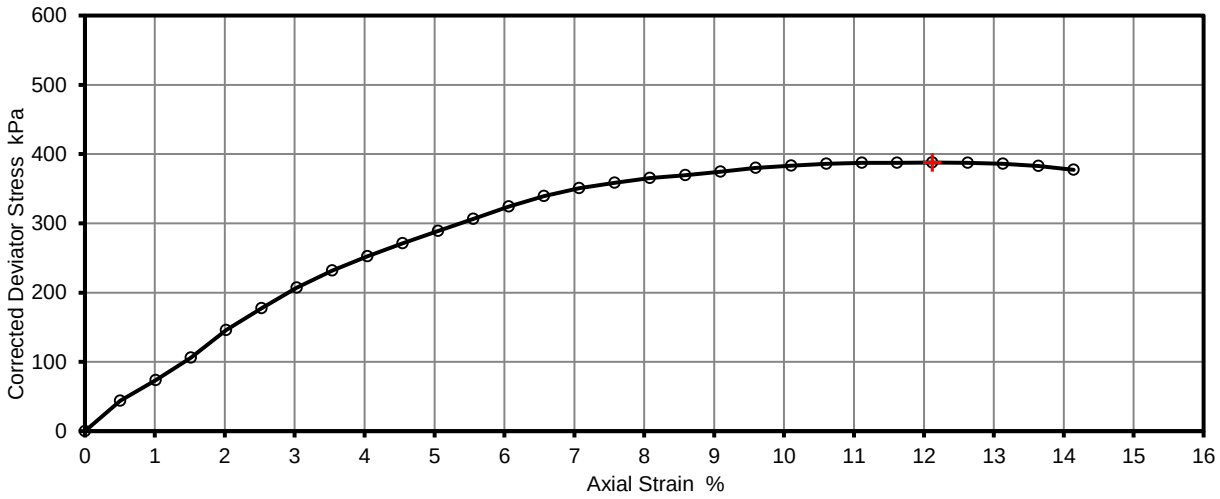
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				Borehole/Pit No.	BH2
Site Name	Hampshire MRF			Sample No.	14
Project No.	4521	Client	TerraConsult South	Depth Top	14.50 m
Soil Description	Very high strength grey slightly sandy silty CLAY			Depth Base	14.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

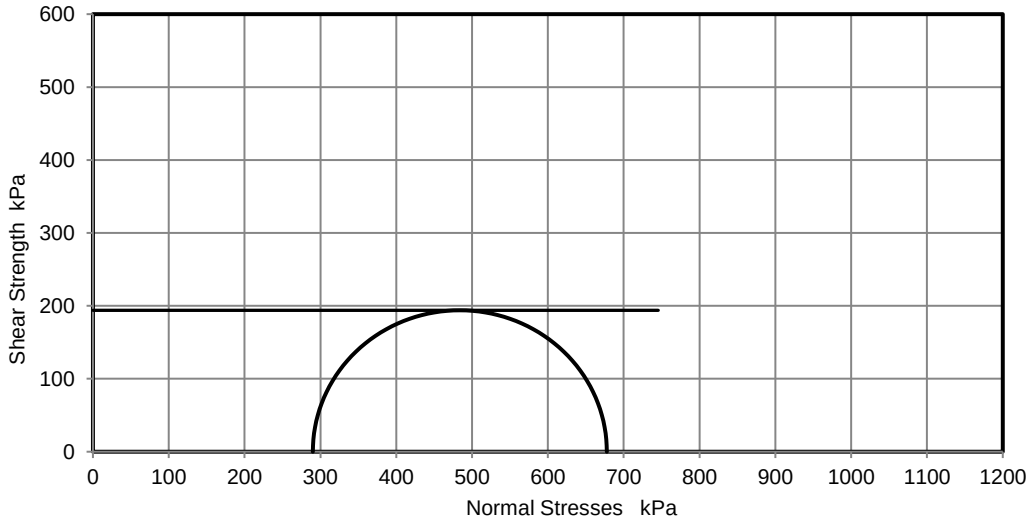
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	2.00	Mg/m3
Moisture Content	24	%
Dry Density	1.61	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	290	kPa
Axial Strain	12	%
Deviator Stress, (σ1 - σ3)f	388	kPa
Undrained Shear Strength, cu	194	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



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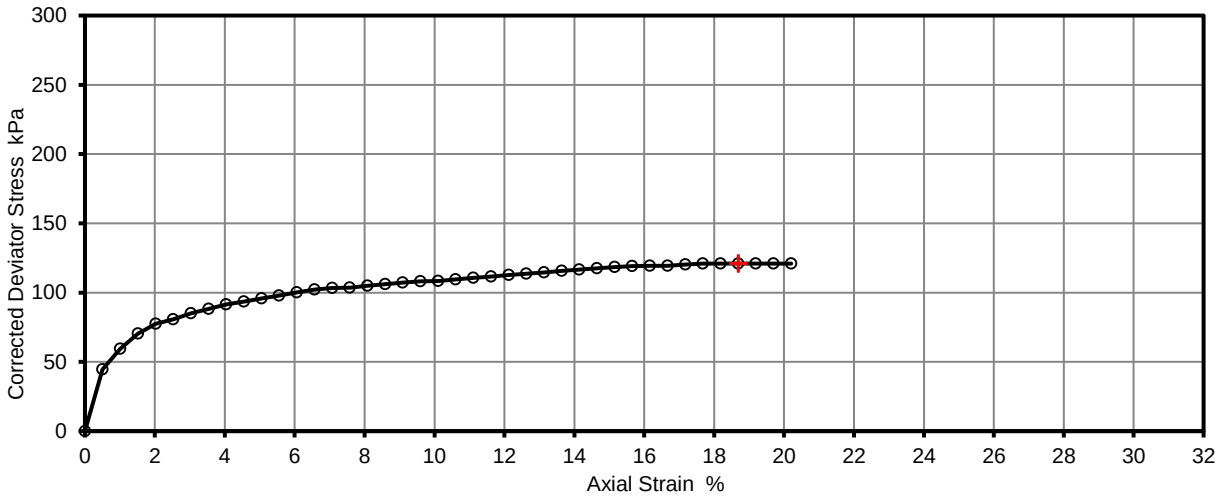
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				Borehole/Pit No.	BH3
Site Name	Hampshire MRF			Sample No.	19
Project No.	4521	Client	TerraConsult South	Depth Top	4.50 m
Soil Description	Medium strength bluish grey slightly sandy silty CLAY with brown sand pockets			Depth Base	4.95 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

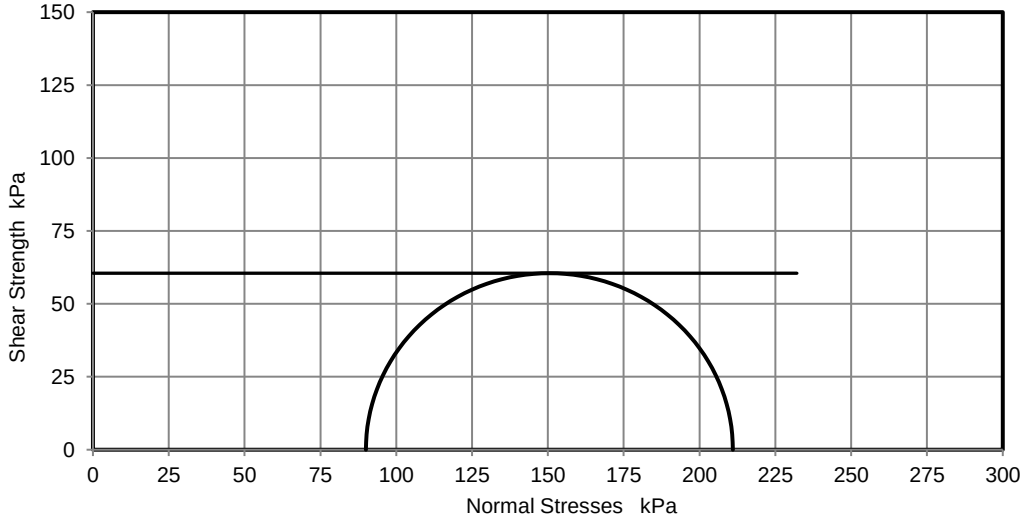
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.94	Mg/m3
Moisture Content	26	%
Dry Density	1.54	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	90	kPa
Axial Strain	19	%
Deviator Stress, (σ1 - σ3)f	121	kPa
Undrained Shear Strength, cu	61	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



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Date 09/08/2019

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH3
Site Name	Hampshire MRF			Sample No.	20
Project No.	4521	Client	TerraConsult South	Depth Top	7.00 m
Soil Description	High strength grey slightly sandy silty CLAY			Depth Base	7.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

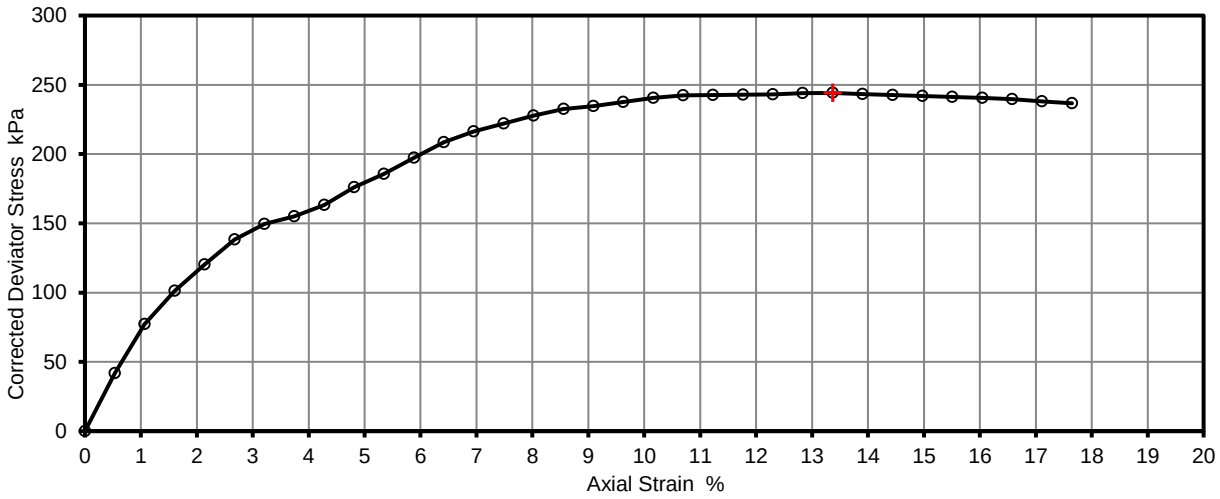
Remarks

Short sample recovery

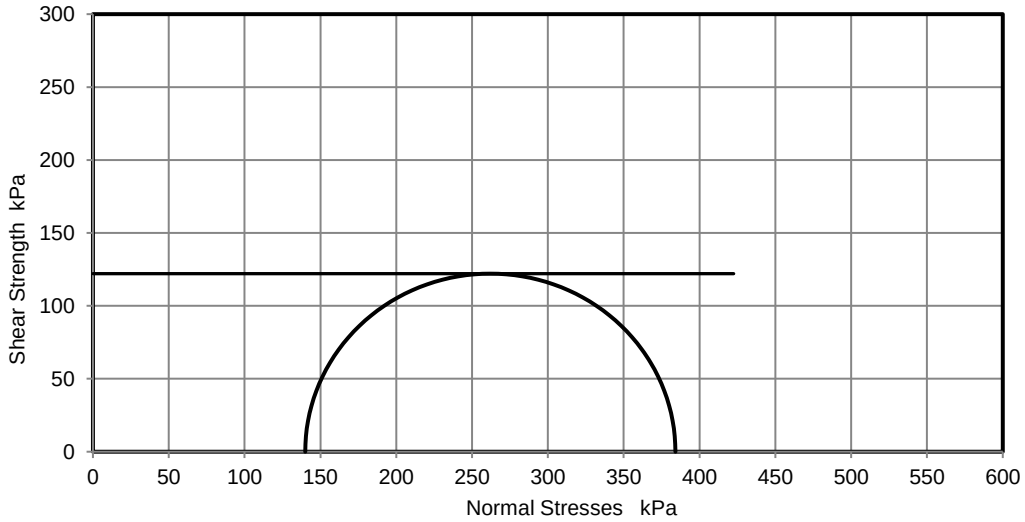
Position within sample

Test Number	1	
Length	187.0	mm
Diameter	102.0	mm
Bulk Density	1.95	Mg/m3
Moisture Content	24	%
Dry Density	1.57	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	140	kPa
Axial Strain	13	%
Deviator Stress, (σ1 - σ3)f	244	kPa
Undrained Shear Strength, cu	122	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



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.

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
Watford Herts WD18 9RU
Tel: 01923 711 288
Email: James@k4soils.com

Checked and Approved
Initials: J.P
Date 09/08/2019

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

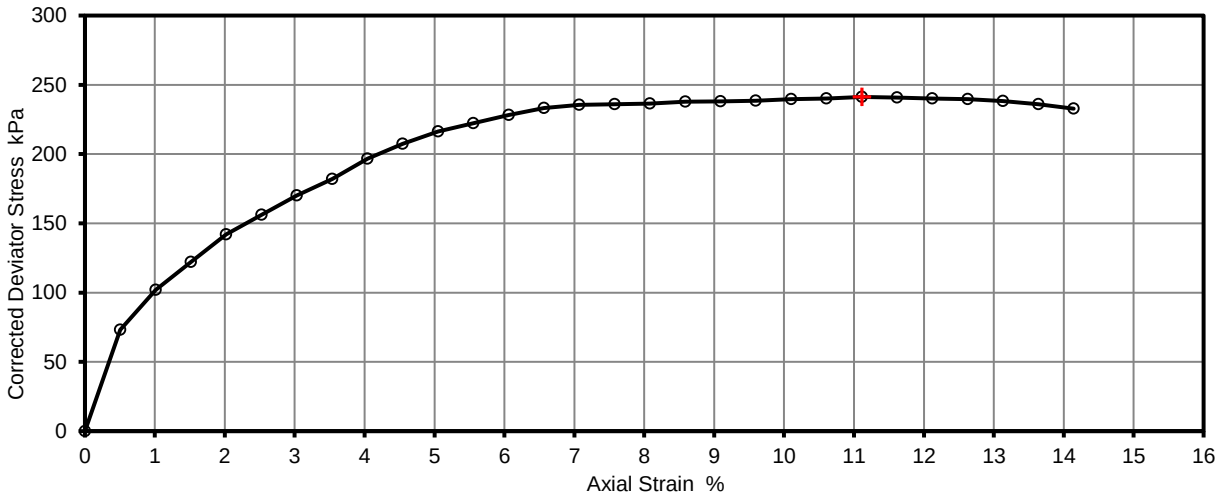
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH3
Site Name	Hampshire MRF			Sample No.	21
Project No.	4521	Client	TerraConsult South	Depth Top	10.00 m
Soil Description	High strength bluish grey slightly sandy silty CLAY			Depth Base	10.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

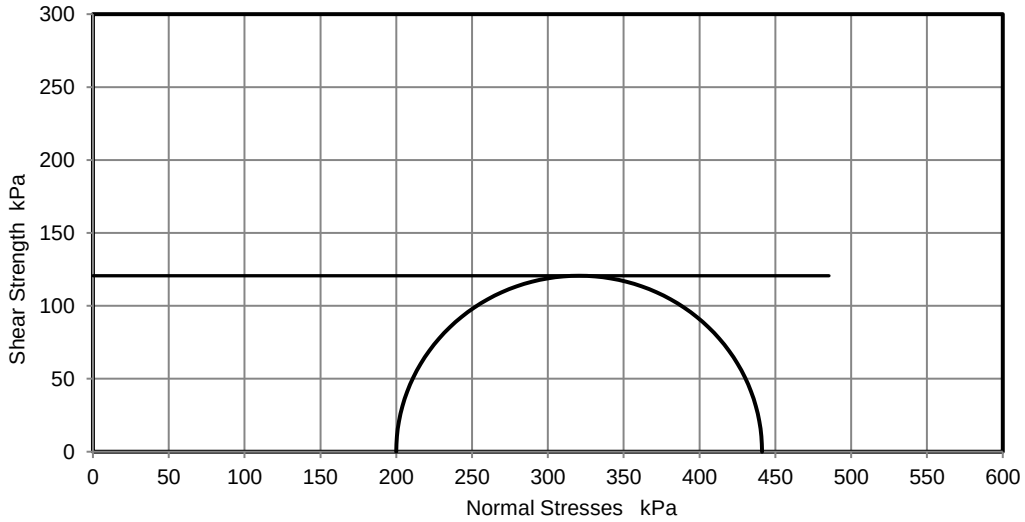
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	2.17	Mg/m3
Moisture Content	25	%
Dry Density	1.74	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	200	kPa
Axial Strain	11	%
Deviator Stress, (σ1 - σ3)f	241	kPa
Undrained Shear Strength, cu	121	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



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.

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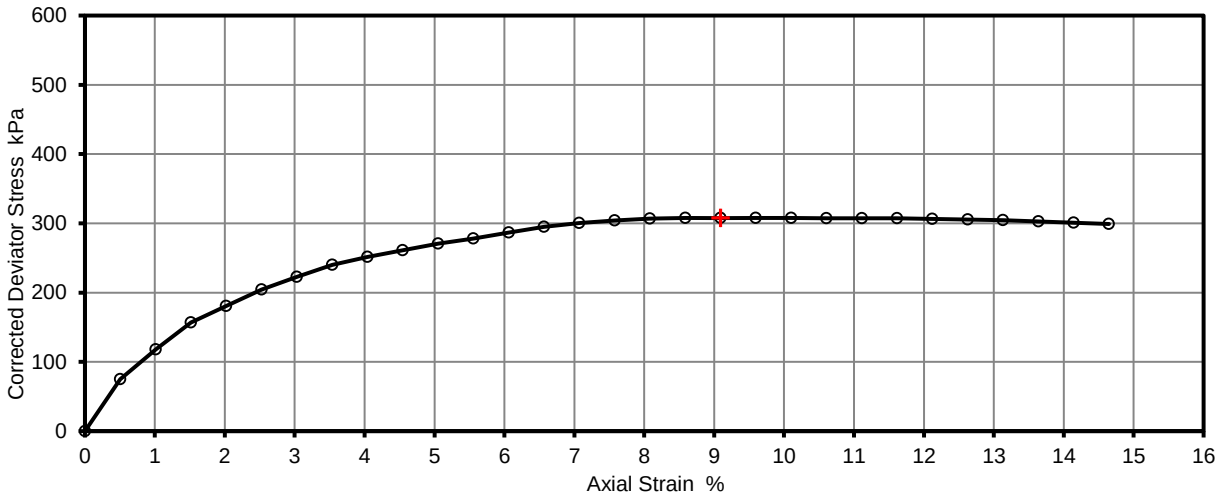
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH3
Site Name	Hampshire MRF			Sample No.	22
Project No.	4521	Client	TerraConsult South	Depth Top	13.00 m
Soil Description	Very high strength dark grey silty CLAY			Depth Base	13.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

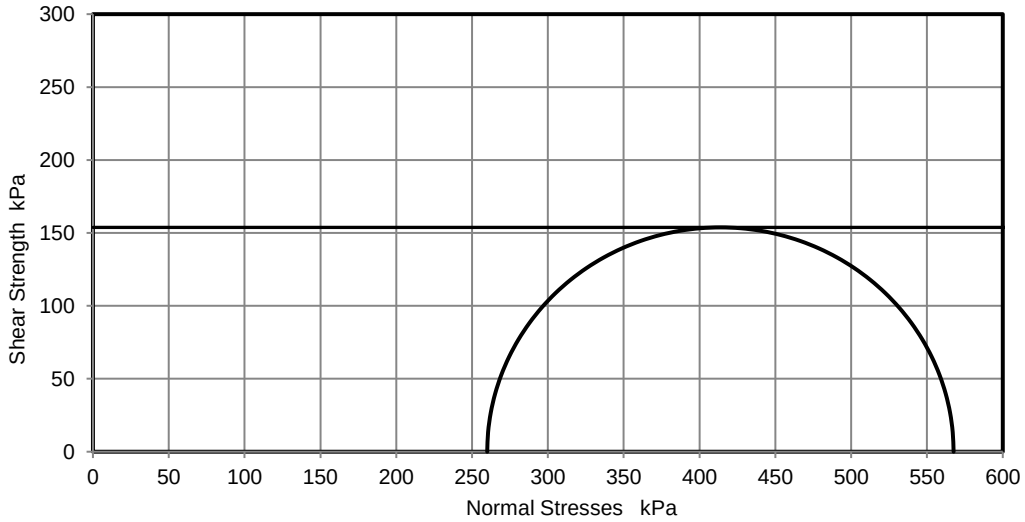
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	1.99	Mg/m3
Moisture Content	28	%
Dry Density	1.56	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	260	kPa
Axial Strain	9.1	%
Deviator Stress, (σ1 - σ3)f	308	kPa
Undrained Shear Strength, cu	154	kPa ½(σ1 - σ3)f
Mode of Failure	Compound	

Deviator Stress v Axial Strain



Mohr Circles



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.

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Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

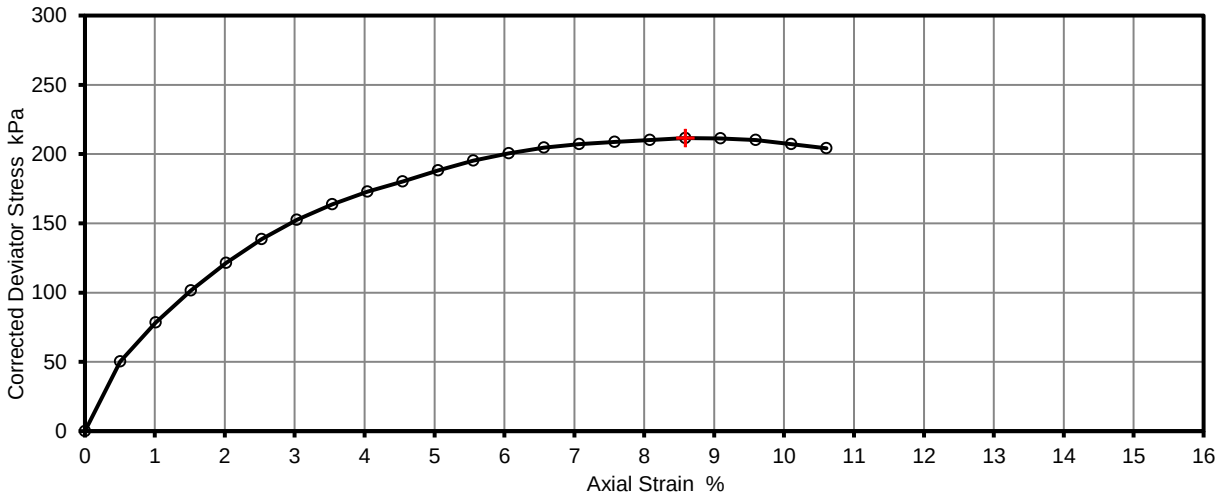
	Unconsolidated Undrained Triaxial Compression Test without measurement of pore pressure - single specimen			Job Ref	26821
				Borehole/Pit No.	BH4
Site Name	Hampshire MRF			Sample No.	26
Project No.	4521	Client	TerraConsult South	Depth Top	7.00 m
Soil Description	High strength grey slightly sandy silty CLAY			Depth Base	7.45 m
				Sample Type	U
				Samples received	12/07/2019
				Schedules received	12/07/2019
Test Method	BS1377 : Part 7 : 1990, clause 8, single specimen			Date of test	22/07/2019

Remarks

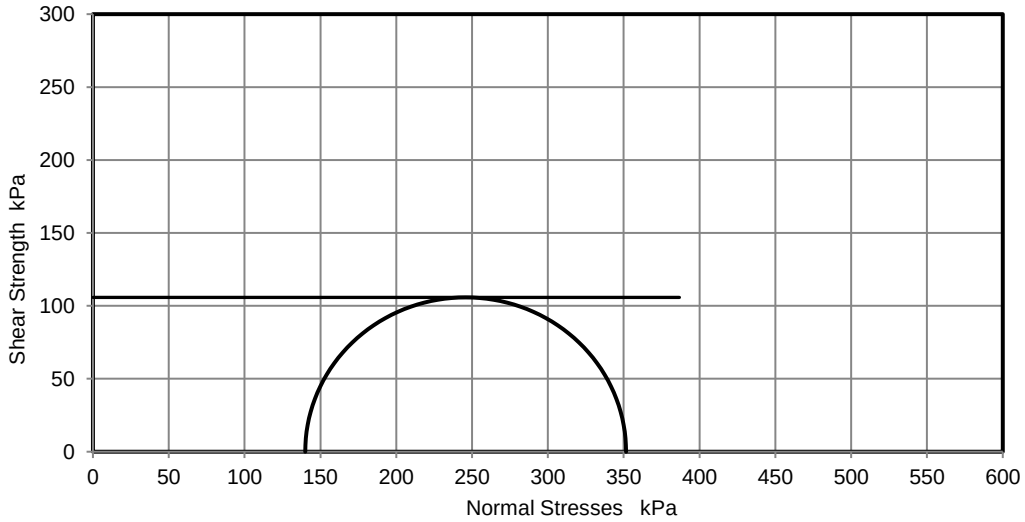
Position within sample

Test Number	1	
Length	198.0	mm
Diameter	102.0	mm
Bulk Density	2.00	Mg/m3
Moisture Content	25	%
Dry Density	1.60	Mg/m3
Rate of Strain	2.0	%/min
Cell Pressure	140	kPa
Axial Strain	8.6	%
Deviator Stress, (σ1 - σ3)f	212	kPa
Undrained Shear Strength, cu	106	kPa ½(σ1 - σ3)f
Mode of Failure	Brittle	

Deviator Stress v Axial Strain



Mohr Circles



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.

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Initials: J.P
Date 09/08/2019

2519

Approved Signatories: K.Phaure (Tech.Mgr) J.Phaure (Lab.Mgr)

Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure
Summary of Results

Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as appropriate to test type.

Job No.	Project Name	Programme	
26821	Hampshire MRF	Samples received	12/07/2019
		Schedule received	12/07/2019
Project No.	Client	Project started	15/07/2019
4521	TerraConsult South	Testing Started	22/07/2019

Hole No.	Sample				Soil Description	Test Type	Density		*w*	Length	Diameter	σ3	At failure				Remarks
	Ref	Top	Base	Type			bulk	dry					Axial strain	σ1 - σ3	cu	Mode	
		m	m				Mg/m3		%	mm	mm	kPa	%	kPa	kPa		
BH1	2	2.50	2.95	U	Medium strength greenish grey slightly sandy silty CLAY with grey sand pockets	UU	1.95	1.52	28	198	102	50	20	97	49	P	
BH1	3	4.50	4.95	U	Medium strength grey slightly sandy silty CLAY	UU	1.85	1.48	25	198	102	90	11	117	59	C	
BH1	4	7.00	7.45	U	High strength greenish grey slightly sandy silty CLAY	UU	1.90	1.48	29	198	102	140	20	199	99	P	
BH1	5	10.00	10.45	U	High strength greenish grey slightly sandy silty CLAY with grey sand pockets	UU	1.97	1.53	28	198	102	200	10	178	89	C	
BH1	6	13.00	13.45	U	Medium strength grey slightly sandy silty CLAY	UU	2.00	1.59	26	198	102	260	11	142	71	C	
BH2	11	5.50	5.95	U	High strength greenish grey slightly sandy silty CLAY	UU	2.05	1.63	26	198	102	110	20	189	94	P	
BH2	12	8.50	8.95	U	Medium strength greenish grey slightly sandy silty CLAY	UU	1.98	1.59	25	198	102	170	20	133	67	P	
BH2	13	11.50	11.95	U	High strength greenish grey slightly sandy silty CLAY	UU	1.89	1.52	25	198	102	230	19	245	123	C	
BH2	14	14.50	14.95	U	Very high strength grey slightly sandy silty CLAY	UU	2.00	1.61	24	198	102	290	12	388	194	C	
BH3	19	4.50	4.95	U	Medium strength bluish grey slightly sandy silty CLAY with brown sand pockets	UU	1.94	1.54	26	198	102	90	19	121	61	C	
BH3	20	7.00	7.45	U	High strength grey slightly sandy silty CLAY	UU	1.95	1.57	24	187	102	140	13	244	122	C	Short sample recovery
BH3	21	10.00	10.45	U	High strength bluish grey slightly sandy silty CLAY	UU	2.17	1.74	25	198	102	200	11	241	121	C	
BH3	22	13.00	13.45	U	Very high strength dark grey silty CLAY	UU	1.99	1.56	28	198	102	260	9.1	308	154	C	

Legend
- UU - single stage test (single and multiple specimens)
- UUM - Multistage test on a single specimen
- suffix R - remoulded or recompacted
- σ3 Cell pressure
- σ1 - σ3 Maximum corrected deviator stress
- cu Undrained shear strength, ½ (σ1 - σ3)
- Mode of failure ; B - Brittle; P - Plastic; C - Compound

Test Report by K4 SOILS LABORATORY
Unit 8 Olds Close Olds Approach
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Checked and Approved
Initials: J.P
Date: 09/08/2019

Unconsolidated Undrained Triaxial Compression tests without measurement of pore pressure
Summary of Results

Tests carried out in accordance with BS1377:Part 7 : 1990 clause 8 or 9 as appropriate to test type.

Job No.	Project Name	Programme	
26821	Hampshire MRF	Samples received	12/07/2019
		Schedule received	12/07/2019
Project No.	Client	Project started	15/07/2019
4521	TerraConsult South	Testing Started	22/07/2019

Hole No.	Sample				Soil Description	Test Type	Density		*w*	Length	Diameter	σ3	At failure				Remarks
	Ref	Top	Base	Type			bulk	dry					Axial strain	σ1 - σ3	cu	Mode	
		m	m				Mg/m3		%	mm	mm	kPa	%	kPa	kPa		
BH4	26	7.00	7.45	U	High strength grey slightly sandy silty CLAY	UU	2.00	1.60	25	198	102	140	8.6	212	106	B	

Legend
- UU - single stage test (single and multiple specimens)
- UUM - Multistage test on a single specimen
- suffix R - remoulded or recompacted
- σ3 Cell pressure
- σ1 - σ3 Maximum corrected deviator stress
- cu Undrained shear strength, ½ (σ1 - σ3)
- Mode of failure ; B - Brittle; P - Plastic; C - Compound

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Appendix H

Chemical Laboratory Data

CONCEPT LIFE SCIENCES
DELIVERING SCIENCE

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

3 Crittall Drive
Springwood Industrial Estate
Braintree
Essex
CM7 2RT
Tel : 01376 560120
Fax : 01376 552923

Report Number: 833079-1

Date of Report: 15-Jul-2019

Customer: TerraConsult (South) Limited
9 The Courtyard
Phoenix Square
Wyncolls Road
Colchester
CO4 9PE

Customer Contact: Mr Adam Steele

Customer Job Reference: 4521
Customer Purchase Order: PO-005375
Customer Site Reference: Hampshire MRF
Date Job Received at Concept: 08-Jul-2019
Date Analysis Started: 10-Jul-2019
Date Analysis Completed: 15-Jul-2019

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Customers are responsible for information provided where, if incorrect, it could affect the validity of the results.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with QMSection 15 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Report checked and authorised by :
Mr James Taylor
Inorganic Section Manager

Issued by :
Aislinn Arthey
Customer Service Advisor

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
TerraConsult 1

				Concept Reference	**833079 001**	**833079 002**	**833079 003**	**833079 004**	**833079 005**
				Customer Sample Reference	**TP1 ES1 @ 1.00m**	**TP2 ES1 @ 0.50m**	**TP3 ES1 @ 0.50m**	**TP5 ES1 @ 1.50m**	**TP6 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**02-JUL-2019**	**02-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Topsoil**	**Sandy Soil**	**Topsoil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Arsenic	T257	A40	2	mg/kg	**3**	**5**	**4**	**10**	**4**
Cadmium	T257	A40	0.1	mg/kg	**0.3**	**0.1**	**0.3**	**0.4**	<0.1
Chromium	T257	A40	0.5	mg/kg	**13**	**28**	**11**	**23**	**18**
Copper	T257	A40	2	mg/kg	**9**	**15**	**10**	**18**	**13**
Lead	T257	A40	2	mg/kg	**8**	**13**	**7**	**18**	**11**
Mercury	T245	A40	1.0	mg/kg	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel	T257	A40	0.5	mg/kg	**20**	**24**	**15**	**25**	**20**
Selenium	T257	A40	3	mg/kg	<3	<3	<3	<3	<3
Zinc	T257	A40	2	mg/kg	**27**	**45**	**27**	**68**	**39**
pH	T7	A40			**8.6**	**6.9**	**8.6**	**8.2**	**8.5**
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	<0.01	<0.01	<0.01	<0.01	<0.01
Cyanide(Total)	T921	M105	1	mg/kg	<1	<1	<1	<1	<1
Phenols(Mono)	T921	M105	1	mg/kg	<1	<1	<1	<1	<1

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
TerraConsult 1

				Concept Reference	**833079 006**	**833079 010**	**833079 012**
				Customer Sample Reference	**TP8 ES1 @ 0.25m**	**CP03 ES1 @ 0.50m**	**CP04 ES1 @ 0.50m**
				Date Sampled	**03-JUL-2019**	**03-JUL-2019**	**04-JUL-2019**
				Matrix Class	**Sandy Soil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Arsenic	T257	A40	2	mg/kg	**8**	**4**	**6**
Cadmium	T257	A40	0.1	mg/kg	**0.5**	**0.2**	**0.3**
Chromium	T257	A40	0.5	mg/kg	**23**	**27**	**27**
Copper	T257	A40	2	mg/kg	**42**	**18**	**50**
Lead	T257	A40	2	mg/kg	**68**	**15**	**140**
Mercury	T245	A40	1.0	mg/kg	<1.0	<1.0	<1.0
Nickel	T257	A40	0.5	mg/kg	**21**	**27**	**24**
Selenium	T257	A40	3	mg/kg	<3	<3	<3
Zinc	T257	A40	2	mg/kg	**89**	**55**	**110**
pH	T7	A40			**7.9**	**8.3**	**7.5**
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	<0.01	**0.01**	**0.01**
Cyanide(Total)	T921	M105	1	mg/kg	<1	<1	<1
Phenols(Mono)	T921	M105	1	mg/kg	<1	<1	<1

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
TerraConsult 4

					Concept Reference	**833079 007**	**833079 008**
					Customer Sample Reference	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**
					Date Sampled	**03-JUL-2019**	**04-JUL-2019**
					Matrix Class	**Clay**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Arsenic	T257	A40	2	mg/kg		**10**	**11**
Cadmium	T257	A40	0.1	mg/kg		**56**	**2.4**
Chromium	T257	A40	0.5	mg/kg		**250**	**33**
Copper	T257	A40	2	mg/kg		**2200**	**310**
Lead	T257	A40	2	mg/kg		**370**	**170**
Molybdenum	T257	A40	5	mg/kg		**7**	<5
Mercury	T245	A40	1.0	mg/kg		**6.6**	<1.0
Nickel	T257	A40	0.5	mg/kg		**52**	**24**
Selenium	T257	A40	3	mg/kg		**5**	<3
Zinc	T257	A40	2	mg/kg		**7500**	**340**
pH	T7	A40				**7.8**	**7.9**
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l		**0.74**	**0.02**
SO4(Total)	T102	A40	0.02	%		**0.75**	**0.10**
Total Organic Carbon	T21	A40	0.1	%		**20**	**3.2**
Soil Organic Matter	T287	A40	0.1	%		**35**	**5.5**
Cyanide(Total)	T921	M105	1	mg/kg		**85**	<1
Phenols(Mono)	T921	M105	1	mg/kg		**5**	<1

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
Asbestos

					Concept Reference	**833079 001**	**833079 002**	**833079 004**	**833079 007**	**833079 010**
					Customer Sample Reference	**TP1 ES1 @ 1.00m**	**TP2 ES1 @ 0.50m**	**TP5 ES1 @ 1.50m**	**TP9 ES1 @ 1.20m**	**CP03 ES1 @ 0.50m**
					Date Sampled	**02-JUL-2019**	**02-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
					Matrix Class	**Topsoil**	**Sandy Soil**	**Sandy Soil**	**Clay**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**						
Asbestos ID	T27	A40			Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected	Asbestos not detected

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
Asbestos

					Concept Reference	**833079 012**
					Customer Sample Reference	**CP04 ES1 @ 0.50m**
					Date Sampled	**04-JUL-2019**
					Matrix Class	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Asbestos ID	T27	A40			Asbestos not detected	

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
TOC

				Concept Reference	**833079 001**	**833079 002**	**833079 003**	**833079 004**	**833079 005**
				Customer Sample Reference	**TP1 ES1 @ 1.00m**	**TP2 ES1 @ 0.50m**	**TP3 ES1 @ 0.50m**	**TP5 ES1 @ 1.50m**	**TP6 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**02-JUL-2019**	**02-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Topsoil**	**Sandy Soil**	**Topsoil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Total Organic Carbon	T21	A40	0.1	%	**0.2**	**0.4**	**0.2**	**0.7**	**0.2**

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
TOC

				Concept Reference	**833079 006**	**833079 007**	**833079 008**	**833079 009**	**833079 011**
				Customer Sample Reference	**TP8 ES1 @ 0.25m**	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**	**CP01 WAC2 @ 0.30m**	**CP03 WAC1 @ 0.50m**
				Date Sampled	**03-JUL-2019**	**03-JUL-2019**	**04-JUL-2019**	**01-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Total Organic Carbon	T21	A40	0.1	%	**2.2**	**20**	**3.2**	**2.5**	**0.3**

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Project Site: Hampshire MRF
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Soil Analysed as Soil
TerraConsult PAHs

				Concept Reference	**833079 001**	**833079 002**	**833079 003**	**833079 004**	**833079 005**
				Customer Sample Reference	**TP1 ES1 @ 1.00m**	**TP2 ES1 @ 0.50m**	**TP3 ES1 @ 0.50m**	**TP5 ES1 @ 1.50m**	**TP6 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**02-JUL-2019**	**02-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Topsoil**	**Sandy Soil**	**Topsoil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Naphthalene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)Pyrene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(123-cd)Pyrene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(ah)Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
PAH(total)	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Coronene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

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Soil Analysed as Soil
TerraConsult PAHs

				Concept Reference	**833079 006**	**833079 007**	**833079 008**	**833079 009**	**833079 010**
				Customer Sample Reference	**TP8 ES1 @ 0.25m**	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**	**CP01 WAC2 @ 0.30m**	**CP03 ES1 @ 0.50m**
				Date Sampled	**03-JUL-2019**	**03-JUL-2019**	**04-JUL-2019**	**01-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Naphthalene	T1086	M105	0.1	mg/kg	<0.1	**0.3**	<0.1	<0.1	<0.1
Acenaphthylene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	T1086	M105	0.1	mg/kg	<0.1	**0.3**	<0.1	<0.1	<0.1
Fluorene	T1086	M105	0.1	mg/kg	<0.1	**0.3**	<0.1	<0.1	<0.1
Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	**0.3**	<0.1
Phenanthrene	T1086	M105	0.1	mg/kg	<0.1	**0.3**	**0.1**	**1.0**	<0.1
Fluoranthene	T1086	M105	0.1	mg/kg	<0.1	**0.2**	**0.3**	**3.2**	<0.1
Pyrene	T1086	M105	0.1	mg/kg	<0.1	**0.1**	**0.3**	**3.1**	<0.1
Benzo(a)Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.2**	**1.6**	<0.1
Chrysene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.2**	**1.7**	<0.1
Benzo(b)fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.2**	**1.3**	<0.1
Benzo(k)fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.2**	**1.4**	<0.1
Benzo(a)Pyrene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.2**	**1.7**	<0.1
Indeno(123-cd)Pyrene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.1**	**0.8**	<0.1
Dibenzo(ah)Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	**0.3**	<0.1
Benzo(ghi)Perylene	T1086	M105	0.1	mg/kg	<0.1	<0.1	**0.2**	**1.0**	<0.1
PAH(total)	T1086	M105	0.1	mg/kg	<0.1	**1.6**	**1.9**	**18**	<0.1
Coronene	T1086	M105	0.1	mg/kg	<0.1	<0.1	<0.1	**0.1**	<0.1

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Soil Analysed as Soil
TerraConsult PAHs

				Concept Reference	**833079 011**	**833079 012**
				Customer Sample Reference	**CP03 WAC1 @ 0.50m**	**CP04 ES1 @ 0.50m**
				Date Sampled	**03-JUL-2019**	**04-JUL-2019**
				Matrix Class	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Naphthalene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthylene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Fluorene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Phenanthrene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Fluoranthene	T1086	M105	0.1	mg/kg	<0.1	**0.1**
Pyrene	T1086	M105	0.1	mg/kg	<0.1	**0.1**
Benzo(a)Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Chrysene	T1086	M105	0.1	mg/kg	<0.1	**0.1**
Benzo(b)fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Benzo(k)fluoranthene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Benzo(a)Pyrene	T1086	M105	0.1	mg/kg	<0.1	**0.1**
Indeno(123-cd)Pyrene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Dibenzo(ah)Anthracene	T1086	M105	0.1	mg/kg	<0.1	<0.1
Benzo(ghi)Perylene	T1086	M105	0.1	mg/kg	<0.1	<0.1
PAH(total)	T1086	M105	0.1	mg/kg	<0.1	**0.5**
Coronene	T1086	M105	0.1	mg/kg	<0.1	<0.1

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Soil Analysed as Soil
SVOC (excluding PAHs SE)

				Concept Reference	**833079 002**	**833079 007**	**833079 010**
				Customer Sample Reference	**TP2 ES1 @ 0.50m**	**TP9 ES1 @ 1.20m**	**CP03 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Phenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Bis (2-chloroethyl) ether	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2-Chlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
1,3-Dichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
1,4-Dichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
1,2-Dichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Bis (2-chloroisopropyl) ether	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2-methyl phenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
3/4-Methylphenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Hexachloroethane	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Nitrobenzene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Isophorone	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2-Nitrophenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2,4-Dimethylphenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Bis (2-chloroethoxy) methane	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2,4-Dichlorophenol	T16	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Carbazole	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
4-Chloroaniline	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Hexachlorobutadiene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
4-Chloro-3-methylphenol	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2-Methylnaphthalene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Hexachlorocyclopentadiene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2,4,6-Trichlorophenol	T16	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2,4,5-Trichlorophenol	T16	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2-Chloronaphthalene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2-Nitroaniline	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Dimethyl phthalate	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2,4-Dinitrotoluene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
3-Nitroaniline	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Dibenzofuran	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
2,6-Dinitrotoluene	T207	M105	0.1	mg/kg	<0.1	<0.2(110)	<0.1
Diethyl phthalate	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
4-Chlorophenyl phenylether	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
4-Nitroaniline	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Azobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
4-Bromophenyl phenylether	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Hexachlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Pentachlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Di-n-butylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Butyl benzylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Bis (2-ethylhexyl)phthalate	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1
Di-n-octylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1	<0.1

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Soil Analysed as Soil
TerraConsult TPHCWG

				Concept Reference	**833079 007**	**833079 008**
				Customer Sample Reference	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**
				Date Sampled	**03-JUL-2019**	**04-JUL-2019**
				Matrix Class	**Clay**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
TPH (C5-C6 aliphatic)	T54	M105	0.10	mg/kg	<0.10	<0.10
TPH (C6-C7 aromatic)	T54	M105	0.10	mg/kg	<0.10	<0.10
TPH (C6-C8 aliphatic)	T54	M105	0.10	mg/kg	**1.1**	<0.10
TPH (C7-C8 aromatic)	T54	M105	0.10	mg/kg	<0.10	<0.10
TPH (C8-C10 aliphatic)	T54	M105	0.10	mg/kg	**96**	<0.10
TPH (C8-C10 aromatic)	T54	M105	0.10	mg/kg	**26**	<0.10
TPH (C10-C12 aliphatic)	T219	M105	2	mg/kg	**1000**	<2
TPH (C10-C12 aromatic)	T219	M105	2	mg/kg	**750**	<2
TPH (C12-C16 aliphatic)	T219	M105	2	mg/kg	**1600**	<2
TPH (C12-C16 aromatic)	T219	M105	2	mg/kg	**3900**	**2**
TPH (C16-C21 aliphatic)	T219	M105	2	mg/kg	**610**	**9**
TPH (C16-C21 aromatic)	T219	M105	2	mg/kg	**4000**	**13**
TPH (C21-C35 aliphatic)	T219	M105	2	mg/kg	**15000**	**110**
TPH (C21-C35 aromatic)	T219	M105	2	mg/kg	**3600**	**67**
TPH (C35-C40 aliphatic)	T219	M105	2	mg/kg	**414**	**7**
TPH (C35-C40 aromatic)	T219	M105	2	mg/kg	**238**	**20**

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Soil Analysed as Soil
PCBs EC7 (SE)

				Concept Reference	**833079 002**	**833079 007**	**833079 009**	**833079 010**	**833079 011**
				Customer Sample Reference	**TP2 ES1 @ 0.50m**	**TP9 ES1 @ 1.20m**	**CP01 WAC2 @ 0.30m**	**CP03 ES1 @ 0.50m**	**CP03 WAC1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**03-JUL-2019**	**01-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
PCB BZ#28	T16	M105	20	µg/kg	<20	**32**	<20	<20	<20
PCB BZ#52	T16	M105	20	µg/kg	<20	<20	<20	<20	<20
PCB BZ#101	T16	M105	20	µg/kg	<20	<20	<20	<20	<20
PCB BZ#118	T16	M105	20	µg/kg	<20	<20	<20	<20	<20
PCB BZ#153	T16	M105	20	µg/kg	<20	<20	<20	<20	<20
PCB BZ#138	T16	M105	20	µg/kg	<20	<20	<20	<20	<20
PCB BZ#180	T16	M105	20	µg/kg	<20	<20	<20	<20	<20

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Customer Reference: 4521

Soil Analysed as Soil
VOC (SE)

				Concept Reference	**833079 002**	**833079 007**	**833079 008**	**833079 010**
				Customer Sample Reference	**TP2 ES1 @ 0.50m**	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**	**CP03 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**03-JUL-2019**	**04-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**				
1,1,1,2-Tetrachloroethane	T209	M105	50	µg/kg	<50	<50	<50	<50
1,1,1-Trichloroethane	T54	M105	5	µg/kg	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	T209	M105	50	µg/kg	<50	<400(110,2)	<50	<50
1,1,2-Trichloroethane	T54	M105	5	µg/kg	<5	<5	<5	<5
1,1-Dichloroethane	T54	M105	5	µg/kg	<5	<5	<5	<5
1,1-Dichloroethylene	T54	M105	5	µg/kg	<5	<5	<5	<5
1,1-Dichloropropene	T54	M105	5	µg/kg	<5	<5	<5	<5
1,2,3-Trichlorobenzene	T54	M105	5	µg/kg	<5	<80(2,110)	<5	<5
1,2,3-Trichloropropane	T54	M105	5	µg/kg	<5	<400(110,2)	<5	<5
1,2,4-Trichlorobenzene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
1,2,4-Trimethylbenzene	T54	M105	50	µg/kg	<50	**9700**	<50	<50
1,2-Dibromo-3-Chloropropane	T54	M105	10	µg/kg	<10	<160(110,2)	<10	<10
1,2-dibromoethane	T209	M105	50	µg/kg	<50	<50	<50	<50
1,2-Dichlorobenzene	T54	M105	5	µg/kg	<5	<80(2,110)	<5	<5
1,2-Dichloroethane	T54	M105	5	µg/kg	<5	<5	<5	<5
1,2-Dichloropropane	T54	M105	5	µg/kg	<5	**14**	<5	<5
1,3,5-Trimethylbenzene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
1,3-Dichlorobenzene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
1,3-Dichloropropane	T209	M105	50	µg/kg	<50	<50	<50	<50
1,4-Dichlorobenzene	T54	M105	5	µg/kg	<5	<80(2,110)	<5	<5
Ethyl-2-Methylbenzene	T54	M105	5	µg/kg	<5	**3600**	<5	<5
2,2-Dichloropropane	T54	M105	5	µg/kg	<5	<5	<5	<5
2-Chlorotoluene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
4-Chlorotoluene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
Benzene	T209	M105	10	µg/kg	<10	<10	<10	<10
Bromobenzene	T54	M105	5	µg/kg	<5	<80(2,110)	<5	<5
Bromochloromethane	T54	M105	5	µg/kg	<5	<5	<5	<5
Bromodichloromethane	T54	M105	5	µg/kg	<5	<5	<5	<5
Bromoform	T209	M105	50	µg/kg	<50	<400(2,110)	<50	<50
Bromomethane	T54	M105	5	µg/kg	<5	<5	<5	<5
Carbon tetrachloride	T54	M105	5	µg/kg	<5	<5	<5	<5
Chlorobenzene	T54	M105	5	µg/kg	<5	**370**	<5	<5
Chlorodibromomethane	T54	M105	5	µg/kg	<5	<5	<5	<5
Chloroethane	T209	M105	50	µg/kg	<50	<50	<50	<50
Chloroform	T54	M105	5	µg/kg	<5	<5	<5	<5
Chloromethane	T209	M105	50	µg/kg	<50	<50	<50	<50
Cis-1,2-Dichloroethylene	T54	M105	5	µg/kg	<5	<5	<5	<5
Cis-1,3-Dichloropropene	T54	M105	5	µg/kg	<5	<5	<5	<5
Dibromomethane	T54	M105	5	µg/kg	<5	<5	<5	<5
Dichlorodifluoromethane	T209	M105	50	µg/kg	<50	<50	<50	<50
EthylBenzene	T209	M105	10	µg/kg	<10	**230**	<10	<10
Hexachlorobutadiene	T209	M105	10	µg/kg	<10	<160(2,110)	<10	<10
Isopropyl benzene	T54	M105	50	µg/kg	<50	<400(110,2)	<50	<50
m/p ethyl toluene	T54	M105	5	µg/kg	<5	**6694**	<5	<5
M/P Xylene	T209	M105	10	µg/kg	<10	**720**	<10	<10
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	<10	<10	<10	<10
n-Butylbenzene	T54	M105	10	µg/kg	<10	<160(110,2)	<10	<10
n-Propylbenzene	T54	M105	50	µg/kg	<50	**1300**	<50	<50
O Xylene	T209	M105	10	µg/kg	<10	**320**	<10	<10
p-Isopropyltoluene	T54	M105	5	µg/kg	<5	<80(2,110)	<5	<5
S-Butylbenzene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
Styrene	T54	M105	50	µg/kg	<50	<400(2,110)	<50	<50
T-Butylbenzene	T54	M105	5	µg/kg	<5	<80(110,2)	<5	<5
Tertiary amyl methyl ether	T54	M105	5	µg/kg	<5	<5	<5	<5
Tetrachloroethene	T54	M105	5	µg/kg	<5	<5	<5	<5
Toluene	T209	M105	10	µg/kg	<10	<10	<10	<10
Trans-1,2-Dichloroethene	T54	M105	5	µg/kg	<5	<5	<5	<5
Trans-1,3-Dichloropropene	T54	M105	5	µg/kg	<5	<5	<5	<5
Trichloroethene	T54	M105	5	µg/kg	<5	<5	<5	<5

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
VOC (SE)

				Concept Reference	**833079 002**	**833079 007**	**833079 008**	**833079 010**
				Customer Sample Reference	**TP2 ES1 @ 0.50m**	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**	**CP03 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**03-JUL-2019**	**04-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**				
Trichlorofluoromethane	T54	M105	5	µg/kg	<5	<5	<5	<5
Vinyl chloride	T54	M105	10	µg/kg	<10	<10	<10	<10

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
Miscellaneous

				Concept Reference	**833079 001**	**833079 002**	**833079 003**	**833079 004**	**833079 005**
				Customer Sample Reference	**TP1 ES1 @ 1.00m**	**TP2 ES1 @ 0.50m**	**TP3 ES1 @ 0.50m**	**TP5 ES1 @ 1.50m**	**TP6 ES1 @ 0.50m**
				Date Sampled	**02-JUL-2019**	**02-JUL-2019**	**02-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Topsoil**	**Sandy Soil**	**Topsoil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Moisture @105C	T162	AR	0.1	%	**6.2**	**15**	**8.4**	**18**	**16**
Retained on 2mm	T2	A40	0.1	%	**71.5**	**0.2**	**64.0**	**1.2**	**0.1**

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
Miscellaneous

				Concept Reference	**833079 006**	**833079 007**	**833079 008**	**833079 009**	**833079 010**
				Customer Sample Reference	**TP8 ES1 @ 0.25m**	**TP9 ES1 @ 1.20m**	**TP10 ES1 @ 0.40m**	**CP01 WAC2 @ 0.30m**	**CP03 ES1 @ 0.50m**
				Date Sampled	**03-JUL-2019**	**03-JUL-2019**	**04-JUL-2019**	**01-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Moisture @105C	T162	AR	0.1	%	**12**	**63**	**16**	**12**	**16**
Retained on 2mm	T2	A40	0.1	%	**7.8**	<0.1	**22.0**	**27.0**	<0.1

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
Miscellaneous

				Concept Reference	**833079 011**	**833079 012**
				Customer Sample Reference	**CP03 WAC1 @ 0.50m**	**CP04 ES1 @ 0.50m**
				Date Sampled	**03-JUL-2019**	**04-JUL-2019**
				Matrix Class	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Moisture @105C	T162	AR	0.1	%	**15**	**15**
Retained on 2mm	T2	A40	0.1	%	**0.2**	**0.7**

Index to symbols used in 833079-1

Value	Description
A40	Assisted dried < 40C

M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
2	LOD Raised Due to Matrix Interference
110	LOD raised due to low internal standard recovery.
S	Analysis was subcontracted
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

Asbestos subcontracted to REC Limited
Retained on 2mm is removed before analysis

Method Index

Value	Description
T242	2:1 Extraction/ICP/OES (TRL 447 T1)
T54	GC/MS (Headspace)
T207	GC/MS (MCERTS)
T209	GC/MS (Head Space)(MCERTS)
T102	ICP/OES (HCl extract)
T219	GC/FID (SE)
T921	Colorimetry (CF) (MCERT)
T257	ICP/OES (SIM) (Aqua Regia Extraction)
T21	OX/IR
T1086	GC/MS (GSOP12A)
T245	ICP/OES (Aqua Regia Extraction)
T287	Calc TOC/0.58
T16	GC/MS
T7	Probe
T2	Grav
T27	PLM
T162	Grav (1 Dec) (105 C)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Arsenic	T257	A40	2	mg/kg	M	001-008,010,012
Cadmium	T257	A40	0.1	mg/kg	M	001-008,010,012
Chromium	T257	A40	0.5	mg/kg	M	001-008,010,012
Copper	T257	A40	2	mg/kg	M	001-008,010,012
Lead	T257	A40	2	mg/kg	M	001-008,010,012
Mercury	T245	A40	1.0	mg/kg	U	001-008,010,012
Nickel	T257	A40	0.5	mg/kg	M	001-008,010,012
Selenium	T257	A40	3	mg/kg	U	001-008,010,012
Zinc	T257	A40	2	mg/kg	M	001-008,010,012
pH	T7	A40			M	001-008,010,012
(Water Soluble) SO4 expressed as SO4	T242	A40	0.01	g/l	M	001-008,010,012
Cyanide(Total)	T921	M105	1	mg/kg	M	001-008,010,012
Phenols(Mono)	T921	M105	1	mg/kg	M	001-008,010,012
Naphthalene	T1086	M105	0.1	mg/kg	M	001-012
Acenaphthylene	T1086	M105	0.1	mg/kg	M	001-012
Acenaphthene	T1086	M105	0.1	mg/kg	M	001-012
Fluorene	T1086	M105	0.1	mg/kg	M	001-012
Anthracene	T1086	M105	0.1	mg/kg	M	001-012
Phenanthrene	T1086	M105	0.1	mg/kg	M	001-012
Fluoranthene	T1086	M105	0.1	mg/kg	M	001-012
Pyrene	T1086	M105	0.1	mg/kg	M	001-012
Benzo(a)Anthracene	T1086	M105	0.1	mg/kg	M	001-012
Chrysene	T1086	M105	0.1	mg/kg	M	001-012
Benzo(b)fluoranthene	T1086	M105	0.1	mg/kg	M	001-012
Benzo(k)fluoranthene	T1086	M105	0.1	mg/kg	N	001-012
Benzo(a)Pyrene	T1086	M105	0.1	mg/kg	M	001-012
Indeno(123-cd)Pyrene	T1086	M105	0.1	mg/kg	M	001-012
Dibenzo(ah)Anthracene	T1086	M105	0.1	mg/kg	M	001-012

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Benzo(ghi)Perylene	T1086	M105	0.1	mg/kg	M	001-012
PAH(total)	T1086	M105	0.1	mg/kg	N	001-012
Coronene	T1086	M105	0.1	mg/kg	M	001-012
Moisture @105C	T162	AR	0.1	%	N	001-012
Retained on 2mm	T2	A40	0.1	%	N	001-012
PCB BZ#28	T16	M105	20	µg/kg	M	002,007,009-011
PCB BZ#52	T16	M105	20	µg/kg	M	002,007,009-011
PCB BZ#101	T16	M105	20	µg/kg	M	002,007,009-011
PCB BZ#118	T16	M105	20	µg/kg	M	002,007,009-011
PCB BZ#153	T16	M105	20	µg/kg	M	002,007,009-011
PCB BZ#138	T16	M105	20	µg/kg	M	002,007,009-011
PCB BZ#180	T16	M105	20	µg/kg	M	002,007,009-011
Molybdenum	T257	A40	5	mg/kg	U	007-008
SO4(Total)	T102	A40	0.02	%	M	007-008
Soil Organic Matter	T287	A40	0.1	%	N	007-008
1,1,1,2-Tetrachloroethane	T209	M105	50	µg/kg	U	002,007-008,010
1,1,1-Trichloroethane	T54	M105	5	µg/kg	M	002,007-008,010
1,1,2,2-Tetrachloroethane	T209	M105	50	µg/kg	U	002,007-008,010
1,1,2-Trichloroethane	T54	M105	5	µg/kg	U	002,007-008,010
1,1-Dichloroethane	T54	M105	5	µg/kg	M	002,007-008,010
1,1-Dichloroethylene	T54	M105	5	µg/kg	M	002,007-008,010
1,1-Dichloropropene	T54	M105	5	µg/kg	M	002,007-008,010
1,2,3-Trichlorobenzene	T54	M105	5	µg/kg	M	002,007-008,010
1,2,3-Trichloropropane	T54	M105	5	µg/kg	U	002,007-008,010
1,2,4-Trichlorobenzene	T54	M105	5	µg/kg	M	002,007-008,010
1,2,4-Trimethylbenzene	T54	M105	50	µg/kg	M	002,007-008,010
1,2-Dibromo-3-Chloropropane	T54	M105	10	µg/kg	U	002,007-008,010
1,2-dibromoethane	T209	M105	50	µg/kg	U	002,007-008,010
1,2-Dichlorobenzene	T54	M105	5	µg/kg	M	002,007-008,010
1,2-Dichloroethane	T54	M105	5	µg/kg	M	002,007-008,010
1,2-Dichloropropane	T54	M105	5	µg/kg	M	002,007-008,010
1,3,5-Trimethylbenzene	T54	M105	5	µg/kg	M	002,007-008,010
1,3-Dichlorobenzene	T54	M105	5	µg/kg	M	002,007-008,010
1,3-Dichloropropane	T209	M105	50	µg/kg	U	002,007-008,010
1,4-Dichlorobenzene	T54	M105	5	µg/kg	M	002,007-008,010
Ethyl-2-Methylbenzene	T54	M105	5	µg/kg	M	002,007-008,010
2,2-Dichloropropane	T54	M105	5	µg/kg	M	002,007-008,010
2-Chlorotoluene	T54	M105	5	µg/kg	M	002,007-008,010
4-Chlorotoluene	T54	M105	5	µg/kg	M	002,007-008,010
Benzene	T209	M105	10	µg/kg	M	002,007-008,010
Bromobenzene	T54	M105	5	µg/kg	M	002,007-008,010
Bromochloromethane	T54	M105	5	µg/kg	M	002,007-008,010
Bromodichloromethane	T54	M105	5	µg/kg	M	002,007-008,010
Bromoform	T209	M105	50	µg/kg	U	002,007-008,010
Bromomethane	T54	M105	5	µg/kg	U	002,007-008,010
Carbon tetrachloride	T54	M105	5	µg/kg	M	002,007-008,010
Chlorobenzene	T54	M105	5	µg/kg	M	002,007-008,010
Chlorodibromomethane	T54	M105	5	µg/kg	M	002,007-008,010
Chloroethane	T209	M105	50	µg/kg	U	002,007-008,010
Chloroform	T54	M105	5	µg/kg	M	002,007-008,010
Chloromethane	T209	M105	50	µg/kg	N	002,007-008,010
Cis-1,2-Dichloroethylene	T54	M105	5	µg/kg	M	002,007-008,010
Cis-1,3-Dichloropropene	T54	M105	5	µg/kg	M	002,007-008,010
Dibromomethane	T54	M105	5	µg/kg	M	002,007-008,010
Dichlorodifluoromethane	T209	M105	50	µg/kg	N	002,007-008,010
EthylBenzene	T209	M105	10	µg/kg	M	002,007-008,010
Hexachlorobutadiene	T209	M105	10	µg/kg	U	002,007-008,010
Isopropyl benzene	T54	M105	50	µg/kg	M	002,007-008,010
m/p ethyl toluene	T54	M105	5	µg/kg	M	002,007-008,010
M/P Xylene	T209	M105	10	µg/kg	M	002,007-008,010
Methyl tert-Butyl Ether	T209	M105	10	µg/kg	M	002,007-008,010
n-Butylbenzene	T54	M105	10	µg/kg	U	002,007-008,010
n-Propylbenzene	T54	M105	50	µg/kg	M	002,007-008,010
O Xylene	T209	M105	10	µg/kg	M	002,007-008,010
p-Isopropyltoluene	T54	M105	5	µg/kg	M	002,007-008,010
S-Butylbenzene	T54	M105	5	µg/kg	M	002,007-008,010
Styrene	T54	M105	50	µg/kg	M	002,007-008,010
T-Butylbenzene	T54	M105	5	µg/kg	M	002,007-008,010
Tertiary amyl methyl ether	T54	M105	5	µg/kg	M	002,007-008,010
Tetrachloroethene	T54	M105	5	µg/kg	M	002,007-008,010

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Toluene	T209	M105	10	µg/kg	M	002,007-008,010
Trans-1,2-Dichloroethene	T54	M105	5	µg/kg	M	002,007-008,010
Trans-1,3-Dichloropropene	T54	M105	5	µg/kg	M	002,007-008,010
Trichloroethene	T54	M105	5	µg/kg	M	002,007-008,010
Trichlorofluoromethane	T54	M105	5	µg/kg	M	002,007-008,010
Vinyl chloride	T54	M105	10	µg/kg	M	002,007-008,010
TPH (C5-C6 aliphatic)	T54	M105	0.10	mg/kg	N	007-008
TPH (C6-C7 aromatic)	T54	M105	0.10	mg/kg	N	007-008
TPH (C6-C8 aliphatic)	T54	M105	0.10	mg/kg	N	007-008
TPH (C7-C8 aromatic)	T54	M105	0.10	mg/kg	N	007-008
TPH (C8-C10 aliphatic)	T54	M105	0.10	mg/kg	N	007-008
TPH (C8-C10 aromatic)	T54	M105	0.10	mg/kg	N	007-008
TPH (C10-C12 aliphatic)	T219	M105	2	mg/kg	N	007-008
TPH (C10-C12 aromatic)	T219	M105	2	mg/kg	N	007-008
TPH (C12-C16 aliphatic)	T219	M105	2	mg/kg	N	007-008
TPH (C12-C16 aromatic)	T219	M105	2	mg/kg	N	007-008
TPH (C16-C21 aliphatic)	T219	M105	2	mg/kg	N	007-008
TPH (C16-C21 aromatic)	T219	M105	2	mg/kg	N	007-008
TPH (C21-C35 aliphatic)	T219	M105	2	mg/kg	N	007-008
TPH (C21-C35 aromatic)	T219	M105	2	mg/kg	N	007-008
TPH (C35-C40 aliphatic)	T219	M105	2	mg/kg	N	007-008
TPH (C35-C40 aromatic)	T219	M105	2	mg/kg	N	007-008
Phenol	T207	M105	0.1	mg/kg	M	002,007,010
Bis (2-chloroethyl) ether	T207	M105	0.1	mg/kg	M	002,007,010
2-Chlorophenol	T207	M105	0.1	mg/kg	M	002,007,010
1,3-Dichlorobenzene	T207	M105	0.1	mg/kg	M	002,007,010
1,4-Dichlorobenzene	T207	M105	0.1	mg/kg	M	002,007,010
1,2-Dichlorobenzene	T207	M105	0.1	mg/kg	M	002,007,010
Bis (2-chloroisopropyl) ether	T207	M105	0.1	mg/kg	M	002,007,010
2-methyl phenol	T207	M105	0.1	mg/kg	U	002,007,010
3/4-Methylphenol	T207	M105	0.1	mg/kg	M	002,007,010
Hexachloroethane	T207	M105	0.1	mg/kg	M	002,007,010
Nitrobenzene	T207	M105	0.1	mg/kg	M	002,007,010
Isophorone	T207	M105	0.1	mg/kg	M	002,007,010
2-Nitrophenol	T207	M105	0.1	mg/kg	N	002,007,010
2,4-Dimethylphenol	T207	M105	0.1	mg/kg	N	002,007,010
Bis (2-chloroethoxy) methane	T207	M105	0.1	mg/kg	M	002,007,010
2,4-Dichlorophenol	T16	M105	0.1	mg/kg	N	002,007,010
1,2,4-Trichlorobenzene	T207	M105	0.1	mg/kg	M	002,007,010
Carbazole	T207	M105	0.1	mg/kg	U	002,007,010
4-Chloroaniline	T207	M105	0.1	mg/kg	U	002,007,010
Hexachlorobutadiene	T207	M105	0.1	mg/kg	M	002,007,010
4-Chloro-3-methylphenol	T207	M105	0.1	mg/kg	M	002,007,010
2-Methylnaphthalene	T207	M105	0.1	mg/kg	M	002,007,010
Hexachlorocyclopentadiene	T207	M105	0.1	mg/kg	N	002,007,010
2,4,6-Trichlorophenol	T16	M105	0.1	mg/kg	N	002,007,010
2,4,5-Trichlorophenol	T16	M105	0.1	mg/kg	N	002,007,010
2-Chloronaphthalene	T207	M105	0.1	mg/kg	M	002,007,010
2-Nitroaniline	T207	M105	0.1	mg/kg	M	002,007,010
Dimethyl phthalate	T207	M105	0.1	mg/kg	M	002,007,010
2,4-Dinitrotoluene	T207	M105	0.1	mg/kg	U	002,007,010
3-Nitroaniline	T207	M105	0.1	mg/kg	U	002,007,010
Dibenzofuran	T207	M105	0.1	mg/kg	M	002,007,010
2,6-Dinitrotoluene	T207	M105	0.1	mg/kg	M	002,007,010
Diethyl phthalate	T207	M105	0.1	mg/kg	M	002,007,010
4-Chlorophenyl phenylether	T207	M105	0.1	mg/kg	M	002,007,010
4-Nitroaniline	T207	M105	0.1	mg/kg	U	002,007,010
Azobenzene	T207	M105	0.1	mg/kg	M	002,007,010
4-Bromophenyl phenylether	T207	M105	0.1	mg/kg	M	002,007,010
Hexachlorobenzene	T207	M105	0.1	mg/kg	M	002,007,010
Pentachlorophenol	T207	M105	0.1	mg/kg	N	002,007,010
Di-n-butylphthalate	T207	M105	0.1	mg/kg	U	002,007,010
Butyl benzylphthalate	T207	M105	0.1	mg/kg	N	002,007,010
Bis (2-ethylhexyl)phthalate	T207	M105	0.1	mg/kg	N	002,007,010
Di-n-octylphthalate	T207	M105	0.1	mg/kg	M	002,007,010
Total Organic Carbon	T21	A40	0.1	%	N	001-009,011
Asbestos ID	T27	A40			SU	001-002,004,007,010,012

CONCEPT LIFE SCIENCES
DELIVERING SCIENCE

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Concept Life Sciences

Certificate of Analysis

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Report Number: 833079-1 WAC

Date of Report: 15-Jul-2019

Customer: TerraConsult (South) Limited
9 The Courtyard
Phoenix Square
Wyncolls Road
Colchester
CO4 9PE

Customer Contact: Mr Adam Steele

Customer Job Reference: 4521
Customer Purchase Order: PO-005375
Customer Site Reference: Hampshire MRF
Date Job Received at Concept: 08-Jul-2019
Date Analysis Started: 10-Jul-2019
Date Analysis Completed: 15-Jul-2019

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Customers are responsible for information provided where, if incorrect, it could affect the validity of the results.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

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Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with QMSection 15 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Report checked and authorised by :
Mr James Taylor
Inorganic Section Manager

Issued by :
Aislinn Arthey
Customer Service Advisor

Waste Acceptance Criteria

Customer Sample Reference : CP01 WAC2 @ 0.30m
Our Sample Reference : 833079 009
Project Site : Hampshire MRF
Customer Reference : 4521
Test Portion Mass (g) : 87.5
Wet Sample in Dish Weight : 100
Sample in Dish @ 105C : 99.2
Empty Dish Weight : 0
Date Sampled : 01-JUL-2019
Matrix Class : Sandy Soil

Soil					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
pH	Probe			M	**8.0**		> 6.0	
Loss on Ignition	Ign @450C/Grav	0.1	%	M	**6.4**			10.0
Total Organic Carbon	OX/IR	0.1	%	N	**2.5**	3.0	5.0	6.0
Acid Neutralising Capacity (pH 7)	Titration	2	Mol/kg	N	<2			
BTEX (Sum)	Calc	0.040	mg/kg	U	<0.040	6.0		
PCB EC7 (Sum)	Calc	0.14	mg/kg	N	<0.14	1.0		
Total Petroleum Hydrocarbons (C10 - C40)	GC/FID (SE)	10	mg/kg	M	**410**	500.0		
PAH (Sum)	Calc	1.6	mg/kg	N	**18**	100.0		
Moisture	Grav (1 Dec) (105 C)	0.1	%	N	**12**			
Retained on 2mm Sieve	Grav	0.1	%	N	**27.0**			

Data for BS EN 12457-2 (10:1)					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
Total Dissolved Solids	Calc	100	mg/kg	N	**870**	4000.0	60000.0	100000.0
Dissolved Organic Carbon	Calc	10	mg/kg	N	**90**	500.0	800.0	1000.0
Antimony	Calc WAC ICP/MS	0.010	mg/kg	N	**0.024**	0.06	0.7	5.0
Arsenic	Calc WAC ICP/MS	0.0020	mg/kg	N	**0.027**	0.5	2.0	25.0
Barium	Calc WAC ICP/MS	0.010	mg/kg	N	**0.34**	20.0	100.0	300.0
Cadmium	Calc WAC ICP/MS	0.00020	mg/kg	N	**0.0030**	0.04	1.0	5.0
Chloride	Calc (W)	10	mg/kg	N	**14**	800.0	15000.0	25000.0
Chromium	Calc WAC ICP/MS	0.010	mg/kg	N	**0.013**	0.5	10.0	70.0
Copper	Calc WAC ICP/MS	0.0050	mg/kg	N	**0.53**	2.0	50.0	100.0
Fluoride	Calc (W)	0.50	mg/kg	N	**3.2**	10.0	150.0	500.0
Lead	Calc WAC ICP/MS	0.0030	mg/kg	N	**0.18**	0.5	10.0	50.0
Mercury	Calc WAC ICP/MS	0.00050	mg/kg	N	**0.00051**	0.01	0.2	2.0
Molybdenum	Calc WAC ICP/MS	0.010	mg/kg	N	**0.025**	0.5	10.0	30.0
Nickel	Calc WAC ICP/MS	0.010	mg/kg	N	**0.021**	0.4	10.0	40.0
Phenols (Total-Mono)	Calc (W)	0.20	mg/kg	N	<0.20	1.0		
Selenium	Calc WAC ICP/MS	0.0050	mg/kg	N	**0.0083**	0.1	0.5	7.0
Sulphate ion	Calc (W)	5	mg/kg	N	<5	1000.0	20000.0	50000.0
Zinc	Calc WAC ICP/MS	0.020	mg/kg	N	**0.22**	4.0	50.0	200.0

Following the recommendation from the Environment Agency (England and Wales)*, the leachate preparation in this report has been carried out to BS EN 12457-2 : One Stage batch test at a liquid to solid ratio of 10 l/kg. This is also compliant with Schedule 10 of the Environmental Permitting Regulations 2010.

Note : This is the minimum amount of testing which is required.

Further testing may be required if :

- evidence of immediately leachable parameters becomes available.
- evidence to indicate that the sample could be classified as hazardous under H1-H14 of the Waste(England and Wales) Regulations 2011(as amended) becomes available.

Acceptance of waste at landfill is always at the discretion of the Landfill Operator.

*** Waste Sampling and Testing for Disposal at Landfill, EBPRI 11507B, Environment Agency (England and Wales) March 2013**

As detailed in- Waste Classification. Guidance on the classification and assessment of waste. Technical Guidance WM3:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427077/LIT_10121.pdf

Landfill WAC analysis (specifically leaching test results) should not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Waste Acceptance Criteria

Customer Sample Reference : CP03 WAC1 @ 0.50m
Our Sample Reference : 833079 011
Project Site : Hampshire MRF
Customer Reference : 4521
Wet Sample in Dish Weight : 100
Empty Dish Weight : 0
Test Portion Mass (g) : 87.5
Sample in Dish @ 105C : 88.4
Date Sampled : 03-JUL-2019
Matrix Class : Sandy Soil

Soil					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
pH	Probe			M	**8.2**		> 6.0	
Loss on Ignition	Ign @450C/Grav	0.1	%	M	**2.1**			10.0
Total Organic Carbon	OX/IR	0.1	%	N	**0.3**	3.0	5.0	6.0
Acid Neutralising Capacity (pH 7)	Titration	2	Mol/kg	N	<2			
BTEX (Sum)	Calc	0.040	mg/kg	U	<0.040	6.0		
PCB EC7 (Sum)	Calc	0.14	mg/kg	N	<0.14	1.0		
Total Petroleum Hydrocarbons (C10 - C40)	GC/FID (SE)	13	mg/kg	M	(3, 13) <13	500.0		
PAH (Sum)	Calc	1.6	mg/kg	N	<1.6	100.0		
Moisture	Grav (1 Dec) (105 C)	0.1	%	N	**15**			
Retained on 2mm Sieve	Grav	0.1	%	N	**0.2**			

Data for BS EN 12457-2 (10:1)					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
Total Dissolved Solids	Calc	100	mg/kg	N	**640**	4000.0	60000.0	100000.0
Dissolved Organic Carbon	Calc	10	mg/kg	N	**40**	500.0	800.0	1000.0
Antimony	Calc WAC ICP/MS	0.010	mg/kg	N	<0.010	0.06	0.7	5.0
Arsenic	Calc WAC ICP/MS	0.0020	mg/kg	N	<0.0020	0.5	2.0	25.0
Barium	Calc WAC ICP/MS	0.010	mg/kg	N	**0.032**	20.0	100.0	300.0
Cadmium	Calc WAC ICP/MS	0.00020	mg/kg	N	<0.00020	0.04	1.0	5.0
Chloride	Calc (W)	10	mg/kg	N	**17**	800.0	15000.0	25000.0
Chromium	Calc WAC ICP/MS	0.010	mg/kg	N	<0.010	0.5	10.0	70.0
Copper	Calc WAC ICP/MS	0.0050	mg/kg	N	**0.015**	2.0	50.0	100.0
Fluoride	Calc (W)	0.50	mg/kg	N	**2.6**	10.0	150.0	500.0
Lead	Calc WAC ICP/MS	0.0030	mg/kg	N	<0.0030	0.5	10.0	50.0
Mercury	Calc WAC ICP/MS	0.00050	mg/kg	N	<0.00050	0.01	0.2	2.0
Molybdenum	Calc WAC ICP/MS	0.010	mg/kg	N	**0.012**	0.5	10.0	30.0
Nickel	Calc WAC ICP/MS	0.010	mg/kg	N	<0.010	0.4	10.0	40.0
Phenols (Total-Mono)	Calc (W)	0.20	mg/kg	N	<0.20	1.0		
Selenium	Calc WAC ICP/MS	0.0050	mg/kg	N	<0.0050	0.1	0.5	7.0
Sulphate ion	Calc (W)	5	mg/kg	N	<5	1000.0	20000.0	50000.0
Zinc	Calc WAC ICP/MS	0.020	mg/kg	N	<0.020	4.0	50.0	200.0

Following the recommendation from the Environment Agency (England and Wales)*, the leachate preparation in this report has been carried out to BS EN 12457-2 : One Stage batch test at a liquid to solid ratio of 10 l/kg. This is also compliant with Schedule 10 of the Environmental Permitting Regulations 2010.

Note : This is the minimum amount of testing which is required.

Further testing may be required if :

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Acceptance of waste at landfill is always at the discretion of the Landfill Operator.

*** Waste Sampling and Testing for Disposal at Landfill, EBPRI 11507B, Environment Agency (England and Wales) March 2013**

As detailed in- Waste Classification. Guidance on the classification and assessment of waste. Technical Guidance WM3:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427077/LIT_10121.pdf

Landfill WAC analysis (specifically leaching test results) should not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
TerraConsult PAHs

Concept Reference	**833079 009**	**833079 011**
Customer Sample Reference	**CP01 WAC2 @ 0.30m**	**CP03 WAC1 @ 0.50m**
Test Sample	**M105**	**M105**
Date Sampled	**01-JUL-2019**	**03-JUL-2019**
Matrix Class	**Sandy Soil**	**Sandy Soil**

Determinand	Method	LOD	Units	Symbol		
Naphthalene	GC/MS (GSOP12A)	0.1	mg/kg	M	<0.1	<0.1
Acenaphthylene	GC/MS (GSOP12A)	0.1	mg/kg	M	<0.1	<0.1
Acenaphthene	GC/MS (GSOP12A)	0.1	mg/kg	M	<0.1	<0.1
Fluorene	GC/MS (GSOP12A)	0.1	mg/kg	M	<0.1	<0.1
Anthracene	GC/MS (GSOP12A)	0.1	mg/kg	M	**0.3**	<0.1
Phenanthrene	GC/MS (GSOP12A)	0.1	mg/kg	M	**1.0**	<0.1
Fluoranthene	GC/MS (GSOP12A)	0.1	mg/kg	M	**3.2**	<0.1
Pyrene	GC/MS (GSOP12A)	0.1	mg/kg	M	**3.1**	<0.1
Benzo(a)Anthracene	GC/MS (GSOP12A)	0.1	mg/kg	M	**1.6**	<0.1
Chrysene	GC/MS (GSOP12A)	0.1	mg/kg	M	**1.7**	<0.1
Benzo(b)fluoranthene	GC/MS (GSOP12A)	0.1	mg/kg	M	**1.3**	<0.1
Benzo(k)fluoranthene	GC/MS (GSOP12A)	0.1	mg/kg	N	**1.4**	<0.1
Benzo(a)Pyrene	GC/MS (GSOP12A)	0.1	mg/kg	M	**1.7**	<0.1
Indeno(123-cd)Pyrene	GC/MS (GSOP12A)	0.1	mg/kg	M	**0.8**	<0.1
Dibenzo(ah)Anthracene	GC/MS (GSOP12A)	0.1	mg/kg	M	**0.3**	<0.1
Benzo(ghi)Perylene	GC/MS (GSOP12A)	0.1	mg/kg	M	**1.0**	<0.1
Polyaromatic Hydrocarbons (Total)	GC/MS (GSOP12A)	0.1	mg/kg	N	**18**	<0.1
Coronene	GC/MS (GSOP12A)	0.1	mg/kg	M	**0.1**	<0.1

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
BTEX

Concept Reference	**833079 009**	**833079 011**
Customer Sample Reference	**CP01 WAC2 @ 0.30m**	**CP03 WAC1 @ 0.50m**
Test Sample	**M105**	**M105**
Date Sampled	**01-JUL-2019**	**03-JUL-2019**
Matrix Class	**Sandy Soil**	**Sandy Soil**

Determinand	Method	LOD	Units	Symbol		
Benzene	GC/MS (Head Space)(MCERTS)	10	µg/kg	M	<10	<10
Toluene	GC/MS (Head Space)(MCERTS)	10	µg/kg	M	<10	<10
EthylBenzene	GC/MS (Head Space)(MCERTS)	10	µg/kg	M	<10	<10
Meta/Para-Xylene	GC/MS (Head Space)(MCERTS)	10	µg/kg	M	<10	<10
Ortho-Xylene	GC/MS (Head Space)(MCERTS)	10	µg/kg	M	<10	<10

Concept Reference: 833079
Project Site: Hampshire MRF
Customer Reference: 4521

Soil Analysed as Soil
PCBs EC7 (SE)

				Concept Reference	**833079 002**	**833079 007**	**833079 009**	**833079 010**	**833079 011**
				Customer Sample Reference	**TP2 ES1 @ 0.50m**	**TP9 ES1 @ 1.20m**	**CP01 WAC2 @ 0.30m**	**CP03 ES1 @ 0.50m**	**CP03 WAC1 @ 0.50m**
				Test Sample	**M105**	**M105**	**M105**	**M105**	**M105**
				Date Sampled	**02-JUL-2019**	**03-JUL-2019**	**01-JUL-2019**	**03-JUL-2019**	**03-JUL-2019**
				Matrix Class	**Sandy Soil**	**Clay**	**Sandy Soil**	**Sandy Soil**	**Sandy Soil**
Determinand	**Method**	**LOD**	**Units**	**Symbol**					
Polychlorinated biphenyl BZ#28	GC/MS	20	µg/kg	M	<20	**32**	<20	<20	<20
Polychlorinated biphenyl BZ#52	GC/MS	20	µg/kg	M	<20	<20	<20	<20	<20
Polychlorinated biphenyl BZ#101	GC/MS	20	µg/kg	M	<20	<20	<20	<20	<20
Polychlorinated biphenyl BZ#118	GC/MS	20	µg/kg	M	<20	<20	<20	<20	<20
Polychlorinated biphenyl BZ#153	GC/MS	20	µg/kg	M	<20	<20	<20	<20	<20
Polychlorinated biphenyl BZ#138	GC/MS	20	µg/kg	M	<20	<20	<20	<20	<20
Polychlorinated biphenyl BZ#180	GC/MS	20	µg/kg	M	<20	<20	<20	<20	<20

Index to symbols used in 833079-1 WAC

Value	Description
10:1 S	Data for BS EN 12457-2 (10:1)
A40	Assisted dried < 40C
AR	As Received
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
13	Results have been blank corrected.
3	LOD Raised Due to Elevated Blank
M	Analysis is MCERTS accredited
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

pH, LOI & TOC were performed on assisted dried samples (<40 degree centigrade). All other results relate to samples tested as received and moisture corrected to 105C.
Retained on 2mm is removed before analysis

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Concept Life Sciences

Certificate of Analysis

3 Crittall Drive
Springwood Industrial Estate
Braintree
Essex
CM7 2RT
Tel : 01376 560120
Fax : 01376 552923

Report Number: 835753-1

Date of Report: 25-Jul-2019

Customer: TerraConsult (South) Limited
9 The Courtyard
Phoenix Square
Wyncolls Road
Colchester
CO4 9PE

Customer Contact: Mr Adam Steele

Customer Job Reference: 4521
Customer Purchase Order: PO-005375
Customer Site Reference: Hampshire MRF
Date Job Received at Concept: 19-Jul-2019
Date Analysis Started: 22-Jul-2019
Date Analysis Completed: 25-Jul-2019

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

Customers are responsible for information provided where, if incorrect, it could affect the validity of the results.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with QMSection 15 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Mr Simon Wicks
Technical Lead

Issued by :
Aislinn Arthey
Customer Service Advisor

Concept Reference: 835753
Project Site: Hampshire MRF
Customer Reference: 4521

Water Analysed as Water
TerraConsult 4

					Concept Reference	835753 001	835753 002
					Customer Sample Reference	CP01	CP03
					Date Sampled	16-JUL-2019	16-JUL-2019
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
As (Dissolved)	T281	F	0.0002	mg/l		**0.0009**	**0.0003**
B (Dissolved)	T281	F	0.05	mg/l		<0.05	**0.06**
Cd (Dissolved)	T281	F	0.00002	mg/l		<0.00002	**0.00004**
Cr (Dissolved)	T281	F	0.001	mg/l		<0.001	<0.001
Cu (Dissolved)	T281	F	0.0005	mg/l		**0.0031**	**0.0056**
Pb (Dissolved)	T281	F	0.0003	mg/l		<0.0003	**0.0004**
Hg (Dissolved)	T281	F	0.00005	mg/l		<0.00005	<0.00005
Ni (Dissolved)	T281	F	0.001	mg/l		**0.003**	**0.003**
Se (Dissolved)	T281	F	0.0005	mg/l		<0.0005	**0.0052**
Zn (Dissolved)	T281	F	0.002	mg/l		**0.003**	**0.004**
pH	T7	F				**7.82**	**7.89**
Electrical Conductivity	T7	AR	1	µS/cm		**970**	**1000**
Sulphate	T686	F	0.5	mg/l		**99**	**33**
Ammoniacal nitrogen	T686	F	0.05	mg/l		**0.43**	**0.27**
Chloride	T686	F	1	mg/l		**73**	**140**
Nitrate	T686	F	0.5	mg/l		<0.5	**19**
Alkalinity expressed as CaCO3	T22	F	20	mg/l		**370**	**280**
Total Hardness expressed as CaCO3	T649	F	10	mg/l		**470**	**330**
Cyanide(Total)	T546	F	0.01	mg/l		<0.01	<0.01
Phenols(Mono)	T546	F	0.02	mg/l		<0.02	<0.02

Concept Reference: 835753
Project Site: Hampshire MRF
Customer Reference: 4521

Water Analysed as Water
Total and Speciated USEPA16 PAH (SE)

					Concept Reference	835753 001	835753 002
					Customer Sample Reference	CP01	CP03
					Date Sampled	16-JUL-2019	16-JUL-2019
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Naphthalene	T149	AR	0.01	µg/l		<0.10[3,13]	<0.10[13,3]
Acenaphthylene	T149	AR	0.01	µg/l		<0.01	<0.01
Acenaphthene	T149	AR	0.01	µg/l		<0.01	<0.01
Fluorene	T149	AR	0.01	µg/l		<0.01	<0.01
Phenanthrene	T149	AR	0.01	µg/l		**0.01**	<0.01
Anthracene	T149	AR	0.01	µg/l		<0.01	<0.01
Fluoranthene	T149	AR	0.01	µg/l		<0.01	<0.01
Pyrene	T149	AR	0.01	µg/l		<0.01	<0.01
Benzo(a)Anthracene	T149	AR	0.01	µg/l		<0.01	<0.01
Chrysene	T149	AR	0.01	µg/l		<0.01	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	µg/l		<0.01	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	µg/l		<0.01	<0.01
Benzo(a)Pyrene	T149	AR	0.01	µg/l		<0.01	<0.01
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l		<0.01	<0.01
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l		<0.01	<0.01
Benzo(ghi)Perylene	T149	AR	0.01	µg/l		<0.01	<0.01
PAH(total)	T149	AR	0.01	µg/l		<0.10[3]	<0.10[3]

Concept Reference: 835753
Project Site: Hampshire MRF
Customer Reference: 4521

Water Analysed as Water
TPH (CWG) SE

Concept Reference	**835753 001**	**835753 002**
Customer Sample Reference	**CP01**	**CP03**
Date Sampled	**16-JUL-2019**	**16-JUL-2019**

Determinand	Method	Test Sample	LOD	Units		
TPH (C5-C6 aliphatic)	T54	AR	0.020	mg/l	<0.020	<0.020
TPH (C6-C7 aromatic)	T54	AR	0.020	mg/l	<0.020	<0.020
TPH (C6-C8 aliphatic)	T54	AR	0.020	mg/l	<0.020	<0.020
TPH (C7-C8 aromatic)	T54	AR	0.020	mg/l	<0.020	<0.020
TPH (C8-C10 aliphatic)	T54	AR	0.020	mg/l	<0.020	<0.020
TPH (C8-C10 aromatic)	T54	AR	0.020	mg/l	<0.020	<0.020
TPH (C10-C12 aliphatic)	T219	AR	0.01	mg/l	**0.02**	**0.03**
TPH (C10-C12 aromatic)	T219	AR	0.01	mg/l	**0.02**	**0.02**
TPH (C12-C16 aliphatic)	T219	AR	0.01	mg/l	**0.01**	**0.02**
TPH (C12-C16 aromatic)	T219	AR	0.01	mg/l	**0.02**	**0.02**
TPH (C16-C21 aliphatic)	T219	AR	0.01	mg/l	<0.01	**0.02**
TPH (C16-C21 aromatic)	T219	AR	0.01	mg/l	**0.03**	**0.04**
TPH (C21-C35 aliphatic)	T219	AR	0.01	mg/l	**0.01**	**0.04**
TPH (C21-C35 aromatic)	T219	AR	0.01	mg/l	**0.06**	**0.08**

Concept Reference: 835753
Project Site: Hampshire MRF
Customer Reference: 4521

Water Analysed as Water
VOC (SE)

					Concept Reference	835753 001	835753 002
					Customer Sample Reference	CP01	CP03
					Date Sampled	16-JUL-2019	16-JUL-2019
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
1,1,1-Trichloroethane	T54	AR	1	µg/l		<1	<1
1,1,2,2-Tetrachloroethane	T54	AR	1	µg/l		<1	<1
1,2,4-Trichlorobenzene	T54	AR	1	µg/l		<1	<1
Bromobenzene	T54	AR	1	µg/l		<1	<1
Hexachlorobutadiene	T54	AR	1	µg/l		<1	<1
Trichlorofluoromethane	T54	AR	1	µg/l		<1	<1
1,1,2-Trichloroethane	T54	AR	1	µg/l		<1	<1
Bromodichloromethane	T54	AR	1	µg/l		<1	<1
Dibromochloromethane	T54	AR	1	µg/l		<1	<1
Methyl tert-Butyl Ether	T54	AR	1	µg/l		<1	<1
Trans-1,2-Dichloroethene	T54	AR	1	µg/l		<1	<1
m/p ethyl toluene	T54	AR	5	µg/l		<5	<5
1,1,1,2-Tetrachloroethane	T54	AR	1	µg/l		<1	<1
1,1-Dichloropropene	T54	AR	1	µg/l		<1	<1
1,2,4-Trimethylbenzene	T54	AR	1	µg/l		<1	<1
1,2-Dibromo-3-Chloropropane	T54	AR	1	µg/l		<1	<1
1,2-Dichloroethane	T54	AR	1	µg/l		<1	<1
Carbon tetrachloride	T54	AR	1	µg/l		<1	<1
Chloroethane	T54	AR	1	µg/l		<1	<1
Dibromomethane	T54	AR	1	µg/l		<1	<1
Tetrachloroethene	T54	AR	1	µg/l		<1	<1
1,2-dibromoethane	T54	AR	1	µg/l		<1	<1
1,3,5-Trimethylbenzene	T54	AR	1	µg/l		<1	<1
2-Chlorotoluene	T54	AR	1	µg/l		<1	<1
Benzene	T54	AR	1	µg/l		<1	<1
Chlorobenzene	T54	AR	1	µg/l		<1	<1
Chloromethane	T54	AR	1	µg/l		<1	<1
Dichlorodifluoromethane	T54	AR	1	µg/l		<1	<1
Isopropyl benzene	T54	AR	1	µg/l		<1	<1
O Xylene	T54	AR	1	µg/l		<1	<1
Tertiary amyl methyl ether	T54	AR	1	µg/l		<1	<1
1,2,3-Trichlorobenzene	T54	AR	1	µg/l		<1	<1
1,2-Dichloropropane	T54	AR	1	µg/l		<1	<1
Ethyl-2-Methylbenzene	T54	AR	5	µg/l		<5	<5
4-Chlorotoluene	T54	AR	1	µg/l		<1	<1
Bromoform	T54	AR	1	µg/l		<1	<1
Bromomethane	T54	AR	1	µg/l		<1	<1
EthylBenzene	T54	AR	1	µg/l		<1	<1
T-Butylbenzene	T54	AR	1	µg/l		<1	<1
Trans-1,3-Dichloropropene	T54	AR	1	µg/l		<1	<1
n-Butylbenzene	T54	AR	1	µg/l		<1	<1
1,2-Dichlorobenzene	T54	AR	1	µg/l		<1	<1
1,3-Dichlorobenzene	T54	AR	1	µg/l		<1	<1
2,2-Dichloropropane	T54	AR	1	µg/l		<1	<1
S-Butylbenzene	T54	AR	1	µg/l		<1	<1
n-Propylbenzene	T54	AR	1	µg/l		<1	<1
1,1-Dichloroethane	T54	AR	1	µg/l		<1	<1
1,4-Dichlorobenzene	T54	AR	1	µg/l		<1	<1
Bromochloromethane	T54	AR	1	µg/l		<1	<1
Chloroform	T54	AR	1	µg/l		<1	<1
M/P Xylene	T54	AR	1	µg/l		<1	<1
Toluene	T54	AR	1	µg/l		<1	<1
Trichloroethene	T54	AR	1	µg/l		<1	<1
Vinyl chloride	T54	AR	1	µg/l		<1	<1
p-Isopropyltoluene	T54	AR	1	µg/l		<1	<1
1,1-Dichloroethylene	T54	AR	1	µg/l		<1	<1
1,2,3-Trichloropropane	T54	AR	1	µg/l		<1	<1
1,3-Dichloropropane	T54	AR	1	µg/l		<1	<1
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l		<1	<1
Cis-1,3-Dichloropropene	T54	AR	1	µg/l		<1	<1

Concept Reference: 835753
Project Site: Hampshire MRF
Customer Reference: 4521

Water Analysed as Water
VOC (SE)

Concept Reference	**835753 001**	**835753 002**
Customer Sample Reference	**CP01**	**CP03**
Date Sampled	**16-JUL-2019**	**16-JUL-2019**

Determinand	Method	Test Sample	LOD	Units		
Styrene	T54	AR	1	µg/l	<1	<1

Index to symbols used in 835753-1

Value	Description
AR	As Received
F	Filtered
3	LOD Raised Due to Elevated Blank
13	Results have been blank corrected.
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T649	ICP/OES (Calc)
T546	Colorimetry (CF)
T149	GC/MS (SIR)
T686	Discrete Analyser
T54	GC/MS (Headspace)
T219	GC/FID (SE)
T281	ICP/MS (Filtered)
T22	Titration
T7	Probe

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
As (Dissolved)	T281	F	0.0002	mg/l	U	001-002
B (Dissolved)	T281	F	0.05	mg/l	U	001-002
Cd (Dissolved)	T281	F	0.00002	mg/l	U	001-002
Cr (Dissolved)	T281	F	0.001	mg/l	U	001-002
Cu (Dissolved)	T281	F	0.0005	mg/l	U	001-002
Pb (Dissolved)	T281	F	0.0003	mg/l	U	001-002
Hg (Dissolved)	T281	F	0.00005	mg/l	U	001-002
Ni (Dissolved)	T281	F	0.001	mg/l	U	001-002
Se (Dissolved)	T281	F	0.0005	mg/l	U	001-002
Zn (Dissolved)	T281	F	0.002	mg/l	U	001-002
pH	T7	F			U	001-002
Electrical Conductivity	T7	AR	1	µS/cm	U	001-002
Sulphate	T686	F	0.5	mg/l	U	001-002
Ammoniacal nitrogen	T686	F	0.05	mg/l	U	001-002
Chloride	T686	F	1	mg/l	U	001-002
Nitrate	T686	F	0.5	mg/l	U	001-002
Alkalinity expressed as CaCO3	T22	F	20	mg/l	U	001-002
Total Hardness expressed as CaCO3	T649	F	10	mg/l	U	001-002
Cyanide(Total)	T546	F	0.01	mg/l	U	001-002
Phenols(Mono)	T546	F	0.02	mg/l	U	001-002
Naphthalene	T149	AR	0.01	µg/l	U	001-002
Acenaphthylene	T149	AR	0.01	µg/l	U	001-002
Acenaphthene	T149	AR	0.01	µg/l	U	001-002
Fluorene	T149	AR	0.01	µg/l	U	001-002
Phenanthrene	T149	AR	0.01	µg/l	U	001-002
Anthracene	T149	AR	0.01	µg/l	U	001-002
Fluoranthene	T149	AR	0.01	µg/l	U	001-002
Pyrene	T149	AR	0.01	µg/l	U	001-002

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Benzo(a)Anthracene	T149	AR	0.01	µg/l	U	001-002
Chrysene	T149	AR	0.01	µg/l	U	001-002
Benzo(b)fluoranthene	T149	AR	0.01	µg/l	N	001-002
Benzo(k)fluoranthene	T149	AR	0.01	µg/l	U	001-002
Benzo(a)Pyrene	T149	AR	0.01	µg/l	U	001-002
Indeno(123-cd)Pyrene	T149	AR	0.01	µg/l	U	001-002
Dibenzo(ah)Anthracene	T149	AR	0.01	µg/l	U	001-002
Benzo(ghi)Perylene	T149	AR	0.01	µg/l	U	001-002
PAH(total)	T149	AR	0.01	µg/l	N	001-002
TPH (C5-C6 aliphatic)	T54	AR	0.020	mg/l	N	001-002
TPH (C6-C7 aromatic)	T54	AR	0.020	mg/l	N	001-002
TPH (C6-C8 aliphatic)	T54	AR	0.020	mg/l	N	001-002
TPH (C7-C8 aromatic)	T54	AR	0.020	mg/l	N	001-002
TPH (C8-C10 aliphatic)	T54	AR	0.020	mg/l	N	001-002
TPH (C8-C10 aromatic)	T54	AR	0.020	mg/l	N	001-002
TPH (C10-C12 aliphatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C10-C12 aromatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C12-C16 aliphatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C12-C16 aromatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C16-C21 aliphatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C16-C21 aromatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C21-C35 aliphatic)	T219	AR	0.01	mg/l	N	001-002
TPH (C21-C35 aromatic)	T219	AR	0.01	mg/l	N	001-002
1,1,1,2-Tetrachloroethane	T54	AR	1	µg/l	N	001-002
1,1,1-Trichloroethane	T54	AR	1	µg/l	U	001-002
1,1,2,2-Tetrachloroethane	T54	AR	1	µg/l	N	001-002
1,1,2-Trichloroethane	T54	AR	1	µg/l	U	001-002
1,1-Dichloroethane	T54	AR	1	µg/l	U	001-002
1,1-Dichloroethylene	T54	AR	1	µg/l	U	001-002
1,1-Dichloropropene	T54	AR	1	µg/l	U	001-002
1,2,3-Trichlorobenzene	T54	AR	1	µg/l	U	001-002
1,2,3-Trichloropropane	T54	AR	1	µg/l	N	001-002
1,2,4-Trichlorobenzene	T54	AR	1	µg/l	U	001-002
1,2,4-Trimethylbenzene	T54	AR	1	µg/l	U	001-002
1,2-Dibromo-3-Chloropropane	T54	AR	1	µg/l	N	001-002
1,2-Dichlorobenzene	T54	AR	1	µg/l	U	001-002
1,2-Dichloroethane	T54	AR	1	µg/l	U	001-002
1,2-Dichloropropane	T54	AR	1	µg/l	U	001-002
1,2-dibromoethane	T54	AR	1	µg/l	N	001-002
1,3,5-Trimethylbenzene	T54	AR	1	µg/l	U	001-002
1,3-Dichlorobenzene	T54	AR	1	µg/l	U	001-002
1,3-Dichloropropane	T54	AR	1	µg/l	U	001-002
1,4-Dichlorobenzene	T54	AR	1	µg/l	U	001-002
Ethyl-2-Methylbenzene	T54	AR	5	µg/l	U	001-002
2,2-Dichloropropane	T54	AR	1	µg/l	U	001-002
2-Chlorotoluene	T54	AR	1	µg/l	U	001-002
4-Chlorotoluene	T54	AR	1	µg/l	U	001-002
Benzene	T54	AR	1	µg/l	U	001-002
Bromobenzene	T54	AR	1	µg/l	U	001-002
Bromochloromethane	T54	AR	1	µg/l	U	001-002
Bromodichloromethane	T54	AR	1	µg/l	U	001-002
Bromoform	T54	AR	1	µg/l	N	001-002
Bromomethane	T54	AR	1	µg/l	U	001-002
Carbon tetrachloride	T54	AR	1	µg/l	U	001-002
Chlorobenzene	T54	AR	1	µg/l	U	001-002
Chloroethane	T54	AR	1	µg/l	U	001-002
Chloroform	T54	AR	1	µg/l	U	001-002
Chloromethane	T54	AR	1	µg/l	U	001-002
Cis-1,2-Dichloroethylene	T54	AR	1	µg/l	U	001-002
Cis-1,3-Dichloropropene	T54	AR	1	µg/l	U	001-002
Dibromochloromethane	T54	AR	1	µg/l	U	001-002
Dibromomethane	T54	AR	1	µg/l	U	001-002
Dichlorodifluoromethane	T54	AR	1	µg/l	N	001-002
EthylBenzene	T54	AR	1	µg/l	U	001-002
Hexachlorobutadiene	T54	AR	1	µg/l	N	001-002
Isopropyl benzene	T54	AR	1	µg/l	U	001-002
M/P Xylene	T54	AR	1	µg/l	U	001-002
Methyl tert-Butyl Ether	T54	AR	1	µg/l	U	001-002
O Xylene	T54	AR	1	µg/l	U	001-002
S-Butylbenzene	T54	AR	1	µg/l	U	001-002

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Styrene	T54	AR	1	µg/l	U	001-002
T-Butylbenzene	T54	AR	1	µg/l	U	001-002
Tertiary amyl methyl ether	T54	AR	1	µg/l	U	001-002
Tetrachloroethene	T54	AR	1	µg/l	U	001-002
Toluene	T54	AR	1	µg/l	U	001-002
Trans-1,2-Dichloroethene	T54	AR	1	µg/l	U	001-002
Trans-1,3-Dichloropropene	T54	AR	1	µg/l	U	001-002
Trichloroethene	T54	AR	1	µg/l	U	001-002
Trichlorofluoromethane	T54	AR	1	µg/l	U	001-002
Vinyl chloride	T54	AR	1	µg/l	U	001-002
m/p ethyl toluene	T54	AR	5	µg/l	U	001-002
n-Butylbenzene	T54	AR	1	µg/l	U	001-002
n-Propylbenzene	T54	AR	1	µg/l	U	001-002
p-Isopropyltoluene	T54	AR	1	µg/l	U	001-002









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