enzygo
environmental consultants



Geo-Environmental Report

Shripney Road, Bognor Regis, PO22 9NG

for:

Simpson Associates

'Experience and expertise working in unison'

www.enzygo.com

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enzygo

AGS Association of Geotechnical & Geoenvironmental Specialists

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Geo-Environmental Report

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For:	Simpson Associates
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Executive Summary

Proposed Development

A restaurant is proposed.

Investigation

Site works were undertaken by Enzygo Ltd. in October 2014, together with a desk study, monitoring and preliminary soil infiltration testing. This was supplemented by an further investigation in 2016.

Ground Conditions

Ground conditions were noted to comprise Made Ground over River Terrace Deposits and structureless Chalk to 3.50m bgl and Grade C Chalk and Grade B Chalk below 3.50m bgl. Groundwater was encountered at depths of between 1m and 1.7m bgl.

Contamination

Asbestos and Dibenzo(a,h)Anthracene have been identified within the Made Ground. It is recommended that cover soils are provided to soft landscape areas. Elevated PAH have been measured in shallow groundwater and as such if piled foundations are adopted CFA piles should be used supported by a pile risk assessment.

Foundations

Piled foundations are considered viable options.

Re-use of Materials

Soils are not considered suitable for re-use as an engineered fill.

Buried Concrete

It is considered that Class A1-s conditions of Special Digest 1 can be used.

Drainage

Soakaways are not recommended.

Gas and Radon

No radon risk identified. It is recommended that a vapour membrane is used to the ground floor slab due to elevated Methane and presence of Dibenzo(a,h)Anthracene.

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1.0 INTRODUCTION

Background

1.1 Enzygo Limited has been commissioned by Simpson Associates to prepare a Geo-Environmental Report for a proposed restaurant on a site in Shripney Road, Bognor Regis, West Sussex.

Proposed Development

1.2 The proposed development is shown on Drawing 3579/F3 prepared by Axiom Architects. The proposed layout drawing has been incorporated in to the site plan prepared by Enzygo, which is presented as Drawing CRM.413.111.D.002.

Objectives

1.3 The objectives of the study are to:

- Review historical plans, geology, hydrogeology, site sensitivity, mining records and any local authority information available in order to complete a Desk Study;
- Review any existing site investigation information made available;
- Undertake a targeted ground investigation;
- Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors; and
- Provide a factual and interpretative report relating to the desk study and site investigations. Provide a revised conceptual model and recommendations on any potential development issues and mitigation measures, where appropriate.
- Provide geotechnical recommendations in relation to foundations and infrastructure.

Risk Classification

1.4 Enzygo has utilised the available information, together with our experience to assess the likely risks to development from land quality issues. Definitions of the risk terms used are provided on the following table.

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Risk	Description
Negligible	No contamination risk has been identified which is likely to affect development.
Low	No significant contaminated land risks have been encountered affecting development and a low risk that remediation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issue associated with the site which will adversely affect its re-development. However, minor or localised contamination may be present requiring remediation. Remediation should be possible under a discovery strategy and with a call out service.
Moderate	Some potential contaminated land risks have been encountered or identified which may affect re- development. The risks identified are unlikely to affect the entire site or preclude development. Remediation is considered feasible as part of the development process and no further investigation is considered necessary.
Moderate-High	Some potentially significant contaminated land risks have been identified at the property that requires remediation. It is recommended that a separate remedial methodology is prepared supported by a site specific risk assessment
High	Significant potential contaminated land risks have been identified and remediation is required supported by further intrusive ground investigation, risk assessment and remedial design.

1.5 Where adverse risks from ground instability are identified these are discussed within the report.

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2.0 SITE SETTING

Site Description

Item	Description
Site Address	Shripney Road, Bognor Regis, West Sussex, PO22 9NG.
National Grid Reference	494212,100848
Site Area	0.4 ha

Current Site Description

2.1 The following site description has been compiled from the site inspection of the proposed extension area undertaken by Enzygo staff, together with current maps and aerial photographs.

2.2 At the time of the ground investigation the site was occupied by Polestar Refrigeration Services Ltd, for the manufacture of specialist refrigeration plant.

2.3 The site comprises a three storey commercial building within the north west corner with the remainder of the land being occupied by hardstanding. The building is of brick and corrugated metal sheet construction and appears to be used for offices and distribution.

2.4 Hardstanding is of gravel, concrete and tarmac construction. Drainage pots and gullies were noted. At the time of the inspection the hardstanding was used for car parking and also delivery lorries.

2.5 To the north east of the building empty drums, gas cylinders and a chemical store were noted. A substation is present to the east of the building. This is of modern construction with a concrete base slab and therefore is not considered to pose a risk.

2.6 The eastern area of the site was used to store materials including timber pallets and shipping containers.

2.7 Commercial and retail units are present to the north west of the site, including a tyre centre located approximately 20m north west of the site. An area of tarmac covered car parking is present to the south west of the site and is separated from the site by a dwarf brick wall.

2.8 An access road is present to the south east of the site with a supermarket car park beyond. Hardstanding and a railway line are present to the north east.

2.9 No evidence of fuel tanks were noted on site and no evidence of spillages were identified.

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2.10 During the supplementary investigation the buildings described in the initial investigation had been demolished and there was no evidence of a demolition materials or concrete spoil heaps.

Surrounding Area

2.11 The surrounding land uses are summarised as follows:

Direction	Land Use
North West	Commercial and retail units.
North East	Hardstanding and railway beyond.
South West	Tarmac car park.
South East	Road and supermarket beyond.

2.12 There is minimal risk of contamination from drums on site and localised spillage, although no evidence of spillages were noted.

2.13 The tyre centre is considered to be located too far from the site to be a significant risk.

2.14 No other significant sources of contamination were identified on or adjacent to the site.

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3.0 SITE HISTORY

3.1 A review of historical Ordnance Survey maps and information pertinent to the site of the annex and within a 250m radius is summarised below:

Potentially Contaminative Historical Land Use		
Map Edition	On Site	Surrounding Area
1876	Field. Building within E area of site & building in SW corner of site. Track trending SW to NE across site.	Road 0m SW with fields beyond. Fields 0m NE, SE & NW. Railway line 100m. Water course 100m SW. Pond 130m SE. Pond 50m SW.
1898	Building in E extended and called Brook Gate.	No change.
1912	No change.	No change.
1932	No change.	Houses 100m NW. Gas works 100m SW. Road 0m W called Shrimpney Road.
1939	No change.	Shrimpney Road widened. Building 20m W. Houses 50m SW. Nursery 150m NW. Gas works 100m SW no longer shown. Pond 50m SW infilled as part of Shrimpney Road widening.
1961	Factory.	Factory 0m NW, NE, SE. Road 0m SW. Commercial building 10m SW. Works buildings 100m SW. Caravan park 100m W and 130m NW on old nursery. Tanks 250m SW. Refuse tip 120m NW
1967	No change.	Factory to SE shown as Refrigeration Equipment Factory.
1973	No change.	Excavation 80m SW. Airfield 100m E.
1989	No change.	Retail park 100m W. Excavation 80m SE no longer shown. Refuse tip (disused) 80m E on area of worked ground.
1991	Factory extended.	No change.
1993	No change.	No change.
2002	No change.	Refuse tips no longer shown.
2012	No change.	No change.
2014	Factory building reduced.	Factory to SE no longer shown.

3.2 There are moderate contamination risks associated with the former factory buildings on and adjacent to the site.

3.3 There is a low risk of ground gas from the former refuse tips. This is considered low due to the tips appearing to be land raises and being located 80m from the site.

3.4 The risk from the former gas works is considered negligible given the distance from the site.

3.5 The pond 50m south west is likely to have been infilled with engineering material during the road widening and as such the potential infill is not considered a significant risk.

3.6 No other significant risks are identified at or adjacent to the site.

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4.0 ENVIRONMENTAL SETTING

Ground Conditions

4.1 The British Geological Survey (BGS) indicates that the hotel extension is underlain by the following geological sequence:

Geological Unit	Type	Description	Aquifer Classification
Drift.	River Terrace Deposits.	Clay, Sand and Silt.	Secondary A
Drift (SW edge of site).	Raised Marine Deposits	Clay, Gravel, Sand and Silt	
Solid.	Lewes Nodular Chalk Formation.	Chalk.	Principal.

4.2 No faults are present on the site.

4.3 Made Ground is not identified below or within 500m of the site.

4.4 There are no records of landslips within 500m of the site.

4.5 BGS borehole records are not available close to the site.

4.6 Records of background soil chemistry do not show any elevated concentrations.

Groundwater

4.7 The recorded permeability of the drift geology is very low to high reflecting the mixed nature of the deposits. The recorded permeability of the solid geology is very high reflecting fracture flow within structured Chalk. The Chalk weathers near surface to a low permeability matrix dominant material.

4.8 The GroundSure Report shows that the site is not located within a Source Protection Zone.

4.9 There are no groundwater abstraction wells within 1000m of the site and no potable abstractions within 2km of the site.

4.10 The site is shown by the BGS as being at risk from groundwater flooding below surface. As such this is unlikely to impact development unless they incorporate basements. No springs have been identified near to the site and as such risk from groundwater flooding is considered negligible.

Mining

4.11 No historical or current coal mining extraction has been identified within 1000m of the site.

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4.12 No other mining activities are identified within 1000m of the site.

Natural Cavities

4.13 No natural cavities are identified within 1000m of the site.

Ground workings

4.14 No ground workings additional to those discussed within the historical map search have been identified within 250m of the site. No new risks are identified.

Hydrology

4.15 There are no water courses on the site. The nearest surface water course is a Secondary River located approximately 70m east of the site and separated from it by the railway. It is understood that site drainage discharges to this water course.

4.16 There are no surface water abstraction within 500m of the site.

4.17 The site is located within Flood Zone 2.

Radon Risk Potential

4.18 The Groundsure Report indicates that no precautions are necessary to protect against Radon.

Natural Hazards Finding

4.19 BGS information presented within the Groundsure Geoinsight report identifies the following ground conditions:

Hazard	Risk Rating (Very Low/Low/Moderate)
Coal Mining	No Risk identified.
Collapsible Ground	Very Low/Low.
Compressible Ground	Negligible.
Ground Dissolution	Very Low.
Landslide	Very Low.
Running Sand	Very Low/Low.
Swelling / Shrinking Clay	Low/Negligible.

4.20 No significant ground risks are identified.

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Sensitive Land Uses

4.21 The site comprises a commercial property surrounded by employment uses.

4.22 There are no ecological sensitive designations on or close to the site.

4.23 English Heritage has not identified any listed buildings or scheduled ancient monuments on the site.

Environmental Sensitivity

4.24 Overall the site is currently considered to be of **Low/Moderate** sensitivity due to the following:

- The underlying stratum is classified as an Undifferentiated Secondary Aquifer which depending on the nature of the soils may provide base-flow to water courses;
- This is underlain by a Principal Aquifer;
- The site is not within a Source Protection Zone and there are no groundwater abstractions within 1000m of the site; and
- A water course is present approximately 70m east of the site in to which surface water drainage discharges.

4.25 The proposed end use of the site is for a commercial use and so the future sensitivity will be low for end users.

Industrial Land Uses.

4.26 Numerous industrial uses are identified within 250m of the site pertaining to the factories shown on the historical map search. Specific uses include: refrigeration equipment (on site), garage services, electrical features, industrial products and haulage.

4.27 A substation is identified within the south of the site. No substation was noted during site works and it is likely that this was removed during demolition of part of the old factory buildings. The sub-station to the east of the building is identified but this risk is already dismissed within the Site Description Section.

4.28 There is one petrol filling stations within 250m of the site. This is located within the Sainsbury development 53m south. This fuel station is of modern construction and as such will have double skinned tanks and leak detection equipment. Therefore the risk from the fuel filling station is dismissed.

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4.29 There are no high pressure pipelines within 500m of the site.

4.30 No new risks have been identified from the register of industrial activities.

Regulatory Database

4.31 The following information has been obtained from a commercially available environmental database. The summary table only includes records not otherwise detailed in the report.

Environmental Permits, Incidents and Registers	0 - 250m	250 - 500m	Details
Site determined as contaminated land	0	0	Not Applicable.
Authorised industrial processes	4	3	Di-isocyanate Process permitted on the LEC Refrigeration site 24m SE. Permit revoked and no enforcement reported.
Registered radioactive substances	0	0	Not Applicable.
Enforcements, prohibitions or prosecutions	0	0	Not Applicable.
Pollution Incidents	0	9	Category 3 (Minor) and Category 4 (none) impacts. Nearest 294m SW and not considered a risk.
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	Not Applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites	0	0	Not Applicable.
Records of Licensed Discharge Consents	1	18	Effluent and sewage discharge to surface water courses. Nearest located 169m W and not considered a risk.

4.32 No significant risks to the site have been identified. No enforcement action has been identified in relation to the refrigeration factory which formerly occupied the site and surrounding immediate area.

Landfill Sites and Waste Treatment Sites

4.33 There are no operational landfills within 500m of the site. The following historic landfills have been identified:

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Name	Distance	Waste Type	Details
LEC Refrigeration	71m E	Inert, industrial & sludge.	Refuse tips identified on historical maps. With the absence of putrescible waste risk to the site from ground gas is dismissed. Leachate unlikely to impact the site.
LEC Refrigeration	121m E	Inert, industrial & sludge	
Shripney Road	293m S	Inert, industrial & household.	Separated from the site by water course which will act as a barrier to potential gas and leachate migration.

4.34 Refuse destructor and amenity site are located approximately 300m south associated with Shripney Road landfill. No other waste treatment facilities are identified within 500m of the site.

4.35 There are no new risks identified from waste operations.

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5.0 EXISTING REPORTS

General

5.1 A report entitled 'Retained Land, Bognor Regis Statement of Known Ground Conditions' was prepared by WYG Environment and provided by the Vendor. This report provides a summary of the retained land, which includes this site, to support proposed divestment.

5.2 The WYG Environment report was based on a site inspection, desk study review and historic site investigations undertaken by WYG Environment. Copies of the site investigation reports were not provided and so could not be independently verified by Enzygo Ltd.

Historical Land Use

5.3 The southern area of the site was occupied by the LEC Refrigeration for manufacturing process which included degreasing, painting, elector plating and ancillary processes.

5.4 The site is reported to have been used for administrative buildings to the LEC Refrigeration factory. The main manufacturing activities are understood to have been undertaken within the main facility to the south and east of the site.

Current Land Use

5.5 Current activities on site use hydrocarbons stored in drums, Di-Isocyanate, Methylene Chloride. Chemicals are reported to be appropriately stored on site with no spillage noted and no pollution reported.

Ground and Groundwater Conditions

5.6 WYG Environmental report ground conditions to comprise Made Ground over River Terrace Deposits and Chalk. The Chalk is confirmed as being weathered near surface.

5.7 It is reported that the site was subject to remediation and that the remedial works and that the Environment Agency confirm that the site no longer poses potential risk to controlled waters (groundwater and surface water) from shallow soils.

5.8 The deep Chalk aquifer beneath the site and surrounding area is reported to be impacted by chlorinated solvents originating from the LEC Factory.

5.9 No additional monitoring or remediation of the solvents within the Chalk Aquifer is identified by the Environment Agency.

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6.0 PRELIMINARY CONCEPTUAL MODEL

Source	Pathway	Receptor/Receptors	Potential Receptor	Assessment of Risk	Rationale
Human Health					
Asbestos, metals and hydrocarbons.	Made Ground	Ingestion dermal and inhalation.	Construction Workers.	Dismissed	Normal construction PPE will address risk under COM.
			Site users.	Negligible.	Site remediated and any residual source likely to be localised.
Solvents, hydrocarbon and metals.	Potential localised spillage on site from current use.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under COM.
			Site users.	Negligible.	No source identified and appropriate storage identified. Any source likely to be localised.
Solvents, hydrocarbon and metals.	Historic use.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under COM.
			Site users.	Negligible.	Site used as offices. Factory only encroaches on southern part of site. Former factory remediated.
PCB	Old sub-station.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under COM.
			Site users.	Negligible.	Appears to have been removed and likely that any spillage would be remediated as part of these works.
Solvents	Deep Chalk Aquifer	Inhalation	Construction Workers.	Dismissed.	Chlorinated solvents are DNAPLs and so there is no pathway to the development unless a new pathway is created.
			Site users.		
Solvents, hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Site remediated.
			Site users.		
Ground Gas.	Landfills	Inhalation & Explosive.	Construction Workers.	Dismissed.	No significant putrescible material likely.
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.		
			Site users.		

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Source	Receptor	Exposure Pathway	Potential Risk Event	Probability of Exposure	Comment
Groundwater					
Solvents, hydrocarbon and metals.	Shallow Soils.	Vertical Migration.	Groundwater.	Dismissed.	Site Remediated to the satisfaction of the Environment Agency.
Surface Water					
Solvents, hydrocarbon and metals.	Shallow Soils.	Horizontal Migration.	River Network.	Dismissed.	Site Remediated to the satisfaction of the Environment Agency.
Environmental Receptors					
On site contaminants	Ingestion dermal and inhalation.		Ecology.	Dismissed.	No sensitive ecology designation.
	Direct.		Archaeology.	Dismissed.	None present.
	Direct.		Geology.	Dismissed.	None present.
	Phytotoxic.		Woodland.	Dismissed.	None present.
	Phytotoxic.		Crops.	Dismissed.	None present.
	Ingestion dermal and inhalation.		Livestock.	Dismissed.	None present.
Building Services					
On site contaminants	Direct.		Historic Buildings.	Dismissed.	None present.
	Direct.		Proposed Buildings.	Dismissed.	No source identified.
	Permeate into pipework.		Water Pipes.	Dismissed.	No source identified.

6.1 Residual risks to site users are identified from a former substation, potential spills and Made Ground on site, although these are considered to be negligible.

6.2 Residual chlorinated solvents identified within the deep Chalk Aquifer are not considered a risk to the proposed development as solvents are Dense None Aqueous Phase Liquids (DNAPLs) which remain at the base of the aquifer and are not soluble. As such they only become a risk to the development is a new pathway is created.

6.3 Remediation of the site has already been undertaken and no further remediation is required by the Environment Agency.

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7.0 SITE INVESTIGATION

General

7.1 A ground investigation was undertaken based on the findings of the desk study and taking account of the proposed development layout.

7.2 The ground investigation is intended to provide geotechnical information to support design of the proposed development and obtain soil quality information to assess need for remedial works to be incorporated in to the scheme.

7.3 An additional ground investigation was undertaken in August 2016 in order to provide piling in formation for the proposed foundations. The additional investigation was undertaken post demolition when it could assess the area underneath the demolished building footprint. The information from the additional ground investigation has been incorporated into this report.

7.3 Site works were undertaken using window sampling boreholes on 11 October 2014 and August 2016. The works undertaken are show on Drawing CRM.413.111.GE.D.002 and summarised in the table below:

Rationale	Exploratory Hole	Notes
Groundwater and gas.	WS1, WS2 & WS4.	Installations.
Foundations to Proposed Building.	WS1 to WS4. BH01	Below or adjacent to the proposed building.
Existing Factory.	WS1 to WS4.	Adjacent to existing Factory.
Old LEC Factory.	WS2.	Within footprint of former factory.
Old sub-station.	WS2.	Adjacent to former sub-station.
Chemical store and drums	WS3.	Adjacent to chemical store and drums.
Former building	WS5.	Building shown on 1961 map.
Former Building	WS3.	Building shown on 1876 map.
Former Building	WS1.	Building shown on 1937 map.
Site coverage	WS1 to WS5.	General.

7.4 Positions of the exploratory holes were limited by site activities and were agreed with the operators to avoid disruption of current operations. No access to the building was feasible during the initial investigation. The additional investigation accessed the demolished building footprint area.

7.5 Where boreholes encountered the top of the Chalk these were sealed within the Chalk using cement/bentonite pellets so that the exploratory holes would not form a potential contaminant pathway.

7.6 The window sampler boreholes were terminated within the upper horizon of this material to prevent the potential creation of a pollutant pathway. This was a requirement of the site vendor.

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7.7 A deeper borehole was drilled using clean drilling techniques into the underlying chalk and therefore not creating any pathway. This borehole was advanced to 15.00mbgl.

7.8 The density of granular soils and shear strength of the cohesive soils was measured using a Standard Penetration Tests (SPT). Results are included on the logs presented in Appendix B.

7.9 Representative soil samples were collected for chemical and geotechnical testing. Soil samples destined for chemical analysis were collected in appropriate containers provided by the analytical laboratory. Samples were stored in cool boxes prior to dispatch to the laboratory for analysis. All samples were collected using appropriate sampling equipment that was cleaned at each sampling location.

7.10 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and also materials displaying evidence of potential contamination.

7.11 In the absence of any evidence of contamination samples were collected near surface as this material is more likely to be contaminated by surface spillages and also will potentially be in contact with future residents.

7.12 Groundwater samples were collected during a return visit to site from installations where sufficient water was present. Recharge of the wells was not sufficiently high to allow installations to be developed or bailed in accordance with British Standards BS6068.

Preliminary Soakaway Test

7.13 A preliminary soakaway test was undertaken in WS4 installation.

Laboratory Testing

7.14 Samples for geotechnical testing were sent to the laboratories of GSSL, which is UKAS accredited, for the following analysis:

- Atterberg Limits determinations; and
- Soluble sulphate and pH.

7.15 Samples for chemical analysis were sent to the Environmental Laboratories Ltd who are NAMAS and MCERTS accredited. Samples were tested for the CLEA metal suite, pH, sulphate, cyanide, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAH), organic carbon, Total Petroleum Hydrocarbon (TPH), Volatile and Semi Volatile Organic Compounds

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(VOC/SVOC) and asbestos screen. Two stage WAC tests, including PCB, were also undertaken to assist with waste classification.

7.16 Leaching tests were also undertaken to allow assessment of the groundwater risk.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken by Enzygo Ltd and RML identified the following strata:

Strata	Summary Description	Thickness (m)
Made Ground	Tarmac over yellow grey clayey sandy flint gravel with fragments of ash, clinker, concrete and brick.	0.8 to 2.6
Drift Deposits	Soft and firm orange brown gravelly sandy CLAY.	0.1 to 0.9
Solid Geology	White structureless matrix dominant CHALK (Grade Dm).	2.0
	White moderately weathered CHALK weak. Fractures very closely spaced infilled with off white comminuted chalk. Occasional flint cobbles - Grade C	2.0
	White slightly weathered CHALK weak, locally moderately weak. Fractures closely spaced often clean and tight, occasionally infilled with comminuted chalk. Occasional flint cobbles - Grade B	In excess of 14.50
Groundwater	Seepages	2.1m to 2.4m bgl.

8.2 Details of the ground and groundwater conditions encountered are given on the exploratory hole records included in Appendix B and are summarised in the sections below:

Made Ground

8.3 Made Ground was encountered across the site and was noted to comprise yellow grey clayey sandy flint gravel with fragments of ash, clinker, concrete and brick. Within areas of hardstanding this was overlain by 50mm of tarmac.

8.4 Made Ground was noted to be deeper within the areas of former buildings indicating that the historic substructures have been grubbed out. No substructures were encountered within the boreholes.

Drift Deposits

8.5 Made Ground was underlain by River Terrace Deposits comprising soft and firm orange brown gravelly sandy clay. Gravel was noted to be flint. Within Borehole WS4 a layer of loose clayey gravel was encountered.

It is considered that this material represents the River Terrace Deposits. No evidence of Raised Marine Deposits was noted although these materials are likely to have been mixed with River Terrace Deposits (Gravel).

Solid Geology

8.6 Solid geology was noted to comprise white structureless matrix dominant Chalk consistent with Grade Dm. This material is likely to represent the weathered Lewes Nodular Chalk Formation. The Grade Dm chalk was proved to a depth of 3.50m bgl.

8.7 The Grade Dm chalk was underlain by Grade C chalk comprised weak white moderately weathered chalk. Fractures very closely spaced infilled with off white comminuted chalk. Occasional flint cobbles - Grade C proved to a depth of 5.50m bgl. This material is likely to represent the Lewes Nodular Chalk Formation.

8.8 The Grade C chalk was underlain by Grade B chalk comprised weak locally moderately weak white slightly weathered chalk. Fractures closely spaced often clean and tight, occasionally infilled with comminuted chalk. Occasional flint cobbles - Grade B and proved to depths in excess of 15.00mbgl. This material is likely to represent the Lewes Nodular Chalk Formation.

Visual and Olfactory Evidence of Contamination

8.9 No visual or olfactory evidence of contamination was encountered during the site works other than ash within the Made Ground.

Soil Strength

8.10 Undrained shear strength of cohesive soils and density of granular soils have been assessed using the Standard Penetration Test (SPT) results. SPT results have been concerted to undrained shear strengths for clay soils using the correlations of Stroud and Butler.

8.11 The River Terrace Deposits were noted to be soft, becoming firm below 1.5m bgl and the Chalk was noted to have SPT blow counts of 8 at 2m bgl, increasing to 11 at 3m bgl and between 16 to 33 from below 3.50m bgl.

Groundwater

8.12 Groundwater was encountered at depths of between 2.1 and 2.4m bgl during the site works. Subsequent monitoring visits are summarised below:

Exploratory Hole	Depth (mbgl)						
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
WS1	Dry	Dry	Dry	0.94	0.89	0.93	0.89
WS2	2.4	1.51	1.52	1.45	1.4	1.33	1.32
WS4	2.1	1.48	1.69	1.64	1.86	1.23	1.21

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Ground Gas

8.13 Ground gas was monitored during the return visits and the results are summarised on the table below:

Exploratory Hole	Atmos Pressure (mb)	Flow (l/hr)	CH4		CO2		O2
			Concentration (%)	GSV (l/hr)	Concentration (%)	GSV (l/hr)	Concentration (%)
16.10.14							
WS1	1006	<0.1	<0.1	<0.0001	<0.1	<0.0001	20.1
WS2	1006	<0.1	2.7	<0.0027	<0.1	<0.0001	15.1
WS4	1006	<0.1	<0.1	<0.0001	0.4	<0.0001	18.9
22.10.14							
WS1	1023	<0.1	<0.1	<0.0001	<0.1	<0.0001	20.3
WS2	1023	<0.1	<0.1	<0.0001	<0.1	<0.0001	19.9
WS4	1023	<0.1	<0.1	<0.0001	0.6	<0.0006	18.4
31.10.14							
WS1	1019	<0.1	<0.1	<0.0001	<0.1	<0.0001	20.2
WS2	1019	<0.1	<0.1	<0.0001	<0.1	<0.0001	18.2
WS4	1019	<0.1	<0.1	<0.0001	0.1	<0.0001	20.7
07.11.14							
WS1	996	<0.1	<0.1	<0.0001	<0.1	<0.0001	20.9
WS2	996	<0.1	<0.1	<0.0001	<0.1	<0.0001	17.7
WS4	996	<0.1	<0.1	<0.0001	0.6	<0.0006	13.8
11.11.14							
WS1	990	<0.1	<0.1	<0.0001	<0.1	<0.0001	20.8
WS2	990	<0.1	<0.1	<0.0001	<0.1	<0.0001	19.1
WS4	990	<0.1	<0.1	<0.0001	0.6	<0.0006	15.9
19.11.14							
WS1	1001	<0.1	<0.1	<0.0001	<0.1	<0.0001	21.1
WS2	1001	<0.1	<0.1	<0.0001	<0.1	<0.0001	18.6
WS4	1001	<0.1	<0.1	<0.0001	0.4	<0.0004	17.9

8.14 Where gas concentrations exceed 1% by volume methane or 5% by volume carbon dioxide the concentrations are coloured orange. If concentrations are lower the values are coloured green. Where gas flux meets characteristic situation 1 the GSV is coloured green. The GSV is coloured yellow for Characteristic Situation 2 and red for Characteristic Situation 3 and above.

Preliminary Soil Infiltration

8.15 A preliminary soakaway test was undertaken within window sampler installation. An assessment of the possible soil infiltration has been undertaken above the groundwater level, which is summarised on the table below:

Exploratory Hole	Ground	Test No	Soil Infiltration Rate
WS4	Made Ground/River Terrace Deposits.	Test 1	$1 E^{-4}$ m/s

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9.0 CONTAMINATION ASSESSMENT

General

9.1 A Tier I risk assessment has been undertaken using available and current screening values for human health and where appropriate controlled waters. The risk assessment is undertaken based on the findings of the preliminary conceptual model presented in Section 6. Based on the contamination testing and Tier I assessment a revised Conceptual Model has been prepared, which is presented later in this section.

9.2 Where significant risks are identified remedial measures are recommended.

Human Health

9.3 Assessment of the risks to human health has been undertaken by comparing the soil quality data with reference values obtained from the Contaminated Land Exposure Assessment (CLEA), Soil Guideline Values (SGV) and General Acceptance Criteria (GAC) published by LQM/CIEH. A summary table of the reference values is included in Appendix C.

9.4 Where an exceedance is identified the risk is assessed by considering the sensitivity of the proposed development and the potential pathway. Given the limited contact time by site users it is considered that the GAC values for commercial end use is applicable for the proposed development.

9.5 Results of the chemical testing and additional chemical analysis are included in Appendix C. In addition to the laboratory sheets there is a sheet with the results coloured. Where results are coloured green these are below the GAC. Values coloured red exceed the GAC.

9.6 The soil quality analysis shows exceedances of the reference values for the following:

Determinand	GAC (mg/kg)	Location	Concentration (mg/kg)
Dibenzo(a,h)Anthracene	3.5	WS4 – 0.2m	7.6

9.7 Asbestos fibres were detected within samples of Made Ground from WS3 and WS5.

Controlled Waters

9.8 Where groundwater samples have been analysed the results are compared against reference values. These reference values are summarised in Appendix C and are taken from Fresh Water Environmental Quality Standards (EQS), UK Drinking Water Standards and World Health Organisation (WHO) values for Drinking Water.

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9.9 Where the controlled waters receptor is a surface water course then the EQS are used as the primary reference value. Drinking Water Standards and WHO values are used where EQS values are not available. An assessment of likely risk is then made based on a source-pathway-receptor model. Where the receptor is potable groundwater resources the Drinking Water Standards and WHO values are used.

9.10 As the Environment Agency have identified that the remediation previously undertaken at the site addresses risk to both groundwater and surface water the primary risk is considered to be the creation of a new pathway. Any new drainage will have a dedicated drainage system and as such this is not likely to be a significant pathway. Primary risk is therefore considered to be to groundwater and as such Drinking Water Standards (including WHO values) are used to assess results from groundwater and leaching test results.

9.11 Generally concentrations from leaching tests and groundwater samples are below drinking water standards and limits of detection. Arsenic exceeds the Drinking Water Standard in the leaching test but not in groundwater samples. This is likely to be due to the leaching tests being more aggressive.

9.12 Elevated Polycyclic Aromatic Hydrocarbons (PAH) have been measured above the total PAH value of 0.1ug/l given in Drinking Water Standards. The concentrations of the individual PAH compounds are low and it is considered that there is unlikely to be a significant risk to Chalk groundwater as confirmed by the Environment Agency.

9.13 It is recommended that if piled foundations are adopted at the site Continuous Flight Auger (CFA) piles are used so that a preferential flow path is not created. Other piling techniques could be used if a suitable piling risk assessment is undertaken which confirms that no pathway will be created.

Ground Gas

9.14 Following the guidance provided in CIRIA C665 an initial assessment is undertaken to determine if there are any significant sources of potential ground gas. Such sources include landfills, organic clays and made ground incorporating putrescible materials such as rags, paper and wood. Where no significant source is identified no further assessment is necessary.

9.15 Where significant potential risk from ground gas has been identified from the Initial Conceptual Model and the intrusive ground investigation works ground gas monitoring is undertaken and the results of the monitoring are compared against the Gas Screening

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Values given in CIRIA Report 665. From this the Characteristic Situation is identified and remedial measures proposed.

9.16 When assessing the risk and type of remedial measures appropriate consideration is given to the likely construction of the development, the nature of the gas posing a risk and the nature of the likely source. The use of engineering judgement when determining risk from ground gas is consistent with the recommendations given in CIRIA C665.

9.17 No significant sources of ground gas were noted from the desk study. Made Ground was encountered on site but this did not include putrescible materials. As such there is not considered to be a significant risk from ground gas.

9.18 Gas monitoring was undertaken during return visits to monitor groundwater levels. Ground gas has recorded elevated concentrations of Methane above the 1% trigger value on one occasion. Carbon Dioxide has been measured at significant concentrations and no detectable gas flow rates were measured with the gas flux falling into Characteristics Situation 1.

9.19 Where concentrations of Methane exceed 1% CIRIA C665 advises that consideration should be given to increasing the Characteristic Situation to 2.

9.20 Methane poses a potential risk to the development as it can accumulate within confined spaces and poses an explosive risk. This is partly mitigated by modern construction practices and requirements for air tightness of structures, however, it is considered that a suitable membrane should be provided at this site consistent with Characteristic Situation 2.

Waste Classification

9.21 Two part WAC tests have been undertaken across the site, the results of which are included in Appendix C.

9.22 The Waste Management paper 2 has recently been updated to version 3 which states that that sites which previously could be considered 'uncontaminated land' surplus soils if they did not exceed the GAC values now requires the landfill to make an appropriate assessment of the waste classification. As such final assessment will be undertaken by the receiving landfill based on the requirements of their permit.

9.23 Elevated PAH was measured above the threshold for inert waste and as such surplus soils are likely to be classified as Stable Non-Reactive waste.

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Revised Conceptual Model

9.24 The Initial Conceptual Model presented in Section 6 has been revised based on the findings of the ground investigation and the revised Conceptual Model is presented overleaf:

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Source	Pathway	Receptor/Target	Potential Risk/Impact	Probability of Exposure	Comments
Human Health					
Asbestos, metals and hydrocarbons.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed	Normal construction PPE will address risk under CDM.
			Site users.	Negligible.	Discovery Strategy proposed.
Dibenzo(a,h)Anthracene.	WS4 Made Ground	Inhalation	Construction Workers.	Dismissed	Normal construction PPE will address risk under CDM.
			Site users.	Negligible.	Remediation proposed.
Asbestos.	WS3 & WS5 Made Ground	Inhalation	Construction Workers.	Low	Management Proposed.
			Site users.	Low.	Remediation proposed.
Metals and hydrocarbons.	Made Ground	Ingestion dermal and inhalation.	Construction Workers.	Dismissed	No exceedance of GAC.
			Site users.		
Solvents, hydrocarbon and metals.	Potential localised spillage on site from current use.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No exceedance of GAC
			Site users.		
Solvents, hydrocarbon and metals.	Historic use.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No exceedance of GAC.
			Site users.		
PCB	Old sub-station.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No exceedance of laboratory detection limit.
			Site users.		
Solvents	Deep Chalk Aquifer	Inhalation	Construction Workers.	Dismissed.	Chlorinated solvents are DNAPLs and so there is no pathway to the development unless a new pathway is created.
			Site users.		
Solvents, hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Site remediated.
			Site users.		
Ground Gas.	Landfills	Inhalation & Explosive.	Construction Workers.	Dismissed	No Source.
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed	No confined access anticipated.
			Site users.	Low	Elevated methane but no measurable flow. Membrane proposed.

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Source	Pathway	Receptor	Probability of Occurrence	Details
Groundwater				
Solvents, hydrocarbon and metals.	Shallow Soils.	Vertical Migration.	Groundwater.	Negligible.	Site Remediated to the satisfaction of the Environment Agency. CFA piles recommended to address residual risk of creating a new pathway.
Surface Water				
Solvents, hydrocarbon and metals.	Shallow Soils.	Horizontal Migration.	River Network.	Dismissed.	Site Remediated to the satisfaction of the Environment Agency. No new pathway creation anticipated.
Environmental Receptors				
On site contaminants	Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
	Direct.	Archaeology.	Dismissed.	None present.
	Direct.	Geology.	Dismissed.	None present.
	Phytotoxic.	Woodland.	Dismissed.	None present.
	Phytotoxic.	Crops.	Dismissed.	None present.
	Ingestion dermal and inhalation.	Livestock.	Dismissed.	None present.
Building Services				
On site contaminants	Direct.	Historic Buildings.	Dismissed.	None present.
	Direct.	Proposed Buildings.	Dismissed.	No source identified.
	Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

10.0 OUTLINE REMEDIATION

Contamination

10.1 Based on the Geo environmental Report carried out by Enzygo Dibenzo(a,h)Anthracene has been encountered in one borehole which was encountered above the reference values for commercial end.

10.2 Gas monitoring was undertaken during return visits to monitor groundwater levels. Ground gas has recorded elevated concentrations of Methane above the 1% trigger value on one occasion. Carbon Dioxide has not been measured at significant concentrations and no detectable gas flow rates were measured with the gas flux falling into Characteristics Situation 1.

10.3 Where concentrations of Methane exceed 1% CIRIA C665 advises that consideration should be given to increasing the Characteristic Situation to 2.

10.4 Methane poses a potential risk to the development as it can accumulate within confined spaces and poses an explosive risk. This is partly mitigated by modern construction practices and requirements for air tightness of structures, however, it is considered that a suitable membrane should be provided at this site consistent with Characteristic Situation 2.

Derivations of Remedial targets

10.5 The risk of significant contamination across the site has been discounted in the investigation, however, PAH's and asbestos have been encountered.

10.6 Previous solvent contamination has been encountered in the underlying chalk however the site has been remediated with the approval and sign off of the Environment Agency and therefore the risk to the underlying chalk and groundwater has been dismissed. The risk to surface waters has also been dismissed given that remediation has been encountered and no new pathways are anticipated.

10.7 Initially any remediation threshold will be based on commercial GAC Values for soils (Human health). Copies of these thresholds are given in Appendix C. Should any subsequent validation be required this will be in accordance with the GAC values for soils given in Appendix C.

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Human Health

10.8 The current General Assessment Criteria (GAC) values for commercial end use are proposed for potential human health risk. Any validation samples will also be compared to these GAC values

Groundwater Water

10.9 The previous reports have dismissed the risk to the underlying groundwater and no new sources were encountered within the subsequent ground investigation undertaken by Enzygo.

Outline Remedial Recommendations

10.10 Based on the Geo environmental Reports carried out by Enzygo and the up dated Conceptual Model the following The proposed outline methodology is set out below:

Cover

10.11 It is considered that existing Made Ground is unsuitable as soil cover to soft landscaping areas and as such 300mm of clean soils comprising imported sub soil and topsoil will be required to provide a suitable growing medium. The use of clean cover soils to soft landscape areas is considered to provide a barrier between site users and existing soils.

10.12 Imported cover soils should be confirmed as clean and pass the chemical requirements (GAC) given in the Appendix C. It is recommended that the imported materials are checked against the criteria as being acceptable before using as landscaping materials. Clean cover soils should be placed over a geotextile separator which will also act as a no dig layer.

10.13 The sampling frequency for the chemical testing of the imported materials should be agreed with the Local Authority but is likely to be one sample per 100m^3.

10.14 It is considered that hardstanding to buildings and pavement areas will provide a physical barrier between site users and contaminants within the soil. The contaminant comprises Dibenzo(a,h)Anthracene which poses an inhalation risk and therefore it is recommended that a vapour membrane is used to the ground floor slab to buildings. This will also address the risk from methane discussed above.

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Contaminated Soils

10.15 Widespread contamination from PAH'S has not been identified at the site to date, nor is it expected. Any unforeseen gross contamination will be excavated out and disposed of appropriately.

10.16 Management of the excavated materials will be addressed within the Contractor's detailed method statement; however, it is proposed that the approach used is as follows:

- Where the volume of material is limited and can easily be accommodated on site it is recommended that the materials are excavated and stockpiled. These materials can then be tested to confirm to determine the waste classification.
- If the volume of contaminated material is more extensive then it is recommended that the spoil is retained in situ and the area fenced off. Soil samples recovered and tested from the slip trenches will be used to determine the extent of excavation and also the waste classification of any arisings disposed off-site.

10.17 Asbestos contaminated material has been identified during the ground investigation and it is possible that further material could be encountered during construction works. Measures should to be incorporated in to the Contractors Construction Stage Health and Safety Plan as required under the Construction Design and Management (CDM) Regulations to mitigate risk to construction works. Measures may include:

- Designing temporary works to minimise disturbance of the Back fill material;
- Separating material and disposal of soils containing asbestos;
- Wetting down during excavation;
- Sheeting of stockpiles where asbestos is suspected;
- Testing of soils and off-site disposal of any soils found or suspected of containing asbestos;
- Preventing access to the construction site by members of the public;
- Use of good hygiene measures, including washing down of plant; and
- Use of appropriate PPE, including face masks.

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Monitoring, Inspection and Validation

10.18 No removal of materials is expected however should any materials be encountered a part of the discovery strategy soils the exposed formation will be inspected by a suitably qualified environmental consultant. Visual and olfactory evidence will be used to assess the extent of excavation. Following excavation soil samples will be collected from the base and sides which will be submitted for analysis at an accredited laboratory for validation.

10.19 As a minimum one sample will be collected from each side and the base of the hotspot excavation. In the unlikely event that contamination is more extensive samples will be recovered as detailed below:

- One sample per 10 linear metres of the side.
- One sample per 10m by 10m area of the base.

Groundwater

10.20 As the building is likely to be piled no contact is likely to occur with the underlying groundwater. Clean drilling/piling techniques will be adopted to confirm that no drag down of contamination will occur into the underlying aquifer. This will be addressed in a piling risk assessment.

Backfilling

10.21 Should any unforeseen contamination be encountered and the resulting material removed off site creating voids, these will need to be backfilled with chemically and geotechnical suitable fill material placed and compacted in accordance with the relevant specifications where required (end tipped with no compaction). As a minimum the materials used should meet the GAC values given in the Appendices.

10.22 The contractor will be responsible for sourcing the appropriately certified materials and providing certificates before placement to the consultant. These certificates will be presented in the final validation report.

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Stockpiled Materials

10.23 As Asbestos contaminated material has been identified during the ground investigation and it is possible that further material could be encountered during construction works. Any stockpile of materials will be subject to the asbestos management planning for the site and given in the Contractors Construction Stage Health and Safety

10.24 Soils arising from excavations are not to be reused on site.

Un-Expected Contamination

10.25 It is possible that during the site excavation works areas of unforeseen contamination may be identified. If additional areas of contamination are identified then the contaminated material will be removed and disposed of approximately off site, ensuring that the full extent of the contamination is chased out.

10.26 A suitable qualified and experienced Environmental Consultant will be available on a call out basis should un-expected contamination be encountered. The remedial works discussed above will then be implemented under their inspection and in liaison with the Local Planning Authority.

Gas recommendations

10.27 Due to the presence of elevated methane at the site it is recommended that gas protective measures in accordance with Characteristic Situation 2 of CIRIA C665 are adopted. These should include:

- Construction of a concrete floor slab;
- Placement of a suitable vapour membrane to also address potential risk from Dibenzo(a,h)Anthracene with a minimum classification score of 2.5 in accordance with the British Standard BS 8485:2015
- Sealing of service entries.

Site Validation

10.28 It is recommended that the clean imported subsoil and topsoil cover soils proposed for soft landscaping (300mm thick) and confirmed as clean and pass the chemical requirements

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(GAC) given in the Appendix and these be placed over a geotextile separator which will also act as a no dig layer.

10.29 It is further recommended that the sampling frequency for the chemical testing of the imported materials should be agreed with the Local Authority.

10.30 After placement of the cover soils it is recommended that the thickness and composition is inspected by a suitably qualified environmental consultant who will confirm that 300mm of cover soils has been placed. On completion verification report will be produced including a photographic record and confirming that 300mm and a no dig membrane has been installed.

10.31 The consultant will be retained on a 'call out' basis should areas of un-expected contamination be encountered in order to assess the materials exposed, investigate the extent and recover suitable soil samples for analysis.

Validation Report

10.32 A verification report will be prepared based on the inspections which will include:

- Chemical certificates of confirm that the imported clean materials pass the GAC values
- Photographic and documented confirmation that 300mm of clean materials and a no dig barrier has been installed in landscaping areas.
- Any areas of un-known contamination encountered and the remedial measures undertaken;
- Waste disposal notes where appropriate.
- Confirmation that the works observed complied with the remedial methodology.

10.33 A further verification report will be issued confirming that the vapour membrane has been installed in accordance with BS8485

10.34 The report should be submitted to a waste operator for classification of soils.

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11.0 GEOTECHNICAL ASSESSMENT

Proposed Development

11.1 The proposed development will comprise a two storey hotel extension with car parking below. The structural loading is not known and is assumed to be 50kN per m run for assessment purposes.

11.2 It is considered that the scheme meets the criteria of Geotechnical Category 1 of Eurocode 7.

Ground Conditions

11.3 Ground Conditions comprise up to 2.6m of Made Ground over soft and firm gravelly clay and matrix dominant weathered Chalk to 5.50mbgl and grade B and C Chalk below 5.50mbgl. Groundwater was noted at depths of between 2.1m and 2.4m bgl, rising to 1.5m bgl.

Site Preparation

11.4 It is anticipated the existing buildings will be demolished and foundations grubbed out. The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Any redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and,
- Any buried structures and old foundations encountered on site should be excavated from below the proposed structures with the resulting void backfilled.

Foundations

General

11.5 Given the thickness of the Made Ground and generally soft nature of the underlying River Terrace Deposits it is considered that conventional strip foundations are not suitable at the site. Groundwater is noted to be shallow and some of the exploratory holes collapsed during removal of the casing. As such it is considered that deep trench fill foundations are not suitable. Options are therefore:

- Use of vibro granular columns;
- Raft Foundation; or

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- Piles

Vibro Granular Columns

11.6 The use of vibro granular columns has been considered but their use is likely to be limited by the presence of clay below then Made Ground. A foundation risk assessment may also be required due to the presence of elevated PAH in the shallow groundwater.

11.7 If vibro granular or concrete columns are used their suitability should be confirmed with a specialist contractor.

Raft Foundation

11.8 Consideration has been given to a raft foundation within the Made Ground. Raft foundation could then be constructed assuming a bearing pressure of 20kN/m^2 with settlements predicted at between 10mm and 20mm.

11.9 The Made Ground is predominantly granular and it is considered that the variability of the material should be improved using rolling dynamic compaction. It is likely that the bearing capacity may then be increased but this should be confirmed using validation testing following ground improvement.

11.10 The clays are noted to be of moderate shrinkage potential and this should be considered within any foundation design.

Piled Foundations

11.11 Piled foundations give the most robust foundation solution. Given the sensitivity of the underlying Chalk Aquifer it is recommended that CFA piles are used unless otherwise agreed with the Environment Agency. This should address the risk of potential new pathways being created. A piling risk assessment may be required.

11.12 A deep borehole was drilled to 15.00mbgl. This has been used for preliminary purposes and an initial pile assessment has been undertaken using this borehole. The following assumptions are used:

- The upper 3.0m is ignored due to the presence of Made Ground. It is recommended that piles are sleeved through this material to reduce potential negative skin friction.
- Dm Chalk was encountered to 5.50mbgl and Grade C and B Chalk below 5.50mbgl.
- Groundwater was encountered below 2.40mbgl.

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- A global factor of safety of 2.5 has been used. As a check factors of safety of 1.5 on shaft resistance and 3 on end bearing have also been used.
- Piles are assumed to end bear in to the Grade B chalk chalk below 10.50mbgl

11.13 The following preliminary pile working loads have been calculated:

Depth (m)	Working Load (kN)		
	300mm	450mm	600mm
5	130	270	450
10	270	520	860
15	330	600	930
20 (estimated)	430	775	1200

11.14 Final pile design should be undertaken by a specialist contractor who can use pile test records to agree lower factors of safety and thereby generate a more cost effective pile design.

Ground Floor Slab

11.15 Given the thickness and variability of the Made Ground it is recommended that suspended floor slabs are used unless a raft foundation is adopted.

Pavement Construction

11.16 An assessment of the likely California Bearing Ratio (CBR) has been assessed from the following sources:

- Description of the materials encountered in the exploratory holes; and
- Guidance given in HD25/94 and 73/06.

11.17 Based on this it is recommended that a design CBR of 5% is used for the granular Made Ground. The formation should be proof rolled and any areas of soft material excavated and removed.

Materials Re-use

11.18 An assessment of the shallow soils suitability for re-use has been undertaken using the following parameters:

- Laboratory CBR tests undertaken on re-compacted samples to mimic proof rolling.
- Grading analysis; and

- Description of the soils.

11.19 It is considered that Made Ground is not suitable for re-use as engineered fill.

Drainage

11.20 Soakaways are not considered feasible due to the high groundwater level.

11.21 Chemical results should be provided to the water authority to confirm the design of potable water supply pipes.

Buried Concrete

11.22 Results of the sulphate testing indicate that soils have soluble sulphate concentrations of less than 0.5 g/l by consistent with DS1 Conditions of BRE Special Digest 1 and as such buried concrete may be designed in accordance with ACEC Class AC-1.

Excavation

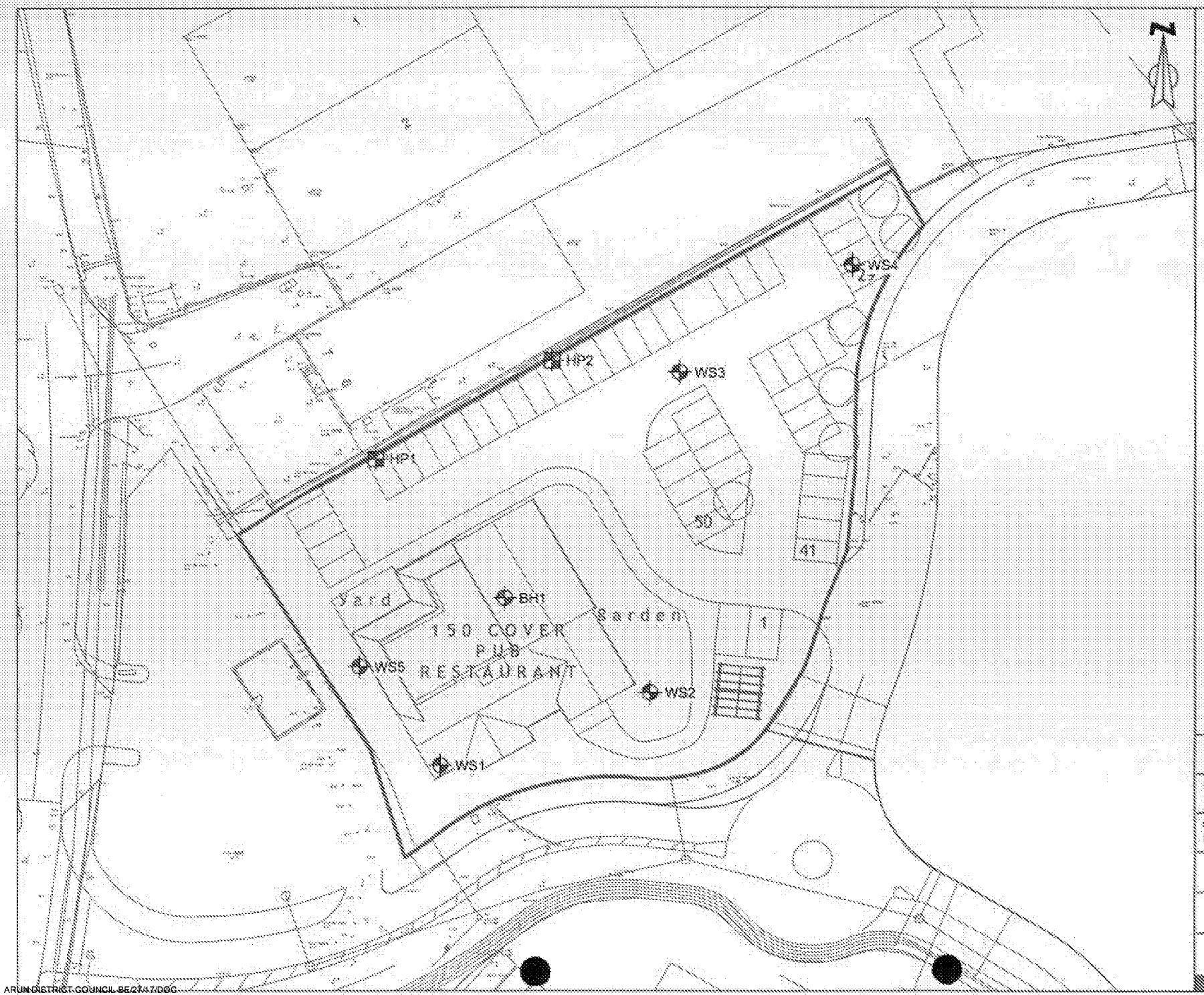
11.23 Based on the various site observations it is considered that excavations should be feasible with normal construction plant, following removal of the existing structure and hardstanding.

11.24 Groundwater was encountered at shallow depth and some collapse of soils were noted during the site investigation works. As such it is considered that deeper excavations may experience instability.

11.25 It is recommended that deep excavations are avoided where possible. Excavations where access is required should be supported in accordance with CIRIA RR97.

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Key

- Site Boundary
- Window Sampler Locations (WS) (WS1 - WS5)
- Hand Pit Locations (HP) (HP1 - HP2)
- Borehole Locations (BH) (BH1)

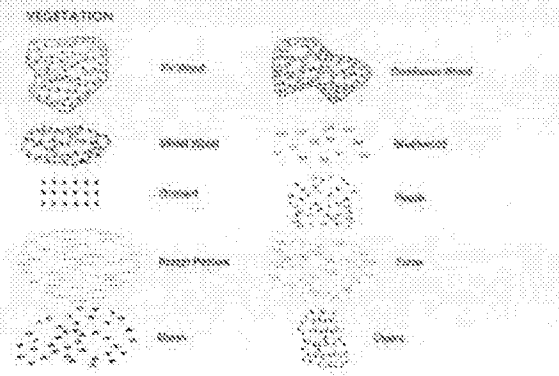
enzygo

Enzygo House, 8 Fox Valley Way, Stockbridge, Winchester, SO20 6AW

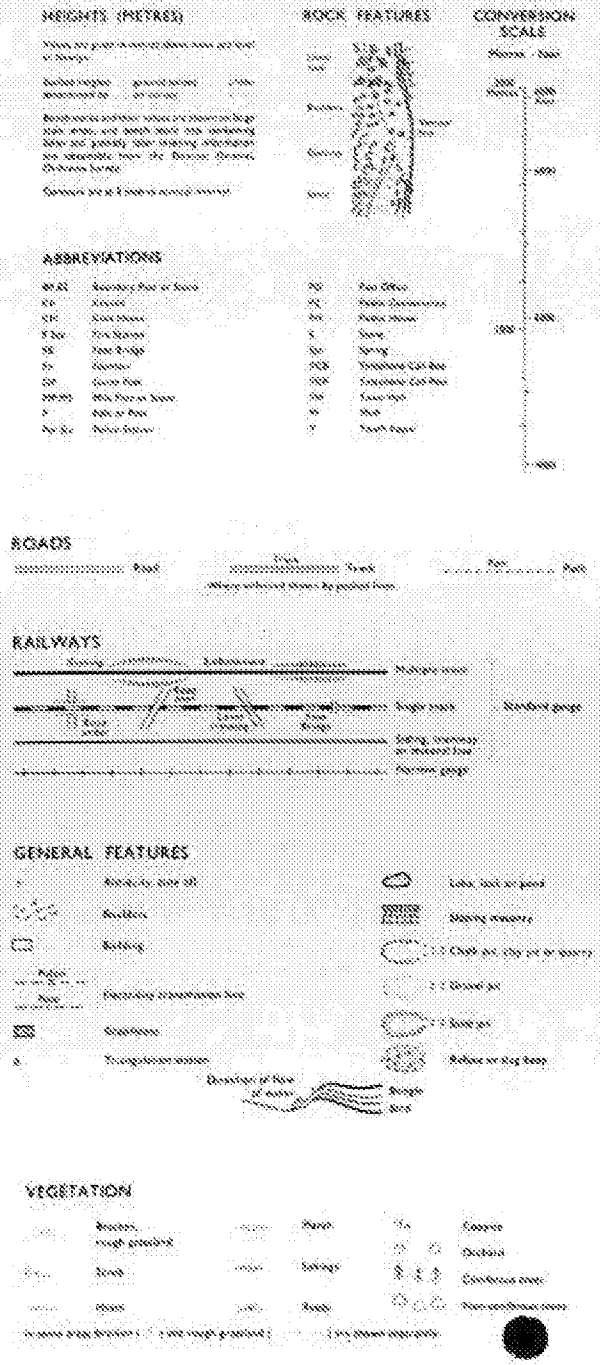
CLIENT:	Simpson Associates
SCALE: 1:400@A3	PROJECT REF: CRM.413.303
DRAWN: MG	CHECKED: RH
DATE: Sep 2016	
PROJECT: Ivripney Road, Bognor Regis	
TITLE: Location Plan	
PROJECT NO: CRM.413.303.GE.D.001	

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County Series 1:10,560 scale



National Grid 1:10,000 scale



GroundSure

Historical Map Pack Legend

County Series & National Grid

1:10,560 scale & 1:10,000 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

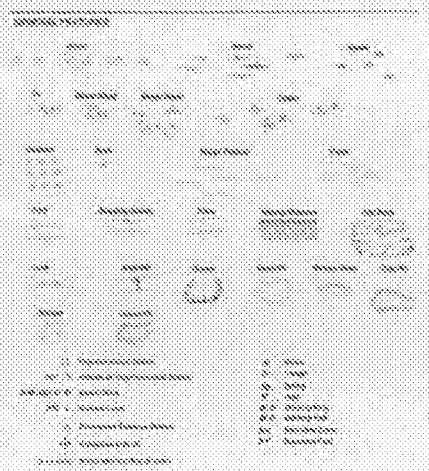
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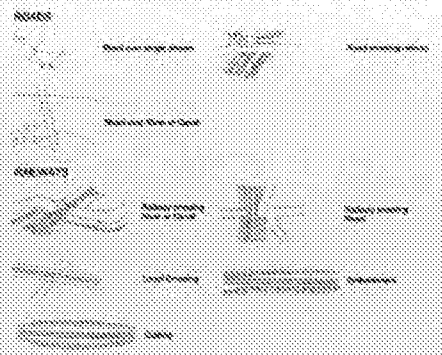
Technical Helpline

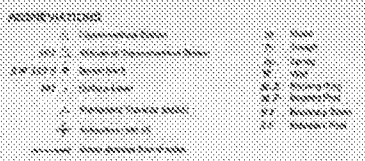
Tel:01273 819 700
maps&data@groundsure.com
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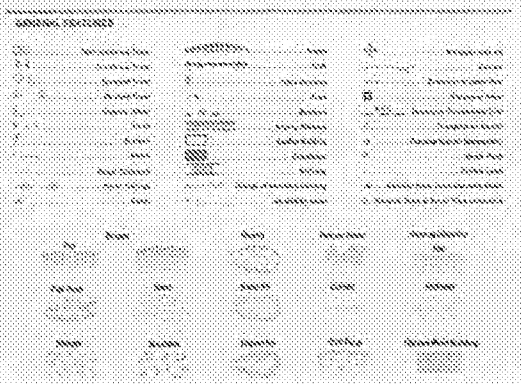
County Series 1:2,500 scale

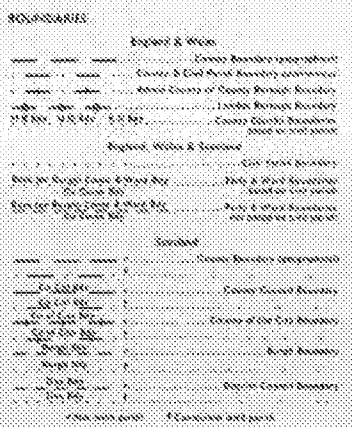


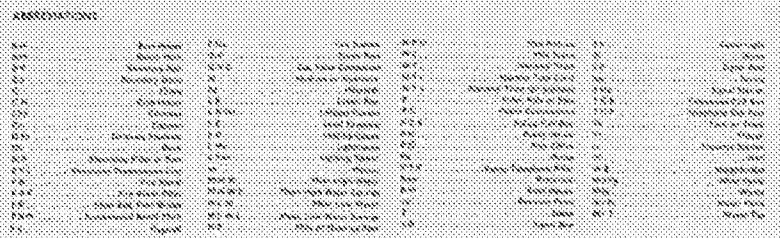




National Grid 1:2,500 / 1:1,250 scale







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Historical Map Pack Legend

County Series

1:1,250 scale

~

County Series & National Grid

1:2,500 scale

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Technical Helpline:

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maps&data@groundsure.com
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EmapSite

Masdar House,
Eversley, RG27 0RP

Report Reference: EMS-268778_362622

Your Reference: EMS_268778_362622

Report Date 23 Sep 2014

Report Delivery Method: Email - pdf

GroundSure Geoinsight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure GeoInsight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure GeoInsight

ARUN DISTRICT COUNCIL BE/27/17/DOC

GroundSure GeoInsight

Address:	,
Date:	23 Sep 2014
Reference:	EMS-268778_362622
Client:	EmapSite

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	13-Sep-2012
Grid Reference:	494212,100848
Site Size:	0.40ha

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Overview of Findings

The GroundSure GeoInsight 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 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow 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		
1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	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 relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	No
1.4 Radon data	1.4.1 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 property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level
	1.4.2 Is the property in an area where Radon Protection Measures 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 2 Ground Workings	On site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	2	1	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	0	0	0

Section 3 Mining, Extraction & Natural Cavities	On site	0-50m	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0

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Section 3 Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	1	0	0	0	3
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

Section 4 Natural Ground Subsidence	On-site
4.1 Shrink Swell Clay	Low
4.2 Landslides	Very Low
4.3 Ground Dissolution of Soluble Rocks	Very Low
4.4 Compressible Deposits	Negligible
4.5 Collapsible Deposits	Low
4.6 Running Sand	Low

Section 5 Boreholes Records	On-site	0-50m	51-250
5 BGS Recorded Boreholes	0	0	2

Section 6 Estimated Background Soil Chemistry	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	2	0	3

Section 7 Railways and Tunnels	On-site	0-50m	51-250	251-500
7.1 Tunnels	0	0	0	Not Searched
7.2 Historical Railway and Tunnel Features	0	0	11	Not Searched
7.3 Historical Railways	0	0	0	Not Searched
7.4 Active Railways	0	0	4	Not Searched

Report Reference: EMS-268778_362622
Client Reference: EMS_268778_362622

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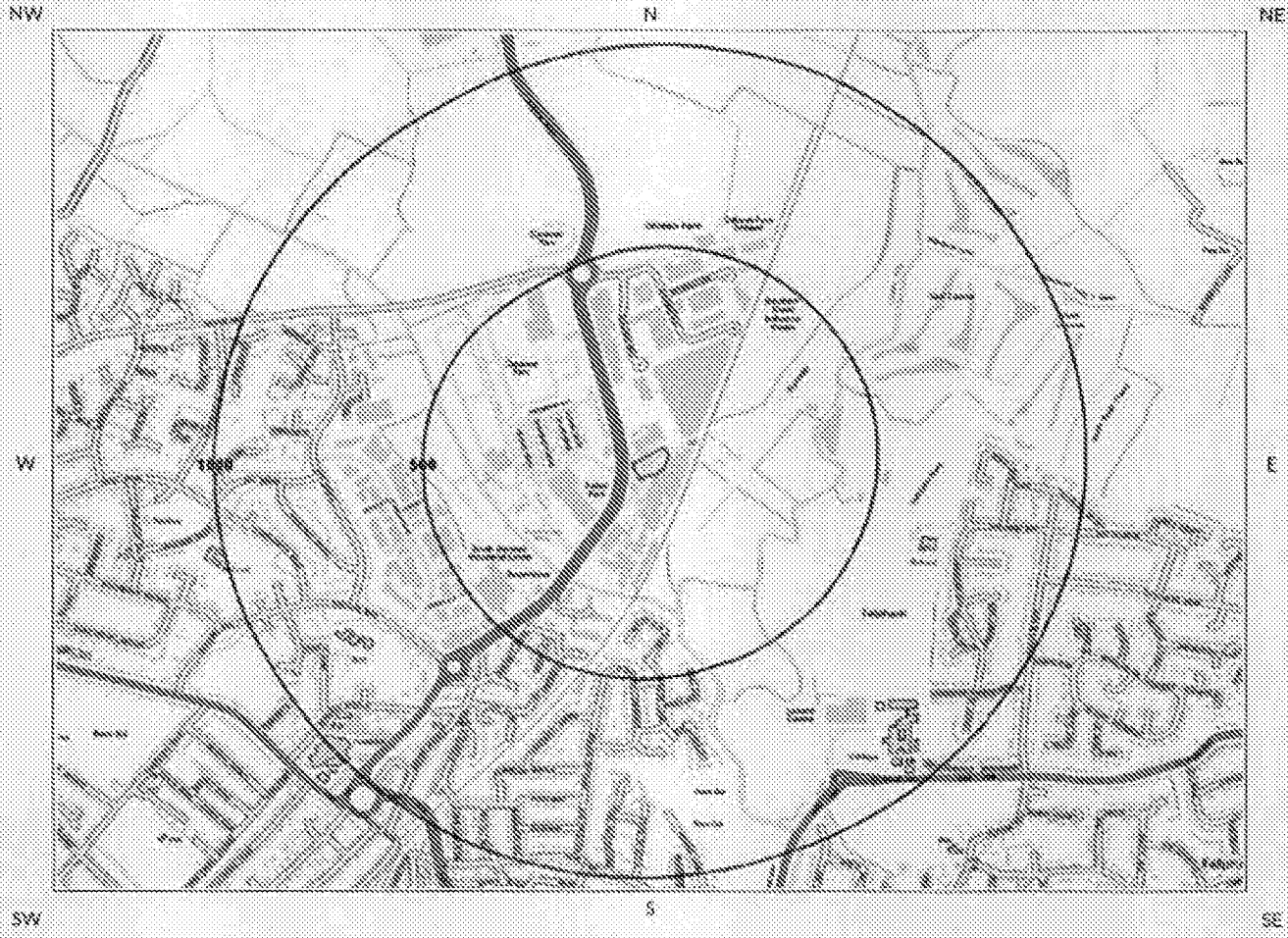
Section 7 Railways and Tunnels	On-site	0-250	251-500
7.5 Railway Projects	0	0	0	0

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1 Geology

1.1 Artificial Ground Map



Artificial Ground Legend

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Ordnance Survey

Site Outline

Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

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1 Geology
1.1 Artificial Ground

1.1.1Artificial/ Made Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:332

Are there any records of Artificial/Made Ground within 500m of the study site boundary? No

Database searched and no data found.

1.1.2 Permeability of Artificial Ground

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

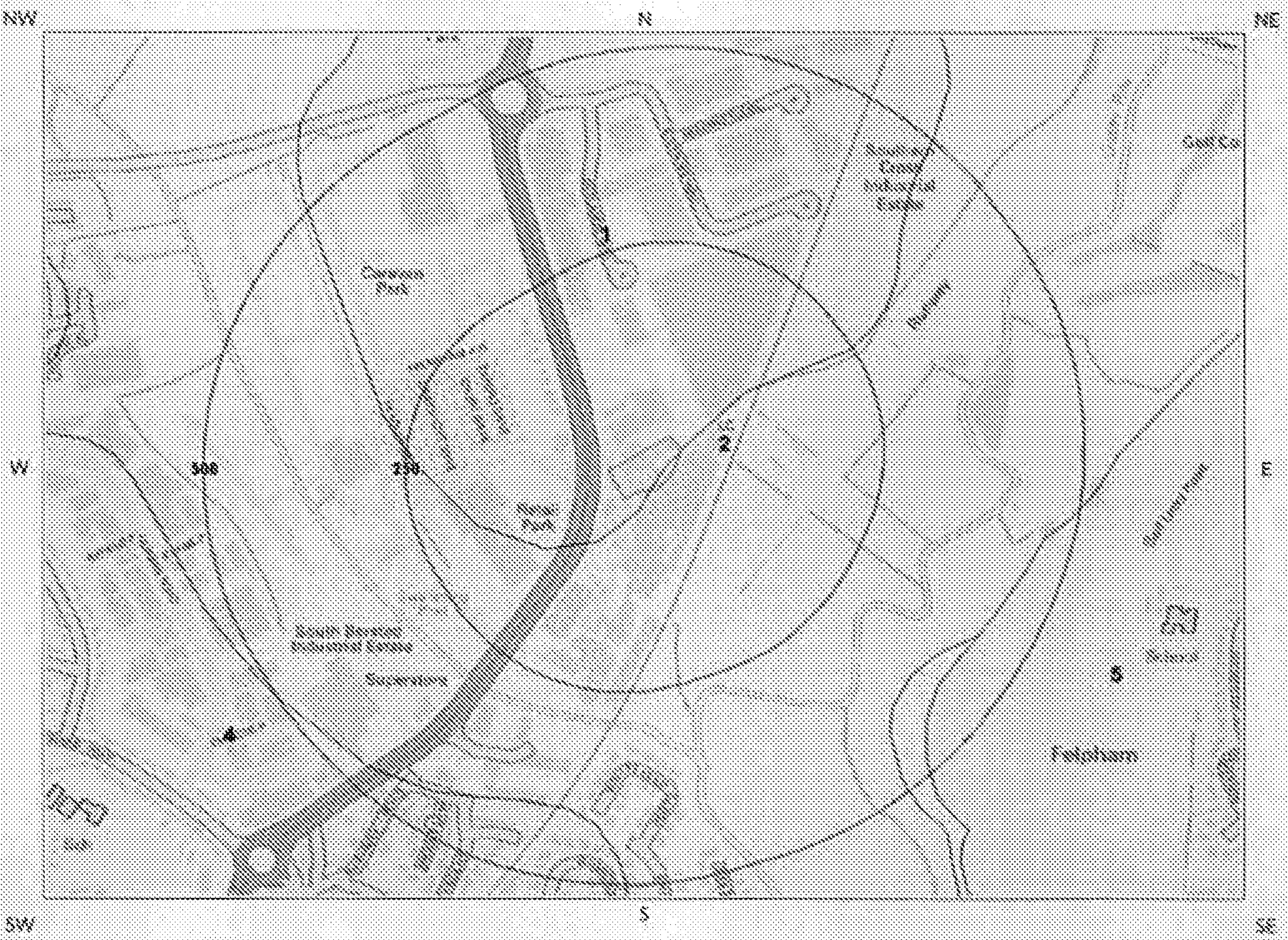
Database searched and no data found.

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1.2 Superficial Deposits and Landslips Map



Superficial Deposits and Landslips Legend

Mapping sourced from Ordnance Survey

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Site Outline

Search Buffers (m)

1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
2	0.0	On Site	RMD-CSSG	RAISED MARINE DEPOSITS	CLAY, SILT, SAND AND GRAVEL
3	393.0	SE	RBD1-SAGR	RAISED BEACH DEPOSITS, 1	SAND AND GRAVEL
4	407.0	S	RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
5	426.0	SE	RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY

1.2.2 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	High	Very Low
0.0	On Site	Intergranular	High	Low

1.2.3 Landslip

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

Database searched and no data found.

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.

1.2.4 Landslip Permeability

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

Database searched and no data found.

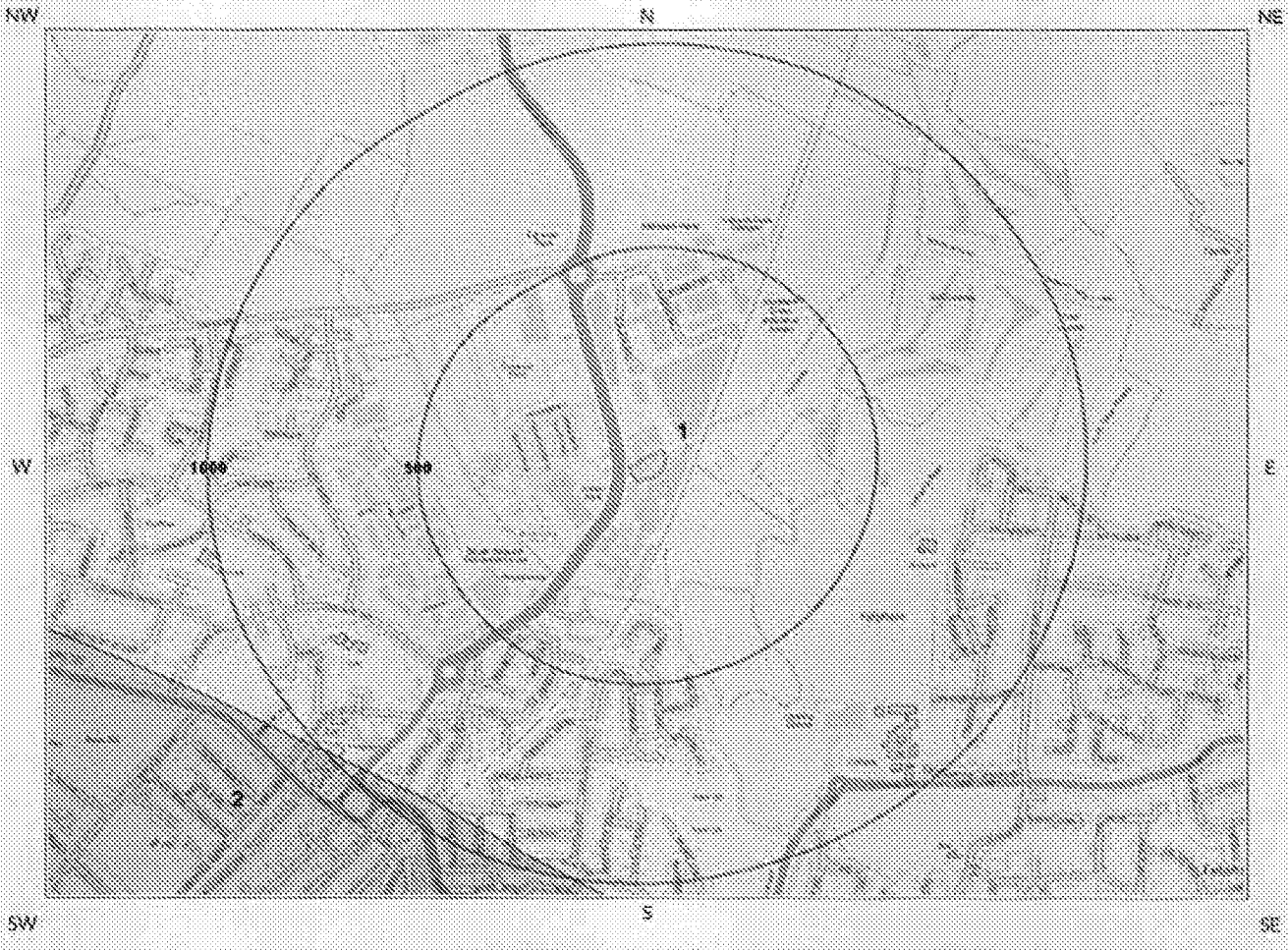
* This includes an automatically generated 50m buffer zone around the site

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1.3 Bedrock and Faults Map



Bedrock and Faults Legend

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Site Outline

Search Buffers (m)

1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:332

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LPCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation And Portsdown C	Campanian / Turonian

1.3.2 Permeability of Bedrock Ground

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

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

1.3.3 Faults

Are there any records of Faults 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 nationwide coverage.

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

1.4 Radon Data

1.4.1 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

---

1.4.2 Radon Protection

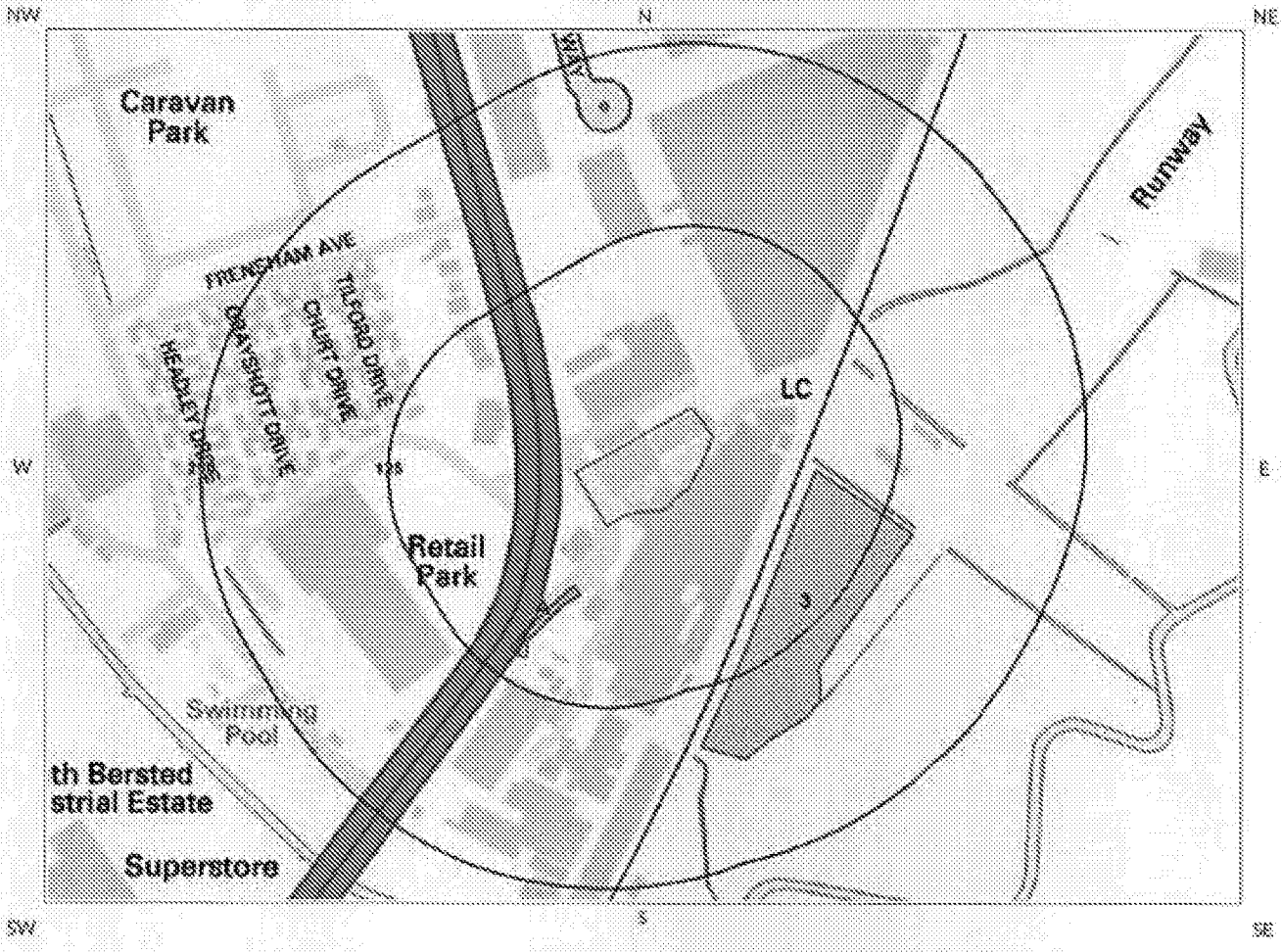
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary

---

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2 Ground Workings Map



Ground Workings Legend

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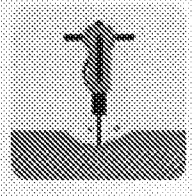
Site Outline

Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings



2 Ground Workings

2.1 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

The following Historical Surface Ground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
1A	46.0	SW	494143 100743	Pond	1876
2A	46.0	SW	494143 100743	Pond	1876
3	72.0	E	494318 100748	Refuse Heap	1977

2.2 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.

2.3 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.

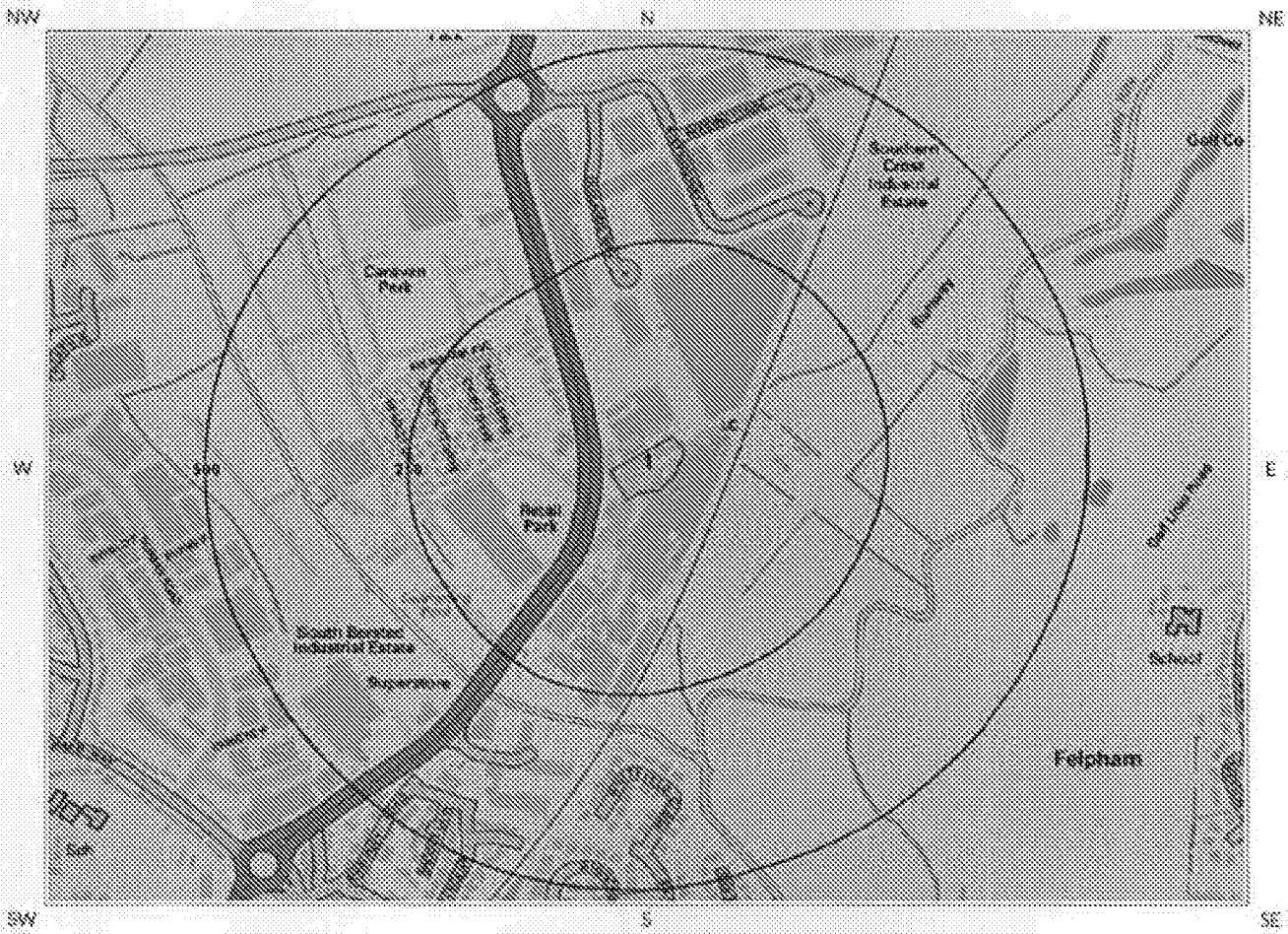
Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

Database searched and no data found.

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3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

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Site Outline

Search Buffers (m)

Historical Mining

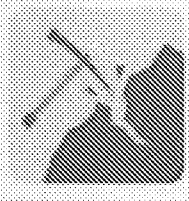
Non-Coal Mining Cavities

Natural Cavities

Non-Coal Mining

- Highly likely
- Likely
- Unlikely
- Highly unlikely
- Rare

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3 Mining, Extraction & Natural Cavities

3.1 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.

3.2 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.

3.3 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.

3.4 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? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Chalk	Rare - Infrequent minor mining may have occurred but restricted in extent.
Not shown	745.0	E	Not available	Chalk	Rare - Infrequent minor mining may have occurred but restricted in extent.
Not shown	809.0	S	Not available	Chalk	Rare - Infrequent minor mining may have occurred but restricted in extent.
Not shown	932.0	SW	Not available	Chalk	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.

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3.5 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.

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

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

Database searched and no data found.

3.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of 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.

3.8 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.

3.9 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.

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3.10 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

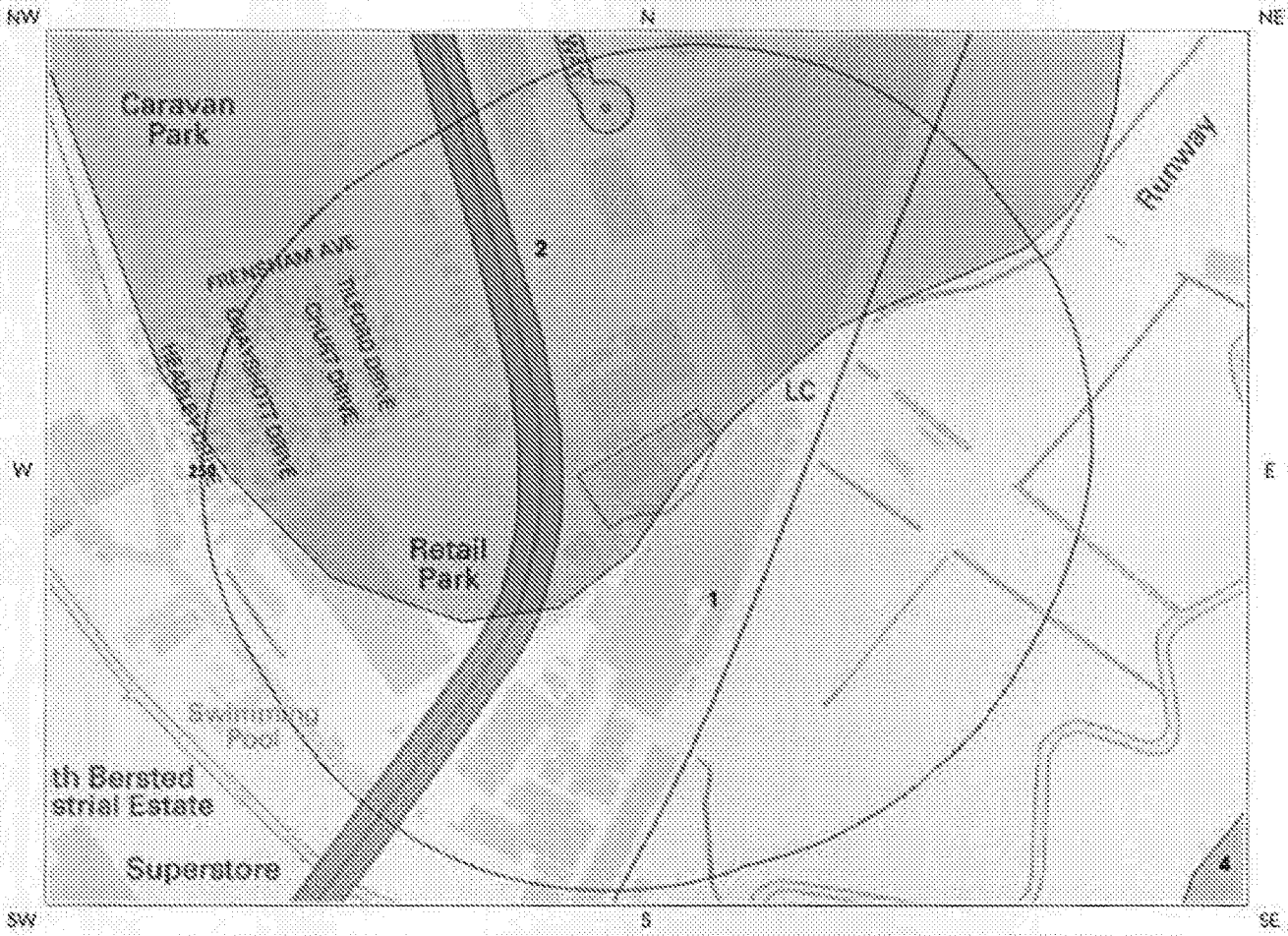
Database searched and no data found.

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4 Natural Ground Subsidence

4.1 Shrink-Swell Clay Map



Shrink Swell Clay Legend

Ordnance Survey

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Site Outline

Search Buffers (m)

No Data / Null

Negligible

Very Low

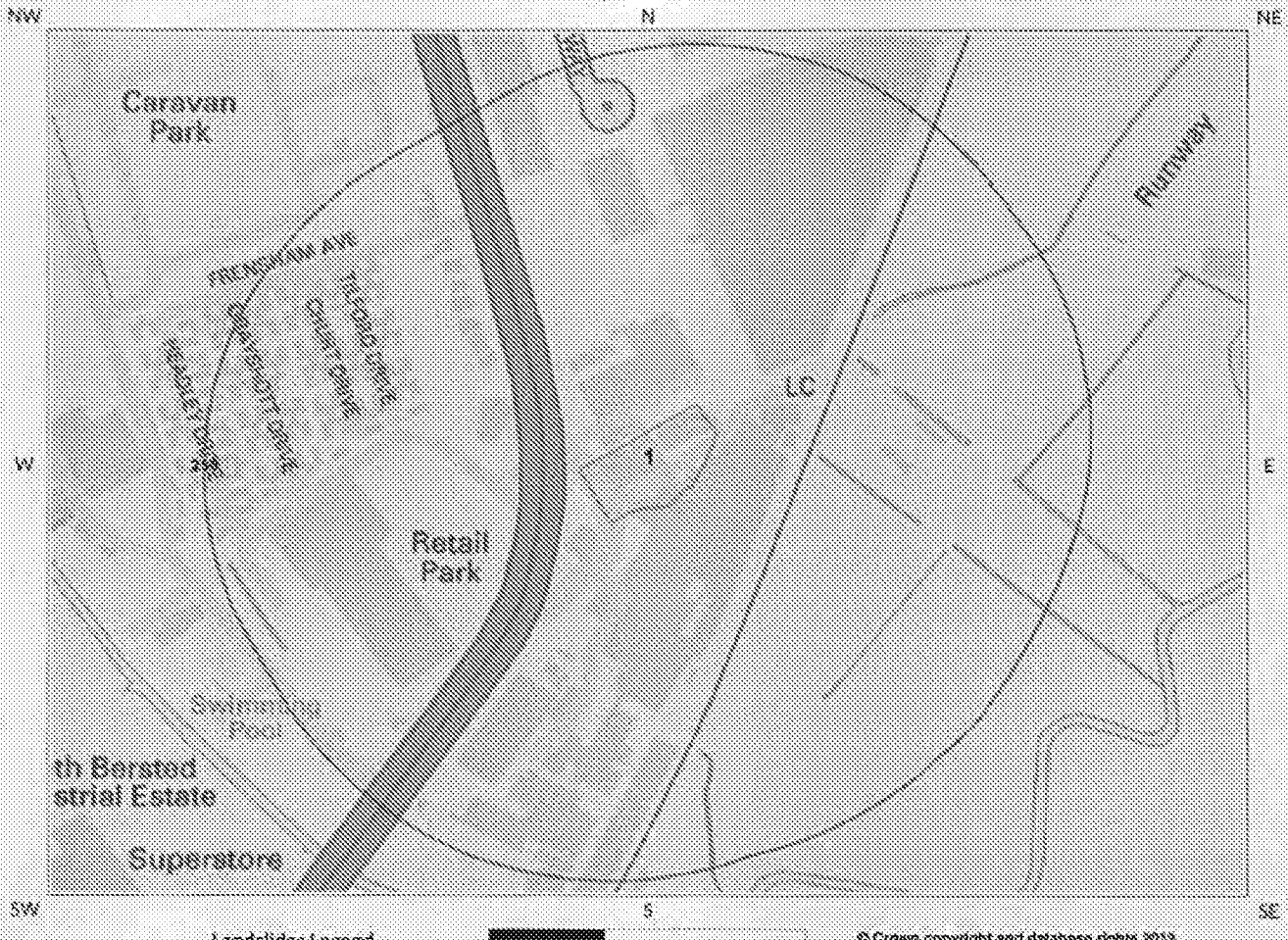
Low

Moderate

High

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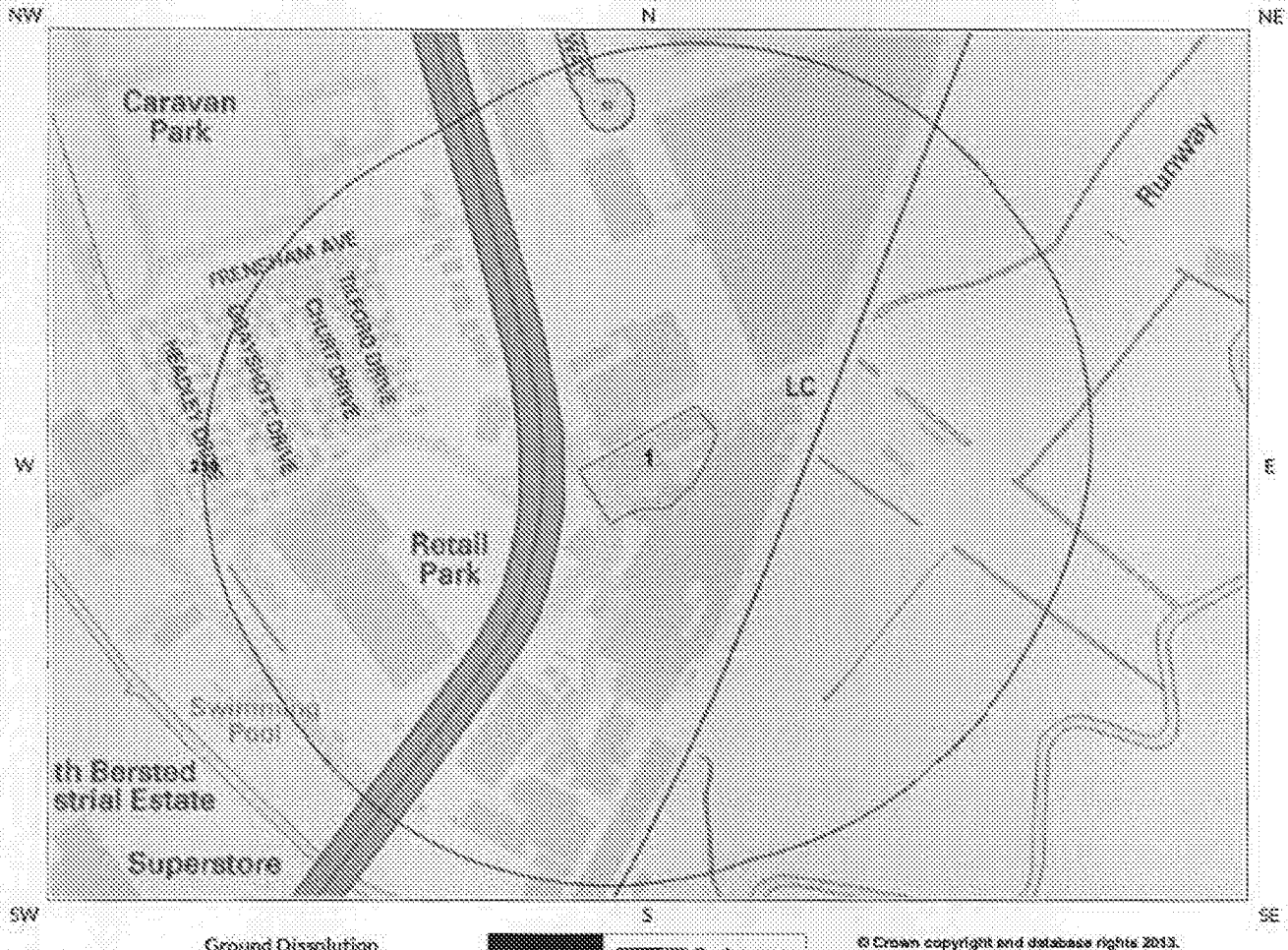
4.2 Landslides Map



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4.3 Ground Dissolution Soluble Rocks Map

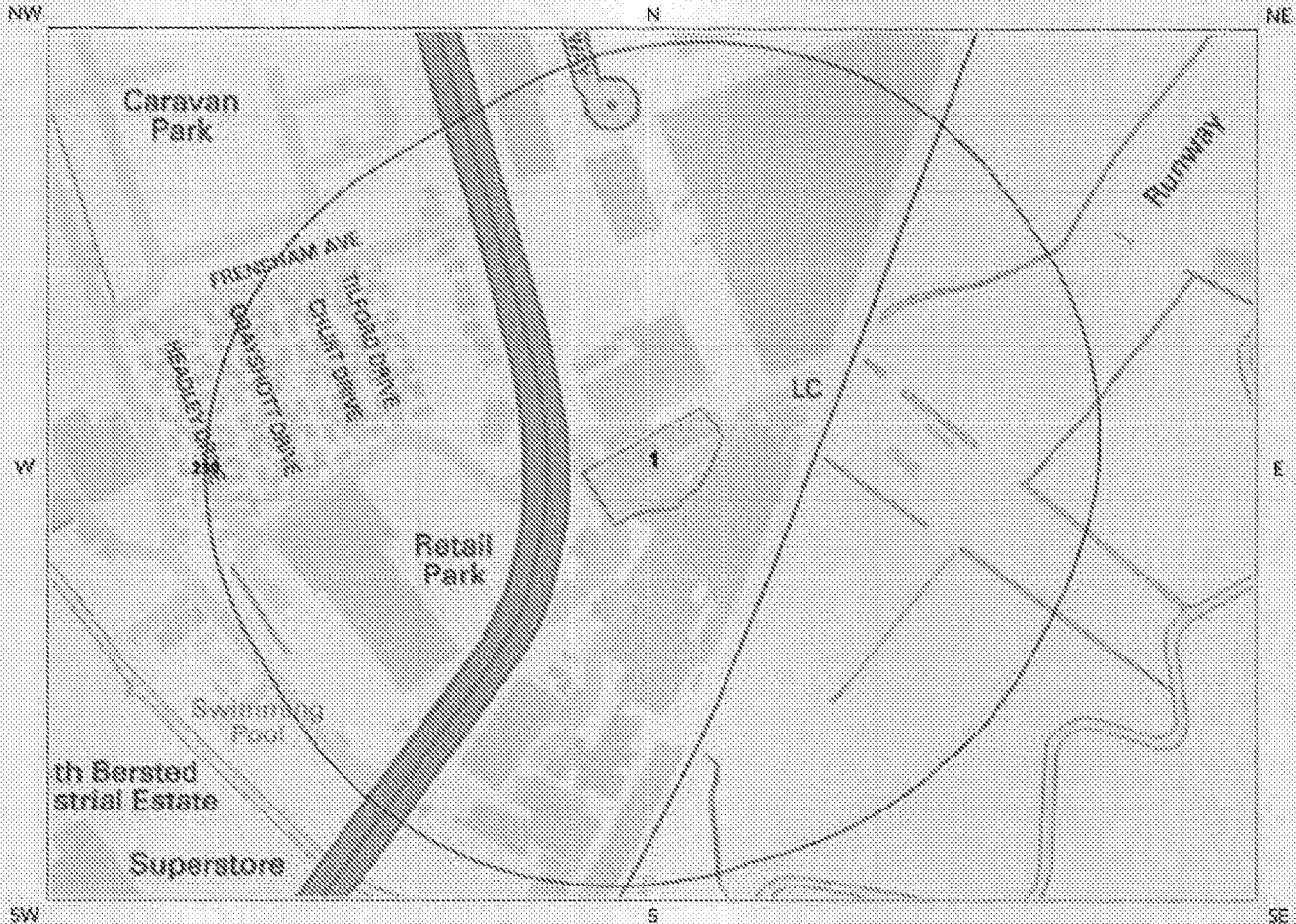


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4.4 Compressible Deposits Map



Compressible Deposits Legend

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Site Outline

Search Buffers (m)

No Data / Null

Negligible

Very Low

Low

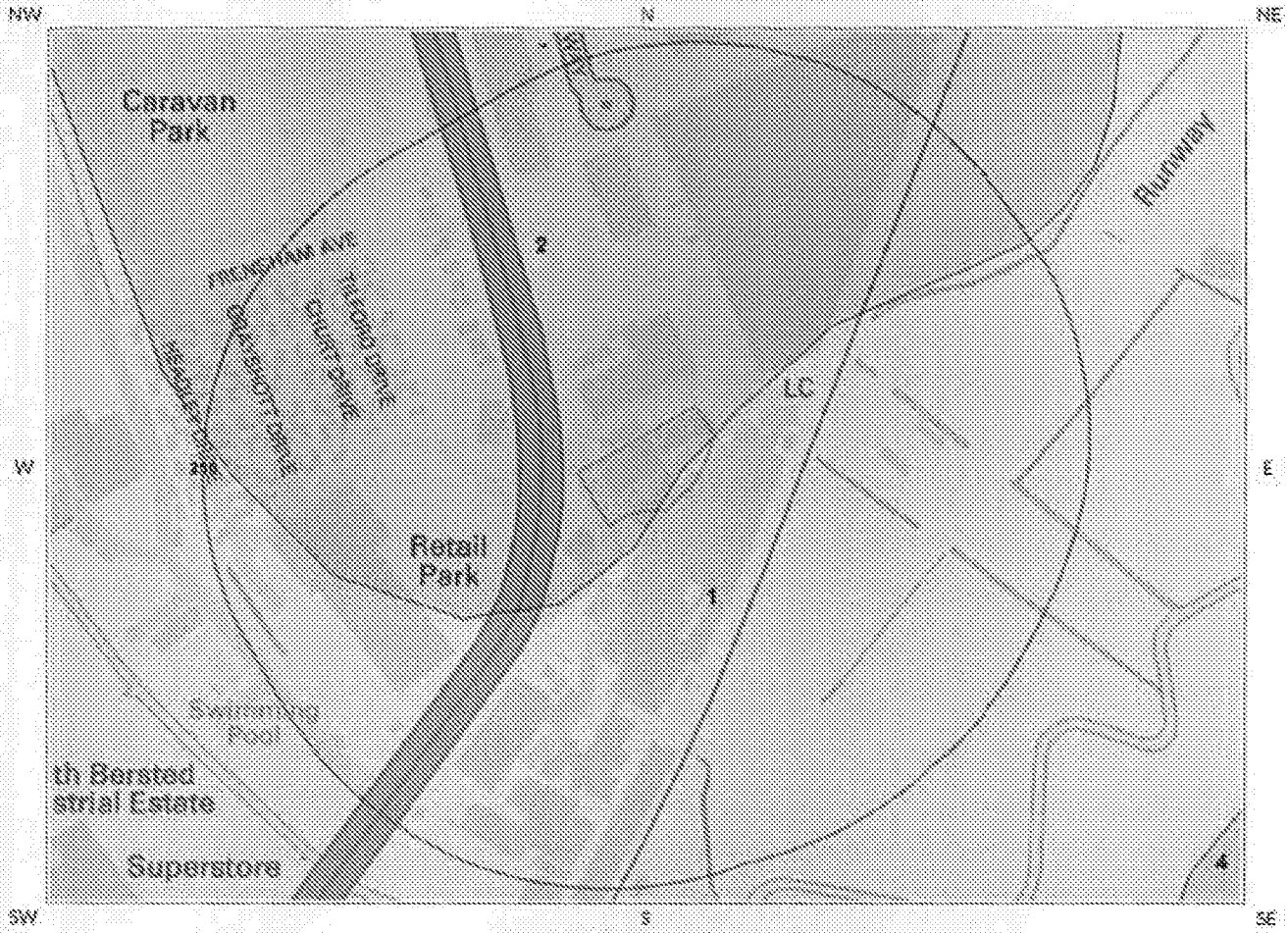
Moderate

High

Report Reference: EMS-268778_362622
Client Reference: EMS_268778_362622

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4.5 Collapsible Deposits Map



Collapsible Deposits Legend

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Site Outline

Search Buffers (m)

No Data / Null

Negligible

Very Low

Low

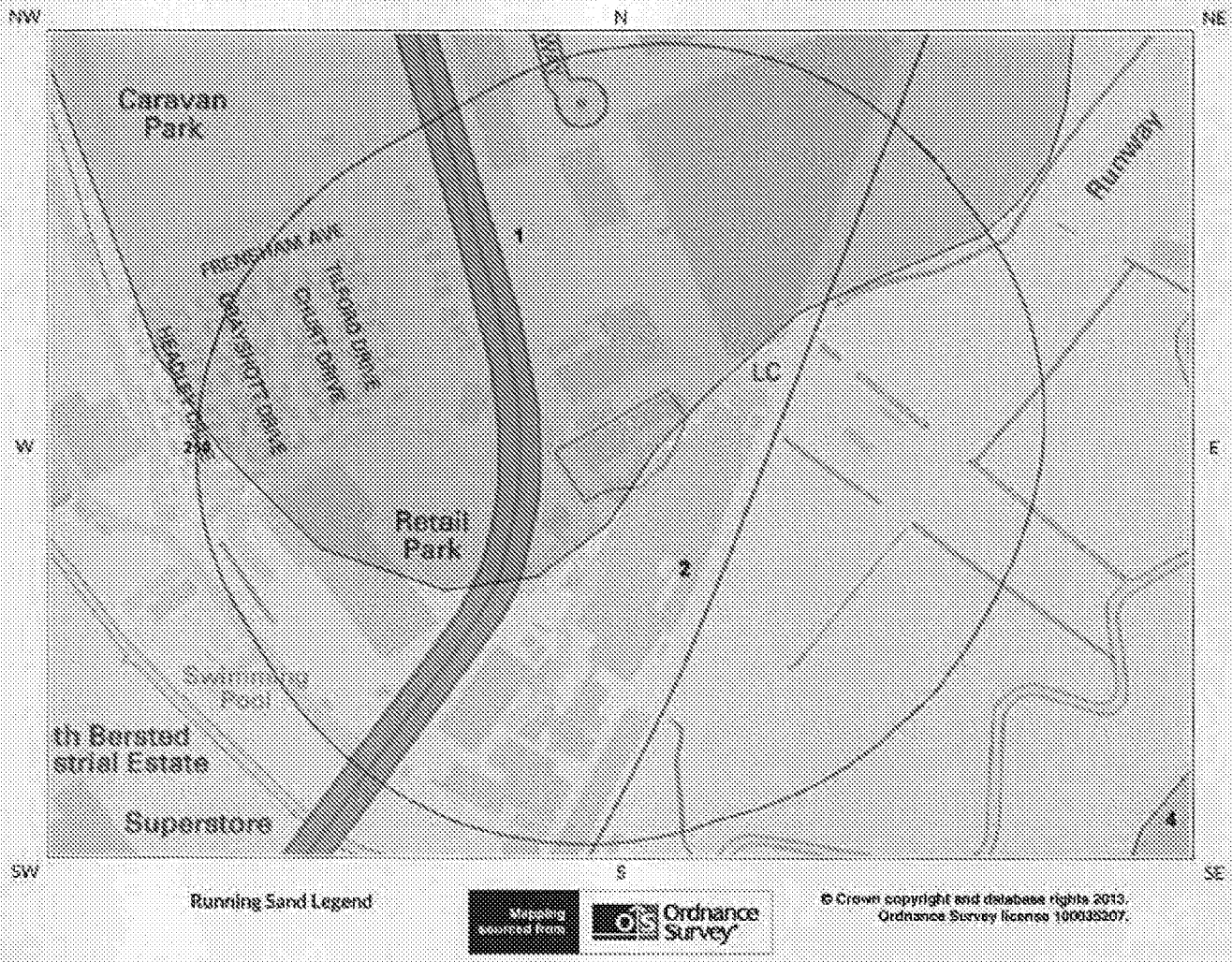
Moderate

High

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4.6 Running Sand Map



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Client Reference: EMS_268778_362622

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4 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? Low

4.1 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	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	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.

4.2 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.

4.3 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	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

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

4.4 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	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.

4.5 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	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.
2	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.

4.6 Running Sands

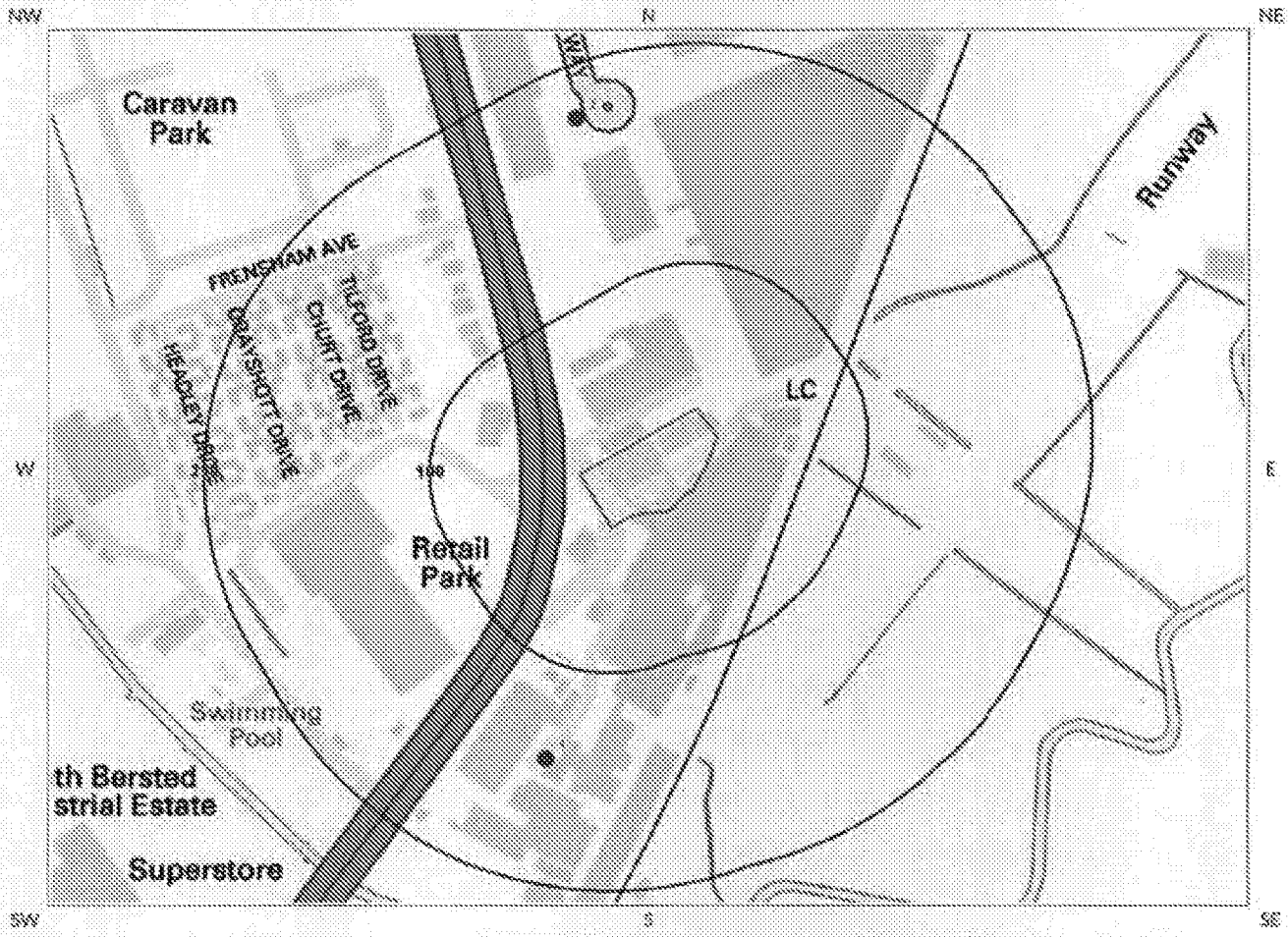
The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.
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.

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5 Borehole Records Map



Borehole Records Legend

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Site Outline

Borehole Locations

Search Buffers (m)

Report Reference: EMS-268778_362622
Client Reference: EMS_268778_362622

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5 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: 2

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	165.0	S	494140 100650	SU90SW34	9.14	GAS WORKS BOGNOR REGIS SUSSEX
2	215.0	N	494160 101090	SU90SW21	239.87	SHRIPNEY BOGNOR SUSSEX

Additional online information is available for the following boreholes listed above:

#1: scans.bgs.ac.uk/sobi_scans/boreholes/434465
#2: scans.bgs.ac.uk/sobi_scans/boreholes/434452

6 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 GeoInsight User Guide, available on request.

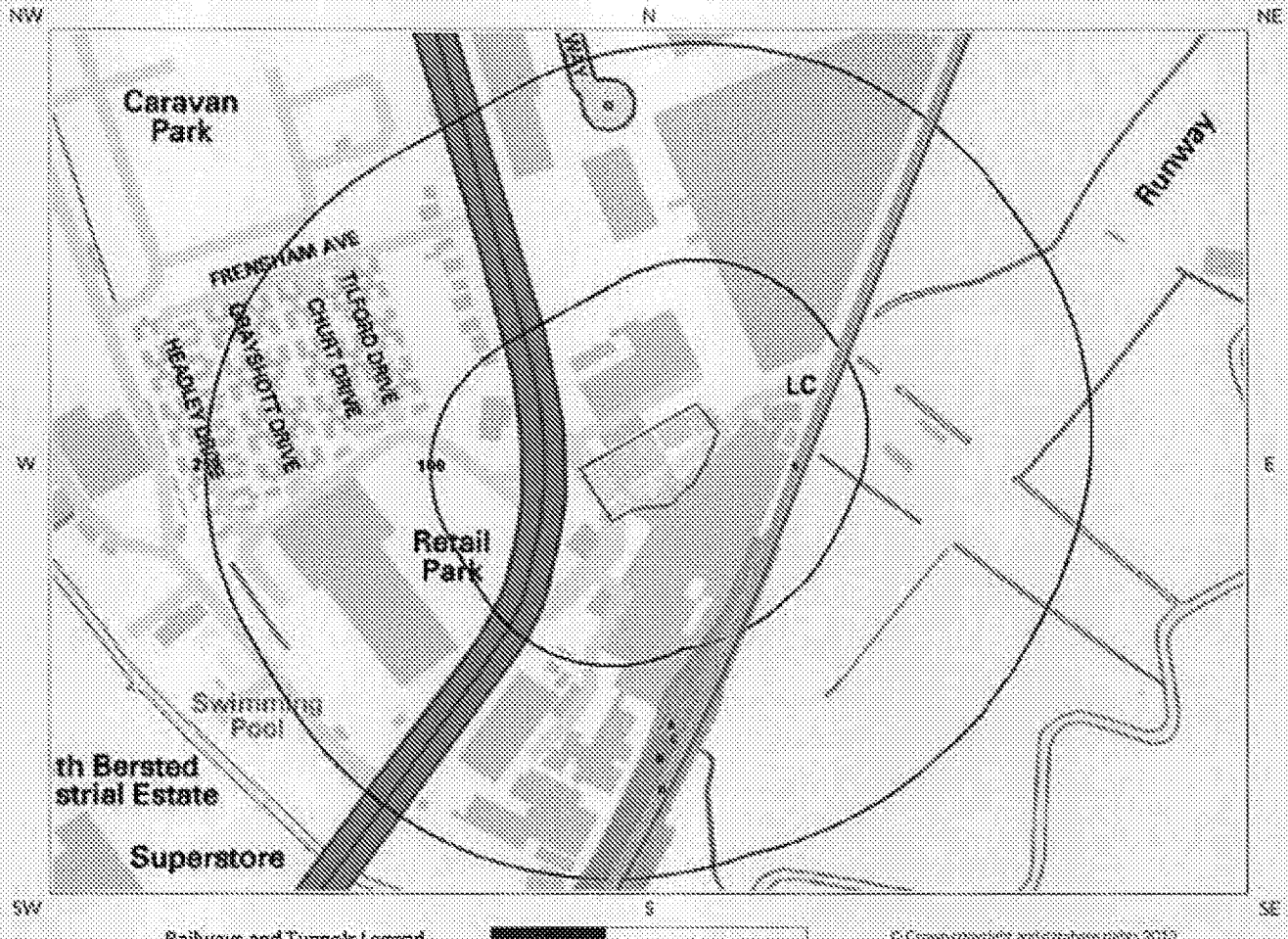
Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
109.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
163.0	W	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
178.0	SW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
224.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
238.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 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.

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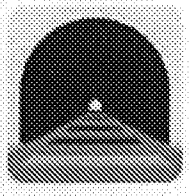
7 Railways and Tunnels Map



Railways and Tunnels Legend

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



7 Railways and Tunnels

7.1 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.

7.2 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? No

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

ID	Distance (m)	Direction	NGR	Details	Date
1C	54	SE	494221 100659	Railway Sidings	1961
5	55	SE	494306 100845	Railway Sidings	1971
6A	58	SE	494223 100666	Railway Sidings	1932
7A	58	SE	494223 100666	Railway Sidings	1939
2A	70	SE	494222 100659	Railway Sidings	1934
3A	70	SE	494222 100659	Railway Sidings	1940
8B	86	SE	494212 100639	Railway Sidings	1960
9B	87	SE	494212 100639	Railway Sidings	1961

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ID	Distance (m)	Direction	NGR	Details	Date
10C	87	SE	494210 100636	Railway Sidings	1971
4D	125	S	494215 100616	Railway Sidings	1910
11D	129	S	494214 100614	Railway Sidings	1912

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

7.3 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.

Note: 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.

7.4 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
56	E	Not given	Rail
59	E	West Coastway Line	Rail
62	E	Not given	Multi Track
168	NE	Not given	Multi Track

Note: 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.

7.5 Railway Projects

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

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 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 Report.

Contact Details

GroundSure

EmapSite
Telephone: 0118 9736883
sales@emapsite.com

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

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

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

The Coal Authority

Public Health England
Public information access office
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https://www.gov.uk/government/organisations/public-health-england
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

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Mapping sourced from Ordnance Survey®

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pba peterbrett

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This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Report Reference: EMS-268778_362622
Client Reference: EMS_268778_362622

ARUN DISTRICT COUNCIL BE/27/17/DOC

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:
"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.
"Client" means the party or parties entering into a Contract with GroundSure.
"Commercial" means any building or property which is not Residential.
"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.
"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.
"Third Party Data Provider" means any third party providing Third Party Content to GroundSure.
"Data Reports" means reports comprising factual data with no accompanying interpretation.
"Fees" has the meaning set out in clause 5.1.
"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.
"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.
"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.
"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.
"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.
"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.
"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.
"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.
"Residential" means any building or property used as or intended to be used as a single dwelling.
"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.
"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.
"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.
"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.
"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.
2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.
2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.
2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.
2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.
2.6 GroundSure's quotations or proposals are valid for a period of 30 days only (unless an alternative period of time is explicitly stipulated by GroundSure). GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.
3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.
3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.
3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.
3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.
4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents:

(i) the Beneficiary,

(ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),

(iv) the first purchaser or first tenant of the Site, and

(v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.
4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").
5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.
5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.
6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey.

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7 Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are
(a) supplied to the Client's specification(s) and in any event
(b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Third Party Data Providers;

(viii) changes in law; or

(ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly

given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law.

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EmapSite

Masdar House, ,
Eversley, RG27 0RP

GroundSure Reference:	EMS-268778_362623
Your Reference:	EMS_268778_362623
Report Date	23 Sep 2014
Report Delivery Method:	Email - pdf

GroundSure EnviroInsight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure EnviroInsight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure EnviroInsight

ARUN DISTRICT COUNCIL BE/27/17/DOC

GroundSure EnviroInsight

Address:	,
Date:	23 Sep 2014
Reference:	EMS-268778_362623
Client:	EmapSite

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	13-Sep-2012
Grid Reference:	494212,100848
Site Size:	0.40ha

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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: Environmental Permits, Incidents and Registers	On site	0-50m	51-250	251-500
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
1.1.1 Records of historic IPC Authorisations	0	0	0	0
1.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0
1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	1
1.1.5 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
1.1.6 Records of List 2 Dangerous Substances Inventory sites	0	0	0	1
1.1.7 Records of Part A(2) and Part B Activities and Enforcements	0	2	2	3
1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
1.1.9 Records of Licensed Discharge Consents	0	0	1	18
1.1.10 Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0
1.2 Records of COMAH and NIHHS sites	0	0	0	0
1.3 Environment Agency Recorded Pollution Incidents				
1.3.1 National Incidents Recording System, List 2	0	0	0	9
1.3.2 National Incidents Recording System, List 1	0	0	0	0
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 2: Landfill and Other Waste Sites	On site	0-50m	51-250	251-500	501-1000	1001-2000
2.1 Landfill Sites						
2.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2 Environment Agency Historic Landfill Sites	0	0	2	1	0	0
2.1.3 BGS/DoE Landfill Site Survey	0	0	0	2	0	0
2.1.4 GroundSure Local Authority Landfill Sites Data	0	0	1	6	3	0
2.2 Landfill and Other Waste Sites Findings						
2.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	14	Not searched	Not searched
2.2.2 Environment Agency Licensed Waste Sites	0	0	0	4	0	1

Section 3: Current Land Use

	On site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	3	6	20	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	1	2
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0

Section 4: Geology

4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 5: Hydrogeology and Hydrology

	0-500m
5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes

	On site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	2	1
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
5.7 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	0	1	1	Not searched	Not searched

	On site	0-50m	51-250	251-500	501-1000	1000-1500
5.8 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	Yes	No	Yes
5.9 Detailed River Network entries within 500m of the site	0	0	9	23	Not searched	Not searched
5.10 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 6: Flooding

6.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
6.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site?	Yes
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential below Surface
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 7: Designated Environmentally Sensitive Sites	On site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	0	0
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	1	0
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	1	0	0	0	2	1

Section 8: Natural Hazards	
8.1 What is the maximum risk of natural ground subsidence?	Low
8.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Low
8.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
8.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Very Low
8.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
8.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Low
8.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Low

Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Low
9.3 Are there any brine affected areas within 75m of the study site?	No

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. 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.

2. 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.

3. 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 underground oil and gas pipelines.

4. Geology

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

5. Hydrogeology and Hydrology

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

6. Flooding

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

7. 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.

8. 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.

9. Mining

Provides information on areas of coal and shallow mining.

10. 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).

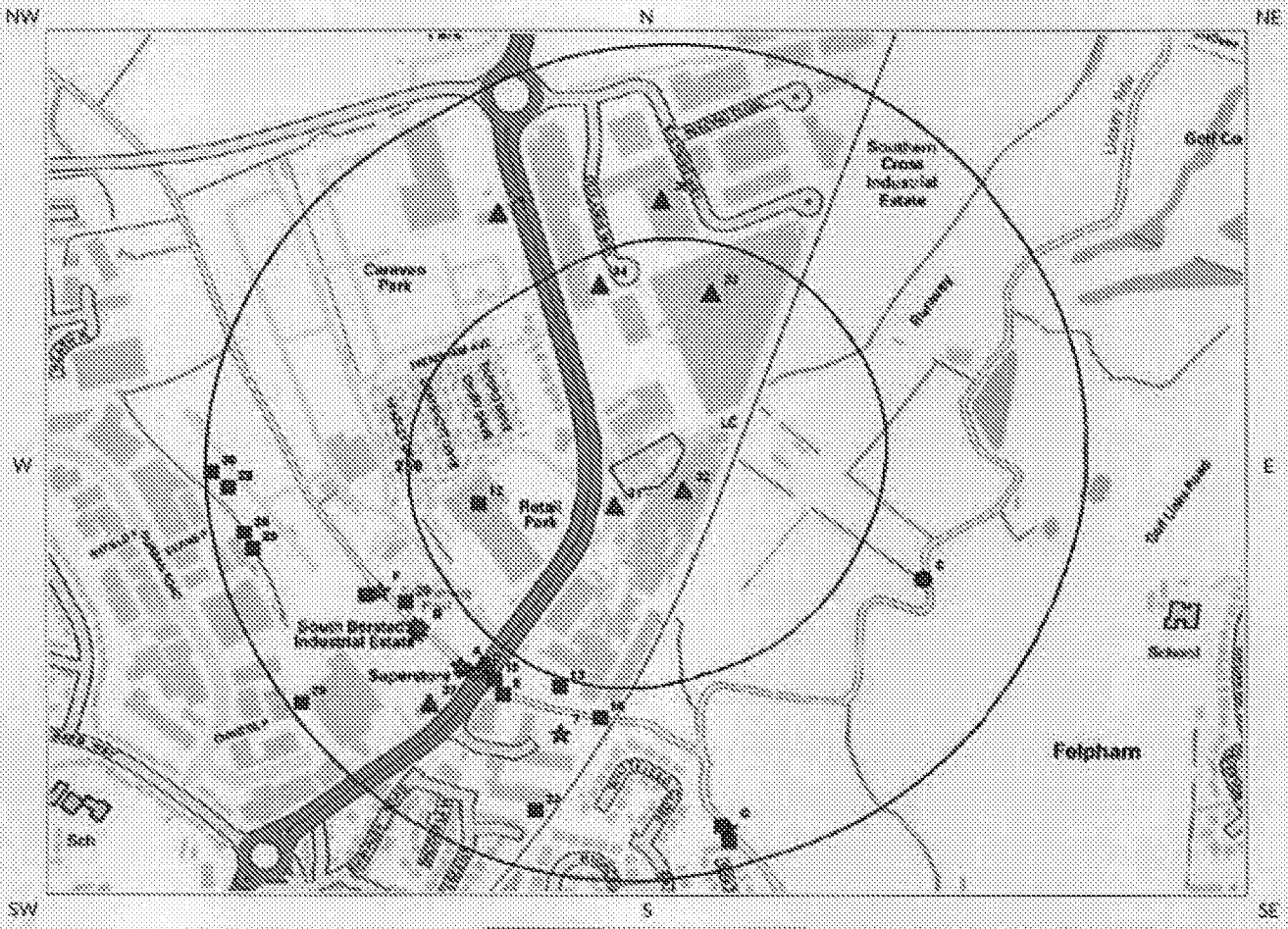
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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.

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GroundSure

1. Environmental Permits, Incidents and Registers Map

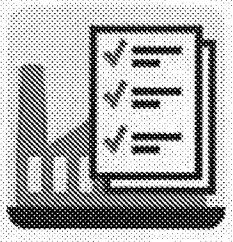


Environmental Permits, Incidents and Registers Legend

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- Site Outline
- 250 / 500 Search Buffers (m)
- 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

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1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

1.1.1 Records of historic IPC Authorisations within 500m of the study site: 0

Database searched and no data found.

1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site: 0

Database searched and no data found.

1.1.3 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.

1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site: 1

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

ID	Distance	Direction	NGR	Details	
11C	339.0	SE	494550.0 100700.0	Address: Lec Refridgeration Plc, Lec Refrigeration Ltd., Lec Refrigeration Ltd., Shripney Road, Bognor Regis West Sussex Permit Number: 300037 Permit Version: 1.0 Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only)	Discharge Type: Undefined or Other Effluent Type: Trade Discharges - Process Effluent - Not Water Company Catchment: STREAM 80 Approval Date: 17/04/1964

ARUN DISTRICT COUNCIL BE/27/17/DOC

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

0

Database searched and no data found.

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

1

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

ID	Distance	Direction	NGR	Details	
10C	339.0	SE	494550 100700	Name: Lec Refrigeration Status: Active Receiving Water: Lidsey Rife	Authorised Substances: Chromium, Copper, Lead, Zinc

---

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

7

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

ID	Distance	Direction	NGR	Details	
31	22.0	SW	494168 100794	Address: J Sainsbury, Viking Suzuki, Shripney Road, Bersted, Bognor Regis, PO22 9NG Process: Petrol Station Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
32	24.0	SE	494253 100815	Address: Lec Refrigeration, Shripney Rd, PO22 9NQ Process: Di-Isocyanate Process, Coating Process Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
33	184.0	N	494288 101069	Address: Lec Refrigeration Plc, Oldlands Way, Southern Cross Trading Estate, Bersted, Bognor Regis, PO22 9NQ Process: No Details Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
34	210.0	NW	494150 101080	Address: J & S Motors, Shripney Rd, PO22 9NJ Process: Waste Oil Burning Process Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
35	298.0	N	494226 101189	Address: Eurotek Office Furniture Ltd, Southern Cross Trading Estate, Bognor Regis, West Sussex, PO22 9SB Process: Waste Wood Combustion Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

ID	Distance	Direction	NGR	Details	
36	352.0	NW	494024 101172	Address: Bognor Garage/J & S Motors, Shripney Road, Bognor Regis, West Sussex, PO22 9NJ Process: Small Waste Oil Burner Status: Revoked Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
37	366.0	SW	493939 100537	Address: Tesco Stores Limited, Shripney Road, Bognor Regis, West Sussex, PO22 9ND Process: Unloading Petrol into Storage Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

19

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

ID	Distance	Direction	NGR	Details	
12	169.0	W	494000 100800	Address: Land At Do-it-all, Bognor Regis, Land At Do-it-all, Peel Centre, Shripney Road, Bognor Regis, West Sussex, PO22 9NF Effluent Type: Sewage Discharges - Final/treated Effluent - Not Water Company Permit Number: PG6620R Permit Version: 1	Receiving Water: Freshwater River Status: New Consent (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 1/4/1997 Effective Date: 1/4/1997 Revocation Date: -
13	263.0	S	494100 100560	Address: Site N. Of Former Destructor Site, Site N. Of Former Destructor Sit, Bognor Regis West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: NP1432 Permit Version: 1	Receiving Water: Freshwater River Status: Lapsed Under Schedule 23 Environment Act 1995 Issue date: 24/7/1984 Effective Date: 24/7/1984 Revocation Date: 31/3/1997
14 D	280.0	SW	494010 100590	Address: Formerly Munday's Caravan Site, Formerly Munday's Caravan Site, Shripney Road, Bognor Regis West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: PG2310 Permit Version: 1	Receiving Water: Freshwater River Status: Lapsed Under Schedule 23 Environment Act 1995 Issue date: 12/6/1989 Effective Date: 12/6/1989 Revocation Date: 31/3/1997
15	290.0	SW	494020 100570	Address: Sewage Pumping Station, Sewage Pumping Station, Shripney Road, Bognor Regis, West Sussex Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: SO1884 Permit Version: 1	Receiving Water: Freshwater River Status: Surrendered Under Epr 2010 Issue date: 30/1/1970 Effective Date: 30/1/1970 Revocation Date: -

ID	Distance	Direction	NGR		
16	291.0	S	494150 100520	Address: Lec Refrigeration, Shripney Road, Bognor Regis, West Sussex Effluent Type: Trade Discharges - Process Effluent - Not Water Company Permit Number: NO1495 Permit Version: 1	Receiving Water: Aldingbourne Rife Status: Consent Revoked - Discharge Ceased (wra 91, Sched 10 & 6) Issue date: 17/8/1981 Effective Date: 17/8/1981 Revocation Date: 6/6/1996
17 E	301.0	SW	494030 100550	Address: Shripney Road P.s Shripney Road P.s South Bersted West Sussex Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: A00305 Permit Version: 2	Receiving Water: Freshwater River Status: New Consent (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 20/2/1996 Effective Date: 20/2/1996 Revocation Date: -
18 E	301.0	SW	494030 100550	Address: Shripney Road P.s Shripney Road P.s South Bersted West Sussex Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: A00305 Permit Version: 2	Receiving Water: Freshwater River Status: New Consent (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 20/2/1996 Effective Date: 20/2/1996 Revocation Date: -
19 E	301.0	SW	494030 100550	Address: Shripney Road P.s Shripney Road P.s South Bersted West Sussex Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: A00305 Permit Version: 1	Receiving Water: Freshwater River Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: 1/4/1991 Effective Date: 1/4/1991 Revocation Date: 20/2/1996
20	307.0	SW	493910 100670	Address: Swimming Pool, Swimming Pool, Riverside Caravan Camp, Shripney Road, Bognor Regis, West Sussex Effluent Type: Miscellaneous Discharges - Swimming Pool Water Permit Number: S01495 Permit Version: 1	Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 10/6/1966 Effective Date: 10/6/1966 Revocation Date: -
21 C	339.0	SE	494550 100700	Address: Lec Refrigeration Ltd Lec Refrigeration Ltd Shripney Road, Bognor Regis, West Sussex, PO22 9NQ Effluent Type: Trade Discharges - Process Effluent - Not Water Company Permit Number: S00037 Permit Version: 1	Receiving Water: Lidsey Rife Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 17/4/1964 Effective Date: 17/4/1964 Revocation Date: 10/7/2006
22 F	345.0	SW	493860 100680	Address: Tesco Superstore, Tesco Superstore, Shripney Road, Bognor Regis West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: P01452 Permit Version: 1	Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 13/4/1988 Effective Date: 13/4/1988 Revocation Date: -
23	425.0	S	494070 100400	Address: Development At Ivy Crescent, Development At Ivy Crescent, Bognor Regis West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01709 Permit Version: 1	Receiving Water: Controlled Sea Status: Lapsed Under Schedule 23 Environment Act 1995 Issue date: 23/5/1968 Effective Date: 23/5/1968 Revocation Date: 31/3/1997
24 G	444.0	S	494300 100380	Address: Glenwood Estate, Glenwood Estate, Bognor Regis, West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01065 Permit Version: 1	Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 6/3/1964 Effective Date: 6/3/1964 Revocation Date: 1/7/1991
25	456.0	W	493720 100740	Address: Factories North Of The New Road, Factories North Of The New Road, On Industrial Estate, South Bersted, West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01114 Permit Version: 1	Receiving Water: Controlled Sea Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 23/1/1963 Effective Date: 23/1/1963 Revocation Date: 1/7/1991

ID	Distance	Direction	NGR	Details	
26	461.0	W	493710 100760	Address: Factories North Of The New Road, Factories North Of The New Road, On Industrial Estate, South Bersted, West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01114 Permit Version: 1	Receiving Water: Controlled Sea Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 23/1/1963 Effective Date: 23/1/1963 Revocation Date: 1/7/1991
27 G	466.0	S	494310 100360	Address: Glenwood Estate, Glenwood Estate, Bognor Regis, West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01065 Permit Version: 1	Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 6/3/1964 Effective Date: 6/3/1964 Revocation Date: 1/7/1991
28	474.0	W	493690 100820	Address: Plot 14, Durban Way, Plot 14, Durban Way, South Bersted Industrial Estate, Bognor Regis, West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01073 Permit Version: 1	Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 23/1/1964 Effective Date: 23/1/1964 Revocation Date: 1/7/1991
29	483.0	SW	493780 100540	Address: Plot 4, Plot 4, Christie Place, South Bersted Industrial Estate, Bognor Regis Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01386 Permit Version: 1	Receiving Water: Freshwater River Status: Lapsed Under Schedule 23 Environment Act 1995 Issue date: 30/7/1965 Effective Date: 30/7/1965 Revocation Date: 31/3/1997
30	493.0	W	493670 100840	Address: Plot 14, Durban Way, Plot 14, Durban Way, South Bersted Industrial Estate, Bognor Regis, West Sussex Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: S01073 Permit Version: 1	Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 23/1/1964 Effective Date: 23/1/1964 Revocation Date: 1/7/1991

1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site: 0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

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

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

1.3.1 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	Direction	NGR	Details	
1D	294.0	SW	494000 100580	Incident Date: 27/06/2003 Incident Identification: 169294 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	303.0	SW	493977 100588	Incident Date: 12/03/2003 Incident Identification: 142719 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3A	303.0	SW	493982 100583	Incident Date: 07/01/2002 Incident Identification: 50820 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4B	310.0	SW	493927 100636	Incident Date: 19/01/2003 Incident Identification: 131892 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5B	313.0	SW	493920 100640	Incident Date: 13/10/2003 Incident Identification: 195966 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6B	318.0	SW	493921 100630	Incident Date: 03/11/2002 Incident Identification: 118419 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	320.0	S	494100 100500	Incident Date: 12/11/2002 Incident Identification: 120278 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
8F	328.0	SW	493877 100685	Incident Date: 06/11/2002 Incident Identification: 119165 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
9G	448.0	S	494307 100378	Incident Date: 09/10/2003 Incident Identification: 194418 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

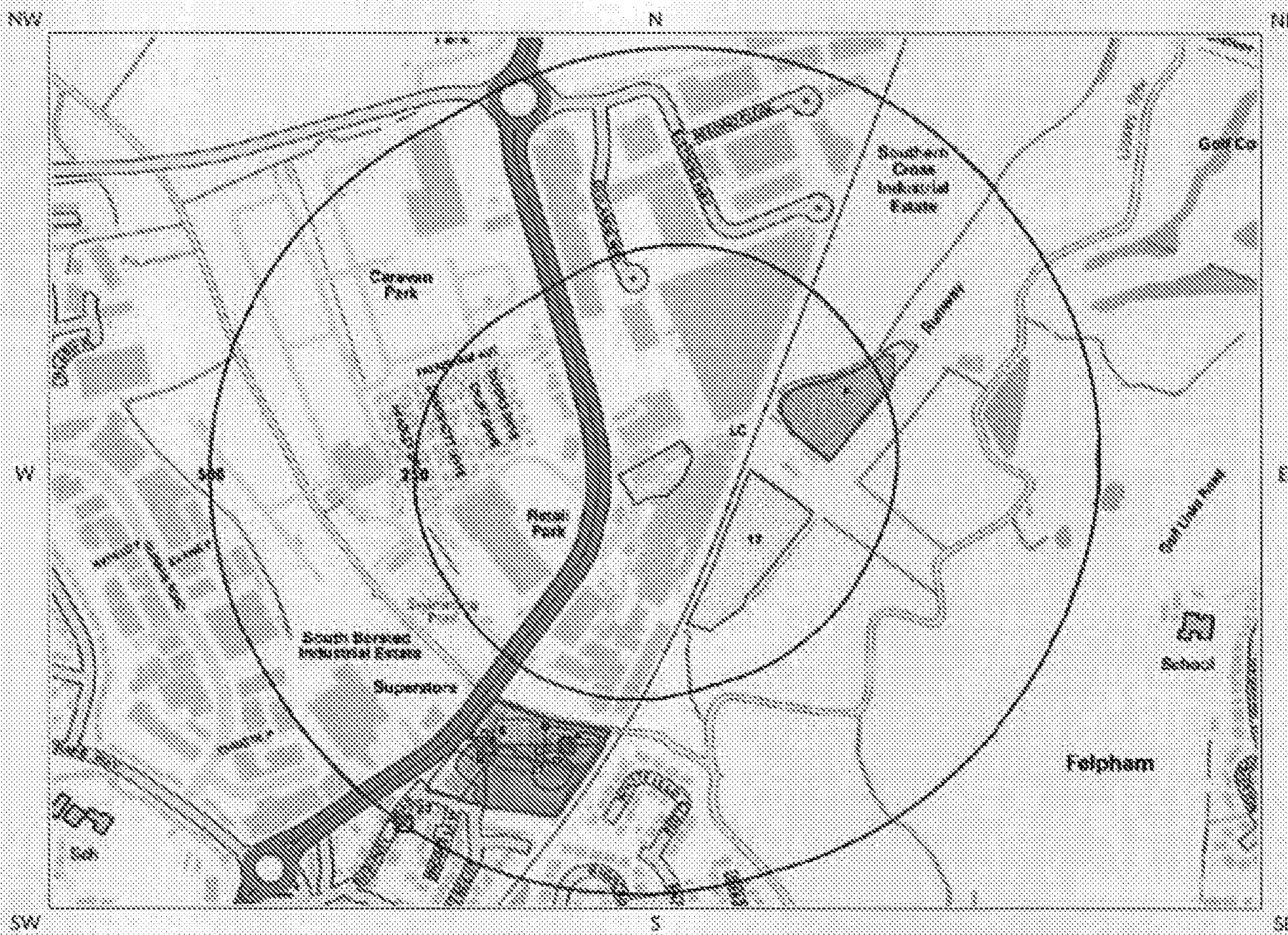
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many 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.

---

2. Landfill and Other Waste Sites Map

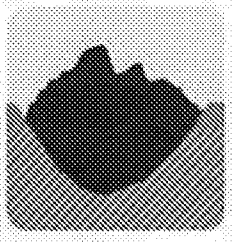


Landfill and Other Waste Sites Legend

Mapping sourced from Ordnance Survey

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Site Outline
Search Buffers (m)
E.A. Active Landfill
E.A. Historic Landfill
Local Authority Landfill
Historic and Planned Waste Sites
E.A. Licensed Waste Site
BGS / DoE Survey Landfill



2. Landfill and Other Waste Sites

2.1 Landfill Sites

2.1.1 Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

2.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:

3

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	
17	71.0	E	494300 100800	Site Address: LEC Refrigeration, Bognor Regis, Sussex Waste Licence: Yes Site Reference: WD27/027, WD13/15 Waste Type: Inert, Industrial, Liquid sludge, Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 30-Sep-1977 Licence Surrendered: 25-Oct-1983 Licence Hold Address: - Operator: -
18F	121.0	E	494300 100800	Site Address: LEC Refrigeration, Bognor Regis, Sussex Waste Licence: Yes Site Reference: WD27/027, WD13/15 Waste Type: Inert, Industrial, Liquid sludge, Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 20-Sep-1977 Licence Surrendered: 25-Oct-1983 Licence Hold Address: - Operator: -
19C	293.0	S	494000 100400	Site Address: Shripney Road, Bognor Regis, Sussex Waste Licence: Yes Site Reference: WD27/057 Waste Type: Inert, Industrial, Commercial, Household, Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 01-Jan-1976 Licence Surrendered: Licence Hold Address: - Operator: Bognor Regis Urban District Council

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

2

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

ID	Distance (m)	Direction	NGR		Details
1A	320.0	S	49410 0.0 10050 0.0	Address: Refuse Destruction Site, Bognor Regis BGS Number: 1710.0	Risk: No risk to aquifer Waste Type: N/A
2A	320.0	S	49410 0.0 10050 0.0	Address: Refuse Destructor Site, Shipney Rd, Bognor, Sussex BGS Number: 1956.0	Risk: Risk not recorded Waste Type: N/A

2.1.4 Records of Local Authority landfill sites within 1500m of the study site:

10

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
25F	119.0	NE		Refuse Tip	1970 mapping	Polygon
26D	311.0	S		Refuse Tip	1969 mapping	Polygon
27	312.0	S		Refuse Tip	1965 mapping	Polygon
28G	356.0	SW		Refuse Tip	1966 mapping	Polygon
29H	359.0	SW		Refuse Tip	1966 mapping	Polygon
30G	361.0	SW		Refuse Tip	1985 mapping	Polygon
31H	362.0	SW		Refuse Tip	1979 mapping	Polygon
Not shown	911.0	S		Refuse Tip	1969 mapping	Polygon
Not shown	912.0	S		Refuse Tip	1966 mapping	Polygon
Not shown	927.0	S		Refuse Tip	1967 mapping	Polygon

2.2 Other Waste Sites

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

14

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
3B	290.0	S	494063 100514	Type of Site: Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1934	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
4C	291.0	S	494060 100483	Type of Site: Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1940	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
5B	293.0	S	494062 100511	Type of Site: U.D.C. Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1932	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
6A	299.0	S	494105 100512	Type of Site: Amenity Tip Site Address: N/A	Planning Application Reference: N/A Date: 1990	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
7A	299.0	S	494105 100512	Type of Site: Amenity Tip Site Address: N/A	Planning Application Reference: N/A Date: 1991	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
8A	299.0	S	494105 100512	Type of Site: Amenity Tip Site Address: N/A	Planning Application Reference: N/A Date: 1990	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
9B	299.0	S	494071 100518	Type of Site: Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1970	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
10 A	307.0	S	494105 100507	Type of Site: Amenity Tip Site Address: N/A	Planning Application Reference: N/A Date: 1996	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
11 A	312.0	S	494103 100486	Type of Site: Amenity Tip Site Address: N/A	Planning Application Reference: N/A Date: 1992	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
12 A	312.0	S	494103 100487	Type of Site: Amenity Tip Site Address: N/A	Planning Application Reference: N/A Date: 1994	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
13 C	321.0	S	494051 100487	Type of Site: Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1965	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon
14 C	321.0	S	494051 100487	Type of Site: Refuse Destructor Site Address: N/A	Planning Application Reference: N/A Date: 1969	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

ID	Distance (m)	Direction	NGR		Details
15 D	332.0	S	494080 100467	Type of Site: Waste Recycling Compost (Conversion) Site Address: Bognor Regis Household WasteRe, Shripney Road, BOGNOR REGIS, West Sussex, PO22 9PP	Planning Application Reference: BR/194/06/ Date: -	Further Details: Scheme comprises change of use to allow the sale of compost from recycled green waste. An application (ref: BR/194/06/) for detailed planning permission was granted by Arun D.C. Planning decision obtained Data Source: Historic Planning Application Data Type: Point
16 D	333.0	S	494080 100466	Type of Site: Waste Recycling Compost (Conversion) Site Address: Bognor Regis Household WasteRe, Shripney Road, BOGNOR REGIS, West Sussex, PO22 9PP	Planning Application Reference: BR/194/06/ Date: -	Further Details: Scheme comprises change of use to allow the sale of compost from recycled green waste. An application (ref: BR/194/06/) for detailed planning permission was granted by Arun D.C. Planning decision obtained Data Source: Historic Planning Application Data Type: Point

2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

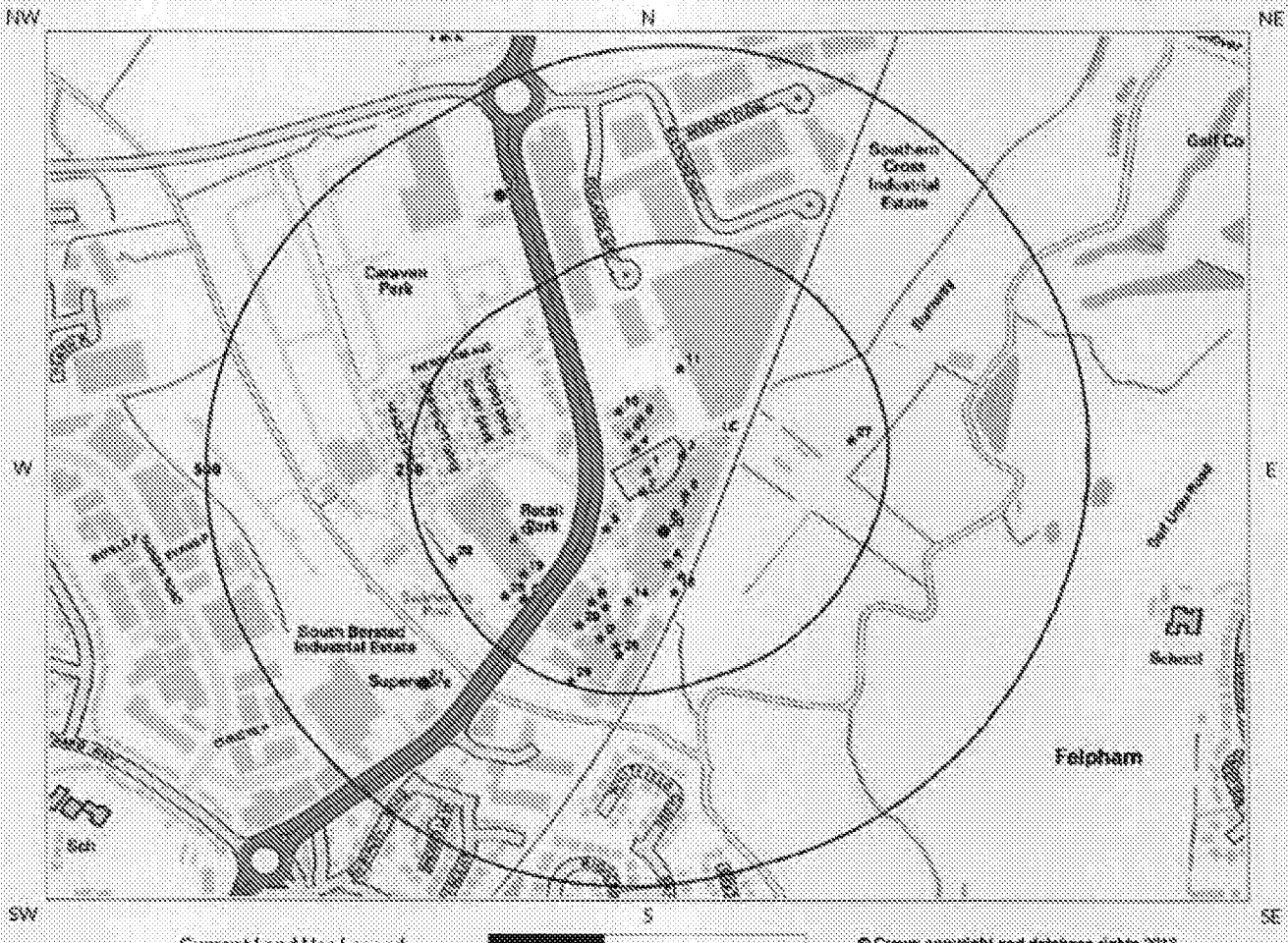
S

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	
20E	360.0	SW	494000 100500	Site Address: Bognor Regis H W R C, Shripney Road, Arun Business Park, Bognor Regis, West Sussex, RH15 8AR Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VIR004 EPR reference: - Operator: Viridor Waste Management Ltd Waste Management licence No: 19763 Annual Tonnage: 15600.0	Issue Date: 20/02/1996 Effective Date: 28/05/2004 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Bognor Regis Civic Amenity Site Correspondence Address: -, Great Western House, Station Approach, Taunton, Somerset, TA1 1QW
21E	360.0	SW	494000 100500	Site Address: Bognor Regis H W R C, Shripney Road, Arun Business Park, Bognor Regis, West Sussex, RH15 8AR Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WYV006 EPR reference: - Operator: Wyvern Waste Services Ltd Waste Management licence No: 19763 Annual Tonnage: 15600.0	Issue Date: 20/02/1996 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bognor Regis Civic Amenity Site Correspondence Address: -, Contract Office - Burgess Hill Transfer Station, Fairbridge Way, Burgess Hill, West Sussex, RH15 8AR

ID	Distance (m)	Direction	NGR	Details	
22E	360.0	SW	494000 100500	Site Address: Bognor Regis H W R C, Shripney Road, Arun Business Park, Bognor Regis, West Sussex, PO22 9PP Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VIR004 EPR reference: EA/EPR/DP3894HP/V002 Operator: Viridor Waste Management Ltd Waste Management licence No: 19763 Annual Tonnage: 15600.0	Issue Date: 20/02/1996 Effective Date: 28/05/2004 Modified: 01/01/2006 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Bognor Regis Civic Amenity Site Correspondence Address: -, -
23	498.0	SW	493900 100400	Site Address: Mundays Yard, Old Shipney Road, South Bersted, West Sussex Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SRY001 EPR reference: EA/EPR/AP3194HG/S002 Operator: Bryant John Henry Waste Management licence No: 19744 Annual Tonnage: 30000.0	Issue Date: 02/09/1996 Effective Date: - Modified: - Surrendered Date: 09/11/2001 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Mundays Yard Correspondence Address: -, -
Not shown	1278.0	SW	493400 99800	Site Address: Land/ Premises At, Town Cross Avenue, Bognor Regis, West Sussex, PO21 2DP Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ALD002 EPR reference: EA/EPR/AP3794HR/V002 Operator: Alderton Paul A Waste Management licence No: 19749 Annual Tonnage: 1300.0	Issue Date: 31/03/1994 Effective Date: 21/06/2000 Modified: 01/01/2006 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Town Cross Avenue Correspondence Address: -, -

3. Current Land Use Map



Current Land Use Legend

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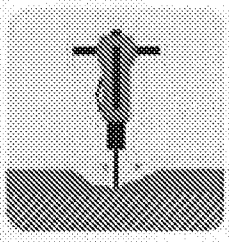
Site Outline

Search Buffers (m)

Current Industrial Sites

Petrol & Fuel Sites

Underground High Pressure Oil & Fuel Pipelines



3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 29

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	0.0	On Site	Polestar Cooling Ltd	494206 100847	Widdowson House, Southern Site, Shripney Road, Bognor Regis, PO22 9NG	Cooling and Refrigeration	Industrial Products
2	0.0	On Site	Electricity Sub Station	494202 100819	PO22	Electrical Features	Infrastructure and Facilities
3	0.0	On Site	Electricity Sub Station	494251 100867	PO22	Electrical Features	Infrastructure and Facilities
4	10.0	NW	Orbinox UK Ltd	494193 100874	Orbinox House 6-7 Clock Park, Shripney Road, Bognor Regis, PO22 9NH	Pumps and Compressors	Industrial Products
5	24.0	SE	Chichester Haulage Services Ltd	494253 100815	New Era House 8, Oldlands Way, Bognor Regis, PO22 9NQ	Distribution and Haulage	Transport, Storage and Delivery
6	31.0	NW	Tyre Express	494183 100893	2 Clock Park, Shripney Road, Bognor Regis, PO22 9NH	Vehicle Parts and Accessories	Motoring
7	35.0	SE	Factory	494241 100791	PO22	Unspecified Works Or Factories	Industrial Features
8	41.0	NW	Caterbake Packaging Ltd	494198 100914	3 Clock Park, Shripney Road, Bognor Regis, PO22 9NH	Metals Manufacturers, Fabricators and Stockholders	Industrial Products
9	46.0	SW	Green Topper Motor Co Ltd	494156 100772	Shripney Road, Bognor Regis, PO22 9NG	Secondhand Vehicles	Motoring
10	64.0	NW	Schurter Ltd	494172 100924	8 Clock Park, Shripney Road, Bognor Regis, PO22 9NH	Electrical Components	Industrial Products
11	88.0	N	Tanks	494248 100979	PO22	Tanks (Generic)	Industrial Features
12A	94.0	S	Conveyor	494232 100727	PO22	Conveyors	Industrial Features
13A	113.0	S	Tank	494249 100711	PO22	Tanks (Generic)	Industrial Features
14	131.0	S	Conveyor	494183 100678	PO22	Conveyors	Industrial Features
15	132.0	S	Tanks	494241 100690	PO22	Tanks (Generic)	Industrial Features
16B	140.0	S	Electricity Sub Station	494138 100677	PO22	Electrical Features	Infrastructure and Facilities
17B	142.0	S	Electricity Sub Station	494156 100670	PO22	Electrical Features	Infrastructure and Facilities
18	148.0	SW	Crane	494043 100758	PO22	Travelling Cranes and Gantries	Industrial Features

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
19	162.0	SW	Kwik-Fit (GB) Limited	494054 100712	Arun Retail Park, Shripney Road, Bognor Regis, PO22 9NF	Vehicle Repair, Testing and Servicing	Repair and Servicing
20	173.0	S	Electricity Sub Station	494123 100647	PO22	Electrical Features	Infrastructure and Facilities
21C	181.0	SW	Gas Governor Station	494056 100681	PO22	Gas Features	Infrastructure and Facilities
22D	181.0	S	Tanks	494149 100631	PO22	Tanks (Generic)	Industrial Features
23C	182.0	SW	Gas Governor	494054 100681	PO22	Gas Features	Infrastructure and Facilities
24D	188.0	S	Electricity Sub Station	494169 100622	PO22	Electrical Features	Infrastructure and Facilities
25	198.0	SW	Electricity Sub Station	494031 100684	PO22	Electrical Features	Infrastructure and Facilities
26	199.0	S	Cooling Tank	494172 100610	PO22	Unspecified Works Or Factories	Industrial Features
27	206.0	E	Runway	494460 100886	PO22	Aeronautical Features	Air
28	228.0	SW	Electricity Sub Station	493966 100731	PO22	Electrical Features	Infrastructure and Facilities
29	244.0	S	Just M O T's	494113 100575	Unit 4 Shripney Trade Park, Shripney Road, Bognor Regis, PO22 9GH	Vehicle Repair, Testing and Servicing	Repair and Servicing

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 3

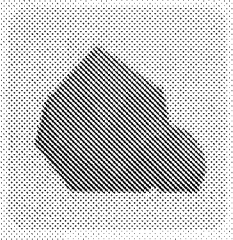
The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
30	53.0	S	494228 100768	Sainsburys	Sainsburys Bognor Regis, Shripney Road, Shripney Road, South Bersted, Bognor Regis, West Sussex, PO22 9FB	No	Open
31	346.0	SW	493932 100572	Tesco	Tesco Bognor, Shripney Road, Shripney Road, Bognor Regis, West Sussex, PO22 9ND	No	Open
32	375.0	NW	494025 101199	Obsolete	Bognor Garage, Shripney Road, Shripney Road, Bognor Regis, West Sussex, PO22 9NJ	Not Applicable	Obsolete

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site: 0

Database searched and no data found.



4. Geology

4.1 Artificial Ground and Made Ground

Database searched and no data found.

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

4.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
RMD-CSSG	RAISED MARINE DEPOSITS	CLAY, SILT, SAND AND GRAVEL

4.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
UPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED)	CHALK

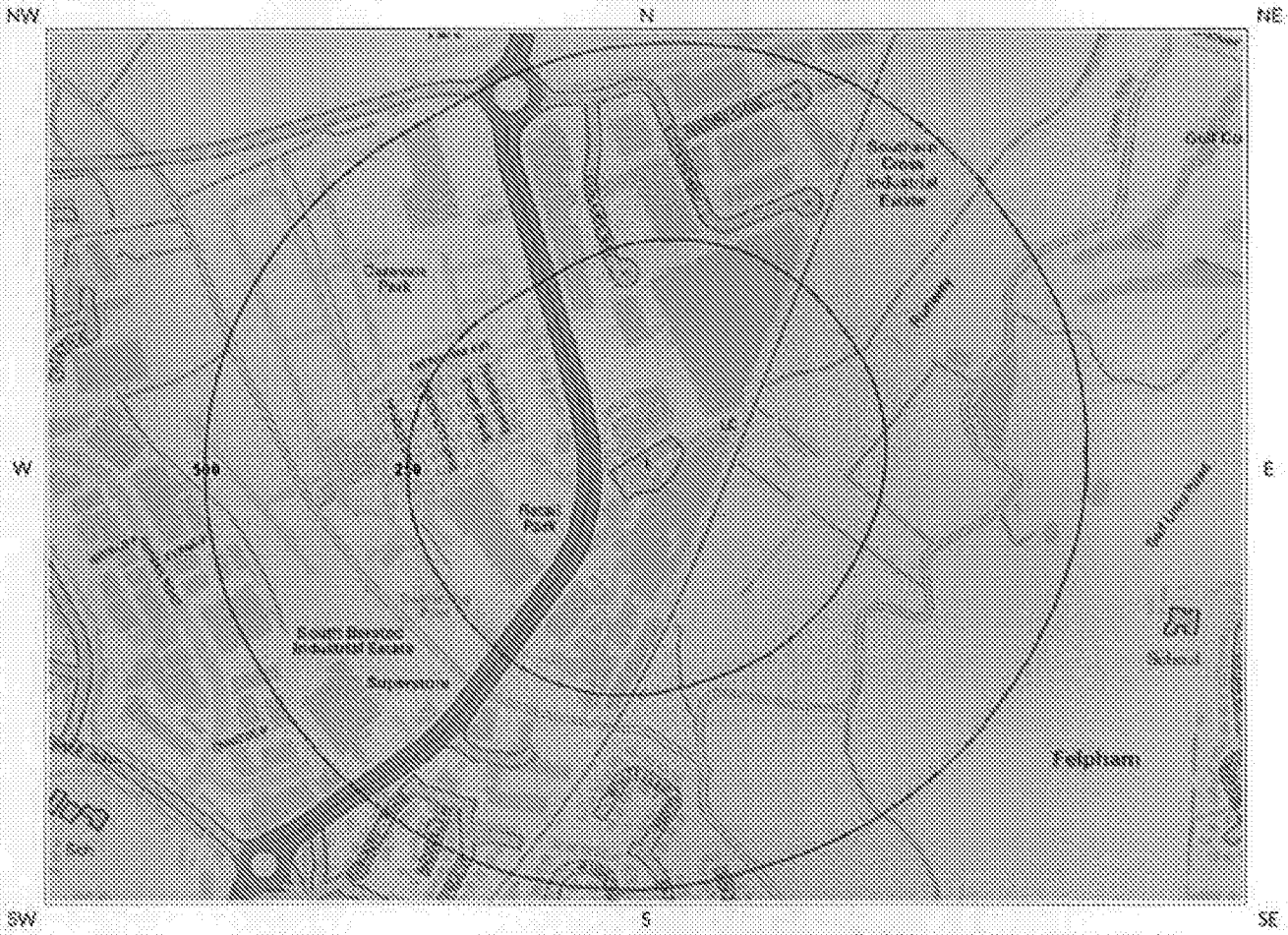
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

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5. Hydrogeology and Hydrology

5a. Aquifer Within Superficial Geology



Map Legend

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Site Outline

Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

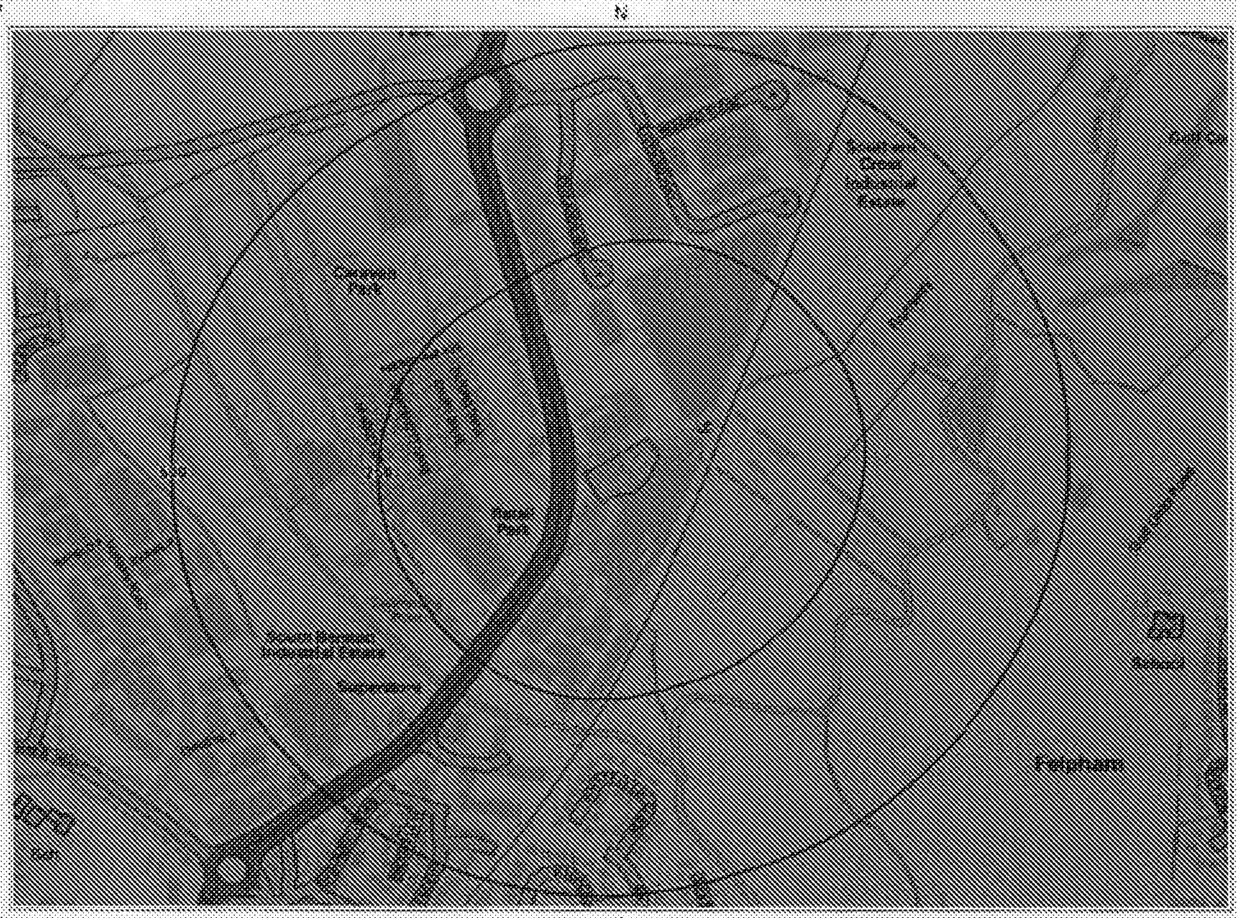
Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (data not available)

5b. Aquifer Within Bedrock Geology and Abstraction Licenses

NW N NE

W  E

SW S SE

Map Legend

Mapping sourced from Ordnance Survey

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Site Outline

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)

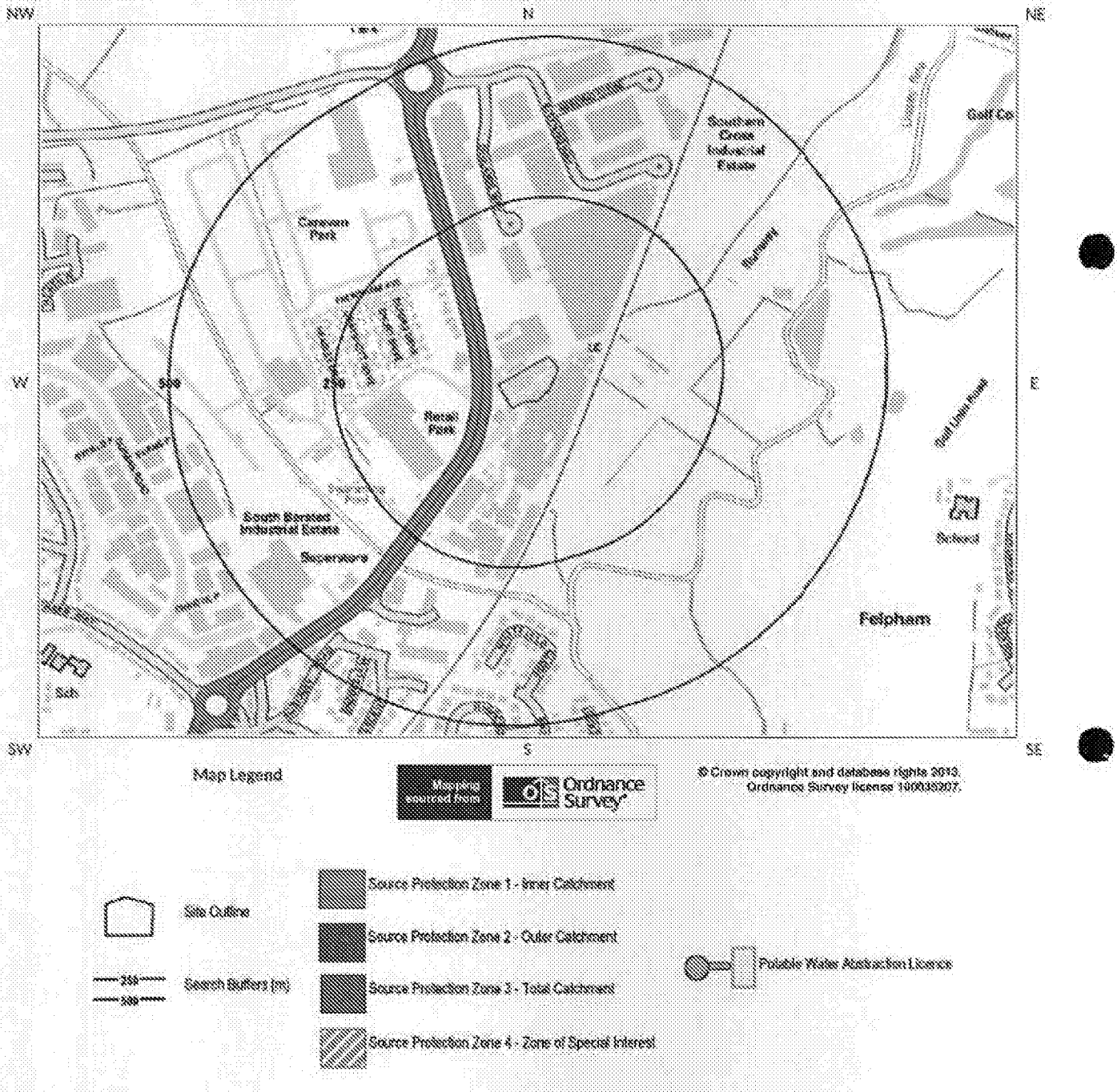
Groundwater Abstraction Licence

Surface Water Abstraction Licence

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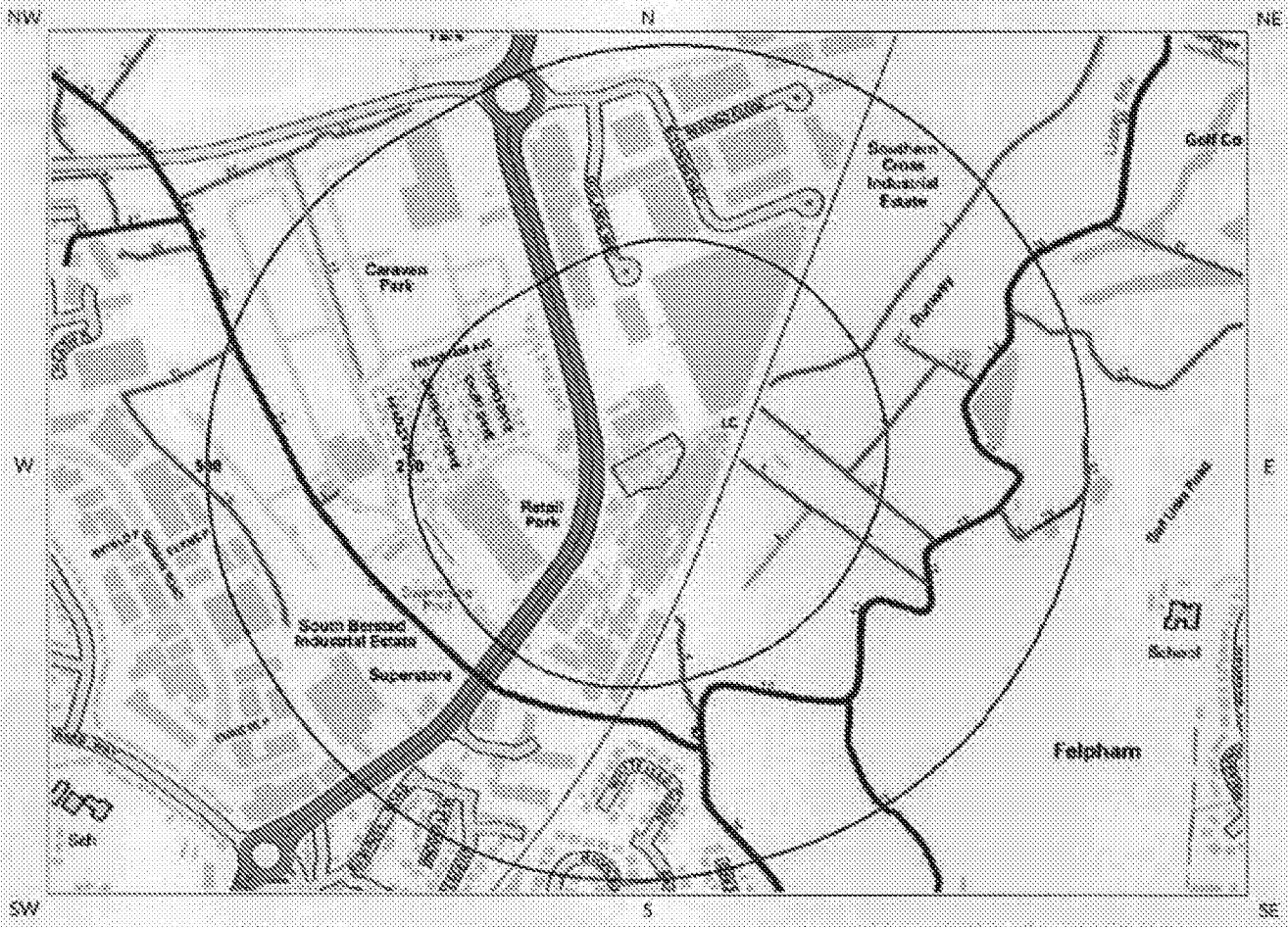
5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses



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5d. Hydrology – Detailed River Network and River Quality



Report Reference: EMS-268778_362623
Client Reference: EMS_268778_362623

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5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency'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 Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance (m)	Direction	Designation	Description
1	0.0	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

5.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency'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 Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	Designation	Description
1	0.0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	1915.0	E	496080 101450	Licence No: 10/41/542002 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: At Flansham Farm,flansham Data Type: Point	Annual Volume (m^3): 9092 Max Daily Volume (m^3): 27.2 Original Application No: WR.0265 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 7/12/1992 Version End Date:

5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details	
7	634.0	NW	492920 101610	Licence No: 10/41/541001 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Aldingbourne Rife At Whitehouse Farm. Data Type: Line	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: WR.1265 Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 7/12/1996 Version End Date:
Not shown	916.0	N	494950 102740	Licence No: 10/41/542102 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: Between Points C&d At Lidsey,bersted Data Type: Line	Annual Volume (m^3): 19639 Max Daily Volume (m^3): 909.2 Application No: WR.0714 Original Start Date: 20/5/1966 Expiry Date: 31/3/2016 Issue No: 101 Version Start Date: 10/6/2009 Version End Date:
Not shown	1449.0	S	494560 99410	Licence No: 27/201 Details: Make-Up Or Top Up Water Direct Source: Southern Region Surface Waters Point: Aldingbourne Rife At Butlins Holiday Village, Point 'a' Data Type: Point	Annual Volume (m^3): 40000 Max Daily Volume (m^3): 360 Application No: 169/1783 Original Start Date: 23/12/2002 Expiry Date: 31/3/2016 Issue No: 1 Version Start Date: 23/12/2002 Version End Date:

5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

5.7 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major 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.
0	On Site	Major 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.
90	N	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
393	SE	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

5.8 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site? Yes

5.8.1 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 (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
77A	321.0	S	494270 100500	River Name: Aldingbourne Rife Reach: Coast - Barnham Rife Conf End/Start of Stretch: Start of Stretch NGR	C	C	C	C	C
78A	321.0	S	494270 100500	River Name: Lidsey Rife Reach: Aldingbourne/barnham Rifes - Westergate End/Start of Stretch: End of Stretch NGR	C	C	C	C	C

5.8.2 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 (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
79A	321.0	S	494270 100500	River Name: Aldingbourne Rife Reach: Coast - Barnham Rife Conf End/Start of Stretch: Start of Stretch NGR	E	E	E	E	E
Not shown	1406.0	S	494580 99460	River Name: Aldingbourne Rife Reach: Coast - Barnham Rife Conf End/Start of Stretch: Sample Point NGR	E	E	E	E	E

5.9 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site? Yes

The following Detailed River Network records are represented on the Hydrology Map (5d):

ID	Distance (m)	Direction		Details
1	70.0	E	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
2	108.0	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
3	132.0	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
4	161.0	SE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
5	169.0	S	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
6	172.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
7	174.0	E	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
8	204.0	E	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
9	204.0	E	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
10	269.0	S	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
11	289.0	S	River Name: Aldingbourne Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
12	293.0	SE	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
13	295.0	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
14 A	295.0	S	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
15	303.0	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
16	328.0	E	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
17	330.0	W	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined
18	334.0	E	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
19	339.0	W	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
20	344.0	S	River Name: Aldingbourne Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
21	350.0	E	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined

ID	Distance (m)	Direction		Details
22	361.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
23	367.0	W	River Name: Aldingbourne Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
24	372.0	E	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
25	398.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
26	441.0	NE	River Name: Lidsey Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
27	441.0	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
28	444.0	W	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
29	449.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
30	469.0	W	River Name: Aldingbourne Rife Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
31	489.0	W	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
32	496.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined

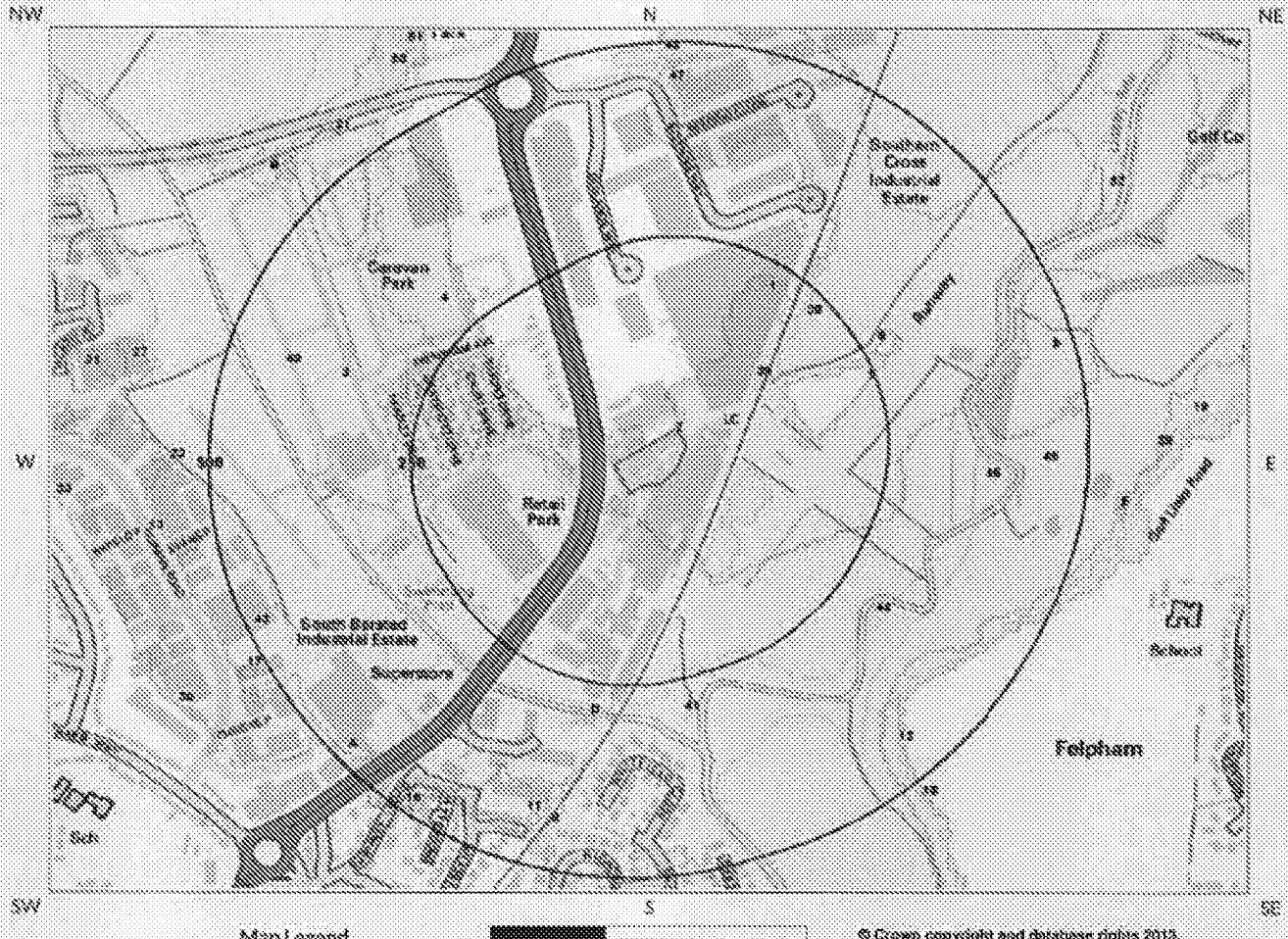
5.10 Surface Water Features

Are there any surface water features within 250m of the study site? Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
132.0	NE
161.0	SE
166.0	SE
169.0	S
200.0	E

6. Environment Agency Flood Map for planning (from rivers and the sea)



Map Legend

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Site Outline

Search Buffers (m)

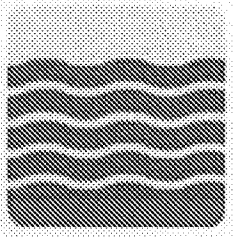
Zone 2 Floodplain

Zone 3 Floodplain

Flood Storage Area

Area Benefiting from Flood Defences

Flood Defences



6. Flooding

6.1 Zone 2 Flooding

Environment Agency 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 1 - Environment Agency Flood Map for Planning:

Is the site within 250m of an Environment Agency Zone 2 floodplain? Yes

The following floodplain records are represented as green shading on the Flood Map:

ID	Distance (m)	Direction	Update	Type
1	0.0	On Site	10-Sep-2014	Zone 2 - (Tidal Models)
2	0.0	On Site	10-Sep-2014	Zone 2 - (Tidal Models)
3	24.0	S	10-Sep-2014	Zone 2 - (Fluvial / Tidal Models)
4	103.0	NW	10-Sep-2014	Zone 2 - (Fluvial Models)
5	236.0	E	10-Sep-2014	Zone 2 - (Tidal Models)

6.2 Zone 3 Flooding

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 1 - Environment Agency Flood Map for Planning.

Is the site within 250m of an Environment Agency Zone 3 floodplain? Yes

The following floodplain records are represented as blue shading on the Flood Map:

ID	Distance (m)	Direction	Update	Type
38	0.0	On Site	11-Sep-2014	Zone 3 - (Tidal Models)
39	116.0	NE	11-Sep-2014	Zone 3 - (Tidal Models)
40	233.0	S	11-Sep-2014	Zone 3 - (Fluvial / Tidal Models)

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6.3 Flood Defences

Are there any Flood Defences within 250m of the study site? No

Database searched and no data found.

6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

---

6.5 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

---

6.6 Groundwater Flooding Susceptibility Areas

6.6.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?

Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Clearwater 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).

6.6.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential below Surface

Where potential for groundwater flooding of property situated below ground level is indicated, this means that given the geological conditions there may be a groundwater flooding hazard to basements and other below surface infrastructure. Unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area you need take no further action in relation to groundwater flooding hazard. If there are records of previous incidences of groundwater flooding, then is recommended that other information e.g. rainfall history, property type, and land drainage information in addition to previous records of flooding be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

6.7 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result?	High

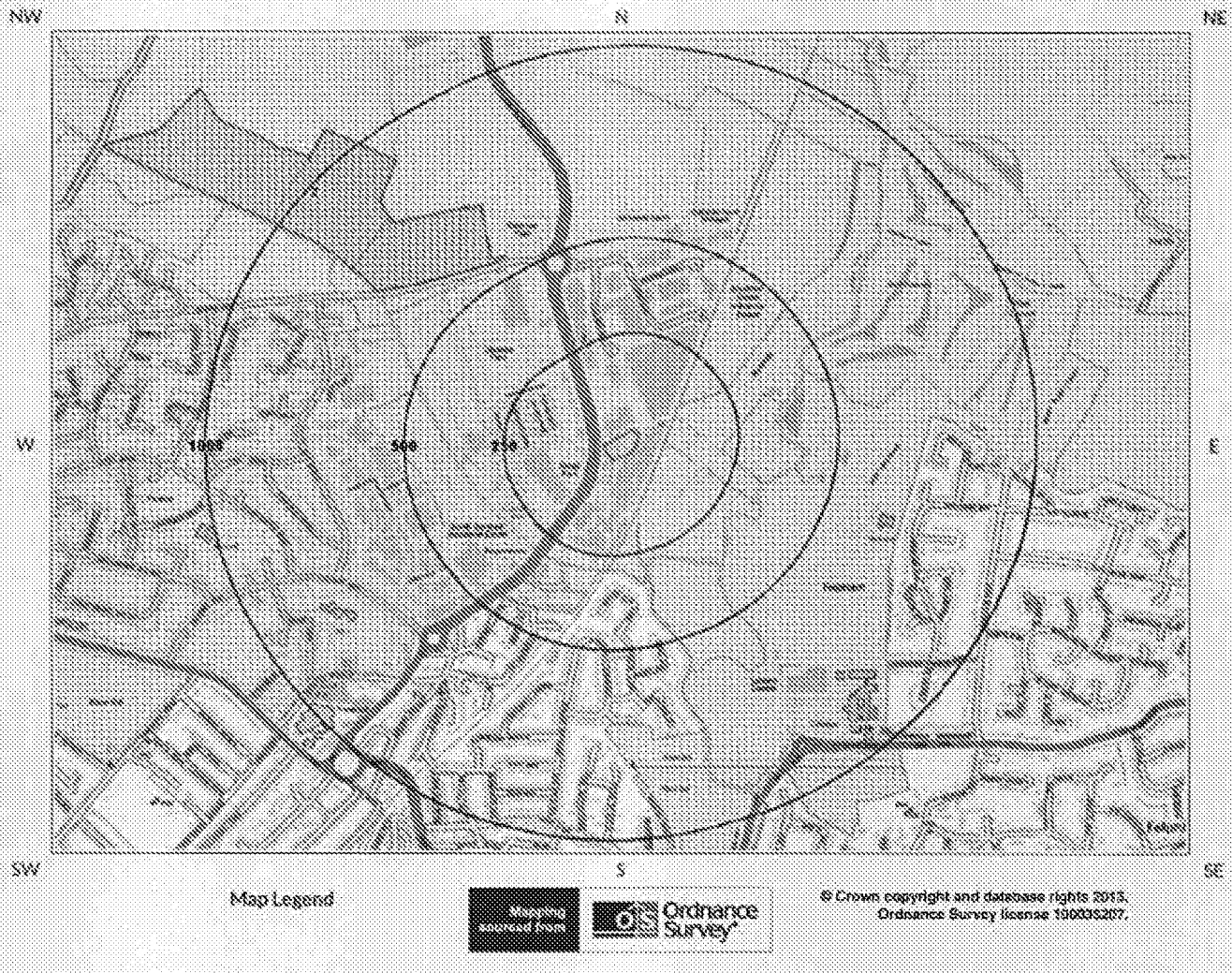
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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.

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7. Designated Environmentally Sensitive Sites Map



Map Legend

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Site Outline

Areas of Outstanding Natural Beauty

SAC

SPA

Nitrate Vulnerable Zones

SSSI

Ramsar

Nitrate Sensitive Areas

NNR

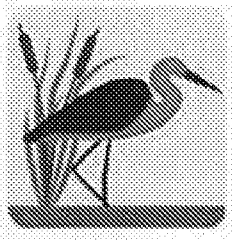
LNR

National Parks

World Heritage Sites

Environmentally Sensitive Areas

Ancient Woodlands



7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

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

1

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

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1652.0	SE	Felpham	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

The following Local Nature Reserve (LNR) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
2	552.0	NW	The Brooks	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

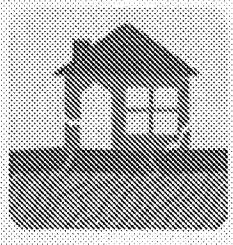
Database searched and no data found.

7.13 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
3	0.0	On Site	NVZ Area	DEFRA
4	810.0	S	NVZ Area	DEFRA
5	811.0	S	NVZ Area	DEFRA
6	1489.0	SW	NVZ Area	DEFRA



8. Natural Hazards Findings

8.1 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 GeoInsight, available from our website. The following information has been found:

8.1.1 Shrink Swell

What is the maximum Shrink-Swell* 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
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.

8.1.2 Landslides

What is the 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.

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

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* 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
Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

8.1.4 Compressible Ground

What is the maximum Compressible Ground* 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
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.

8.1.5 Collapsible Rocks

What is the 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.

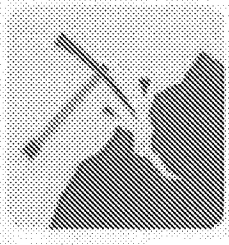
8.1.6 Running Sand

What is the maximum Running Sand* 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
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

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



9. Mining

9.1 Coal Mining

Are there any coal mining areas within 75m of the study site? No

Database searched and no data found.

9.2 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site*? Low

*Please note this data is searched with a 150m buffer.

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? No

Guidance: No Guidance Required.

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GroundSure

Contact Details

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sales@emapsite.com

emapsite™

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143
Fax: 0115 936 3276
Email: enquiries@bgs.ac.uk
Web:www.bgs.ac.uk
BGS Geological Hazards Reports and general geological enquiries

British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 08708 506 506
Web:www.environment-agency.gov.uk
Email:enquiries@environment-agency.gov.uk

Environment Agency

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england
Email:enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

Public Health England

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

The Coal Authority

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Mapping sourced from Ordnance Survey®

Local Authority
Authority: Arun District Council
Phone: 01903 737500
Web: www.arun.gov.uk
Address: The Arun Civic Centre, Maltravers Road, Littlehampton, West Sussex, BN17 5LF

Getmapping PLC

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

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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, English Nature who retain the Copyright and Intellectual Property Rights for the data.
PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].
This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure.

"Commercial" means any building or property which is not Residential.

"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

"Third Party Data Provider" means any third party providing Third Party Content to GroundSure.

"Data Reports" means reports comprising factual data with no accompanying interpretation.

"Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.

"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.

"Residential" means any building or property used as or intended to be used as a single dwelling.

"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents:

(i) the Beneficiary,

(ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),

(iv) the first purchaser or first tenant of the Site, and

(v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to:

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey.

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7 Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for:

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are:

(a) supplied to the Client's specification(s) and in any event

(b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in

GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Third Party Data Providers;

(viii) changes in law; or

(ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days, then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

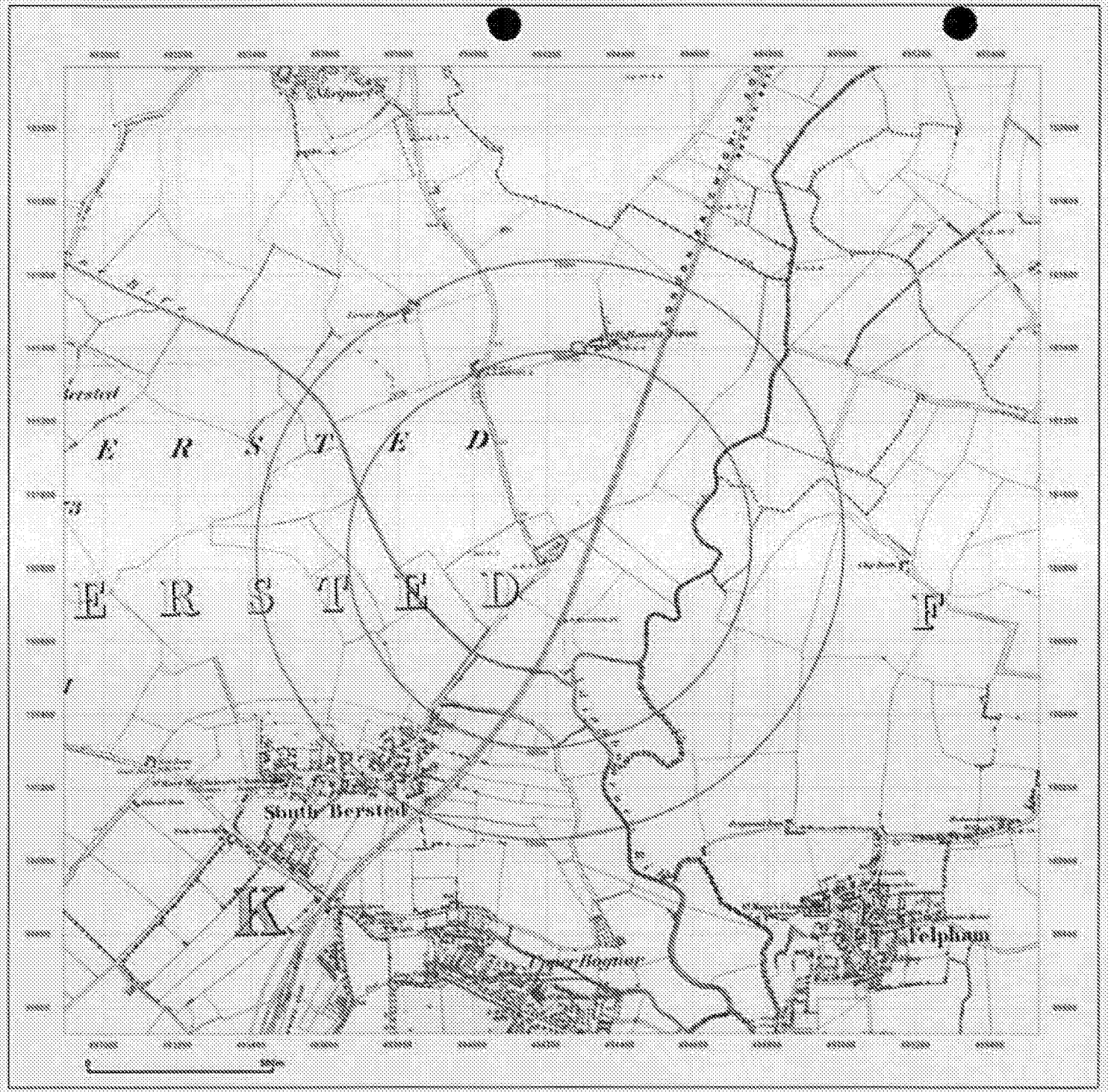
12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law. © GroundSure Limited June 2013

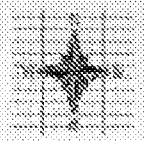


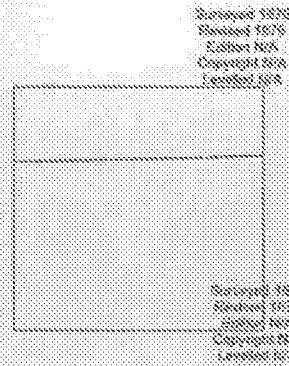
emapsite™

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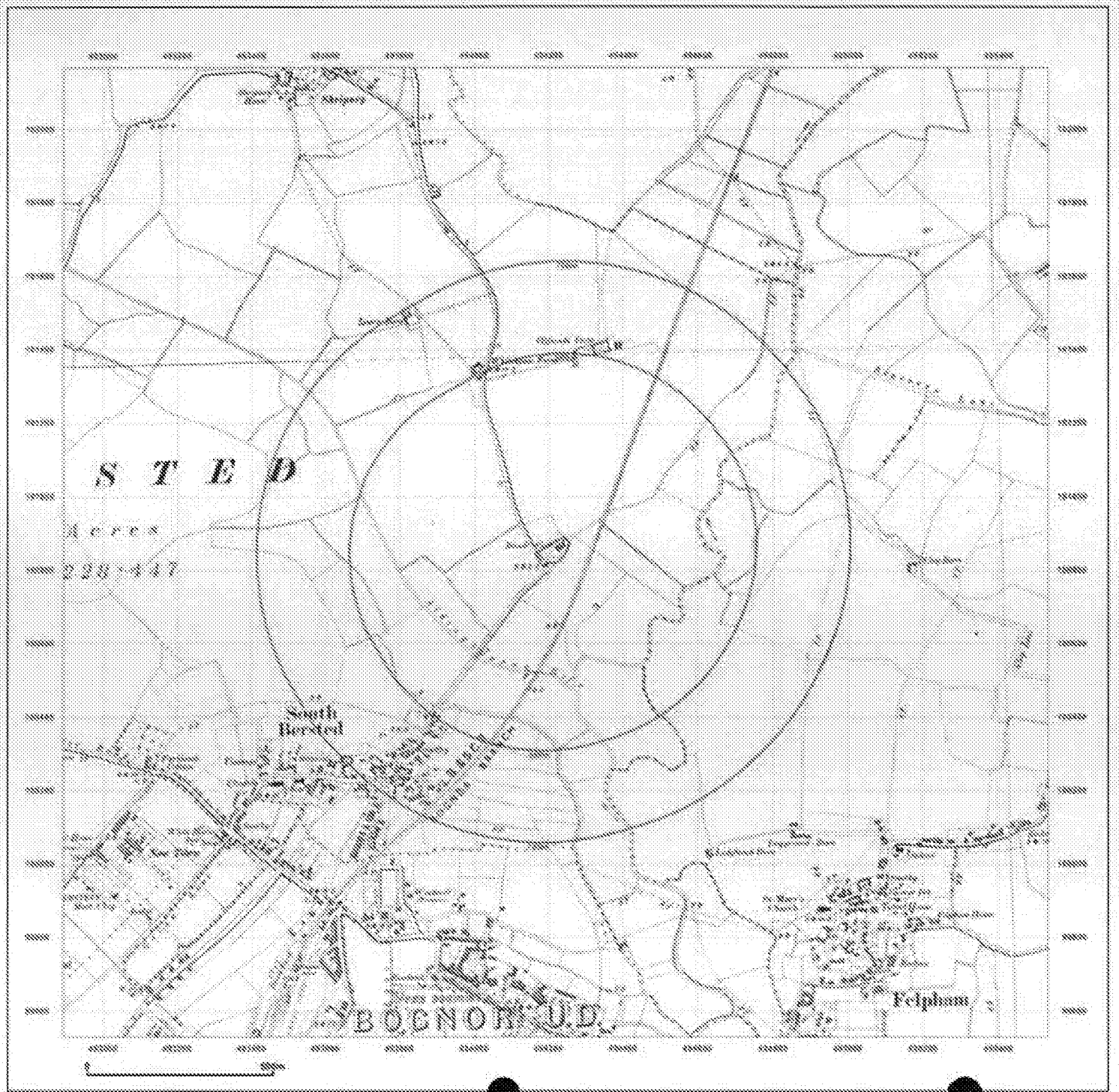
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sales@emapsite.com

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Production date: 23 September 2014

To view map legend click here Legend

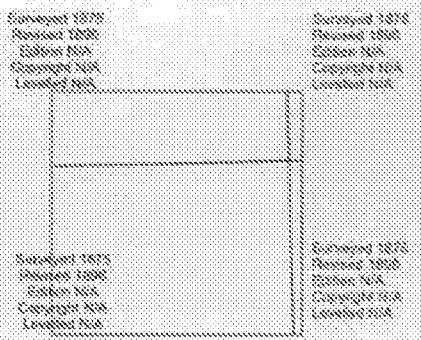


emapsite™

Site Details:

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Grid Ref: 494212, 100648

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Map date: 1896
Scale: 1:10,560
Printed at: 1:10,560



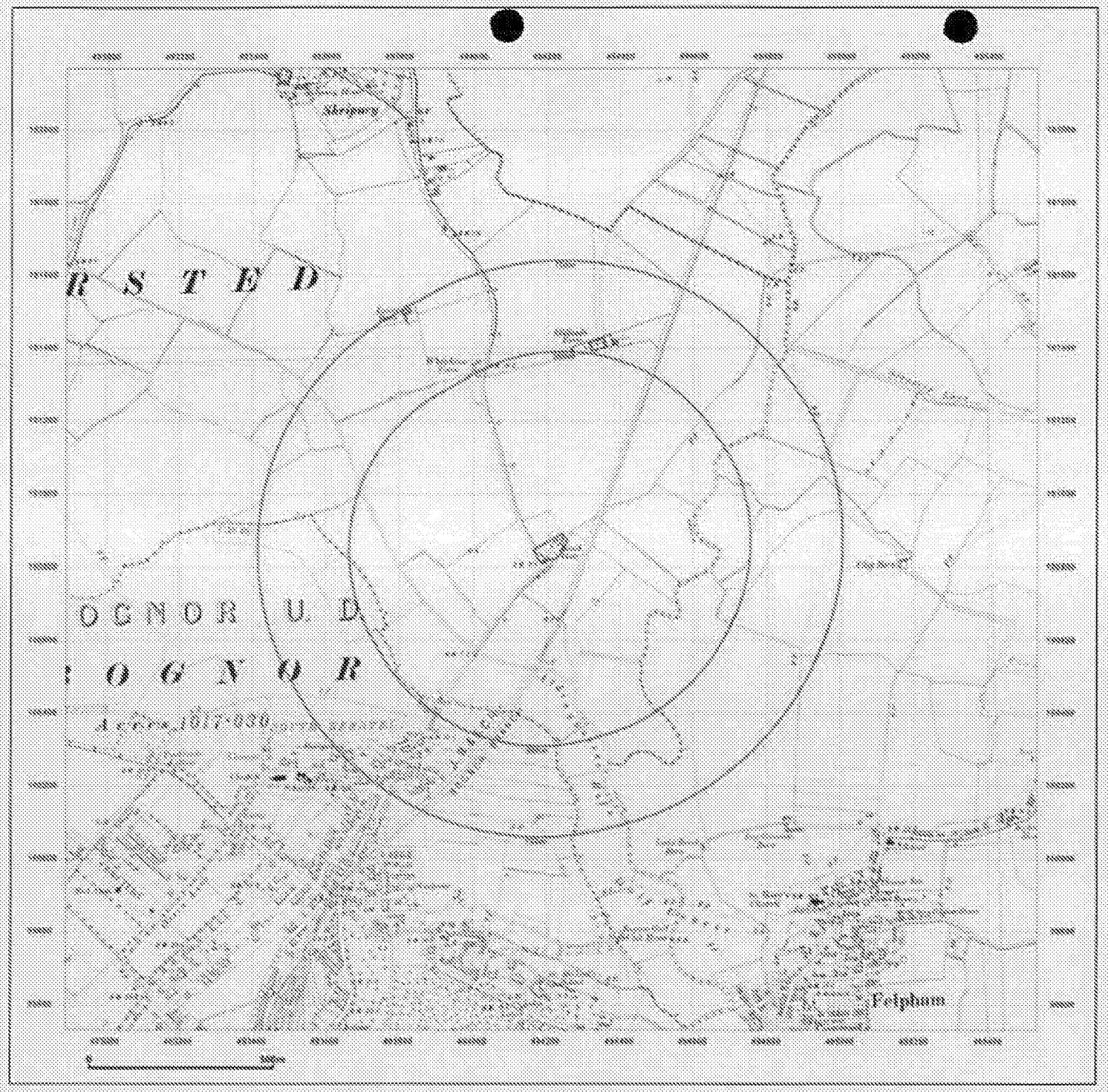
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GroundSure Environmental Insight
www.groundsure.com

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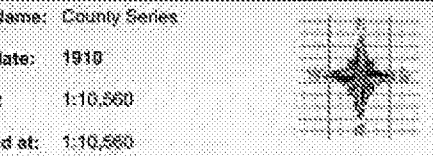


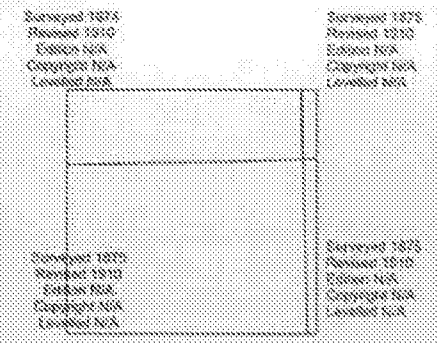
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1910
Scale: 1:10,560
Printed at: 1:10,560





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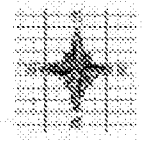


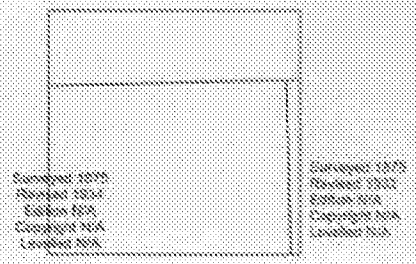
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1932-1934
Scale: 1:10,560
Printed at: 1:10,560





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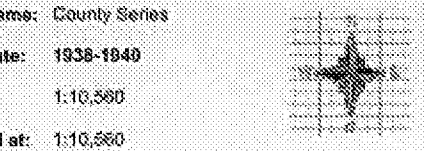


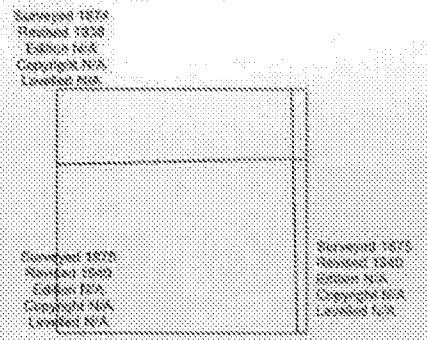
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1938-1940
Scale: 1:10,560
Printed at: 1:10,560





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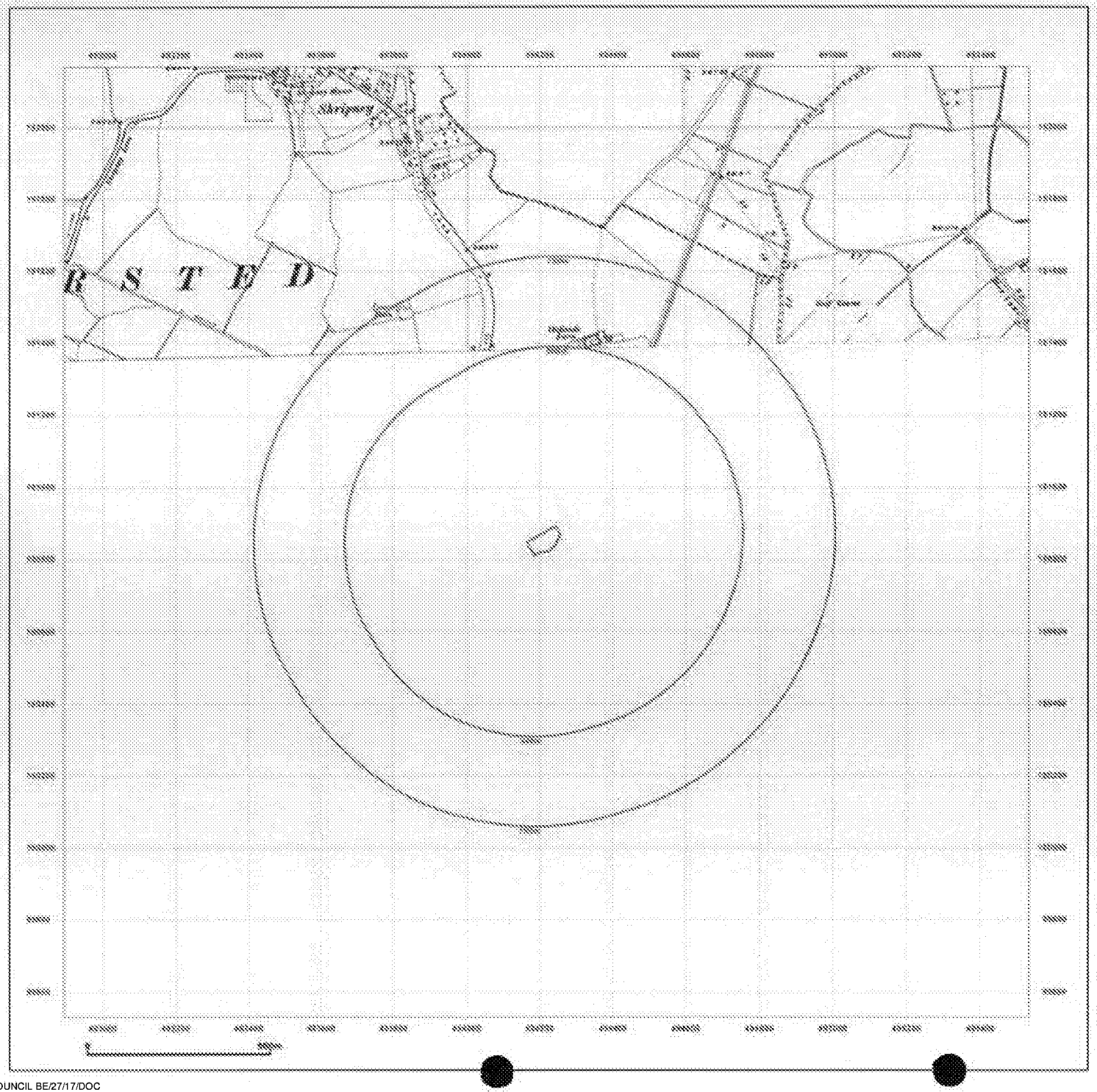
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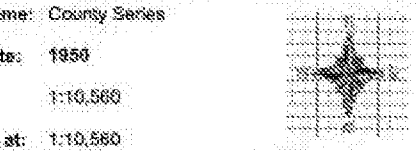


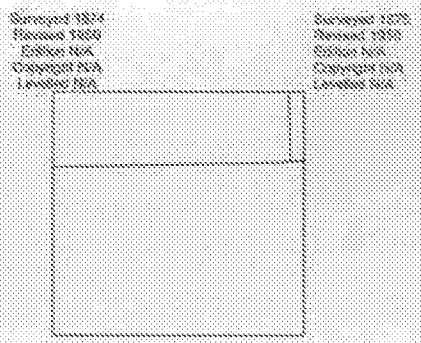
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1950
Scale: 1:10,560
Printed at: 1:10,560





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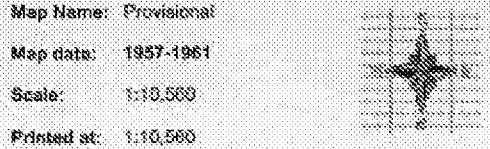


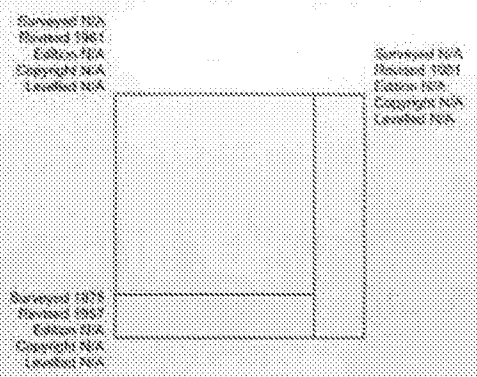
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: Provisional
Map date: 1957-1961
Scale: 1:10,560
Printed at: 1:10,560





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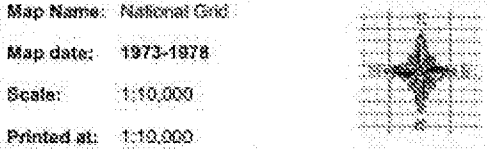


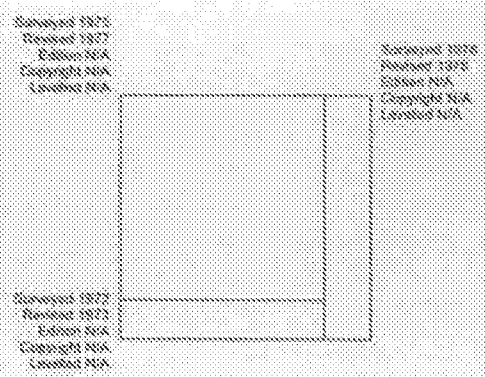
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 1973-1978
Scale: 1:10,000
Printed at: 1:10,000





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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid

Map date: 1989-1993

Scale: 1:10,000

Printed at: 1:10,000

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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 106648

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

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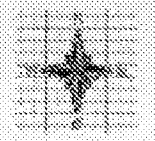


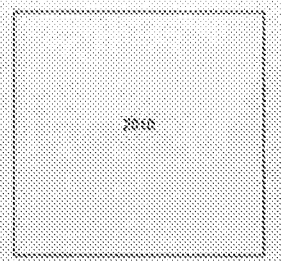
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000





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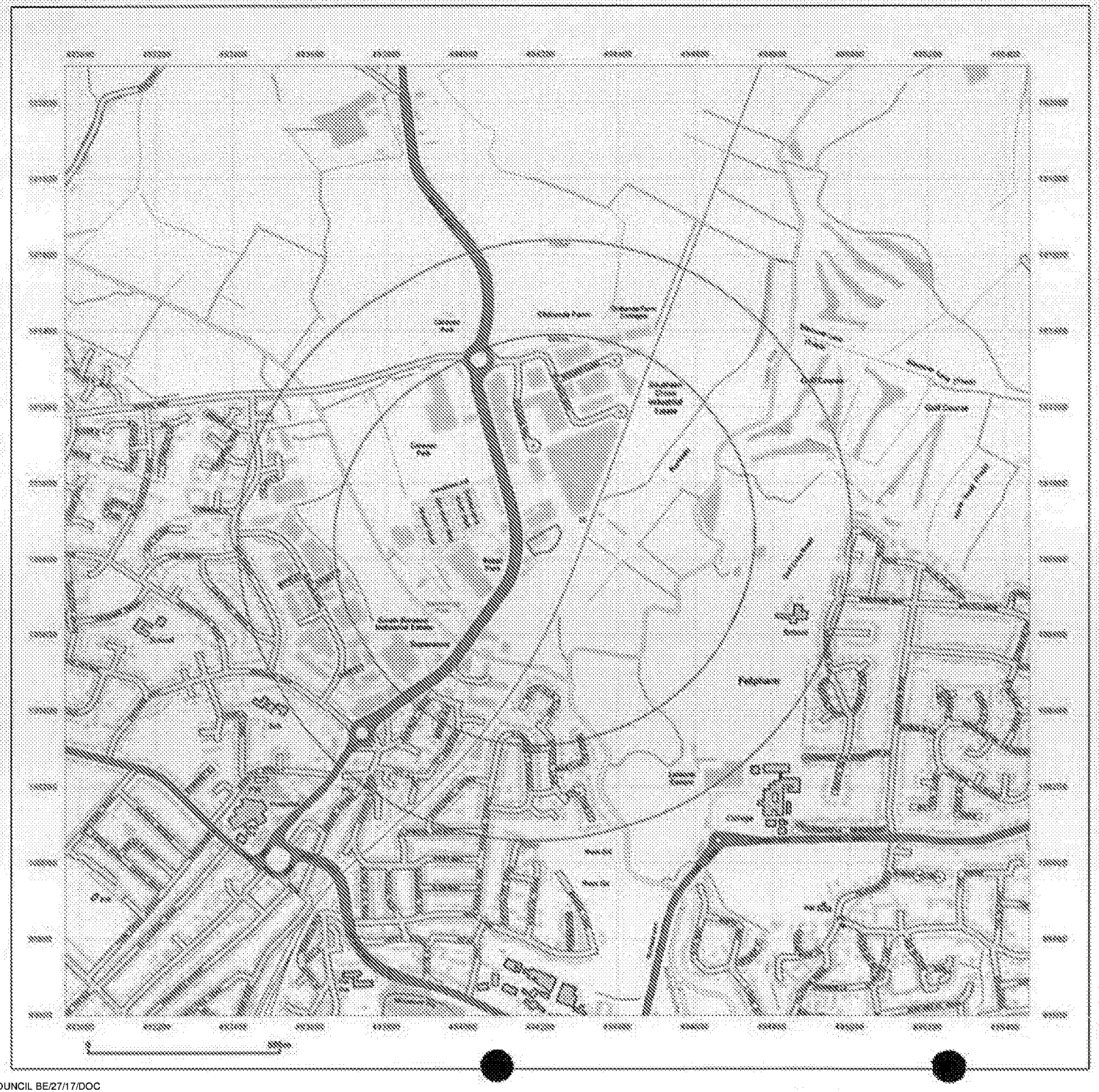
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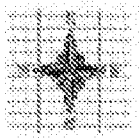


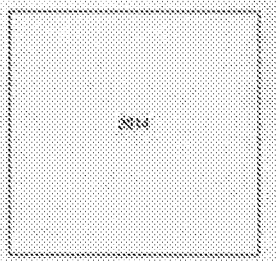
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 2014
Scale: 1:10,000
Printed at: 1:10,000





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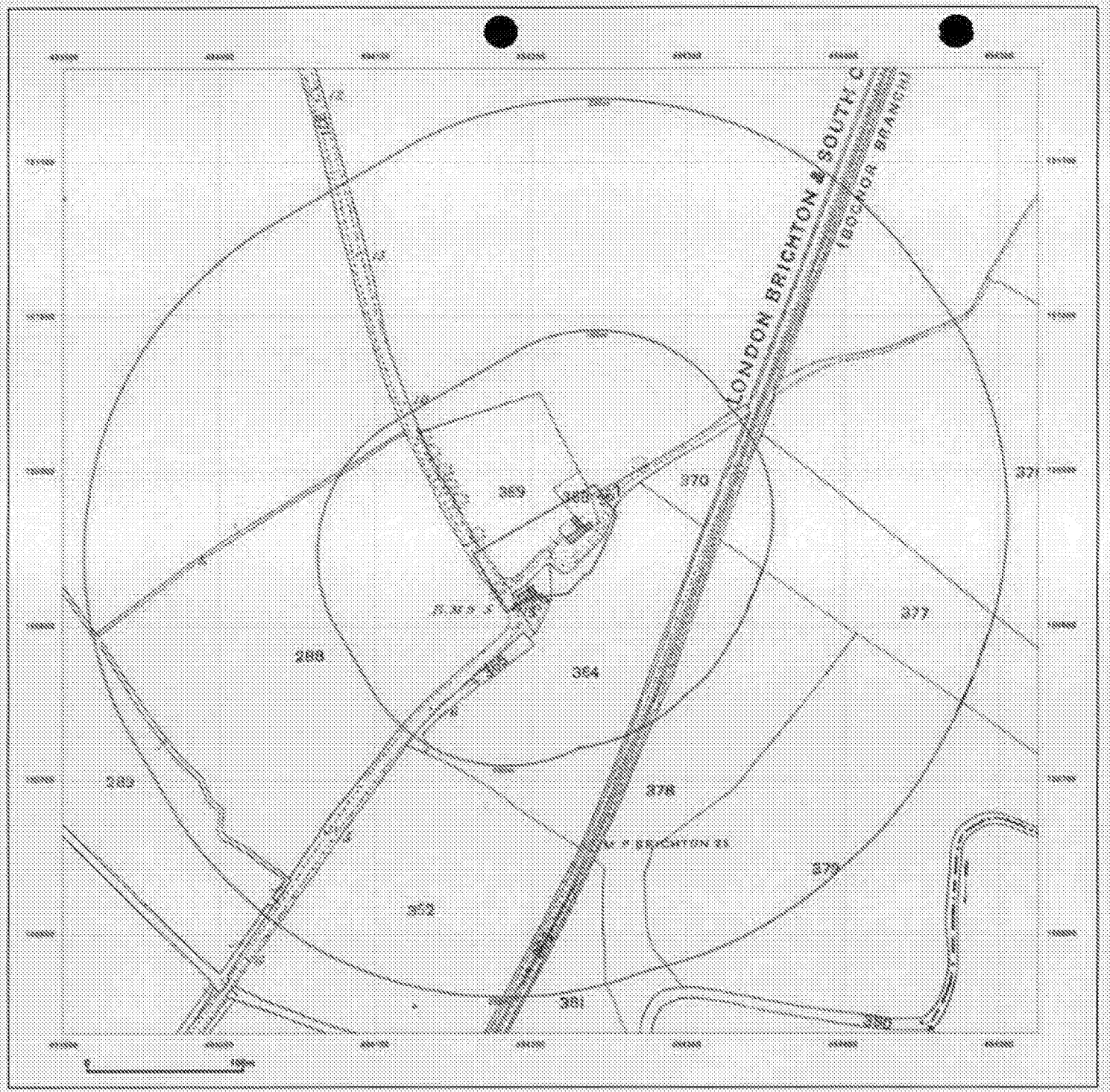
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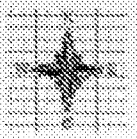


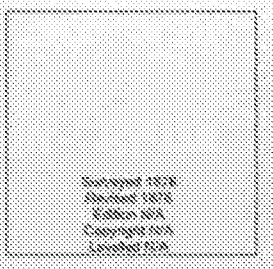
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Site Details:

Client Ref: EMS_268778_382821
Report Ref: EMS-268778_382821
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1876
Scale: 1:2,500
Printed at: 1:2,500





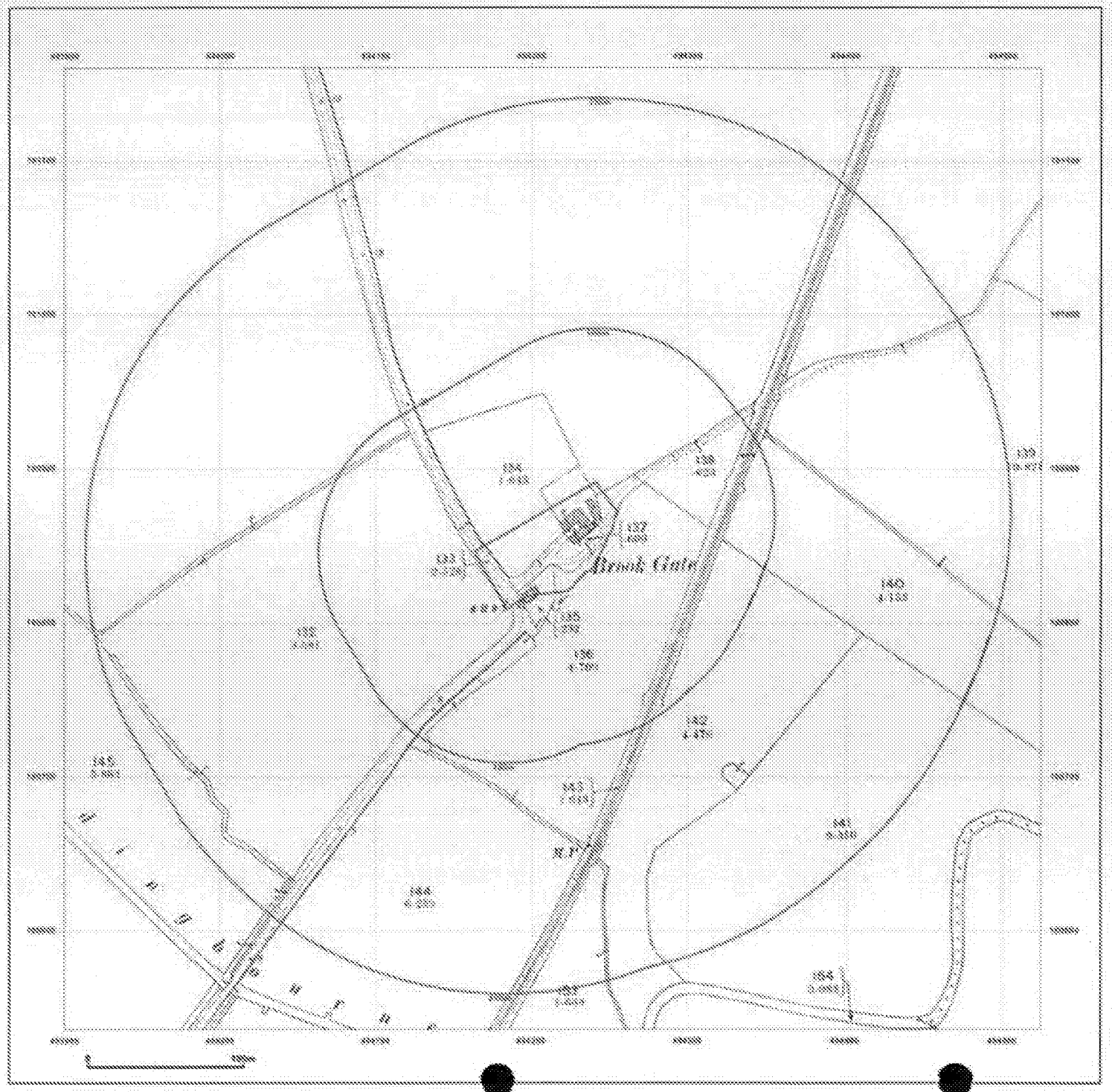
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Site Details:

Client Ref: EMS_268778_362821
Report Ref: EMS-268778_362821
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1898
Scale: 1:2,500
Printed at: 1:2,500

Surveyed 1898
Revised 1909
Surveyed N/A
Revised N/A
Licensed N/A

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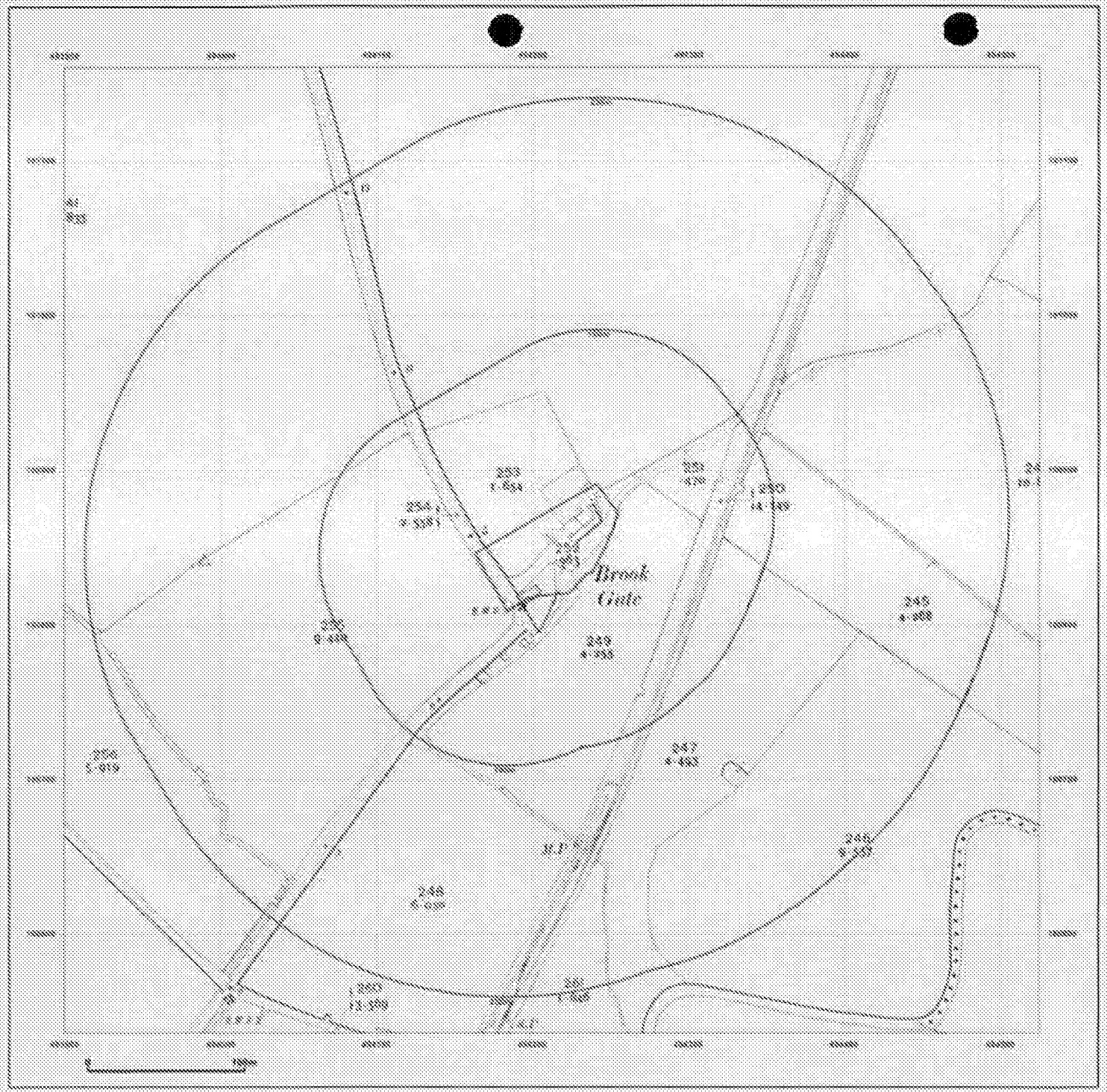
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: County Series
Map date: 1912
Scale: 1:2,500
Printed at: 1:2,500

Surveyed 1912
Revised 1912
Edition N/A
Copyright N/A
Levelled N/A

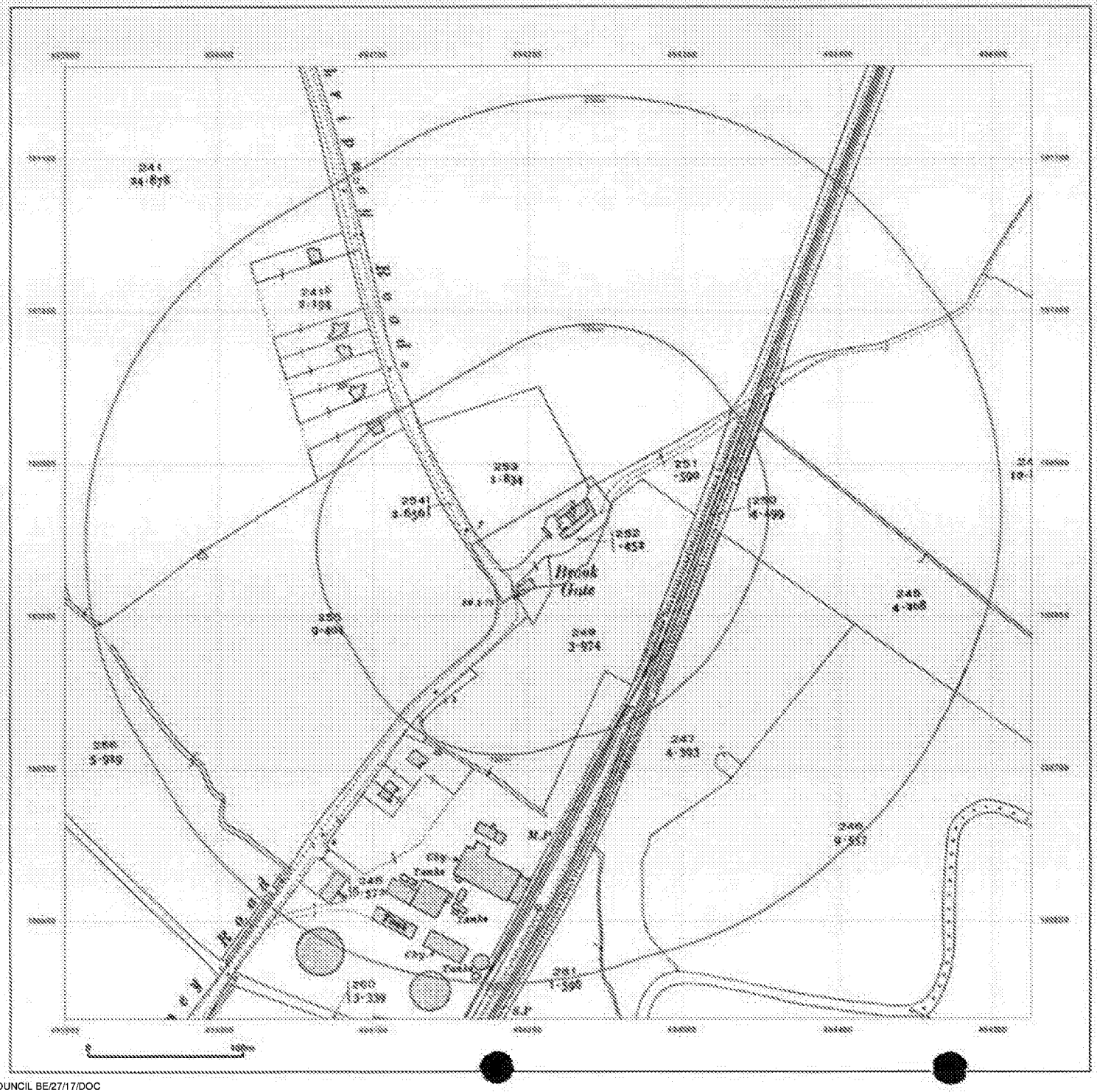
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100648

Map Name: County Series
Map date: 1932
Scale: 1:2,500
Printed at: 1:2,500

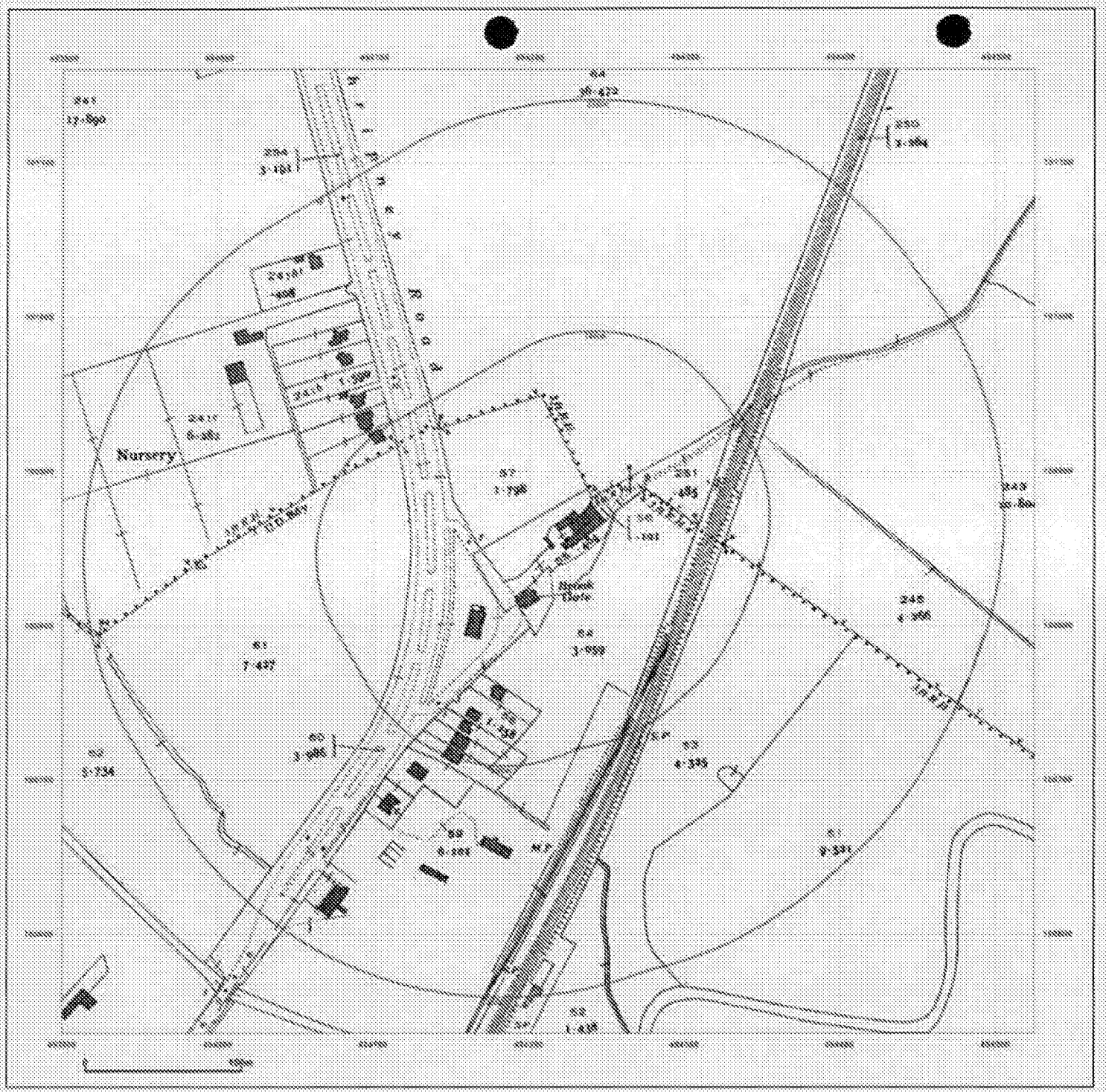
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Site Details:

Client Ref: EMS_268778_382621
Report Ref: EMS-268778_382621
Grid Ref: 496212, 100848

Map Name: County Series
Map date: 1939
Scale: 1:2,500
Printed at: 1:2,500

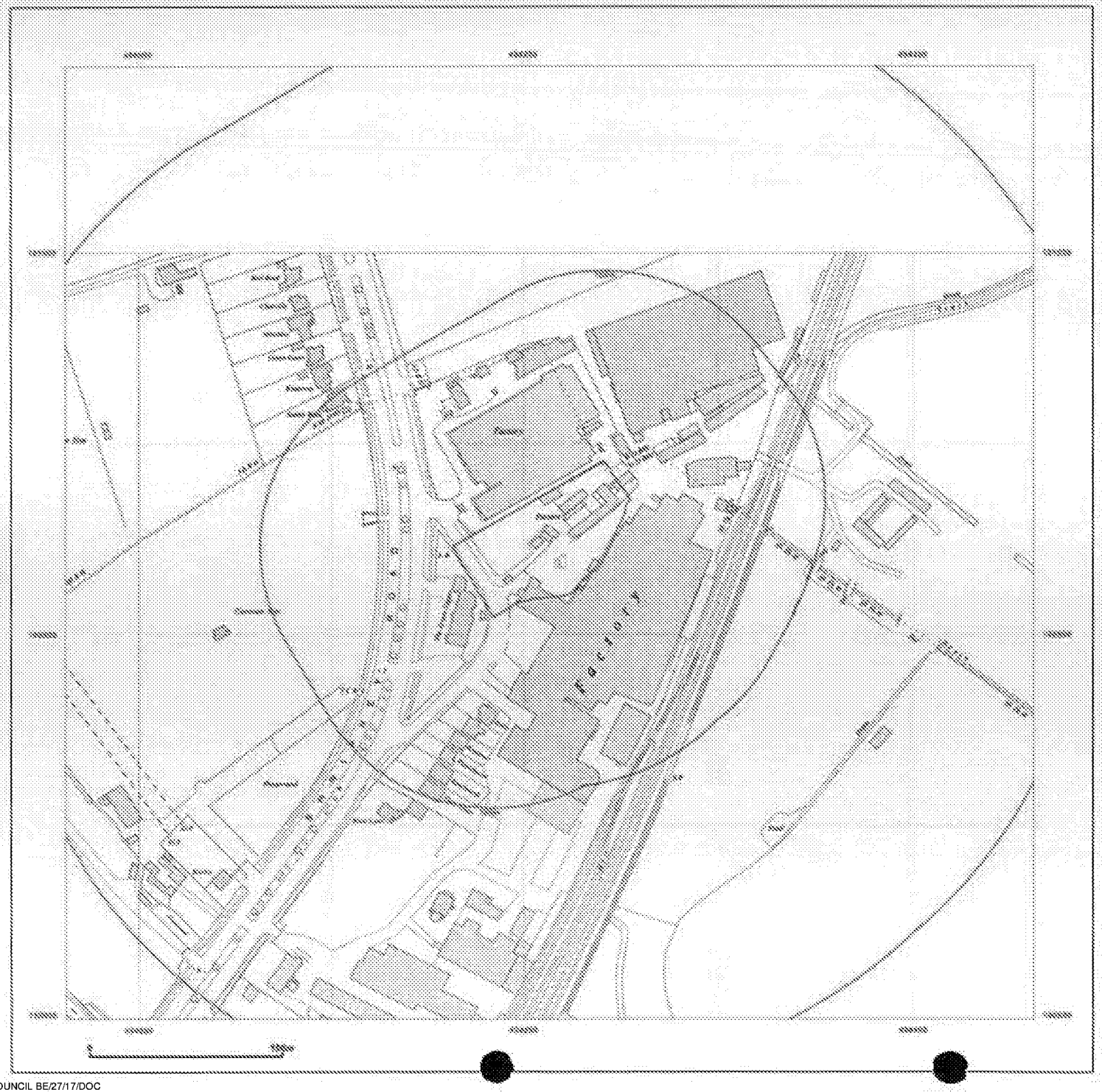
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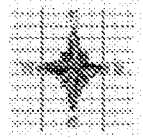


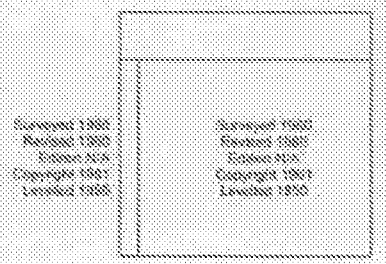
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 1961
Scale: 1:1,250
Printed at: 1:2,000





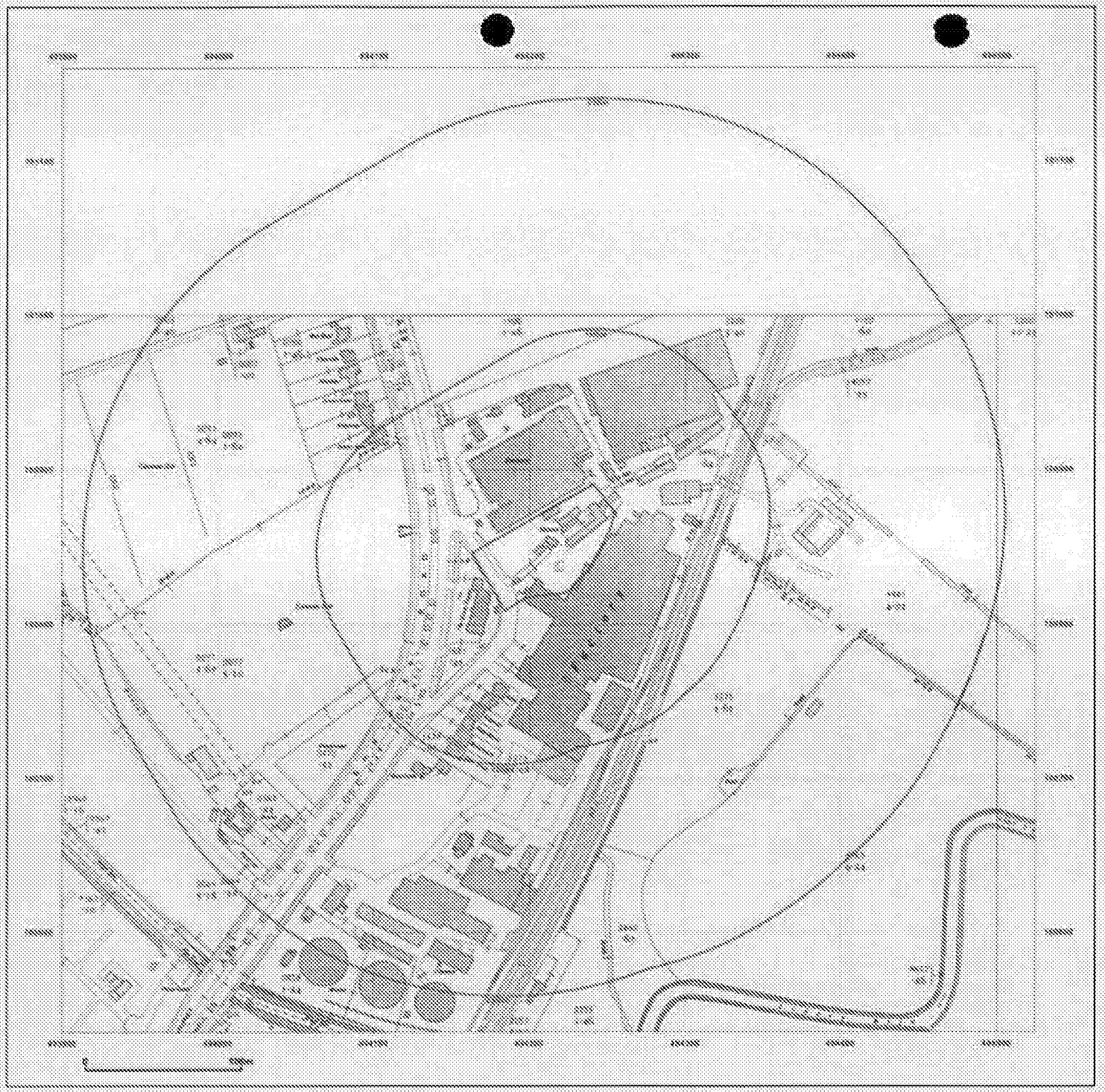
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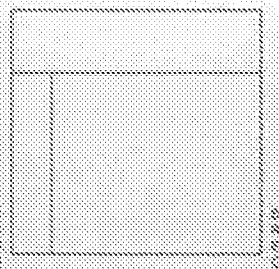
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Site Details:

Client Ref: EMS_268778_362821
Report Ref: EMS-268778_362821
Grid Ref: 494212, 100648

Map Name: National Grid
Map date: 1960-1961
Scale: 1:2,500
Printed at: 1:2,500





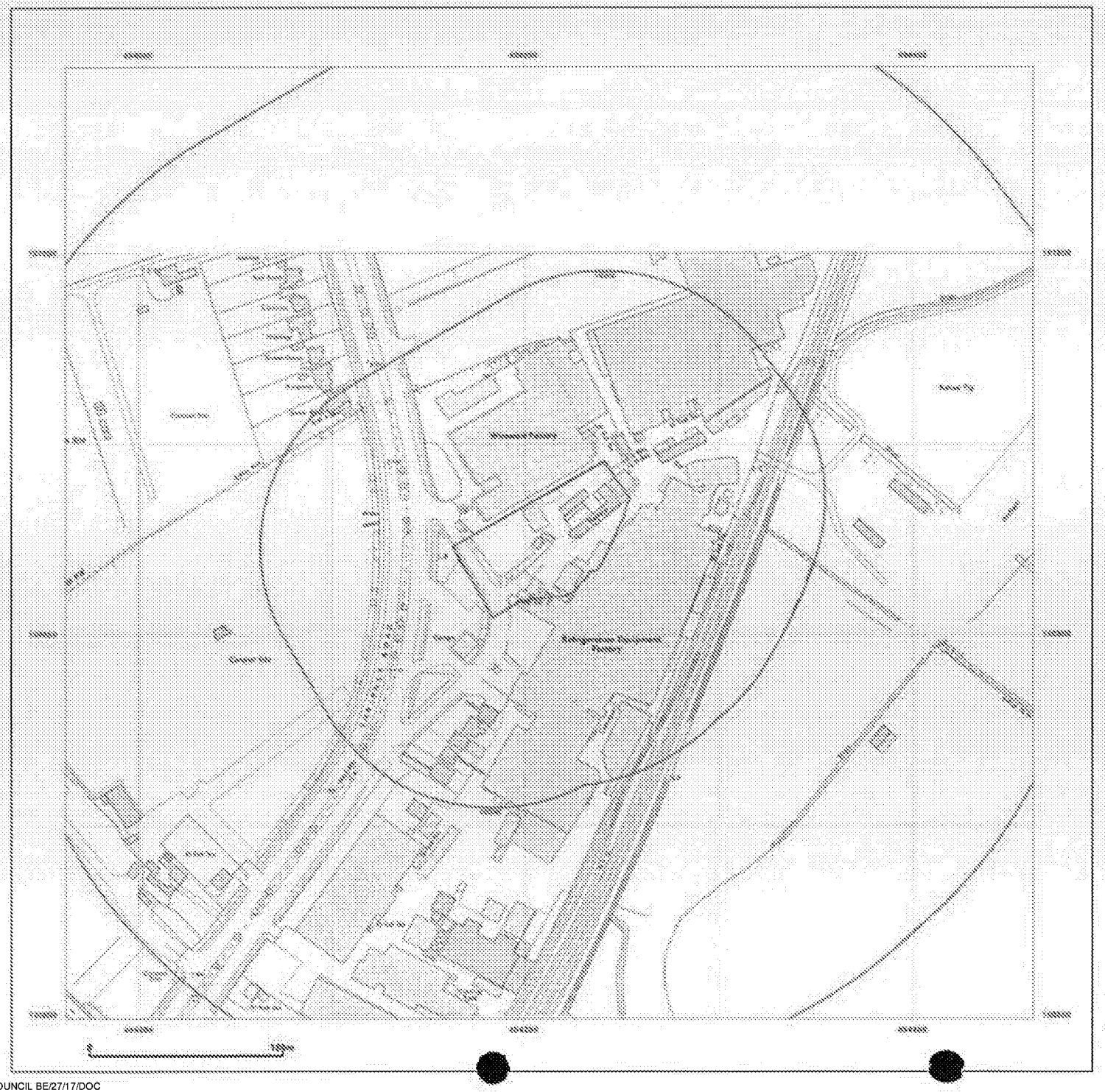
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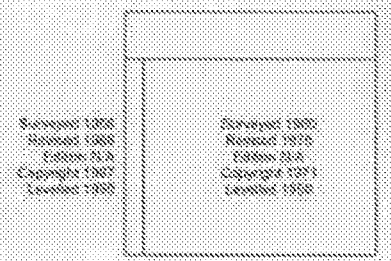


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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100648

Map Name: National Grid
Map date: 1967-1971
Scale: 1:1,250
Printed at: 1:2,000



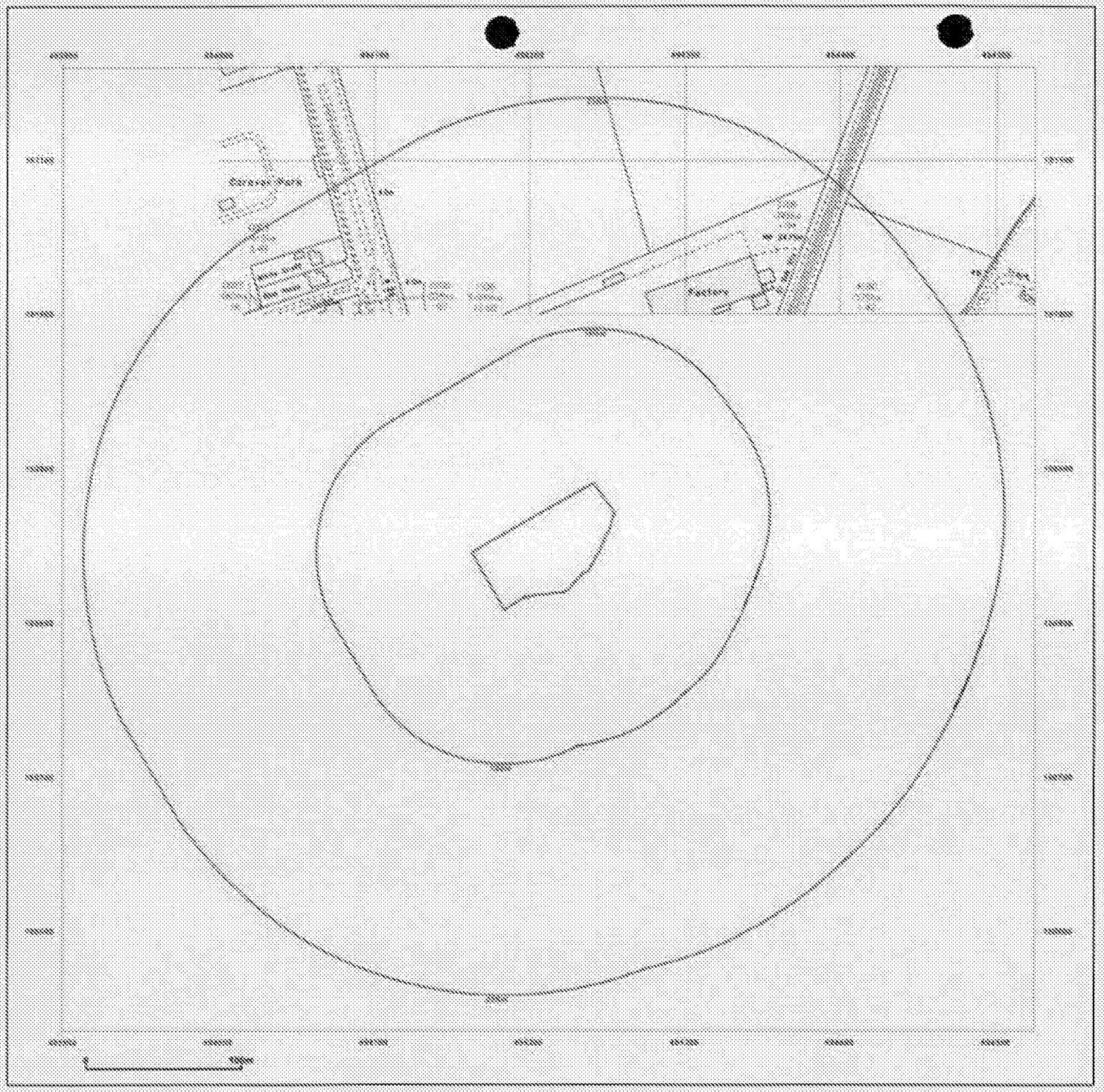
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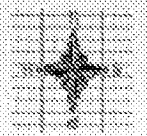


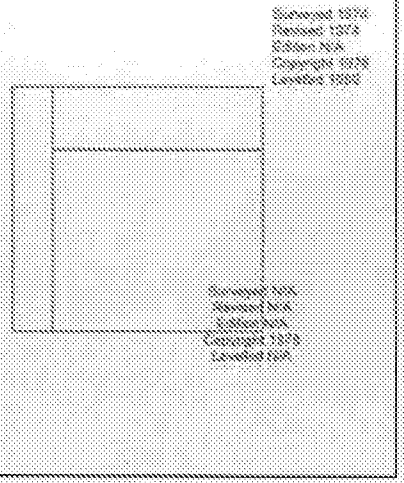
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Site Details:

Client Ref: EMS_368778_363621
Report Ref: EMS-368778_363621
Grid Ref: 494212, 100648

Map Name: National Grid
Map date: 1974-1978
Scale: 1:2,500
Printed at: 1:2,500





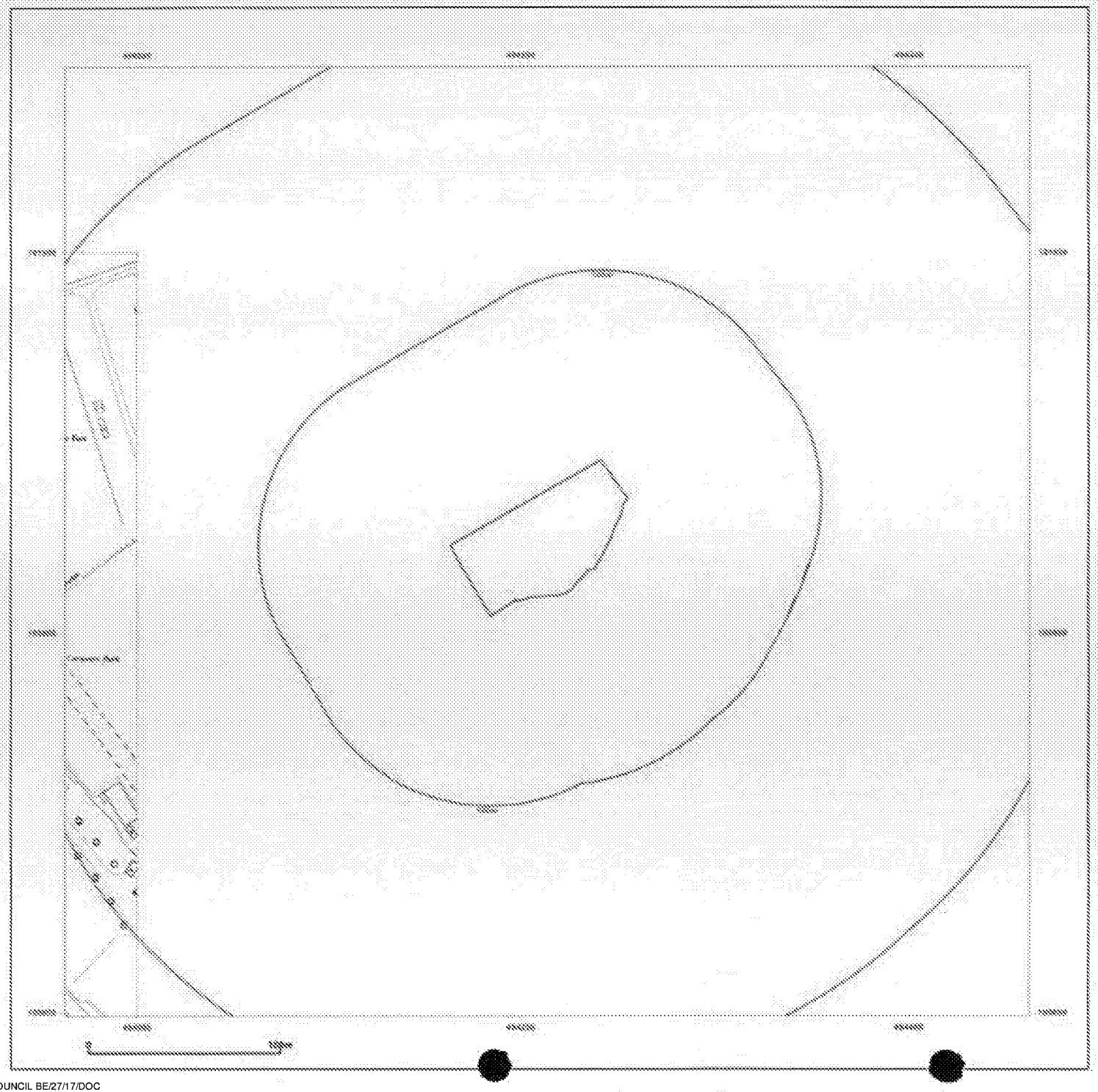
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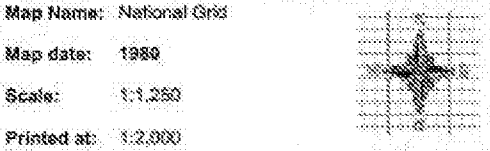


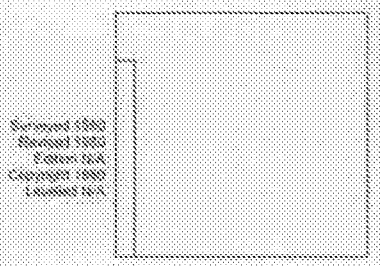
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Site Details:

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Report Ref: EMS-268778_382821
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 1989
Scale: 1:1,250
Printed at: 1:2,000





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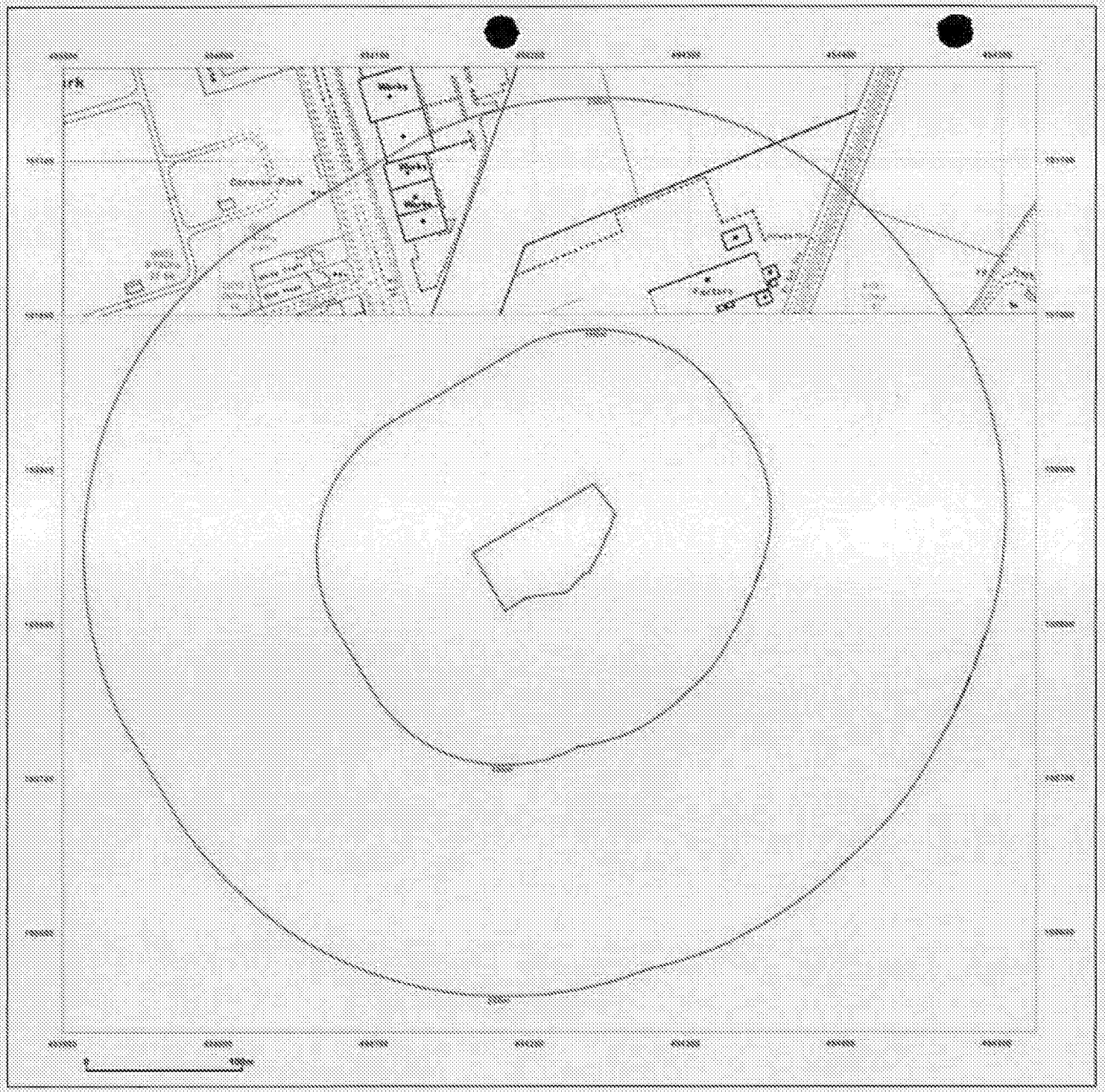
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100548

Map Name: National Grid
Map date: 1980-1982
Scale: 1:2,500
Printed at: 1:2,500

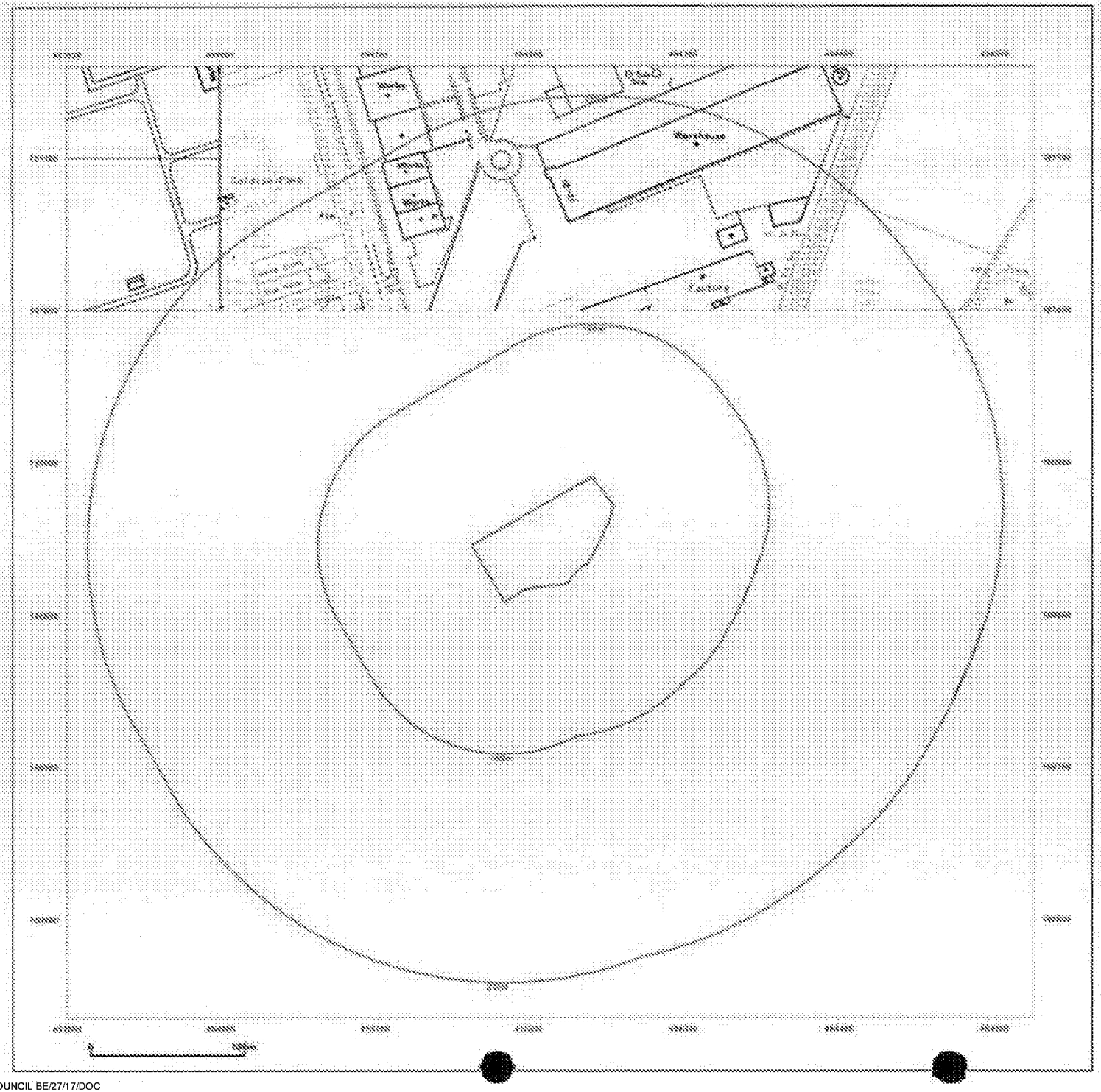
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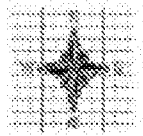


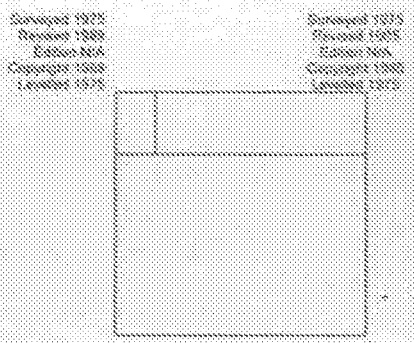
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100648

Map Name: National Grid
Map date: 1965-1969
Scale: 1:2,500
Printed at: 1:2,500





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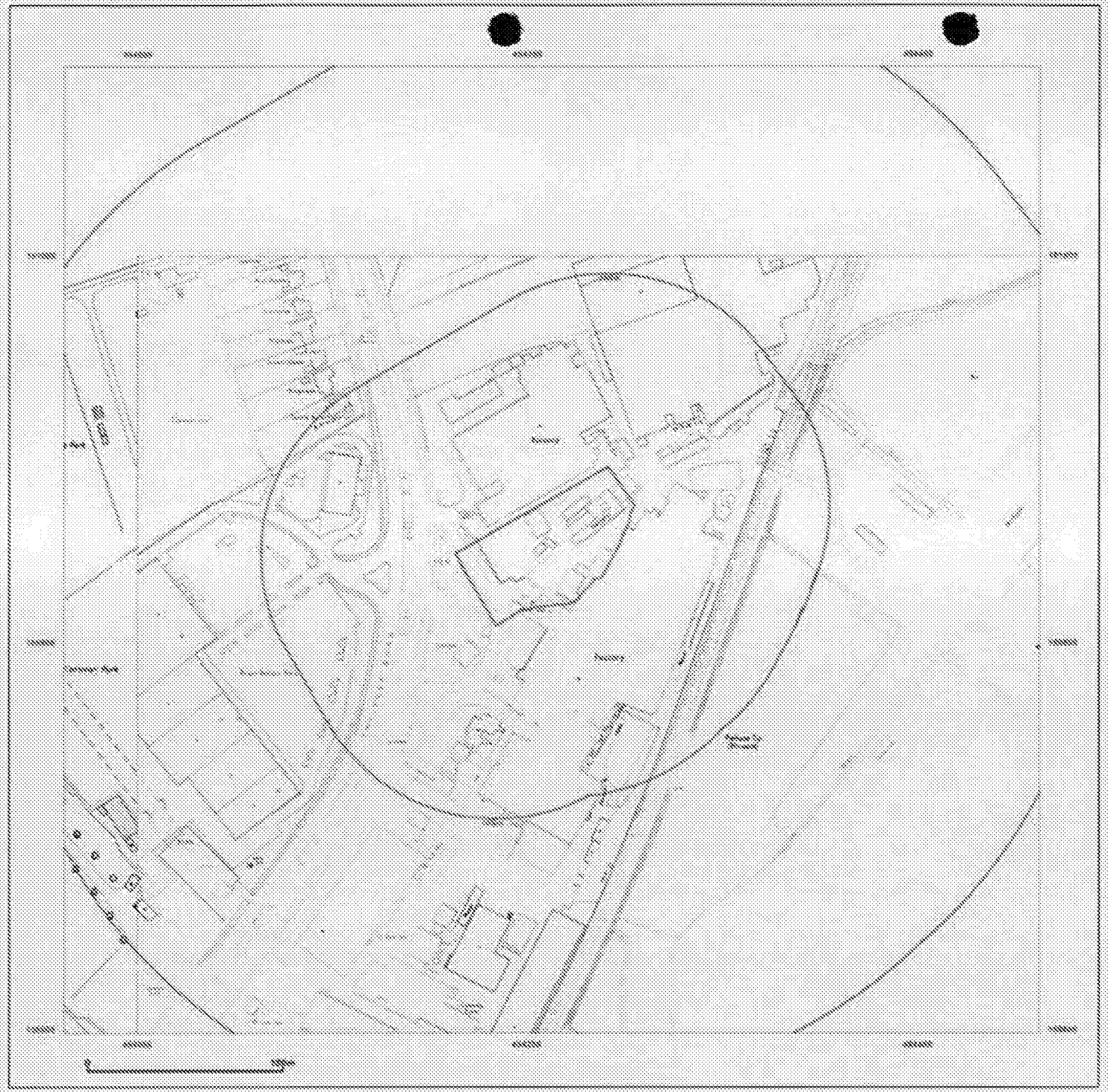
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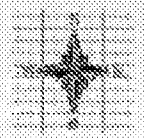


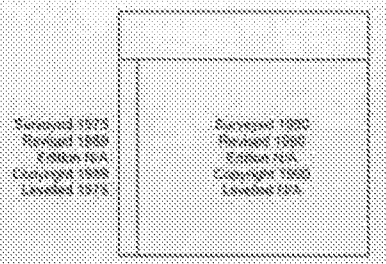
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 1989-1990
Scale: 1:1,250
Printed at: 1:2,000





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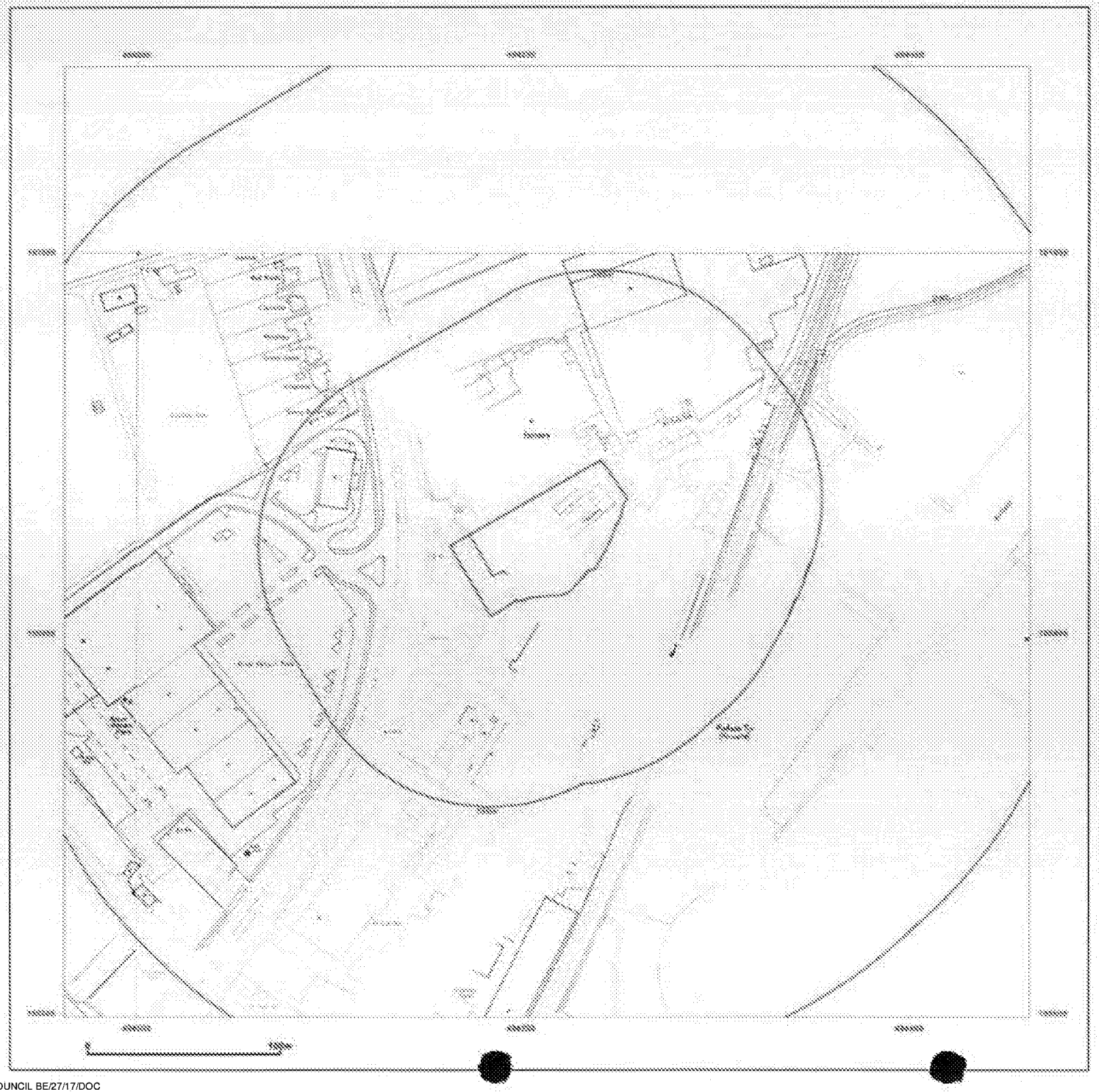
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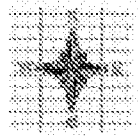


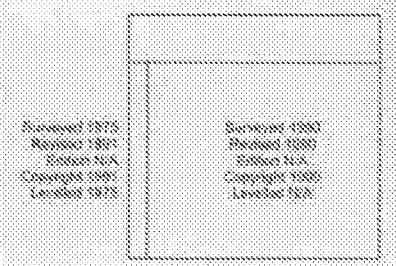
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 1998-1991
Scale: 1:1,250
Printed at: 1:2,000





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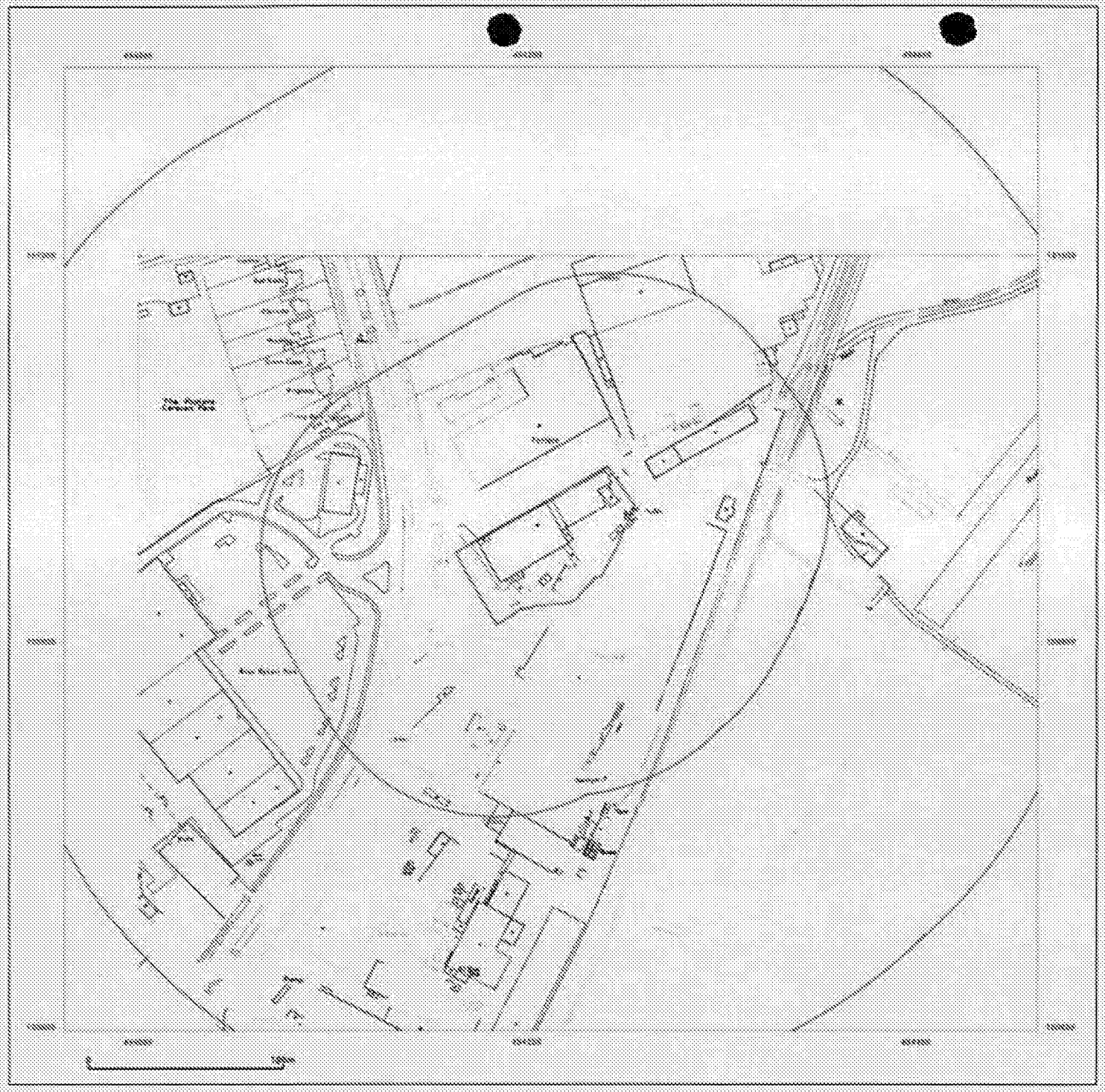
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Site Details:

Client Ref: EMS_268778_362621
Report Ref: EMS-268778_362621
Grid Ref: 494212, 100848

Map Name: National Grid
Map date: 1991
Scale: 1:1,250
Printed at: 1:2,000

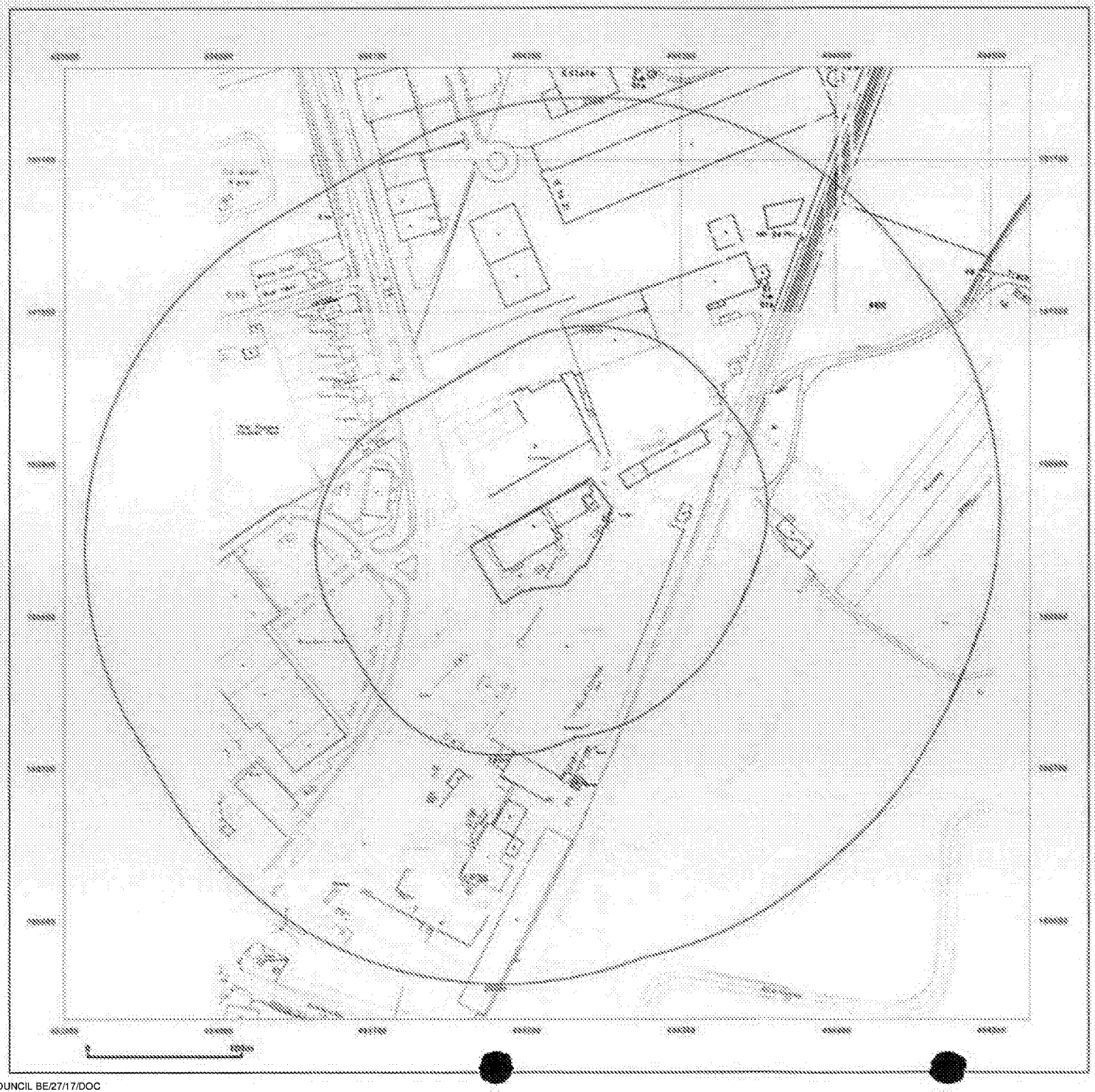
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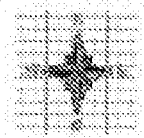


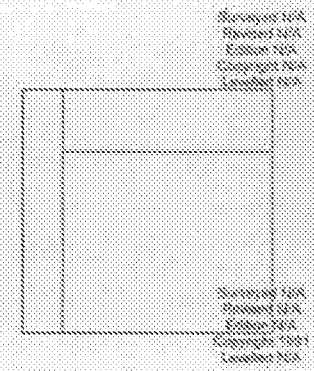
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Site Details:

Client Ref: EMS_368778_362621
Report Ref: EMS-368778_362621
Grid Ref: 494212, 100648

Map Name: National Grid
Map date: 1991-1994
Scale: 1:2,500
Printed at: 1:2,500





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To view map legend click here *Legend*

ARUN DISTRICT COUNCIL BE/27/17/DOC

Borehole Log

enzygo			Borehole No. **BH 1** Sheet 1 of 2
Project Name: Shropley Road	Project No. CRM.413.303	Co-ords: -	Hole Type CP
Location: Bognor Regis, PO22 9NG		Level:	Scale 1:50
Client:		Dates: 10-08-2016 -	Logged By dn

Well	Water Strikes	Samples and In Situ Testing: Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.30	ES					MADE GROUND orange brown sandy gravelly clay with brick and concrete cobbles
		0.50	D		0.50			
		0.50	ES					Soft orange brown silty sandy slightly gravelly CLAY. Gravel is fine sub-angular of flint
		1.00	D					
		1.00	ES					
		1.50		N=2 (1,0/0,1,0,1)				
		1.50	B					
		1.50	ES					
		2.00	D		2.00			
	▼	2.00	ES					Structureless CHALK composed of a matrix of light yellowish brown sandy silt size fragments with little sub-rounded gravel size white highly weathered very weak fragments - Grade Dm
		2.50		N=6 (1,1/1,1,2,2)				
		2.50	D					
		2.50	ES					
		3.00	D					
		3.50		N=8 (1,2/1,1,3,3)	3.50			
		3.50	D					White moderately weathered CHALK weak. Fractures very closely spaced infilled with off white comminuted chalk. Occasional rinded flint cobbles - Grade C
		4.50		N=16 (2,3/4,4,3,5)				
		4.50	D					
		5.50		N=19 (3,4/4,5,5,5)	5.50			
		5.50	D					White slightly weathered CHALK weak, locally moderately weak. Fractures closely spaced often clean and tight, occasionally infilled with comminuted chalk. Occasional rinded flint cobbles - Grade B
		6.50		N=30 (3,5/6,10,7,8)				
		6.50	D					
		7.50		N=30 (2,4/8,7,7,8)				
		7.50	D					
		8.50		N=23 (2,3/4,4,6,9)				
		8.50	D					
		9.50		N=21 (3,3/5,4,6,6)				
		9.50	D					
								Continued on next sheet

Remarks

200 mm diameter advanced to 2.00 m. 1.00 m bentonite seal installed and then 150 mm diameter casing advanced through seal. 50 mm diameter standpipe installed to 15.00 m

AGS

enzygo

Borehole Log

Borehole No.
BH 1
Sheet 2 of 2

Project Name: Shropley Road	Project No. CRM.413.303	Co-ords: -	Hole Type CP
Location: Bognor Regis, PO22 9NG		Level:	Scale 1:50
Client:		Dates: 10-08-2018 -	Logged By dn

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 10.50	D	N=28 (2,4/7,8,6,6)				
		11.50 11.50	D	N=29 (3,5/8,7,6,8)				
		12.50 12.50	D	N=29 (4,5/6,6,7,10)				
		13.50 13.50	D	N=33 (3,5/8,9,9,9)				
		14.50 14.50	D	N=23 (4,4/4,6,5,8)				
					15.00			End of borehole at 15.00 m

Remarks
200 mm diameter advanced to 2.00 m. 1.00 m bentonite seal installed and then 150 mm diameter casing advanced through seal. 50 mm diameter standpipe installed to 15.00 m

AGS

Enzygo Ltd
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Fax: 01454 269760
Web: www.enzygo.com

Site: Shripney Road, Bognor Regis, PO22 9NG

WS1

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.413.011	Start 11-10-14 Finish 11-10-14		

Client: Simpsons Associates

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.15	ES					Brown grey sandy gravel. Gravel is fine to coarse, angular to subangular concrete, occasional bricks and rare ash.
					0.45			
					0.50			Grey yellow sandy gravel. Gravel is fine to medium, angular to subangular flint and concrete.
					0.80			No recovery. Likely to be identical strata as above "Grey yellow sandy gravel. Gravel is fine to medium, angular to subangular flint and concrete".
		1.00 - 1.45	SPT	C 15	1.00			Soft yellow brown slightly gravelly sandy CLAY. Gravel is fine to medium, angular to subangular flint, and occasional chalk.
		2.00 - 2.45 2.00	SPTLS D	S 17				Yellow brown white slightly clayey and sandy gravelly Dm CHALK. Gravel is fine to coarse, angular to subangular flint, and occasional cobbles of flint.
					2.45			Borehole completed at 2.45m.
					(4.00)			

0
1
2
3
4

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled GL-2.45mbgl, CPT/SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater not encountered. Borehole collapsed to 1.60mbgl before installation.
BACKFILL: On completion, a bentonite seal was installed 2.45-1.00mbgl. 50mm HDPE slotted pipes with geosock installed from 1.00-0.50m with gravel pack around annulus. 50mm HDPE plain pipe installed from 0.50-0.15m with bentonite around annulus. 0.15-0.00m concrete, gas valve and stop cock cover at the top of the installation.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
Scale 1:25

Logged By: N.M

1.0 ENZYGO BH LOG CRM.413.011 BOGNOR REGIS.GPJ GINT STD A3 3.1 ENZYGO.GPJ 27/10/14

ARUN DISTRICT COUNCIL BE/27/17/DOC

Enzygo Ltd
Tel: 01454 269237
Fax: 01454 269760
Web: www.enzygo.com

Site: Shripney Road, Bognor Regis, PO22 9NG

WS2

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.413.0111	Start 11-10-14 Finish 11-10-14		

Client: Simpsons Associates

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
					0.15			Tarmac.
								Brown grey mottled red sandy gravel. Gravel is fine to coarse, angular bricks and concrete, and concrete cobbles.
		0.45	ES		0.40			
					0.55			Dark grey slightly sandy clayey gravel with occasional black staining, and pipe fragments (may contain asbestos). Gravel is fine to coarse, angular to subangular flint.
					0.70			
					0.80			Red brown gravel. Gravel is angular cobbles of bricks.
					0.90			Light yellow dark grey slightly clayey and sandy gravel. Gravel is fine to coarse, angular to subangular concrete.
		1.00 - 1.45	SPT	C 5				
		1.00	D					Light yellow sandy gravel. Gravel is fine to coarse, angular to subangular concrete.
								Soft, very low strength blue grey locally occasionally slightly peaty slightly gravelly silty CLAY with occasional black staining. Gravel is fine to coarse, angular to subangular and subrounded flint.
					1.55			
								Firm, low strength grey brown mottled yellow slightly sandy gravelly silty CLAY. Gravel is fine to cobbles, angular to subangular flint.
					1.80			
								Beige white occasionally slightly gravelly weathered Dm CHALK. Gravel is subangular, coarse to cobbles of flint.
		2.00 - 2.45	SPTLS	S 3				
		2.00	D					
					2.20			
								Brown white occasionally slightly gravelly clayey weathered Dm CHALK. Gravel is angular to subangular, fine to coarse flint.
	▽				2.40			
								Grey white Dm CHALK.
		3.00 - 3.45	SPTLS	S 8				
		3.00	D					
					3.25			
								Beige White Dm CHALK.
					3.45			
								Borehole completed at 3.45m.
					(4.00)			

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Hand dug inspection pit GL-1.00mbgl. Dynamic sampled 1.00-3.45mbgl. CPT/SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater encountered at 2.40mbgl.
BACKFILL: On completion, a bentonite seal was installed 3.45-1.75mbgl. 50mm HDPE slotted pipes with geosock installed from 1.75-0.75m with gravel pack around annulus. 50mm HDPE plain pipe installed from 0.75-0.15m with bentonite around annulus. 0.15-0.00m concrete, gas valve and stop cock cover at the top of the installation.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
11/10/14	2.40		

All dimensions in metres
Scale 1:25

Logged By: N.M

J:\ENZYGO\BH LOGS\CRM.413.0111 SHRIPNEY ROAD, BOGNOR REGIS.SPJ, CRM STD A4V3.1.ENZYGO.GPJ, 27/10/14

Enzygo Ltd
Tel: 01454 269237
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Web: www.enzygo.com

Site
Shripney Road, Bognor Regis, PO22 9NG

WS3

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.413.011	Start 11-10-14 Finish 11-10-14		

Client
Simpsons Associates

Sheet
1 of 1

Well	Water Levels	Samples & In Situ Testing Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.20	ES					Grass over grey brown mottled red occasionally slightly clayey sandy gravel with occasional glass and plastics fragments. Gravel is fine to coarse, angular to subangular flint, bricks, concrete, and occasional concrete cobbles.
		0.50	ES					
					0.70			
		1.00 - 1.45 1.00	SPT D	C 6				Yellow grey brown mottled orange slightly gravelly and silty sandy clay with occasional black staining. Gravel is fine to medium, angular to subangular flint, rare ash, and rare cobbles of flint (Possible reworked ground).
		1.80	ES					
	▽	2.00 - 2.45 2.00	SPT D	C 7	2.00			Light yellow white weathered Dm CHALK.
					2.50			Beige white Dc CHALK.
		3.00 - 3.45 3.00	SPT D	C 11				
					3.45			Borehole completed at 3.45m.
					(4.00)			

0
2
3
4

General Remarks
EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Hand dug inspection pit GL-1.00mbgl. Dynamic sampled 1.00-3.45mbgl. CPT at 1.00m spacing.CASING: No casing used.
REMARKS: Groundwater encountered at 2.10mbgl. Borehole collapsed to 1.00mbgl after CPT at 2.00mbgl.BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
11/10/14	2.10		

All dimensions in metres
Scale 1:25

Logged By
N.M

1.0 ENZYGO BH LOG CRM.413.011 BOGNOR REGIS.GPJ GINT STD A4 V8.2.1 ENZYGO.GDT 27/10/14

ARUN DISTRICT COUNCIL BE/27/17/DOC

Enzygo Ltd
Tel: 01454 269237
Fax: 01454 269760
Web: www.enzygo.com

Site
Shripney Road, Bognor Regis, PO22 9NG

WS4

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.413.011	Start 11-10-14 Finish 11-10-14		

Client
Simpsons Associates

Sheet
1 of 1

Well	Water Levels	Samples & In Situ Testing Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
					0.05			Tarmac.
		0.20	ES					Grey green occasionally slightly clayey slightly sandy gravel with black staining. Gravel is fine to coarse, angular to subangular flint, and occasional bricks.
					0.30			
		0.45	ES					Yellow brown occasionally grey green slightly clayey and sandy gravel with black staining. Gravel is fine to coarse, angular to subangular flint, ash and clinker.
					0.50			
					0.80			Firm, grey green mottled white slightly sandy gravelly silty clay. Gravel is fine to cobbles, angular to subangular and subrounded flint and chalk.
		1.00 - 1.45 1.00	SPT D	C 2	1.00			Soft, friable yellow brown mottled white slightly sandy gravelly silty clay. Gravel is fine to medium, angular to subangular and subrounded flint and occasional ash.
								Very soft to soft, extremely low strength to very low strength light brown mottled yellow slightly sandy gravelly clay. Gravel is fine to medium, angular to subangular flint, chalk and rare ash (Possible reworked ground). Poor recovery due to brick cobbles, 40%.
		2.00 - 2.45 2.00	SPTLS D	S 8	2.60			Loose, green grey slightly sandy clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint.
					2.40			
								Loose, green grey mottled yellow brown slightly sandy clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint.
					2.80			
		3.00 - 3.45 3.00	SPTLS D	S 10				Light grey mottled light yellow and white locally slightly sandy clayey gravelly Dm CHALK. Gravel is fine to medium, angular to subangular flint.
					3.45			
					(4.00)			Borehole completed at 3.45m.

0 1 2 3 4

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Hand dug inspection pit GL-1.00mbgl. Dynamic sampled 1.00-3.45mbgl. CPT/SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater encountered at 1.70mbgl.
BACKFILL: On completion, a bentonite seal was installed 3.45-1.85mbgl. 50mm HDPE slotted pipes with geosock installed from 1.85-0.65m with gravel pack around annulus. 50mm HDPE plain pipe installed from 0.65-0.15m with bentonite around annulus. 0.15-0.00m concrete, gas valve and stop cock cover at the top of the installation.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
11/10/14	1.70		

All dimensions in metres
Scale 1:25

Logged By
N.M

1.8.2 ENZYGO BH LOGS CRM.413.011 BOGNOR REGIS.GPJ GINT STD A3 3_1 ENZYGO.GDT 27/1

Enzygo Ltd
Tel: 01454 269237
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Web: www.enzygo.com

Site
Shripney Road, Bognor Regis, PO22 9NG

WS5

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.413.011	Start 11-10-14 Finish 11-10-14		

Client
Simpsons Associates

Sheet
1 of 1

Well	Water Levels	Samples & In Situ Testing Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.35	ES		0.65			Brown grey mottled black and red sandy gravel with occasional glass fragments. Gravel is fine to coarse, angular to subangular flint, bricks, concrete, ash, cobbles of bricks and concrete.
					0.75			Firm, grey brown slightly sandy and gravelly silty clay. Gravel is fine to medium, angular to subangular flint, bricks and ash.
		1.00 - 1.45 1.00	SPT D	C 1	1.00			Firm, grey brown slightly sandy and gravelly silty clay with occasional black staining. Gravel is fine to coarse, angular to subangular flint, chalk and rare ash.
					1.65			Very soft, extremely low strength brown grey mottled dark grey, orange, yellow and white slightly gravelly and sandy silty clay. Gravel is fine to medium, angular to subangular flint and chalk (Possible reworked ground).
					1.90			Firm, very low strength brown grey mottled yellow and white slightly gravelly and sandy silty clay. Gravel is fine to medium, angular to subangular flint, rare ash and bricks (Possible reworked ground).
	▽	2.00 - 2.45 2.00	SPTLS D	S 10	2.00			Light grey white mottled light yellow and orange clayey gravelly weathered Dm CHALK. Gravel is medium to coarse, angular to subangular flint, and rare cobbles of flint.
								Light yellow mottled white slightly gravelly and sandy clayey weathered Dm CHALK with dark grey staining. Gravel is medium to coarse, subrounded flint.
					2.60			Light grey white occasionally mottled light yellow Dm CHALK with black dark grey staining.
		3.00 - 3.45 3.00	SPTLS D	S 5				
					3.45			Borehole completed at 3.45m.
					(4.00)			

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Hand dug inspection pit GL-1.00mbgl. Dynamic sampled 1.00-3.45mbgl. CPT/SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater encountered at 2.20mbgl.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
11/10/14	2.20		

All dimensions in metres
Scale 1:25

Logged By
N.M

1.2 ENZYGO BH LOG CRM.413.011 SHRIPNEY RD.GPJ GINT STD A3L 3.1 ENZYGO.GDT 22/10/14

ARUN DISTRICT COUNCIL BE/27/17/DOC

ARUN DISTRICT COUNCIL BE/27/17/DOC

Determinand	Units	GAC Value (residential)					
		With Plant Uptake			Without Plant Uptake		
Arsenic	mg/kg	37			40		
Cadmium	mg/kg	11			85		
Chromium	mg/kg	910			910		
Chromium VI	mg/kg	6			6		
Lead	mg/kg	200			310		
Mercury	mg/kg	40			56		
Nickel	mg/kg	180			180		
Selenium	mg/kg	250			430		
Copper	mg/kg	2400			7100		
Zinc	mg/kg	3700			40000		
Cyanide	mg/kg	791			860		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	120	280	380	440	680	1200
Naphthalene	mg/kg	2.3	5.6	13	2.3	5.6	13
Acenaphthylene	mg/kg	170	420	820	2900	4600	6000
Acenaphthene	mg/kg	210	510	1100	3600	4700	6000
Fluorene	mg/kg	170	400	860	2800	3800	4500
Phenanthrene	mg/kg	95	220	440	1300	1500	1500
Anthracene	mg/kg	2400	5400	11000	31000	35000	37000
Fluoranthene	mg/kg	280	560	890	1500	1600	1600
Pyrene	mg/kg	620	1200	2000	3700	3800	3800
Benzo(a)Anthracene	mg/kg	7.2	11	13	11	14	15
Chrysene	mg/kg	15	22	27	30	31	32
Benzo(b)Fluoranthene	mg/kg	2.6	3.3	3.7	3.9	4.0	4.0
Benzo(k)Fluoranthene	mg/kg	77	93	100	110	110	110
Benzo(a)Pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2
Indeno(123-cd)Pyrene	mg/kg	27	36	41	48	46	46
Dibenzo(a,h)Anthracene	mg/kg	0.24	0.28	0.3	0.31	0.32	0.32
Benzo(ghi)Perylene	mg/kg	320	340	350	360	360	360
TPH C_5-C_6 Aliphatic	mg/kg	42	78	160	42	78	160
TPH C_6-C_8 Aliphatic	mg/kg	100	230	530	100	230	530
TPH C_8-C_{10} Aliphatic	mg/kg	27	65	150	27	65	150
TPH C_{10}-C_{12} Aliphatic	mg/kg	130	330	760	130	330	770
TPH C_{12}-C_{16} Aliphatic	mg/kg	1100	2400	4300	1100	2400	4400
TPH C_{16}-C_{35} Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C_{35}-C_{44} Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C_5-C_7 Aromatic	mg/kg	70	140	300	370	690	1400
TPH C_7-C_8 Aromatic	mg/kg	130	290	680	880	1800	3900
TPH C_8-C_{10} Aromatic	mg/kg	34	83	190	47	110	270
TPH C_{10}-C_{12} Aromatic	mg/kg	74	180	380	250	590	1300
TPH C_{12}-C_{16} Aromatic	mg/kg	160	338	660	1800	2500	2500
TPH C_{16}-C_{21} Aromatic	mg/kg	268	548	830	1900	1900	1900
TPH C_{21}-C_{35} Aromatic	mg/kg	1100	1500	1700	1900	1900	1900
TPH C_{35}-C_{44} Aromatic	mg/kg	1100	1500	1700	1900	1900	1900
Benzene	mg/kg	0.087	0.17	0.37	0.38	0.79	1.4
Toluene	mg/kg	130	290	660	880	1900	3900
Ethylebenzene	mg/kg	47	110	260	83	190	445
Xylene	mg/kg	56	130	310	79	185	430

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Determinant	Units	GAC Value					
		Residential POE			Commercial		
Arsenic	mg/kg	79			640		
Cadmium	mg/kg	120			190		
Chromium	mg/kg	1500			8600		
Chromium VI	mg/kg	7.7			33		
Lead	mg/kg	630			2330		
Mercury	mg/kg	130			1300		
Nickel	mg/kg	230			980		
Selenium	mg/kg	1100			12000		
Copper	mg/kg	12000			68000		
Zinc	mg/kg	81000			730000		
Cyanide	mg/kg	N/A			1520		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	800	1300	440	690	1300
Naphthalene	mg/kg	4900	4900	4900	190	460	1100
Acenaphthylene	mg/kg	15000	15000	15000	83000	97000	100000
Acenaphthene	mg/kg	15000	15000	15000	84000	97000	100000
Fluorene	mg/kg	9900	9900	9900	63000	88000	71000
Phenanthrene	mg/kg	3100	3100	3100	22000	22000	23000
Anthracene	mg/kg	74000	74000	74000	520000	540000	540000
Fluoranthene	mg/kg	3100	3100	3100	23000	23000	23000
Pyrene	mg/kg	7400	7400	7400	54000	54000	54000
Benzo(a)Anthracene	mg/kg	29	29	29	170	170	180
Chrysene	mg/kg	57	57	57	350	350	350
Benzo(b)Fluoranthene	mg/kg	7.1	7.2	7.2	44	44	45
Benzo(k)Fluoranthene	mg/kg	190	190	190	1200	1200	1200
Benzo(a)Pyrene	mg/kg	5.7	5.7	5.7	35	35	36
Indeno(123-cd)Pyrene	mg/kg	82	82	82	500	510	510
Dibenzo(a,h)Anthracene	mg/kg	0.57	0.57	0.58	3.5	3.6	3.6
Benzo(ghi)Perylene	mg/kg	640	640	640	3900	4000	4000
TPH C_6-C_8 Aliphatic	mg/kg	570000	590000	600000	3200	9300	12000
TPH C_8-C_{10} Aliphatic	mg/kg	600000	610000	620000	7800	19000	40000
TPH C_{10}-C_{12} Aliphatic	mg/kg	13000	13000	13000	2000	4800	11000
TPH C_{12}-C_{16} Aliphatic	mg/kg	13000	13000	13000	9700	23000	47000
TPH C_{16}-C_{21} Aliphatic	mg/kg	13000	13000	13000	59000	83000	92000
TPH C_{21}-C_{35} Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C_{35}-C_{44} Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C_6-C_7 Aromatic	mg/kg	56000	56000	56000	26000	46000	86000
TPH C_7-C_8 Aromatic	mg/kg	86000	86000	86000	56000	110000	180000
TPH C_8-C_{10} Aromatic	mg/kg	5000	5000	5000	3500	8100	17000
TPH C_{10}-C_{12} Aromatic	mg/kg	5000	5000	5000	16000	26000	34000
TPH C_{12}-C_{16} Aromatic	mg/kg	5100	5100	5000	38000	57000	38000
TPH C_{16}-C_{21} Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
TPH C_{21}-C_{35} Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
TPH C_{35}-C_{44} Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
Benzene	mg/kg	72	72	73	27	47	90
Toluene	mg/kg	86000	86000	86000	86000	110000	130000
Ethylebenzene	mg/kg	24000	24000	25000	5700	13000	27000
Xylene	mg/kg	41000	42000	43000	5900	14000	30000

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ARUN DISTRICT COUNCIL BE/27/17/DOC

Determinand	Units	GAC Value					
		Park POS			Allotment		
Arsenic	mg/kg	170			43		
Cadmium	mg/kg	532			1.9		
Chromium	mg/kg	33000			18000		
Chromium VI	mg/kg	220			1.8		
Lead	mg/kg	1300			80		
Mercury	mg/kg	240			19		
Nickel	mg/kg	3400			230		
Selenium	mg/kg	1800			88		
Copper	mg/kg	44000			920		
Zinc	mg/kg	170000			620		
Cyanide	mg/kg						
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	660	1300	23	42	83
Naphthalene	mg/kg	1200	1900	3000	4.1	10	24
Acenaphthylene	mg/kg	29000	30000	30000	28	69	160
Acenaphthene	mg/kg	29000	30000	30000	34	85	200
Fluorene	mg/kg	20000	20000	20000	27	67	160
Phenanthrene	mg/kg	6200	6200	6300	15	38	90
Anthracene	mg/kg	150000	150000	150000	380	950	2200
Fluoranthene	mg/kg	6300	6300	6400	52	130	290
Pyrene	mg/kg	15000	15000	15000	110	270	630
Benzo(a)Anthracene	mg/kg	49	56	62	2.9	6.5	13
Chrysene	mg/kg	93	112	120	4.1	9.4	19
Benzo(b)Fluoranthene	mg/kg	13	15	16	0.99	2.1	3.9
Benzo(k)Fluoranthene	mg/kg	370	410	440	37	75	130
Benzo(a)Pyrene	mg/kg	11	12	13	0.97	2.0	3.5
Indeno(123-cd)Pyrene	mg/kg	150	170	180	9.5	21	39
Dibenzo(a,h)Anthracene	mg/kg	1.1	1.3	1.4	0.14	0.27	0.43
Benzo(ghi)Perylene	mg/kg	1400	1500	1600	290	470	640
TPH C_5-C_6 Aliphatic	mg/kg	89000	130000	180000	730	1700	3900
TPH C_6-C_8 Aliphatic	mg/kg	150000	230000	320000	2300	5600	13000
TPH C_8-C_{10} Aliphatic	mg/kg	14000	19000	21000	328	770	1700
TPH C_{10}-C_{12} Aliphatic	mg/kg	21000	23000	24000	2200	4400	7300
TPH C_{12}-C_{16} Aliphatic	mg/kg	25000	25000	25000	11000	15000	18000
TPH C_{16}-C_{21} Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C_{21}-C_{44} Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C_5-C_7 Aromatic	mg/kg	76000	88000	92000	13	27	57
TPH C_7-C_8 Aromatic	mg/kg	87000	95000	100000	22	51	120
TPH C_8-C_{10} Aromatic	mg/kg	7200	8500	8900	8.6	21	51
TPH C_{10}-C_{12} Aromatic	mg/kg	8500	9700	10000	13	31	76
TPH C_{12}-C_{16} Aromatic	mg/kg	10000	10000	10000	23	57	138
TPH C_{16}-C_{21} Aromatic	mg/kg	7600	7700	7800	46	110	268
TPH C_{21}-C_{35} Aromatic	mg/kg	7800	7800	7900	330	823	1600
TPH C_{35}-C_{44} Aromatic	mg/kg	7800	7800	7900	330	823	1600
Benzene	mg/kg	80	100	110	0.017	0.034	0.075
Toluene	mg/kg	87000	95000	100000	22	51	120
Ethylebenzene	mg/kg	17000	22000	27000	16	39	91
Xylene	mg/kg	37000	23000	31000	28	67	163

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Groundwater Resource Assessment Reference Values

Determinand	Unit	EQS Freshwater						UK DWS	MRQ
Hardness	mg/l	0-50	50-100	100-150	150-200	200-250	>250		
Arsenic	ug/l	50						10	10
Boron	ug/l	2000						1000	0.3
Cadmium	ug/l	5						5	3
Chromium	ug/l	2	10	10	20	20	20	50	50
Lead	ug/l	4	10	10	20	20	20	10	10
Mercury	ug/l	1						1	1
Selenium	ug/l							10	10
Copper	ug/l	0.5	3	3	3	8	12	20000	2000
Nickel	ug/l	8	20	20	40	40	40	20	70
Zinc	ug/l	8	15	15	50	50	50	5000	3000
Sulphate	mg/l	400						250	250
PAH	ug/l							0.1	
Anthracene	ug/l	0.02							
Napthalene	ug/l	10							
Benzo[a]Pyrene	ug/l	0.03							0.01
Fluoranthene	ug/l	0.02							
Benzene	ug/l	30						1	10
Toluene	ug/l	50							
Ethylebenzene	ug/l	20							
Xylene	ug/l	30							
$C_5 - C_6$ Aliphatic	ug/l								15000
$C_6 - C_8$ Aliphatic	ug/l								15000
$C_8 - C_{10}$ Aliphatic	ug/l								300
$C_{10} - C_{12}$ Aliphatic	ug/l								300
$C_{12} - C_{16}$ Aliphatic	ug/l								300
$C_{16} - C_{35}$ Aliphatic	ug/l								N/A
$C_6 - C_7$ Aromatic	ug/l								10
$C_7 - C_8$ Aromatic	ug/l	50							10
$C_8 - C_{10}$ Aromatic	ug/l	20							300
$C_{10} - C_{12}$ Aromatic	ug/l								1000
$C_{12} - C_{16}$ Aromatic	ug/l								1000
$C_{16} - C_{21}$ Aromatic	ug/l								90
$C_{21} - C_{35}$ Aromatic	ug/l								90

ARUN DISTRICT COUNCIL BE/27/17/DOC

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Analytical Report Number : 16-25340

Project / Site name:	Shropley Road, Bognor Regis	**Samples received on:**	15/08/2016
Your job number:	CRM-413-303	**Samples instructed on:**	15/08/2016
Your order number:	CRM-2497	**Analysis completed by:**	22/08/2016
Report Issue Number:	1	**Report issued on:**	22/08/2016
Samples Analysed:	2 leachate samples - 2 soil samples		

[redacted]

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

[redacted]

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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The results included within this report are representative of the samples submitted for analysis.

4041

Environmental Science

Analytical Report Number: 16-25340

Project / Site name: Shropley Road, Bognor Regis
Your Order No: CRM-2497

Lab Sample Number				816176	816177			
Sample Reference				BH 1	BH 1			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.00	2.00			
Date Sampled				10/08/2016	10/08/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1			
Moisture Content	%	N/A	NONE	15	14			
Total mass of sample received	kg	0.001	NONE	0.61	0.59			
Asbestos in Soil	Type	N/A	ISO 17025	Not detected	Not detected			
General Inorganics								
pH	pH Units	N/A	MCERTS	8.5	8.4			
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10			
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05			
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.60	< 1.60			
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	13	9.7			
Boron (water soluble)	mg/kg	0.2	MCERTS	0.4	0.3			
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.6	0.3			
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0			
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	26			
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	17			
Lead (aqua regia extractable)	mg/kg	1	MCERTS	7.4	10			
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3			
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	23			
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0			
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	39	47			

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Analytical Report Number: 16-25340

Project / Site name: Shrogley Road, Bognor Regis
Your Order No: CRM-2497

Lab Sample Number				516176	516177			
Sample Reference				BH 1	BH 1			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.00	2.00			
Date Sampled				10/08/2016	10/08/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Toluene	ug/kg	1	MCERTS	< 1.0	< 1.0			
Ethylbenzene	ug/kg	1	MCERTS	< 1.0	< 1.0			
p & m-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0			
o-xylene	ug/kg	1	MCERTS	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	ug/kg	1	MCERTS	< 1.0	< 1.0			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0			
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	< 0.1			
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0			
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0			
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10			
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10			

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Environmental Science

Analytical Report Number: 16-25340

Project / Site name: Shropley Road, Bognor Regis

Your Order No: CRM-2497

Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status	Lab Sample Number				
				616178	616179			
Sample Reference				BH 1	BH 1			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.50	2.50			
Date Sampled				10/08/2016	10/08/2016			
Time Taken				None Supplied	None Supplied			
General Inorganics								
Hardness - Total	mgCaCO3/l	1	NONE	37.8	32.8			
Speciated PAHs								
Naphthalene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Acenaphthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluorene	µg/l	0.01	NONE	< 0.01	< 0.01			
Phenanthrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Chrysene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(b)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(k)fluoranthene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(a)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Indeno(1,2,3-cd)pyrene	µg/l	0.01	NONE	< 0.01	< 0.01			
Dibenz(a,h)anthracene	µg/l	0.01	NONE	< 0.01	< 0.01			
Benzo(ghi)perylene	µg/l	0.01	NONE	< 0.01	< 0.01			
Total PAH								
Total EPA-16 PAHs	µg/l	0.2	NONE	< 0.2	< 0.2			
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	< 1.1			
Boron (dissolved)	µg/l	10	ISO 17025	< 10	< 10			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (hexavalent)	µg/l	5	NONE	< 5.0	< 5.0			
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4			
Copper (dissolved)	µg/l	0.7	ISO 17025	3.4	1.6			
Lead (dissolved)	µg/l	1	ISO 17025	< 1.0	1.0			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.6	< 0.3			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Zinc (dissolved)	µg/l	0.4	ISO 17025	1.9	0.9			
Calcium (dissolved)	mg/l	0.012	ISO 17025	15	13			
Magnesium (dissolved)	mg/l	0.005	ISO 17025	0.36	0.36			

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The results included within the report are representative of the samples submitted for analysis.

4841

Environmental Science

Analytical Report Number: 16-25340

Project / Site name: Shropley Road, Bognor Regis

Your Order No: CRM-2497

Lab Sample Number				616178	616179			
Sample Reference				BH 1	BH 1			
Sample Number				None Supplied	None Supplied			
Depth (m)				1.50	2.50			
Date Sampled				12/08/2016	30/08/2016			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics								
Benzene	µg/l	1	NONE	< 1.0	< 1.0			
Toluene	µg/l	1	NONE	< 1.0	< 1.0			
Ethylbenzene	µg/l	1	NONE	< 1.0	< 1.0			
p & m-xylene	µg/l	1	NONE	< 1.0	< 1.0			
o-xylene	µg/l	1	NONE	< 1.0	< 1.0			
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10			

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10			
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10			

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4041

Environmental Science

Analytical Report Number : 16-25340

Project / Site name: Shropley Road, Bognor Regis

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
818176	BH 1	None Supplied	1.00	Light brown sandy clay with gravel.
818177	BH 1	None Supplied	2.00	Light brown sandy clay with gravel.

ARUN DISTRICT COUNCIL 26/04/2016
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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 16-25340

Project / Site name: Shropley Road, Bognor Regis

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Hexavalent chromium in leachate	Determination of hexavalent chromium in leachate by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L086-PL	W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L086-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in leachate	Determination of PAH compounds in leachate by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L102B-PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Total Hardness of leachates	Determination of hardness in leachates by calculation from calcium and magnesium.	In-house method based on Examination of Water and Wastewater 20th Edition: Clescerl, Greenberg & Eaton	L045-PL	W	NONE
TPH(CWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE

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ARUN DISTRICT COUNCIL 22/03/2016

4041

Environmental Science

Analytical Report Number : 16-25340

Project / Site name: Shropley Road, Bognor Regis

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

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

ARUN DISTRICT COUNCIL 07/10/2016
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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 14-00990

Issue: 1

Date of Issue: 03/11/2014

Contact: Richard Hamilton

Customer Details: Enzygo - Cromhall
The Granary
Woodend Lane
Cromhall
Gloucestershire

Quotation No: Q14-00007

Order No: CRM.816

Customer Reference: CRM.413.111

Date Received: 20/10/2014

Date Approved: 03/11/2014

Details: Bognor

Approved by: [redacted]

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

Sample Summary

Report No.: 14-00990

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
6764	WS2	16/10/2014	21/10/2014		c
6765	WS4	16/10/2014	21/10/2014		c
6766	@0.15, WS3@0.50, WS4@1	11/10/2014	21/10/2014	Sandy silty loam	g

ELAB

UKAS TESTING 2683

Results Summary

Report No.: 14-00990

ELAB Reference	6764	6765
Customer Reference		
Sample ID		
Sample Type	WATER	WATER
Sample Location	WS2	WS4
Sample Depth (m)		
Sampling Date	16/10/2014	16/10/2014

Determinand	Codes	Units	LOD		
Dissolved Metals					
Arsenic	U	ug/l	5	5	< 5
Boron	N	ug/l	5	360	103
Calcium	U	ug/l	100	48300	54100
Cadmium	U	ug/l	1	< 1	< 1
Chromium	U	ug/l	5	< 5	13
Copper	U	ug/l	5	14	45
Mercury	U	ug/l	0.1	< 0.1	< 0.1
Magnesium	U	ug/l	100	11600	2630
Nickel	U	ug/l	5	6	6
Lead	U	ug/l	1	< 1	< 1
Selenium	U	ug/l	5	7	< 5
Zinc	U	ug/l	5	18	< 5
Inorganics					
Hexavalent Chromium	U	ug/l	100	< 100	< 100
Total Cyanide	N	ug/l	20	c 172	c < 20
Miscellaneous					
Dissolved organic carbon	U	mg/l	0.9	18	29
Hardness (CaCO3)	N	mg/l CaCO3	0.1	169	147
Phenols					
Total Monohydric Phenols	N	ug/l	1	4950	742
BTEX					
Benzene	N	ug/l	1	< 1.00	< 1.00
Toluene	N	ug/l	1	< 1.00	< 1.00
Ethylbenzene	N	ug/l	1	< 1.00	< 1.00
Xylenes	N	ug/l	1	< 1.00	< 1.00
MTBE	N	ug/l	1	< 1.00	< 1.00
TPH CWG					
>C5-C6 Aliphatic	N	ug/l	1	< 1.0	< 1.0
>C6-C8 Aliphatic	N	ug/l	1	< 1.0	< 1.0
>C8-C10 Aliphatic	N	ug/l	5	< 5.0	< 5.0
>C10-C12 Aliphatic	N	ug/l	5	< 5.0	< 5.0
>C12-C16 Aliphatic	N	ug/l	5	< 5.0	< 5.0
>C16-C21 Aliphatic	N	ug/l	5	< 5.0	7.8
>C21-C35 Aliphatic	N	ug/l	5	47.7	89.3
>C35-C40 Aliphatic	N	ug/l	5	< 5.0	5.6
Total (>C5-C40) Aliphatic	N	ug/l	5	47.7	103
>C5-C7 Aromatic	N	ug/l	1	< 1.0	< 1.0
>C7-C8 Aromatic	N	ug/l	1	< 1.0	< 1.0
>C8-C10 Aromatic	N	ug/l	5	< 5.0	< 5.0
>C10-C12 Aromatic	N	ug/l	5	< 5.0	< 5.0
>C12-C16 Aromatic	N	ug/l	5	< 5.0	5.2
>C16-C21 Aromatic	N	ug/l	5	< 5.0	27.9
>C21-C35 Aromatic	N	ug/l	5	83.3	47.1
>C35-C40 Aromatic	N	ug/l	5	< 5.0	< 5.0
Total (>C5-C40) Aromatic	N	ug/l	5	83.3	80.3
Total (>C5-C40) Ali/Aro	N	ug/l	5	131	183

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

UKAS 2683

Results Summary

Report No.: 14-00990

ELAB Reference	6784	6785
Customer Reference		
Sample ID		
Sample Type	WATER	WATER
Sample Location	WS2	WS4
Sample Depth (m)		
Sampling Date	16/10/2014	16/10/2014

Determinand	Codes	Units	LOD		
VOC					
MTBE	U	ug/l	1	< 1	< 1
Heptane	N	ug/l	1	< 1	< 1
Octane	N	ug/l	1	< 1	< 1
Nonane	N	ug/l	1	< 1	< 1
Benzene	U	ug/l	1	< 1	< 1
Toluene	U	ug/l	1	< 1	< 1
Ethylbenzene	U	ug/l	1	< 1	< 1
m+p-xylene	U	ug/l	1	< 1	< 1
o-xylene	U	ug/l	1	< 1	< 1
cis-1,2-dichloroethene	U	ug/l	1	< 1	< 1
1,1-Dichloroethane	U	ug/l	1	< 1	1
Chloroform	U	ug/l	1	< 1	< 1
Dichloromethane	U	ug/l	1	< 1	< 1
1,1,1-Trichloroethane	U	ug/l	1	< 1	< 1
Trichloroethylene	N	ug/l	1	< 1	1
Tetrachloroethylene	U	ug/l	1	< 1	< 1
1,1,1,2-Tetrachloroethane	U	ug/l	1	< 1	< 1
1,1,2,2-Tetrachloroethe	N	ug/l	1	< 1	< 1
Chlorobenzene	U	ug/l	1	< 1	< 1
Bromobenzene	U	ug/l	1	< 1	< 1
Bromodichloromethane	U	ug/l	1	< 1	< 1
Methylethylbenzene	U	ug/l	1	< 1	< 1
1,1-Dichloro-1-propene	U	ug/l	1	< 1	< 1
Trans - 1,2 -dichloroethylene	U	ug/l	1	< 1	< 1
2,2-Dichloropropane	N	ug/l	1	< 1	< 1
Bromochloromethane	N	ug/l	1	< 1	< 1
1,2-Dichloroethane	U	ug/l	1	< 1	< 1
Dibromomethane	U	ug/l	1	< 1	< 1
1,2-Dichloropropane	U	ug/l	1	< 1	< 1
cis-1,3-Dichloro-1-propene	U	ug/l	1	< 1	< 1
trans-1,3-Dichloro-1-propene	U	ug/l	1	< 1	< 1
1,1,2-Trichloroethane	U	ug/l	1	< 1	< 1
Dibromochloromethane	U	ug/l	1	< 1	< 1
1,3-Dichloropropane	U	ug/l	1	< 1	< 1
Dibromoethane	U	ug/l	1	< 1	< 1
Styrene	U	ug/l	1	< 1	< 1
Propylbenzene	U	ug/l	1	< 1	< 1
2-Chlorotoluene	U	ug/l	1	< 1	< 1
1,2,4-Trimethylbenzene	U	ug/l	1	< 1	< 1
4-Chlorotoluene	U	ug/l	1	< 1	< 1
t-butylbenzene	U	ug/l	1	< 1	< 1
1,3,5-Trimethylbenzene	U	ug/l	1	< 1	< 1
1-methylpropylbenzene	U	ug/l	1	< 1	< 1
p-cymene	U	ug/l	1	< 1	< 1
1,3-Dichlorobenzene	U	ug/l	1	< 1	< 1
Butylbenzene	U	ug/l	1	< 1	< 1
1,2-Dibromo-3-chloropropane	U	ug/l	1	< 1	< 1
Hexachlorobutadiene	U	ug/l	1	< 1	< 1
1,2,3-Trichlorobenzene	U	ug/l	1	< 1	< 1
Naphthalene	U	ug/l	1	< 1	< 1
1,2,4-Trichlorobenzene	U	ug/l	1	< 1	< 1
1,4-Dichlorobenzene	U	ug/l	1	< 1	< 1
1,2-Dichlorobenzene	U	ug/l	1	< 1	< 1
Bromoform	U	ug/l	1	< 1	< 1

ELAB

Results Summary

Report No.: 14-66999

ELAB Reference	8784	8785
Customer Reference		
Sample ID		
Sample Type	WATER	WATER
Sample Location	WS2	WS1
Sample Depth (m)		
Sampling Date	16/10/2014	16/10/2014

Determinand	Codes	Units	LOD		
SVOC					
Phenol	M	ug/l	1	< 1.00	< 1.00
Aniline	M	ug/l	1	< 1.00	< 1.00
Bis(2-chloroethyl)ether	M	ug/l	1	< 1.00	< 1.00
3-Chloropheno	M	ug/l	1	< 1.00	< 1.00
1,3-Dichlorobenzene	M	ug/l	1	< 1.00	< 1.00
1,4-Dichlorobenzene	M	ug/l	1	< 1.00	< 1.00
Benzyl Alcohol	M	ug/l	1	< 1.00	< 1.00
1,2-Dichlorobenzene	M	ug/l	1	< 1.00	< 1.00
2-Methylphenol	M	ug/l	1	< 1.00	< 1.00
Bis(2-chloroisopropyl)ether	M	ug/l	1	< 1.00	< 1.00
3 and 4-methylphenol	M	ug/l	1	< 1.00	< 1.00
N-Nitroso-di-n-propylamine	M	ug/l	1	< 1.00	< 1.00
Hexachloroethane	M	ug/l	1	< 1.00	< 1.00
Nitrobenzene	M	ug/l	1	< 1.00	< 1.00
Isophorone	M	ug/l	1	< 1.00	< 1.00
2-Nitrophenol	M	ug/l	1	< 1.00	< 1.00
2,4-Dimethylphenol	M	ug/l	1	< 1.00	< 1.00
Bis(2-chloroethoxy)methane	M	ug/l	1	< 1.00	< 1.00
2,4-Dichlorophenol	M	ug/l	1	< 1.00	< 1.00
1,2,4-Trichlorobenzene	M	ug/l	1	< 1.00	< 1.00
Naphthalene	M	ug/l	0.05	0.14	0.61
4-Chloroaniline	M	ug/l	1	< 1.00	< 1.00
Hexachloro-1,3-butadiene	M	ug/l	1	< 1.00	< 1.00
4-Chloro-3-methylphenol	M	ug/l	1	< 1.00	< 1.00
2-Methylnaphthalene	M	ug/l	1	< 1.00	< 1.00
1-Methylnaphthalene	M	ug/l	1	< 1.00	< 1.00
Hexachlorocyclopentadiene	M	ug/l	1	< 1.00	< 1.00
2,4,6-Trichlorophenol	M	ug/l	1	< 1.00	< 1.00
2,4,5-Trichlorophenol	M	ug/l	1	< 1.00	< 1.00
1-Chloronaphthalene	M	ug/l	1	< 1.00	< 1.00
2-Nitroaniline	M	ug/l	1	< 1.00	< 1.00
1,4-Dinitrobenzene	M	ug/l	1	< 1.00	< 1.00
Dimethyl phthalate	M	ug/l	1	< 1.00	< 1.00
1,3-dinitrobenzene	M	ug/l	1	< 1.00	< 1.00
2,6-dinitrotoluene	M	ug/l	1	< 1.00	< 1.00
Acenaphthylene	M	ug/l	0.05	0.06	0.11
1,2-Dinitrobenzene	M	ug/l	1	< 1.00	< 1.00
3-Nitroaniline	M	ug/l	1	< 1.00	< 1.00
Acenaphthene	M	ug/l	0.05	0.13	0.18
2,4-dinitrophenol	M	ug/l	1	< 1.00	< 1.00
Dibenzofuran	M	ug/l	1	< 1.00	< 1.00
2,3,5,6-Tetrachlorophenol	M	ug/l	1	< 1.00	< 1.00
2,3,4,6-Tetrachlorophenol	M	ug/l	1	< 1.00	< 1.00
Diethyl phthalate	M	ug/l	1	< 1.00	< 1.00
4-Chloro-4-phenylphenylether	M	ug/l	1	< 1.00	< 1.00
Fluorene	M	ug/l	0.01	0.11	< 0.01
4-Nitroaniline	M	ug/l	1	< 1.00	< 1.00
2,4-dinitrotoluene	M	ug/l	1	< 1.00	< 1.00
Diphenylamine	M	ug/l	1	< 1.00	< 1.00
Azobenzene	M	ug/l	1	< 1.00	< 1.00
1-bromo-4-phenylphenylether	M	ug/l	1	< 1.00	< 1.00
Hexachlorobenzene	M	ug/l	1	< 1.00	< 1.00
Pentachlorophenol	M	ug/l	1	< 1.00	< 1.00
Phenanthrene	M	ug/l	0.01	0.74	0.86
Anthracene	M	ug/l	0.01	0.73	0.86
Carbazole	M	ug/l	1	< 1.00	< 1.00
Di-n-butyl phthalate	M	ug/l	1	< 1.00	< 1.00
Fluoranthene	M	ug/l	0.05	5.69	1.36
Pyrene	M	ug/l	0.01	5.66	1.16
Butyl benzyl phthalate	M	ug/l	1	< 1.00	< 1.00
Bis-2-ethylhexyladipate	M	ug/l	1	< 1.00	< 1.00
Bis-2-ethylhexyl phthalate	M	ug/l	1	< 1.00	< 1.00
Benzo(a)anthracene	M	ug/l	0.05	3.89	0.80
Chrysene	M	ug/l	0.01	3.38	0.46
Di-n-octyl phthalate	M	ug/l	1	< 1.00	< 1.00
Benzo(b)fluoranthene	M	ug/l	0.05	6.66	1.66
Benzo(k)fluoranthene	M	ug/l	0.01	4.32	0.74
Benzo(a)pyrene	M	ug/l	0.01	5.66	0.91
Indeno(1,2,3-cd)pyrene	M	ug/l	0.05	3.82	0.96
Dibenz(a,h)anthracene	M	ug/l	0.01	1.10	0.12
Benzo(g,h,i)perylene	M	ug/l	0.05	4.71	0.82

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

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Results Summary

Report No.: 14-00990

ELAB Reference	6786
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	Combined WS1@0.15, WS3@0.50, WS4@0.45
Sample Depth (m)	0.15 - 0.50
Sampling Date	11/10/2014

Determinand	Codes	Units	LOD	
Metals				
Arsenic	N	ug/l	5	13
Cadmium	N	ug/l	1	< 1
Chromium	N	ug/l	5	6
Copper	N	ug/l	5	79
Lead	N	ug/l	5	< 5
Mercury	N	ug/l	0.1	< 0.1
Nickel	N	ug/l	5	< 5
Selenium	N	ug/l	5	< 5
Zinc	N	ug/l	5	11
Inorganics				
Hexavalent chromium	N	ug/l	100	< 100
Total Cyanide	N	ug/l	20	< 20
Miscellaneous				
Dissolved organic carbon	N	mg/l	0.9	6.3
Phenols				
Total Phenols	N	ug/l	6	< 6
Polyaromatic hydrocarbons				
Naphthalene Leachate GCMS	N	ug/l	0.01	0.26
Acenaphthylene Leachate GCMS	N	ug/l	0.01	< 0.01
Acenaphthene Leachate GCMS	N	ug/l	0.01	0.02
Fluorene Leachate GCMS	N	ug/l	0.01	0.01
Phenanthrene Leachate GCMS	N	ug/l	0.01	0.04
Anthracene Leachate GCMS	N	ug/l	0.01	0.02
Fluoranthene Leachate GCMS	N	ug/l	0.01	0.02
Pyrene Leachate GCMS	N	ug/l	0.01	0.01
Benzo (a) anthracene Leachate GCMS	N	ug/l	0.01	0.01
Chrysene Leachate GCMS	N	ug/l	0.01	< 0.01
Benzo (b) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01
Benzo (k) fluoranthene Leachate GCMS	N	ug/l	0.01	< 0.01
Benzo (a) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/l	0.01	< 0.01
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/l	0.01	< 0.01
Benzo(ghi)perylene Leachate GCMS	N	ug/l	0.01	< 0.01
Total PAH(16) Specialed Leachate GCMS	N	ug/l	0.01	0.40

ELAB

UKAS TESTING 2683

Results Summary

Report No.: 14-00990

ELAB Reference	6766
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	Combined WS1@0.15, WS3@0.50, WS4@0.45
Sample Depth (m)	0.15 - 0.50
Sampling Date	11/10/2014

Determinand	Codes	Units	LOD	
TPH CWG				
>C5-C6 Aliphatic in Leachate	N	ug/l	1	fg < 1.0
>C6-C8 Aliphatic in Leachate	N	ug/l	1	fg < 1.0
>C8-C10 Aliphatic Leachate	N	ug/l	5	fg < 5.0
>C10-C12 Aliphatic Leachate	N	ug/l	5	fg < 5.0
>C12-C16 Aliphatic Leachate	N	ug/l	5	fg < 5.0
>C16-C21 Aliphatic Leachate	N	ug/l	5	fg < 5.0
>C21-C35 Aliphatic Leachate	N	ug/l	5	fg < 5.0
>C35-C40 Aliphatic Leachate	N	ug/l	5	fg < 5.0
Total (>C5-C40) Aliphatic Leachate	N	ug/l	5	fg < 5.0
>C5-C7 Aromatic in Leachate	N	ug/l	1	fg < 1.0
>C7-C8 Aromatic in Leachate	N	ug/l	1	fg < 1.0
>C8-C10 Aromatic Leachate	N	ug/l	5	fg < 5.0
>C10-C12 Aromatic Leachate	N	ug/l	5	fg < 5.0
>C12-C16 Aromatic Leachate	N	ug/l	5	fg < 5.0
>C16-C21 Aromatic Leachate	N	ug/l	5	fg 6.0
>C21-C35 Aromatic Leachate	N	ug/l	5	fg 5.3
>C35-C40 Aromatic Leachate	N	ug/l	5	fg < 5.0
Total (>C5-C40) Aromatic Leachate	N	ug/l	5	fg 11.3
Total (>C5-C40) Ali/Aro Leachate	N	ug/l	5	fg 11.3

ELAB

UKAS TESTING
2683

Method Summary

Report No.: 14-00990

Parameter	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil				
Aliphatic hydrocarbons in leachate		28/10/2014		GC-FID
Aliphatic/Aromatic hydrocarbons in leach		30/10/2014		GC-FID
Aromatic hydrocarbons in leachate		28/10/2014		GC-FID
Carbon in leachates		03/11/2014		IR
Cyanide (L) in solids in leachates		28/10/2014		Colorimetry
Metals by ICP in leachates		29/10/2014		ICPMS
Phenols in leachates		28/10/2014		HPLC
PAHs and/or PCBs in leachates		31/10/2014	135	GC-MS
Low range Aliphatic hydrocarbons leachat		30/10/2014	214	GC-MS
Low range Aromatic hydrocarbons leachate		30/10/2014	214	GC-MS
Water				
Aliphatic hydrocarbons in water		24/10/2014		GC-FID
Aliphatic/Aromatic hydrocarbons in water		27/10/2014		GC-FID
Aromatic hydrocarbons in water		24/10/2014		GC-FID
BTEX in waters		27/10/2014		GC-MS
Phenols in waters		24/10/2014		HPLC
Dissolved metals by ICP in waters		24/10/2014	101	ICPMS
Dissolved organic carbon		27/10/2014	102	IR
Chromium Hexavalent in waters		24/10/2014	110	Colorimetry
SVOC in waters		27/10/2014	167	GC-MS
VOC in waters		24/10/2014	200	GC-MS
Cyanide in waters		24/10/2014	205	Colorimetry
Low range Aliphatic hydrocarbons water		27/10/2014	214	GC-MS
Low range Aromatic hydrocarbons water		27/10/2014	214	GC-MS
Hardness in waters		25/10/2014	APHA	ICPMS

ELAB

UKAS TESTING 2683

Report Information

Report No.: 14-00990

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
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request

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

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards on Sea, East Sussex, TN38 9BY
Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 14-00920

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
6205	0.15	WS1	Loamy sand	No asbestos detected
6206	0.45	WS2	Silty loam	No asbestos detected
6207	0.20	WS3	Sandy silty loam	Chrysotile
6210	0.20	WS4	Loamy sand	No asbestos detected
6212	0.35	WS5	Sandy silty loam	Chrysotile

ELAB

Results Summary

Report No.: 14-08328

ELAB Reference	9206	9210	9212
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	WS2	WS4	WS5
Sample Depth (m)	0.45	0.30	0.50
Sampling Date	11/10/2014	11/10/2014	11/10/2014

Determinand	Codes	Units	LOD			
SVOC						
Phenol	N	mg/kg	0.01	0.28	0.06	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	0.06	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3 and/or 4-methylphenol	N	mg/kg	0.01	0.21	0.08	< 0.01
N-Nitroso-di-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	0.06	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,2,4-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.02	0.37	0.02
4-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachlorobuta-1,3-diene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.02	0.14	0.06
1-Methylnaphthalene	N	mg/kg	0.01	0.02	0.09	0.04
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,1'-Biphenyl	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,6-Dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.04	1.66	0.06
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.04	1.66	0.05
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.05	1.71	0.07
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-chloro-4-phenylbenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.05	1.97	0.06
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-methyl-4,6-dinitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
4-bromophenyl-phenylether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	N	mg/kg	0.01	0.36	11.2	0.39
Anthracene	N	mg/kg	0.01	0.10	3.13	0.08
Carbazole	N	mg/kg	0.01	0.06	2.76	< 0.01
Dibutyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	1.56
Fluoranthene	N	mg/kg	0.01	0.66	19.2	0.77
Pyrene	N	mg/kg	0.01	0.56	16.4	0.66
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis-2-ethylhexyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Di-n-butyl phthalate	N	mg/kg	0.01	< 0.01	0.46	0.01
Benzo(a)anthracene	N	mg/kg	0.01	0.30	8.74	0.36
Chrysene	N	mg/kg	0.01	0.29	8.15	0.33
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	0.39	11.1	0.39
Benzo(k)fluoranthene	N	mg/kg	0.01	0.09	2.74	0.09
Benzo(a)pyrene	N	mg/kg	0.01	0.26	8.01	0.28
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	0.16	5.01	0.18
Dibenz(a,h)anthracene	N	mg/kg	0.01	0.03	1.00	0.04
Benzo(ghi)perylene	N	mg/kg	0.01	0.16	5.10	0.21

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

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Results Summary

Report No.: 14-00920

			ELAB Reference	6206	6215	6212
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	WS2	WS4	WS5
			Sample Depth (m)	0.45	0.25	0.35
			Sampling Date	11/10/2014	11/10/2014	11/10/2014
Determinand	Codes	Units	LOD			
VOC						
MTBE	N	µg/kg	10	< 10.0	< 10.0	< 10.0
Heptane	N	µg/kg	10	< 10.0	< 10.0	< 10.0
Octane	N	µg/kg	10	< 10.0	< 10.0	< 10.0
Xylenes	N	µg/kg	10	< 10.0	< 10.0	< 10.0
Benzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
m+p-xylene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
o-xylene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
cis-1,2-dichloroethene	M	µg/kg	10	10.6	< 10.0	< 10.0
1,1-Dichloroethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Chloroform	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Dichloromethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,1,1-Trichloroethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Trichloroethylene	M	µg/kg	10	27.6	< 10.0	< 10.0
Tetrachloroethylene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,1,1,2-Tetrachloroethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,1,2,2-Tetrachloroetha	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Chlorobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Bromobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Bromodichloromethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Methylethylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,1-Dichloro-1-propene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Trans - 1,2 -dichloroethene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Bromochloromethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Dibromomethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloropropane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
cis-1,3-Dichloro-1-propene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
trans-1,3-Dichloro-1-propene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,1,2-Trichloroethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Bromochloromethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Dibromoethane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Styrene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Propylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
t-butylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
p-cymene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Butylbenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,2,3-Trichlorobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Naphthalene	M	µg/kg	10	31.2	< 10.0	< 10.0
1,2,4-Trichlorobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	M	µg/kg	10	< 10.0	< 10.0	< 10.0
Bromoform	M	µg/kg	10	< 10.0	< 10.0	< 10.0

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

3683

Results Summary

Report No.: 14-00920

ELAB Reference				6205	6206	6207	6208	6210	6211
Customer Reference									
Sample ID									
Sample Type				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location				WS1	WS2	WS3	WS3	WS4	WS4
Sample Depth (m)				0.15	0.45	0.20	1.80	0.20	0.45
Sampling Date				11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014
Determinand	**Codes**	**Units**	**LOD**						
Metals									
Arsenic	M	mg/kg	1	5.1	7.1	6.5	8.2	4.3	n/t
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	n/t
Chromium	M	mg/kg	5	17.2	17.6	13.1	28.5	10.5	n/t
Copper	M	mg/kg	5	14.4	26.5	28.5	10.4	19.7	n/t
Lead	M	mg/kg	5	13.8	89.2	51.6	13.5	49.1	n/t
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	1.1	< 0.5	< 0.5	n/t
Nickel	M	mg/kg	5	9.8	13.6	12.8	19.1	11.8	n/t
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
Zinc	M	mg/kg	45	48.4	212	149	63.8	66.7	n/t
Inorganics									
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	n/t
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	n/t
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	< 0.1	n/t	n/t	< 0.1	n/t
Loss Of Ignition (450°C)	N	%	0.01	n/t	6.0	n/t	n/t	2.3	n/t
Moisture Content	N	%	0.1	10.9	16.6	12.6	19.3	6.7	n/t
pH	M	units	0.1	n/t	9.9	n/t	n/t	8.6	n/t
Stones Content	N	%	0.1	35.3	33.3	35.2	1.9	56.9	n/t
Total Organic Carbon	N	%	0.01	0.26	1.6	2.7	n/t	0.54	n/t

ELAB

2683

Results Summary

Report No.: 14-00920

ELAB Reference	6205	6206	6207	6208	6210	6211
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS1	WS2	WS3	WS3	WS4	WS4
Sample Depth (m)	0.15	0.45	0.20	1.80	0.20	0.45
Sampling Date	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014

Determinand	Codes	Units	LOD					
Phenols								
Phenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	n/t	< 5	n/t
Polyaromatic hydrocarbons								
Naphthalene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t
Acenaphthylene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t
Acenaphthene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t
Fluorene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t
Phenanthrene	M	mg/kg	0.5	< 0.5	n/t	0.9	n/t	n/t	n/t
Anthracene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t
Fluoranthene	M	mg/kg	0.5	1.3	n/t	2.2	n/t	n/t	n/t
Pyrene	M	mg/kg	0.5	1.0	n/t	1.8	n/t	n/t	n/t
Benzo (a) anthracene	M	mg/kg	0.5	0.5	n/t	1.0	n/t	n/t	n/t
Chrysene	M	mg/kg	0.5	0.6	n/t	1.9	n/t	n/t	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	0.7	n/t	1.2	n/t	n/t	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	0.8	n/t	1.6	n/t	n/t	n/t
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	n/t	1.5	n/t	n/t	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	n/t	1.1	n/t	n/t	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	0.6	n/t	1.1	n/t	n/t	n/t
Total PAH(16) Speciated	M	mg/kg	2	7	n/t	16	n/t	n/t	n/t
Total PAH (Including Coronene)	N	mg/kg	2.1	n/t	7	n/t	n/t	341	n/t
BTEX								
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	n/t	< 10.0	n/t
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	n/t	< 10.0	n/t
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0	n/t	< 10.0	n/t
Xylenes	M	ug/kg	10	< 10.0	< 10.0	< 10.0	n/t	< 10.0	n/t
Total BTEX	M	mg/kg	0.01	n/t	< 0.01	n/t	n/t	< 0.01	n/t
TPH CWG								
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	2.8	2.2
>C16-C21 Aliphatic	N	mg/kg	1	2.0	2.5	< 1.0	n/t	7.0	5.5
>C21-C35 Aliphatic	N	mg/kg	1	17.0	9.8	13.9	n/t	20.0	15.5
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	2.5	1.5
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	3.3	2.6
>C16-C21 Aromatic	N	mg/kg	1	1.8	3.0	< 1.0	n/t	18.2	12.2
>C21-C35 Aromatic	N	mg/kg	1	12.7	12.2	16.7	n/t	66.3	47.5
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	2.0	n/t	8.2	6.9
Total (>C5-C40) Ali/Aro	N	mg/kg	1	33.6	27.6	32.7	n/t	130	92.8
Total Petroleum Hydrocarbons								
Mineral Oil	U	mg/kg	5	n/t	< 5	n/t	n/t	14	n/t
PCB (ICES 7 congeners)								
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	< 0.03	n/t	n/t	< 0.03	n/t

ELAB

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Results Summary

Report No.: 14-00920

ELAB Reference	6212
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	WS5
Sample Depth (m)	0.35
Sampling Date	11/10/2014

Determinand	Codes	Units	LOD	
Metals				
Arsenic	M	mg/kg	1	10.2
Cadmium	M	mg/kg	0.5	1.0
Chromium	M	mg/kg	5	18.1
Copper	M	mg/kg	5	627
Lead	M	mg/kg	5	84.1
Mercury	M	mg/kg	0.5	< 0.5
Nickel	M	mg/kg	5	19.3
Selenium	M	mg/kg	1	< 1.0
Zinc	M	mg/kg	45	233
Inorganics				
Hexavalent Chromium	N	mg/kg	0.8	< 0.8
Total Cyanide	M	mg/kg	1	< 1.0
Miscellaneous				
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t
Loss Of Ignition (450°C)	N	%	0.01	n/t
Moisture Content	N	%	0.1	11.8
pH	M	units	0.1	n/t
Stones Content	N	%	0.1	34.6
Total Organic Carbon	N	%	0.01	2.6

ELAB

3683

Results Summary

Report No.: 14-00920

ELAB Reference	6212
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	WS5
Sample Depth (m)	0.35
Sampling Date	13/10/2014

Determinand	Codes	Units	LOD	
Phenols				
Phenol	M	mg/kg	1	< 1
M,P-Cresol	N	mg/kg	1	< 1
O-Cresol	N	mg/kg	1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1
Trimethylphenol	M	mg/kg	1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5
Polyaromatic hydrocarbons				
Naphthalene	M	mg/kg	0.5	n/t
Acenaphthylene	M	mg/kg	0.5	n/t
Acenaphthene	M	mg/kg	0.5	n/t
Fluorene	M	mg/kg	0.5	n/t
Phenanthrene	M	mg/kg	0.5	n/t
Anthracene	M	mg/kg	0.5	n/t
Fluoranthene	M	mg/kg	0.5	n/t
Pyrene	M	mg/kg	0.5	n/t
Benzo (a) anthracene	M	mg/kg	0.5	n/t
Chrysene	M	mg/kg	0.5	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	n/t
Benzo (a) pyrene	M	mg/kg	0.5	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	n/t
Total PAH(16) Specated	M	mg/kg	2	n/t
Total PAH (Including Coronene)	N	mg/kg	2.1	n/t
BTEX				
Benzene	M	ug/kg	10	g < 10.0
Toluene	M	ug/kg	10	g < 10.0
Ethylbenzene	M	ug/kg	10	g < 10.0
Xylenes	M	ug/kg	10	g < 10.0
Total BTEX	M	mg/kg	0.01	n/t
TPH CWG				
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	2.7
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	3.7
>C35-C40 Aromatic	N	mg/kg	1	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	8.3
Total Petroleum Hydrocarbons				
Mineral Oil	U	mg/kg	5	n/t
PCB (ICES 7 congeners)				
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t

ARUN DISTRICT COUNCIL BE/27/17/DOC

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2683

THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 14-00920

Issue: 3

Date of Issue: 03/11/2014

Contact: Richard Hamilton

Customer Details: Enzygo - Cromhall
The Granary
Woodend Lane
Cromhall
Gloucestershire

Quotation No: Q14-00007

Order No: CRM.816

Customer Reference: CRM.413.111

Date Received: 15/10/2014

Date Approved: 29/10/2014

Details: Bognor

Approved by: [redacted]

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

Sample Summary

Report No.: 14-00920

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
6205	WS1 0.15	11/10/2014	15/10/2014	Loamy sand	g
6206	WS2 0.45	11/10/2014	15/10/2014	Silty loam	g
6207	WS3 0.20	11/10/2014	15/10/2014	Sandy silty loam	g
6208	WS3 0.50	11/10/2014	15/10/2014		
6209	WS3 1.80	11/10/2014	15/10/2014	Silty loam	
6210	WS4 0.20	11/10/2014	15/10/2014	Loamy sand	g
6211	WS4 0.45	11/10/2014	15/10/2014	Sandy silty loam + ash	
6212	WS5 0.35	11/10/2014	15/10/2014	Sandy silty loam	g
6389	@0.15, WS3@0.50, WS4@0	11/10/2014	17/10/2014	Sandy silty loam	g

ELAB

2683

Results Summary

Report No.: 14-00920

			ELAB Reference	6205	6206	6207	6208	6210	6211	6212
			Customer Reference							
			Sample ID							
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	WS1	WS2	WS3	WS3	WS4	WS4	WS5
			Sample Depth (m)	0.15	0.45	0.20	1.80	0.20	0.45	0.35
			Sampling Date	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014
Determinand	Codes	Units	LOD							
Metals										
Arsenic	M	mg/kg	1	5.1	7.1	8.5	8.2	4.3	n/t	10.2
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	n/t	1.0
Chromium	M	mg/kg	5	17.2	17.6	13.1	28.5	10.5	n/t	18.1
Copper	M	mg/kg	5	14.4	26.5	28.5	10.4	19.7	n/t	627
Lead	M	mg/kg	5	13.8	68.2	51.9	13.5	49.1	n/t	84.1
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	1.1	< 0.5	< 0.5	n/t	< 0.5
Nickel	M	mg/kg	5	8.9	13.6	12.9	19.1	11.9	n/t	19.3
Selenium	M	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t	< 1.0
Zinc	M	mg/kg	45	48.4	212	149	63.8	66.7	n/t	233
Inorganics										
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	n/t	< 0.8
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	n/t	< 1.0
Miscellaneous										
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	< 0.1	n/t	n/t	< 0.1	n/t	n/t
Loss Of Ignition (450°C)	N	%	0.01	n/t	8.8	n/t	n/t	2.3	n/t	n/t
Moisture Content	N	%	0.1	10.9	16.6	12.6	19.3	6.7	n/t	11.4
pH	M	units	0.1	n/t	9.9	n/t	n/t	8.6	n/t	n/t
Stones Content	N	%	0.1	35.3	33.3	35.2	1.9	55.9	n/t	34.6
Total Organic Carbon	N	%	0.01	0.26	1.0	2.7	n/t	0.54	n/t	2.6

ELAB

UKAS TESTING 2683

MCERTS

Results Summary

Report No.: 14-00920

ELAB Reference				6205	6206	6207	6209	6210	6211	6212
Customer Reference										
Sample ID										
Sample Type				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location				WS1	WS2	WS3	WS3	WS4	WS4	WS5
Sample Depth (m)				0.15	0.45	0.20	1.80	0.20	0.45	0.35
Sampling Date				11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014
Determinand	**Codes**	**Units**	**LOD**							
Phenols										
Phenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t	< 1
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t	< 1
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	n/t	< 5	n/t	< 5
Polyaromatic hydrocarbons										
Naphthalene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t	n/t
Acenaphthylene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t	n/t
Acenaphthene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t	n/t
Fluorene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t	n/t
Phenanthrene	M	mg/kg	0.5	< 0.5	n/t	0.9	n/t	n/t	n/t	n/t
Anthracene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t	n/t
Fluoranthene	M	mg/kg	0.5	1.3	n/t	2.2	n/t	n/t	n/t	n/t
Pyrene	M	mg/kg	0.5	1.0	n/t	1.8	n/t	n/t	n/t	n/t
Benzo (a) anthracene	M	mg/kg	0.5	0.5	n/t	1.0	n/t	n/t	n/t	n/t
Chrysene	M	mg/kg	0.5	0.8	n/t	1.5	n/t	n/t	n/t	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	0.7	n/t	1.2	n/t	n/t	n/t	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	0.8	n/t	1.6	n/t	n/t	n/t	n/t
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	n/t	1.5	n/t	n/t	n/t	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	n/t	1.1	n/t	n/t	n/t	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	n/t	< 0.5	n/t	n/t	n/t	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	0.6	n/t	1.1	n/t	n/t	n/t	n/t
Total PAH(16) Speciated	M	mg/kg	2	7	n/t	15	n/t	n/t	n/t	n/t
Total PAH (including Coronene)	N	mg/kg	2.1	n/t	7	n/t	n/t	341	n/t	n/t
BTEX										
Benzene	M	ug/kg	10	g < 10.0	g < 10.0	g < 10.0	n/t	g < 10.0	n/t	g < 10.0
Toluene	M	ug/kg	10	g < 10.0	g < 10.0	g < 10.0	n/t	g < 10.0	n/t	g < 10.0
Ethylbenzene	M	ug/kg	10	g < 10.0	g < 10.0	g < 10.0	n/t	g < 10.0	n/t	g < 10.0
Xylenes	M	ug/kg	10	g < 10.0	g < 10.0	g < 10.0	n/t	g < 10.0	n/t	g < 10.0
Total BTEX	M	mg/kg	0.01	n/t	g < 0.01	n/t	n/t	g < 0.01	n/t	n/t

ELAB

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Results Summary

Report No.: 14-00920

			ELAB Reference	6205	6206	6207	6209	6210	6211	6212
			Customer Reference							
			Sample ID							
			Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
			Sample Location	WS1	WS2	WS3	WS3	WS4	WS4	WS5
			Sample Depth (m)	0.15	0.45	0.20	1.80	0.20	0.45	0.35
			Sampling Date	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014	11/10/2014
Determinand	**Codes**	**Units**	**LOD**							
TPH CWG										
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C8-C10 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C10-C12 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C12-C16 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	2.8	2.2	< 1.0
>C16-C21 Aliphatic	N	mg/kg	1	2.0	2.5	< 1.0	n/t	7.0	5.5	< 1.0
>C21-C35 Aliphatic	N	mg/kg	1	17.0	9.9	13.9	n/t	20.0	16.5	2.7
>C35-C40 Aliphatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	2.5	1.5	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01	n/t	< 0.01	< 0.01	< 0.01
>C8-C10 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C10-C12 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C12-C16 Aromatic	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	3.3	2.6	< 1.0
>C16-C21 Aromatic	N	mg/kg	1	1.9	3.0	< 1.0	n/t	18.0	12.2	< 1.0
>C21-C35 Aromatic	N	mg/kg	1	12.7	12.2	16.7	n/t	68.3	47.6	3.7
>C35-C40 Aromatic	N	mg/kg	1	< 1.0	< 1.0	2.0	n/t	8.2	5.9	< 1.0
Total (>C5-C40) Ali/Aro	N	mg/kg	1	33.6	27.6	32.7	n/t	130	92.8	6.3
Total Petroleum Hydrocarbons										
Mineral Oil	U	mg/kg	5	n/t	< 5	n/t	n/t	14	n/t	n/t
PCB (ICES 7 congeners)										
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	< 0.03	n/t	n/t	< 0.03	n/t	n/t

ELAB

UKAS TESTING 3669

MCERTS

Results Summary

Report No.: 14-00920

			ELAB Reference	8208	8210	8212
			Customer Reference			
			Sample ID			
			Sample Type	SOIL	SOIL	SOIL
			Sample Location	WS2	WS4	WS6
			Sample Depth (m)	0.45	0.20	0.35
			Sampling Date	11/10/2014	11/10/2014	11/10/2014
Determinand	Codes	Units	LOD			
VOC						
MTBE	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Heptane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
m+p-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
o-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
cis-1,2-dichloroethene	M	ug/kg	10	30.6	< 10.0	< 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Chloroform	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Dichloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Trichloroethylene	M	ug/kg	10	27.6	< 10.0	< 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,2,2-Tetrachloroetha	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromodichloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromoethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
tert-butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
p-cymene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	13.2	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0	< 10.0

ELAB

Results Summary

Report No.: 14-09928

ELAB Reference				8208	8210	8212
Customer Reference						
Sample ID						
Sample Type				SOIL	SOIL	SOIL
Sample Location				WS2	WS4	WS5
Sample Depth (m)				0.45	0.30	0.35
Sampling Date				11/10/2014	11/10/2014	11/10/2014
Determinand	Codes	Units	LOD			
SVOC						
Phenol	N	mg/kg	0.01	6.36	5.56	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	0.06	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	0.21	0.06	< 0.01
N-Nitroso-di-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	0.06	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,2,3-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.20	0.07	0.01
4-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.06	0.14	0.02
1-Methylnaphthalene	N	mg/kg	0.01	0.06	0.08	0.01
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,1'-Chlorobiphenyl	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	0.06	1.86	0.06
1,3-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
5-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	0.10	7.89	0.01
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.04	4.71	0.01
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.06	8.37	0.01
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibenz-a-anthracene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	N	mg/kg	0.01	0.38	12.6	0.06
Anthracene	N	mg/kg	0.01	0.11	18.0	0.08
Carbazole	N	mg/kg	0.01	0.04	0.75	< 0.01
Di-n-butyl phthalate	N	mg/kg	0.01	0.03	< 0.01	1.09
Fluoranthene	N	mg/kg	0.01	0.84	85.5	0.78
Pyrene	N	mg/kg	0.01	0.78	85.5	0.68
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis-2-ethylhexylphthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Di-n-octyl phthalate	N	mg/kg	0.01	< 0.01	0.45	0.01
Benzo(a)anthracene	N	mg/kg	0.01	0.37	39.6	0.36
Chrysene	N	mg/kg	0.01	0.47	21.5	0.6
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	0.59	31.3	0.56
Benzo(k)fluoranthene	N	mg/kg	0.01	0.36	17.4	0.6
Benzo(a)pyrene	N	mg/kg	0.01	0.56	26.9	0.55
Indeno(1,2,3-cd)pyrene	N	mg/kg	0.01	0.30	16.6	0.56
Dibenz(a,h)anthracene	N	mg/kg	0.01	0.12	7.82	0.24
Benzo(g,h,i)perylene	N	mg/kg	0.01	0.45	16.0	0.71

ARUN DISTRICT COUNCIL BE/27/17/DOC

ELAB

UKAS TESTING 2683

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Results Summary

Report No.: 14-00920

WAC Analysis								
Elab Ref:	6210					**Landfill Waste Acceptance Criteria Limits**		
Sample Date:	11/10/2014					**Inert Waste Landfill**	**Stable Non-reactive Hazardous waste in non hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:	WS4							
Depth:	0.2							
Site:	Bognor							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		0.5	3	5	6
Loss on Ignition		M	%		2.3	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		14	500	--	--
Total (of 17) PAHs		N	mg/kg		341.0	100	--	--
pH		M			8.6	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**2:1**	**8:1**	**10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
			mg/l	**mg/l**	**mg/kg**			
Arsenic		N	< 0.005	< 0.005	< 0.05	0.5	2	25
Barium		N	0.080	0.042	0.48	20	100	300
Cadmium		N	< 0.001	< 0.001	< 0.01	0.04	1	5
Chromium		N	< 0.005	< 0.005	< 0.05	0.5	10	70
Copper		N	< 0.005	< 0.005	< 0.05	2	50	100
Mercury		N	< 0.005	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	0.009	< 0.005	< 0.05	0.5	10	30
Nickel		N	< 0.001	< 0.001	< 0.05	0.4	10	40
Lead		N	< 0.001	< 0.001	< 0.05	0.5	10	50
Antimony		N	0.014	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	< 0.005	< 0.005	< 0.05	4	50	200
Chloride		N	< 5	< 5	< 50	800	15000	25000
Fluoride		N	3.000	< 1	< 10	10	150	500
Sulphate		N	17.000	5.000	67.10	1000	20000	50000
Total Dissolved Solids		N	180.000	< 10	286.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	11.800	9.450	98.00	500	800	1000
Leach Test Information								
Eluent Volume (ml)		N	280	1410				
pH		N	7.6	7.3				
Conductivity (uS/cm)		N	198	101				
Temperature (°C)		N	18	18				
Solid Information								
Dry mass of test portion (g)			176					
Moisture (%)			7					

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

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UKAS TESTING 2683

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Results Summary

Report No.: 14-00920

WAC Analysis								
Elab Ref:	6206					**Landfill Waste Acceptance Criteria Limits**		
Sample Date:	11/10/2014					**Inert Waste Landfill**	**Stable Non-reactive Hazardous waste in non-hazardous Landfill**	**Hazardous Waste Landfill**
Sample ID:	WS2							
Depth:	0.45							
Site:	Bognor							
Determinand		**Code**	**Units**					
Total Organic Carbon		N	%		1.0	3	5	6
Loss on Ignition		M	%		6.0	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		7.0	100	--	--
pH		M			9.9	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate
Eluate Analysis			**2:1**	**8:1**	**10:1**	**Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg**		
			mg/l	**mg/l**	**mg/kg**			
Arsenic		N	0.052	0.029	0.31	0.5	2	25
Barium		N	0.028	0.009	0.11	20	100	300
Cadmium		N	< 0.001	< 0.001	< 0.01	0.04	1	5
Chromium		N	0.006	< 0.005	< 0.05	0.5	10	70
Copper		N	0.135	0.028	0.38	2	50	100
Mercury		N	< 0.005	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	0.037	< 0.005	< 0.05	0.5	10	30
Nickel		N	0.019	0.004	0.06	0.4	10	40
Lead		N	0.078	0.006	0.14	0.5	10	50
Antimony		N	0.023	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	0.082	0.008	0.17	4	50	200
Chloride		N	6.000	< 5	< 50	800	15000	25000
Fluoride		N	< 1	< 1	< 10	10	150	500
Sulphate		N	50.000	18.000	218.00	1000	20000	50000
Total Dissolved Solids		N	510.000	170.000	2070.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	89.000	24.200	312.00	500	800	1000
Leach Test Information								
Eluent Volume (ml)		N	190	1410				
pH		N	8.6	8.3				
Conductivity (uS/cm)		N	423	169				
Temperature (°C)		N	18	18				
Solid Information								
Dry mass of test portion (g)			176					
Moisture (%)			20.6					

Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ELAB cannot be held responsible for any discrepencies with current legislation

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Results Summary

Report No.: 14-00920

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2663). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
6205	0.15	WS1	Loamy sand	No asbestos detected
6206	0.45	WS2	Silty loam	No asbestos detected
6207	0.20	WS3	Sandy silty loam	Chrysotile
6210	0.20	WS4	Loamy sand	No asbestos detected
6212	0.35	WS5	Sandy silty loam	Chrysotile

ELAB

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Method Summary

Report No.: 14-00920

Parameter	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil				
Aliphatic hydrocarbons in leachate		22/10/2014		GC-FID
Aliphatic/Aromatic hydrocarbons in leach		28/10/2014		GC-FID
Aromatic hydrocarbons in leachate		23/10/2014		GC-FID
Carbon in leachates		03/11/2014		IR
Cyanide (L) in solids in leachates		24/10/2014		Colorimetry
Metals by ICP in leachates		03/11/2014		ICPMS
Phenols in leachates		24/10/2014		HPLC
Hexavalent chromium	As submitted sample	17/10/2014	110	Colorimetry
Aqua regia extractable metals	Air dried sample	24/10/2014	118	ICPMS
Phenols in solids	As submitted sample	17/10/2014	121	HPLC
Polyaromatic hydrocarbons (GC-FID)	As submitted sample	17/10/2014	133	GC-FID
PAHs and/or PCBs in leachates		22/10/2014	135	GC-MS
SVOC in solids	As submitted sample	20/10/2014	167	GC-MS
VOC in solids	As submitted sample	16/10/2014	181	GC-MS
Total cyanide	As submitted sample	20/10/2014	204	Colorimetry
Aliphatic hydrocarbons in soil	As submitted sample	17/10/2014	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	As submitted sample	29/10/2014	214	GC-FID
Aromatic hydrocarbons in soil	As submitted sample	17/10/2014	214	GC-FID
Low range Aliphatic hydrocarbons leachat		28/10/2014	214	GC-MS
Low range Aliphatic hydrocarbons soil	As submitted sample	29/10/2014	214	GC-MS
Low range Aromatic hydrocarbons leachate		28/10/2014	214	GC-MS
Low range Aromatic hydrocarbons soil	As submitted sample	29/10/2014	214	GC-MS
Asbestos identification	As submitted sample	29/10/2014	PMAN	Microscopy
Leachate				
Arsenic*		29/10/2014	101	ICPMS
Cadmium*		29/10/2014	101	ICPMS
Chromium*		29/10/2014	101	ICPMS
Lead*		29/10/2014	101	ICPMS
Nickel*		29/10/2014	101	ICPMS
Copper*		29/10/2014	101	ICPMS
Zinc*		29/10/2014	101	ICPMS
Mercury*		29/10/2014	101	ICPMS
Selenium*		29/10/2014	101	ICPMS
Antimony		29/10/2014	101	ICPMS
Barium*		29/10/2014	101	ICPMS
Molybdenum*		29/10/2014	101	ICPMS
pH Value*		29/10/2014	113	Electrometric
Electrical Conductivity*		29/10/2014	136	Probe
Dissolved Organic Carbon		29/10/2014	102	TOC analyser
Chloride*		29/10/2014	131	Ion Chromatography
Fluoride*		29/10/2014	131	Ion Chromatography
Sulphate*		29/10/2014	131	Ion Chromatography
Total Dissolved Solids		29/10/2014	144	Gravimetric
Phenol Index		29/10/2014	121	HPLC
WAC Solids analysis				
pH Value**	Air dried sample	29/10/2014	113	Electrometric
Total Organic Carbon	Air dried sample	29/10/2014	210	IR
Loss on Ignition**	Air dried sample	29/10/2014	129	Gravimetric
Acid Neutralization Capacity to pH 7	Air dried sample	29/10/2014	NEN 737	Electrometric
Total BTEX**	As submitted sample	29/10/2014	181	GCMS
Mineral Oil**	As submitted sample	29/10/2014	117	GCFID
Total PCBs (7 congeners)	Air dried sample	29/10/2014	135	GCMS
Total PAH (17)**	As submitted sample	29/10/2014	133	GCFID

ELAB

2683

Report Information

Report No.: 14-00920

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
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request

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

ARUN DISTRICT COUNCIL BE/27/17/DOC

Geosynthetics Soil & Steel Laboratories Ltd

Calder Trading Estate, Leeds Road, Bradley, Huddersfield, West Yorkshire HD3 3BS
T: +44 (0)1484 454100 F: +44 (0)1484 454101
E: info@geosyntheticslab.com W: www.geosyntheticslab.com

CONFIDENTIAL SOILS TEST REPORT

30 October 2014

FAO Mr Steve Rhodes
Enzygo Ltd
The Granary
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

[redacted]

Dear Steve,

Thank you for consulting GSSL Ltd for your Geotechnical testing needs. GSSL Ltd is pleased to submit this **final interim** test report for laboratory testing.

Client Ref/Order No: CRM.817

Test Report Number: GS-CRM.817

Contract Reference: Bognor

Client ID, Visual Sample Descriptions: **Page 2**

Results: Page 3-4

Test(s) Requested;

Determination of Moisture Content Oven Drying Method	{BS 1377-2:1990 Cl.3.2}
Determination of the Liquid Limit – Cone Penetrometer (Definitive Method)	{BS 1377-2:1990 Cl. 4.3}
Determination of the Plastic Limit, Plasticity Index	{BS 1377-2:1990 Cl. 5}

If you have any questions or require additional information, then please do not hesitate to contact us.
Yours Sincerely

[redacted]

Tony Dixon
Managing Director

Any opinions and interpretations expressed within this report are outside the scope of our UKAS Accreditation.

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ARUN DISTRICT COUNCIL BE/27/17/DOC

Geosynthetics Soil & Steel Laboratories Ltd

Calder Trading Estate, Leeds Road, Bradley, Huddersfield, West Yorkshire HD5 0BS
T: +44 (0)1484 454100 F: +44 (0)1484 454101
E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Summary of laboratory soil descriptions

Contract Ref: Bognor **Report Ref. No:** GS-CRM.817

Client ID	Depth (m)	Description of Sample
WS1	2.00	Soft to firm CLAY
WS2	1.00	Very soft CLAY
WS2	2.00	Soft to firm CLAY
WS2	3.00	Soft to firm CLAY
WS3	1.00	Very soft CLAY
WS3	2.00	Soft to firm CLAY
WS3	3.00	Soft to firm CLAY
WS4	1.00	Very soft CLAY

Certifications:-
Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the material(s).

Approved Signatory: [redacted]

Date Reported: 30/10/14

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ARUN DISTRICT COUNCIL BE/27/17/DOC
Geosynthetics Soil & Steel Laboratories Ltd Registered in England and Wales

Geosynthetics Soil & Steel Laboratories Ltd
Calder Trading Estate, Leeds Road, Bradley, Huddersfield, West Yorkshire HD3 3BS
T: +44 (0)1484 454100 F: +44 (0)1484 454101
E: info@geosyntheticslab.com W: www.geosyntheticslab.com

Chemical properties of Soil
Water Soluble Sulphate & Ph Value.
BS 1377:1990: Part 3 cl.3-9.

Contract Ref: Bognor **Report Ref. No:** GS-CRM.817

CLIENT ID	DEPTH (m)	Material passing 2mm BS Test Sieve (% dry mass of original sample)	Water Soluble Sulphate 2:1		pH Value
			Sulphate content as SO_3 of 2:1 soil/water extract (g/l)	Sulphate content as SO_4 of 2:1 soil/water extract (g/l)	
WS1	2.00	100	0.2	0.3	8.4
WS2	1.00	100	0.1	0.2	8.0
WS2	2.00	100	0.2	0.3	8.3
WS2	3.00	100	0.2	0.3	8.8
WS3	1.00	100	0.2	0.3	8.2

Certification:-
Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the material(s).

Approved Signatory:

[redacted]

Date Reported: 30/10/14

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ARUN DISTRICT COUNCIL BE/27/17/DOC
Company Registration Number: 4809810 Registered in England and Wales

Geosynthetics Soil & Steel Laboratories Ltd
Calder Trading Estate, Leeds Road, Bradley, Huddersfield, West Yorkshire HD5 0RS
T: +44 (0)1484 454100 F: +44 (0)1484 454101
E: info@geosyntheticslab.com W: www.geosyntheticslab.com

Determination of Moisture Content & Atterberg Limits

Contract Ref: Bognor **Report Ref. No:** GS-CRM.817
Sample Preparation: Specimens taken from their Wet State

Client ID	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% Passing 425µm test sieve	Remarks
WS2	1.00	27.9	53	27	26	86	High Plasticity
WS2	2.00	28.4	56	28	28	88	High Plasticity
WS2	3.00	29.0	57	28	29	90	High Plasticity
WS3	1.00	26.5	53	28	25	84	High Plasticity
WS3	2.00	29.8	56	28	28	88	High Plasticity
WS3	3.00	31.2	57	29	28	90	High Plasticity
WS4	1.00	27.0	54	27	27	90	High Plasticity

Certification:-
Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the material(s).

Approved Signatory:

[redacted]

Date Reported: 30/10/14

This Test Report may not be reproduced other than in full, except with prior written approval of GSSL LTD.

ARUN DISTRICT COUNCIL BE/27/17/DOC
Company Registration Number: 4822910 Registered in England and Wales

Steve Rhodes
Enzygo Geoenvironmental Ltd
The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

[redacted]

Analytical Report Number : 16-25331

Project / Site name:	Shropley Road, Bognor Regis	**Samples received on:**	15/08/2016
Your job number:	CRM.413.303	**Samples instructed on:**	15/08/2016
Your order number:	CRM-2497	**Analysis completed by:**	22/08/2016
Report Issue Number:	1	**Report issued on:**	22/08/2016
Samples Analysed:	3 soil samples		

[redacted]

Signed:

Rexona Rahman
Reporting Manager
For & on behalf of i2 Analytical Ltd.

[redacted]

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

ARUN DISTRICT COUNCIL - 8 SEP 2016 RECEIVED
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The results included within the report are representative of the samples submitted for analysis.

4041

Environmental Science

Analytical Report Number: 16-25331

Project / Site name: Shropley Road, Bognor Regis
Your Order No: CRM-2497

Lab Sample Number				616098	616099	616100		
Sample Reference				BH1	BH1	BH1		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				1.00	1.50	2.50		
Date Sampled				10/08/2016	10/08/2016	10/08/2016		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	14	16	19		
Total mass of sample received	kg	0.001	NONE	0.24	0.23	0.23		
General Inorganics								
pH	pH Units	N/A	MCERTS	8.1	8.4	8.4		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.063	0.13	0.16		

Iss No 16-25331-1 Shropley Road, Bognor Regis CRM.413.303

ARUN DISTRICT COUNCIL - Exhibit 2
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The results included within the report are representative of the samples submitted for analysis.

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Environmental Science

Analytical Report Number : 16-25331

Project / Site name: Shropley Road, Bognor Regis

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

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

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
616098	BH1	None Supplied	1.00	Light brown clay and loam.
616099	BH1	None Supplied	1.50	Light brown clay and loam.
616100	BH1	None Supplied	3.50	Beige chalk.**

**Non NCerts matrix

ARUN DISTRICT COUNCIL - 2 - 2019

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4041

Environmental Science

Analytical Report Number : 16-25331

Project / Site name: Shropley Road, Bognor Regis

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

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

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ARUN DISTRICT COUNCIL
The results included within the report are representative of the samples submitted for analysis.

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shropley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

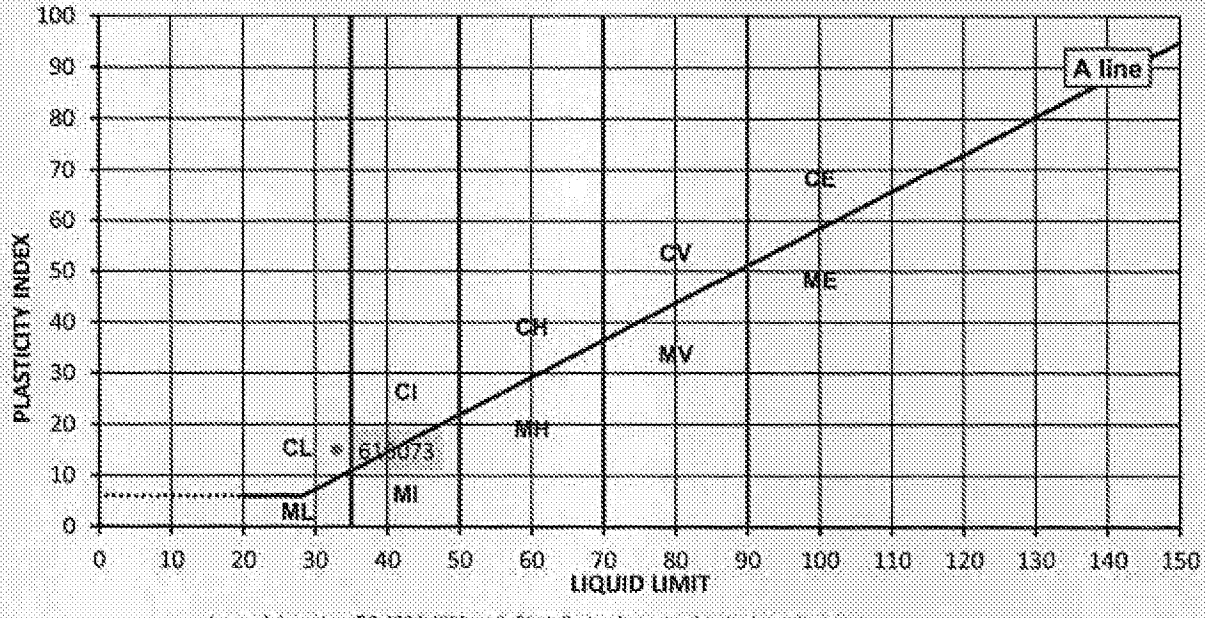
TEST RESULTS

Laboratory Reference: 616073
Sample Reference: Not Given

Description: Yellowish brown slightly gravelly slightly sandy CLAY
Location: BH1
Sample Preparation: Tested after >425um removed by hand

Sample Type: D
Depth Top [m]: 1
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
18	33	18	15	92



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Comments:

Approved: [redacted]

Mirosława Pytlik
PL Head of Geotechnical section
Date Reported: 30/08/2016

Signed: [redacted]

Terry Stafford
Geotechnical Manager

for and on behalf of i2 Analytical Ltd

*Opinions and interpretations expressed herein are outside of the scope of the UKAS Accreditation.
This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Poziomow 39, 41-711 Ruda Slaska, Poland.*

GF 106.8

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 One Point Method

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shropley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

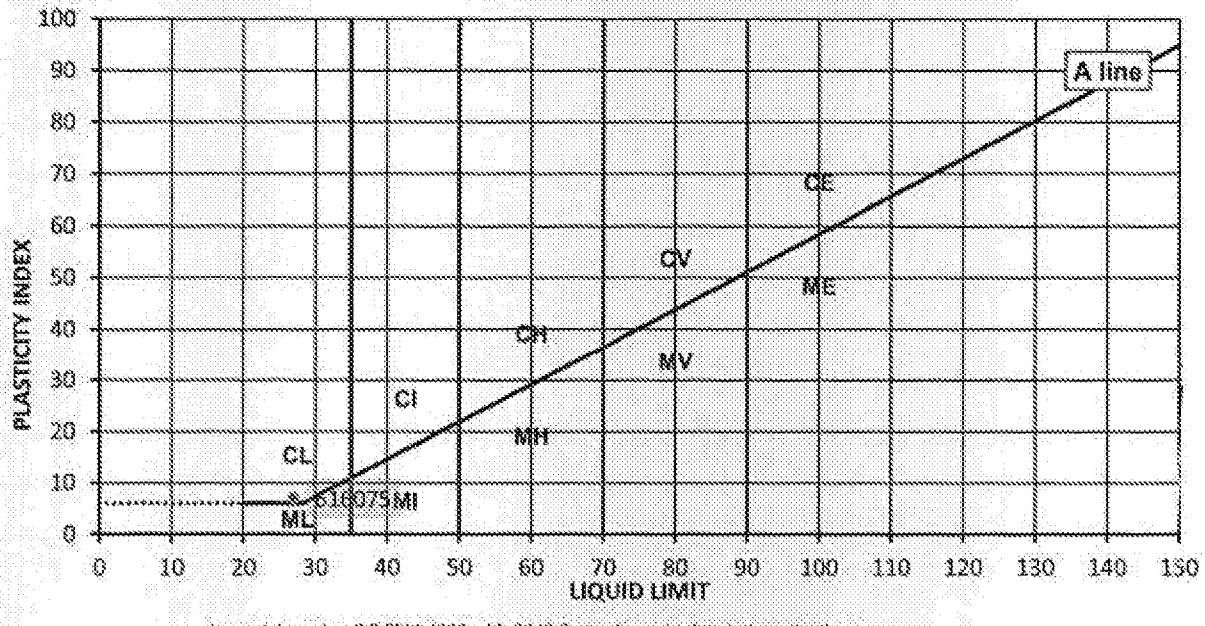
TEST RESULTS

Laboratory Reference: 616075
Sample Reference: Not Given

Description: Cream colour slightly gravelly clayey CHALK
Location: BH1
Sample Preparation: Tested after >425um removed by hand

Sample Type: D
Depth Top [m]: 2.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	27	20	7	99



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Comments:
Not enough material left after washing to carry out 4 Point Atterberg

Approved: [redacted]

Miroslawa Pytlik
PL Head of Geotechnical section
Date Reported: 30/08/2016

Signed: [redacted]

Terry Stafford
Geotechnical Manager

for and on behalf of i2 Analytical Ltd

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GF 105.8

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 One Point Method

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shropley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

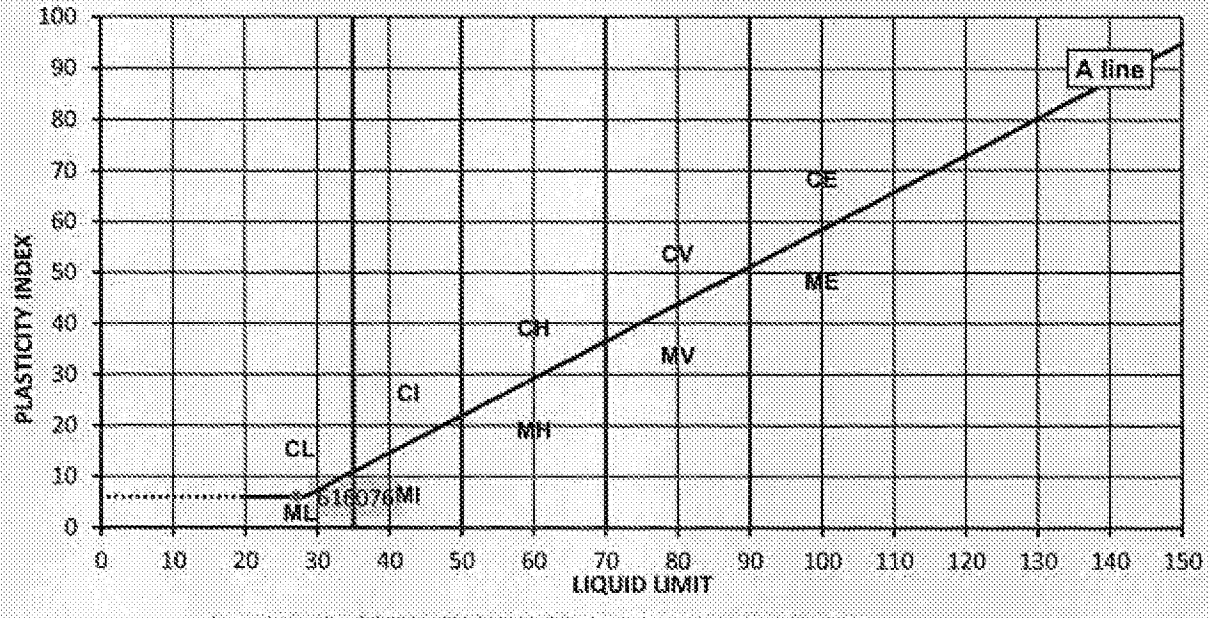
TEST RESULTS

Laboratory Reference: 616076
Sample Reference: Not Given

Description: Cream colour clayey CHALK
Location: BH1
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 3.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	27	21	6	100



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Comments:
Not enough material left after washing to carry out 4 Point Atterberg

Approved: [redacted]

Miroslawa Pytlik
PL Head of Geotechnical section
Date Reported: 30/08/2016

Signed: [redacted]

Terry Stafford
Geotechnical Manager

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

GF 105.8

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shropley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

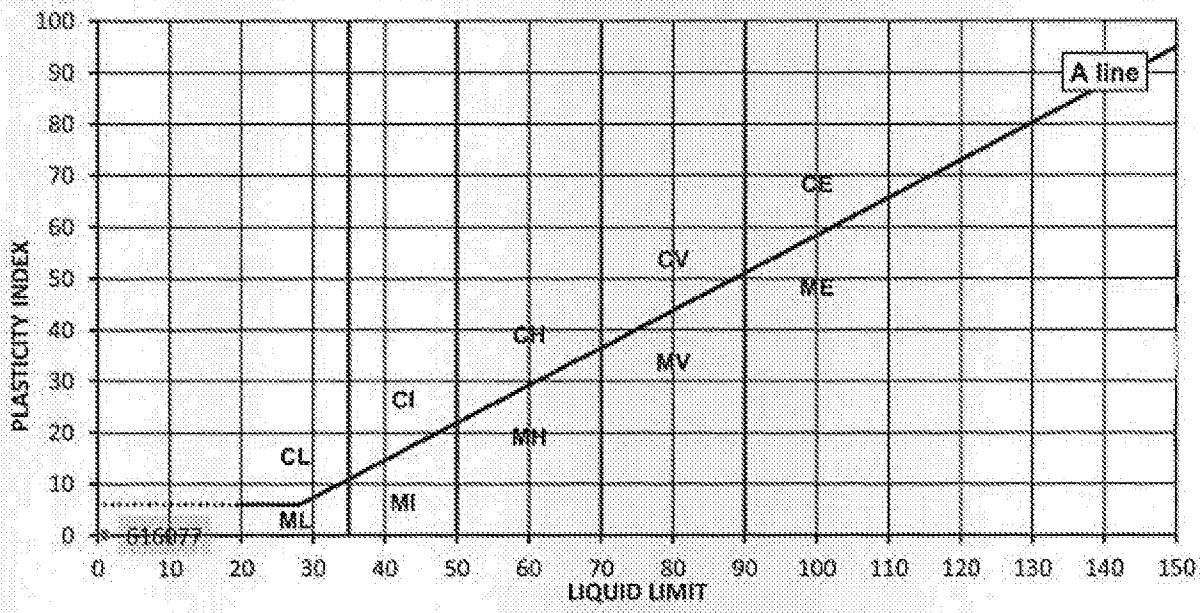
TEST RESULTS

Laboratory Reference: 616077
Sample Reference: Not Given

Description: Cream colour gravelly clayey CHALK
Location: BH1
Sample Preparation: Tested after washing to remove >425um

Sample Type: D
Depth Top [m]: 5.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
16*	N/A**	N/A**	N/A	45



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Comments:

*-Insufficient material supplied to be representative in accordance with BS1377 requirements for MC test
**Not enough material left after washing to remove >425 um to carry out the test

Approved: [redacted]

Miroslawa Pytlik
PL Head of Geotechnical section

Signed: [redacted]

Terry Stafford
Geotechnical Manager

Date Reported: 30/08/2016

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 38, 41-711 Ruda Slaska, Poland.*

GF 106.8

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.4 One Point Method

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shropley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

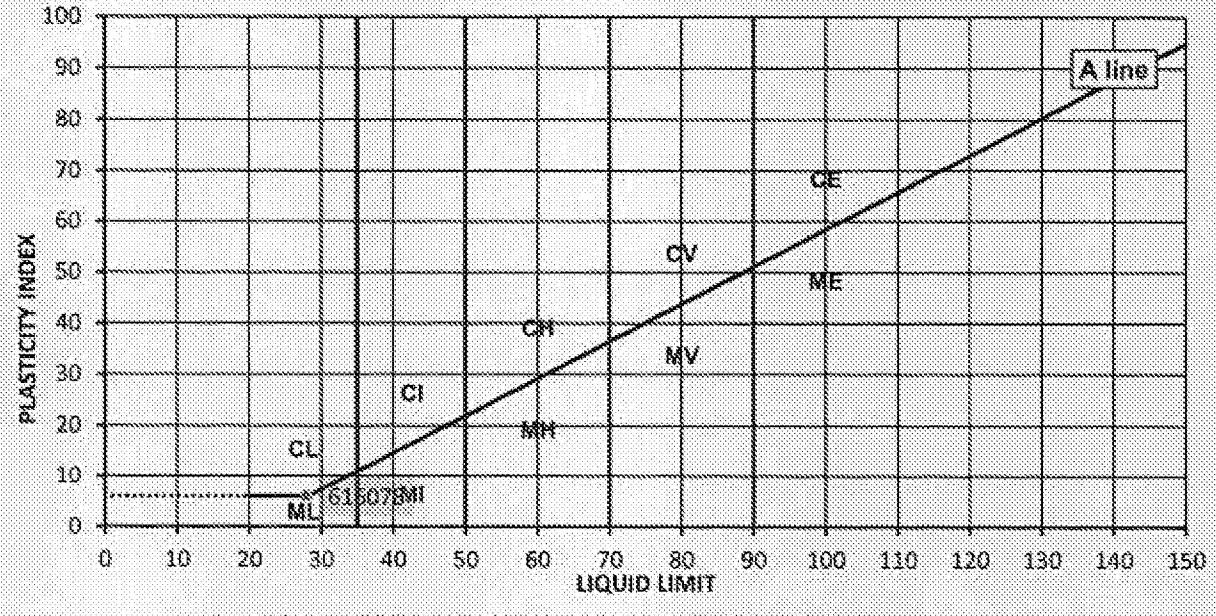
TEST RESULTS

Laboratory Reference: 616078
Sample Reference: Not Given

Description: Cream colour clayey CHALK
Location: BH1
Sample Preparation: Tested in natural condition

Sample Type: D
Depth Top [m]: 8.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
25	28	22	6	100



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Comments:
Not enough material left after washing to carry out 4 Point Atterberg

Approved: [redacted]
Miroslawa Pytlik
PL Head of Geotechnical section
Date Reported: 30/08/2016

Signed: [redacted]
Terry Stafford
Geotechnical Manager

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 38, 41-711 Ruda Slaska, Poland."

GF 105.8

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

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

4041

Tested in Accordance with BS1377-2: 1990: Clause 4.3 & 5: Definitive Method

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shropley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

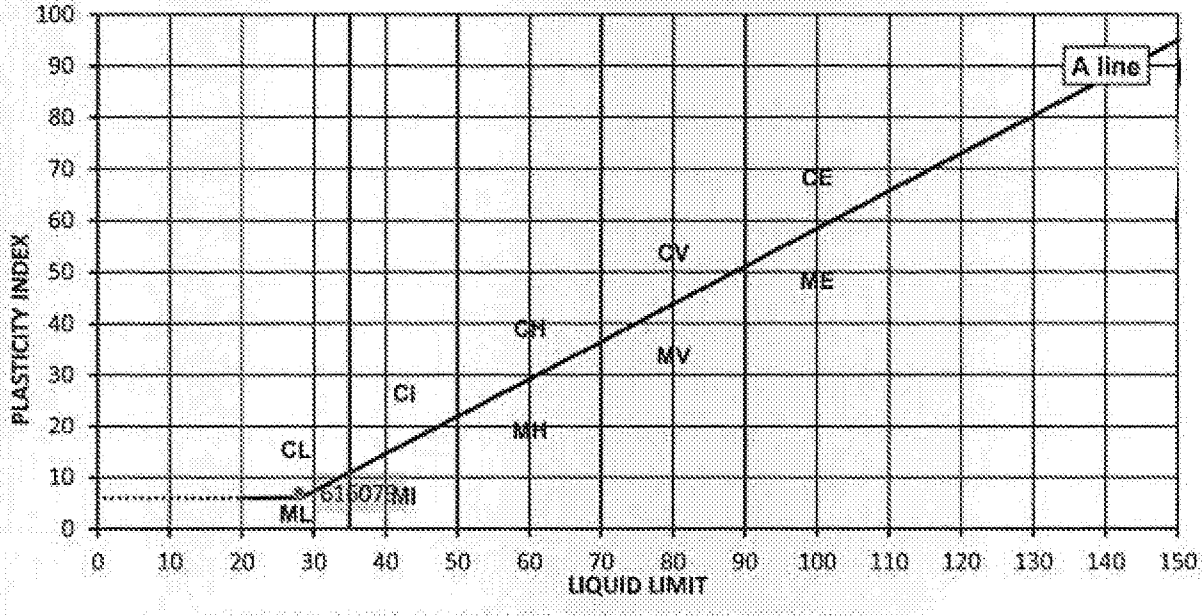
TEST RESULTS

Laboratory Reference: 616079
Sample Reference: Not Given

Description: Cream colour slightly gravelly clayey CHALK
Location: BH1
Sample Preparation: Tested after >425um removed by hand

Sample Type: D
Depth Top [m]: 11.5
Depth Base [m]: Not Given

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
24	28	21	7	99



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Comments:

Approved: [redacted]

Mirosława Pytlik
PL Head of Geotechnical section
Date Reported: 30/08/2016

Signed: [redacted]

Terry Stafford
Geotechnical Manager

for and on behalf of i2 Analytical Ltd

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This report may not be reproduced other than in full without the prior written approval of the issuing laboratory.
The results included within this report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

GF 106.8

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Summary of Liquid and Plastic Limits

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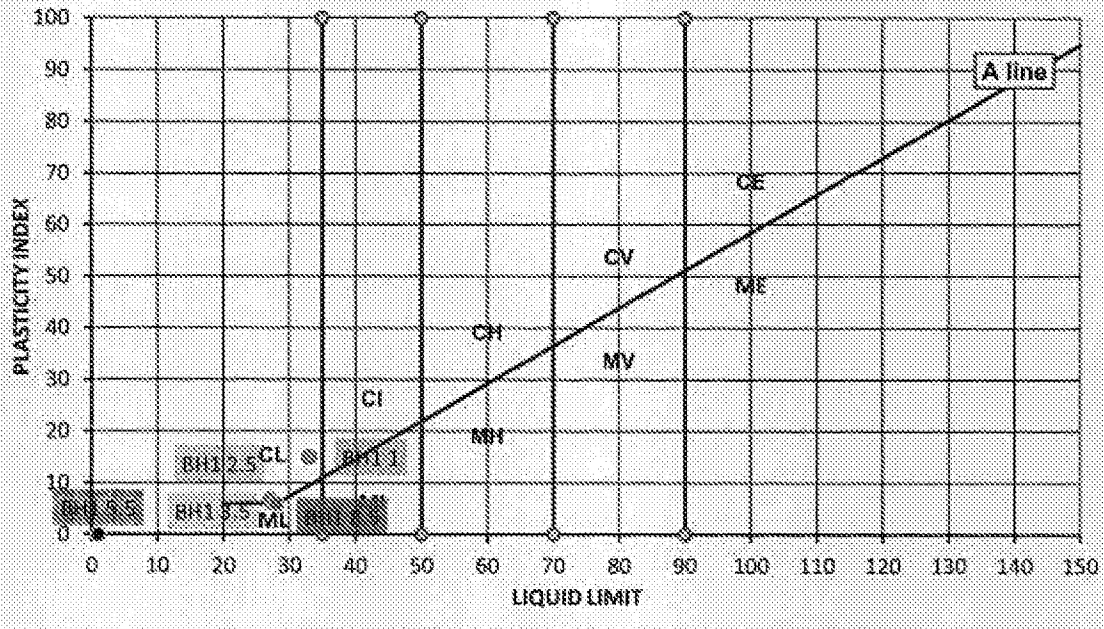
Tested in Accordance with BS1377-2: 1990: Clauses 4.3, 4.4 & 5: Definitive Method, One Point Method

Client: Enzygo Ltd
Client Address: The Byre
Woodend lane
Cromhall
Gloucestershire, GL12 8AA
Contact: Steve Rhodes
Site Name: Shropley Road, Bognor Regis
Site Address: Not Given

Client Reference: CRM.413.303
Job Number: 16-25329
Date Sampled: 10/08/2016
Date Received: 15/08/2016
Date Tested: 25/08/2016
Sampled By: Not Given

TEST RESULTS

Location	Depth [m]	As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
BH1	1	18	33	18	15	82
BH1	2.5	23	27	20	7	99
BH1	3.5	26	27	21	6	100
BH1	5.5	18	N/A	N/A	N/A	45
BH1	8.5	25	28	22	6	100



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

		Plasticity		Liquid Limit
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Comments:

Approved: Miroslawa Pytlik
PL Head of Geotechnical section
[redacted]

Signed: Terry Stafford
Geotechnical Manager
[redacted]

Date Reported: 30/08/2016

for and on behalf of i2 Analytical Ltd

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GF 120.4

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Summary of Liquid and Plastic Limits

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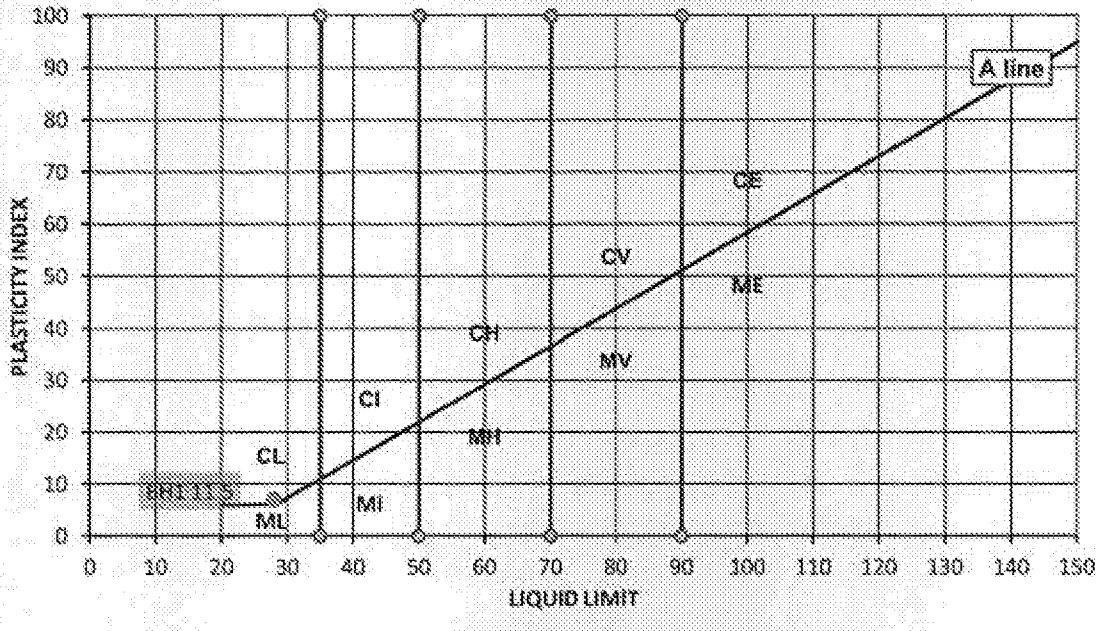
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Tested in Accordance with BS1377-2: 1990: Clauses 4.3 & 5: Definitive Method

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Contact:	Steve Rhodes	Date Tested:	25/08/2016
Site Name:	Shrapley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Location	Depth [m]	As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
BH1	11.5	24	28	21	7	99



Legend, based on BS 5930:1999 +A2: 2010 Code of practice for site investigations

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Comments:

Approved: Mirosława Pydik
PL Head of Geotechnical section

[redacted]

Signed: Terry Stafford
Geotechnical Manager

[redacted]

Date Reported: 30/08/2016

for and on behalf of i2 Analytical Ltd

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GF 120.4

ARUN DISTRICT COUNCIL BE/27/17/DOC

TEST CERTIFICATE

Determination of Particle Size Distribution

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Croxley Green Business Park
Watford Herts WD18 8YS

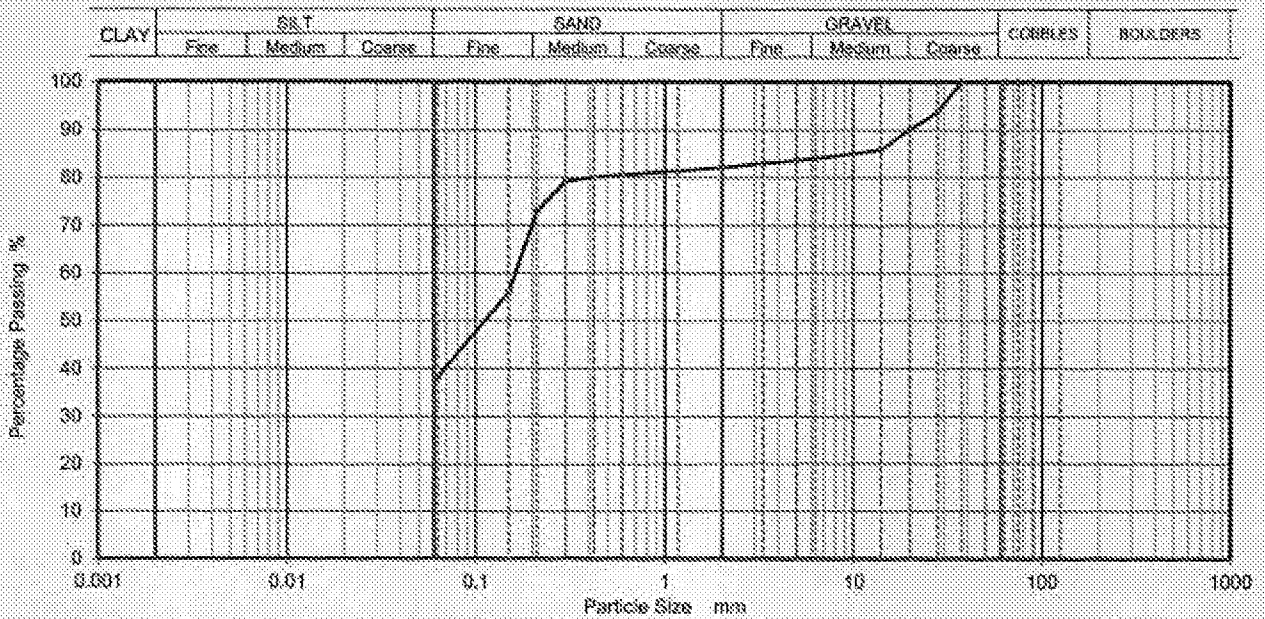
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Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Enzygo Ltd	Client Reference:	CRM.413.303
Client Address:	The Byre Woodend lane Cromhall Gloucestershire, GL12 8AA	Job Number:	16-25329
		Date Sampled:	10/08/2016
		Date Received:	15/08/2016
Contact:	Steve Rhodes	Date Tested:	24/08/2016
Site Name:	Shrapley Road, Bognor Regis	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS

Laboratory Reference:	616074	Sample Reference:	Not Given
Sample description:	Yellowish brown gravelly very clayey fine to coarse SAND	Sample Type:	D
Location:	BH1	Depth Top [m]:	1.5
Supplier:	Not Given	Depth Base [m]:	Not Given



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	94		
20	90		
14	86		
10	85		
6.3	84		
5	83		
3.35	83		
2	82		
1.18	81		
0.6	81		
0.425	80		
0.3	79		
0.212	73		
0.15	66		
0.063	38		

Dry Mass of sample [g]: 833

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	17.90
Sand	43.80
Fines <0.063mm	38.30

Grading Analysis		
D100	mm	37.5
D60	mm	0.183
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks
Preparation and testing in accordance with BS1377 unless noted below
Insufficient material supplied to be representative in accordance with BS1377 requirements

Approved: [redacted]

Mirosława Pytlik
PL Head of Geotechnical Section
Date Reported: 30/08/2016

Signed: [redacted]

Terry Stafford
Geotechnical Manager

for and on behalf of i2 Analytical Ltd

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Enzygo specialise in a wide range of technical services:

Property and Sites
Waste and Mineral Planning
Waste Technologies and Renewables
Landscape and Visual Impact
Environmental Assessment Co-ordination
Hydrology and Flood Risk
Waste Contract Procurement
Noise and Vibration
Environmental Permitting and Regulation
Development Planning & Policy
Ecology Services
Contaminated Land and Geotechnical
Traffic and Transportation
Planning Services

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SHEFFIELD OFFICE
Samuel House,
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Tel: 0114 321 5151

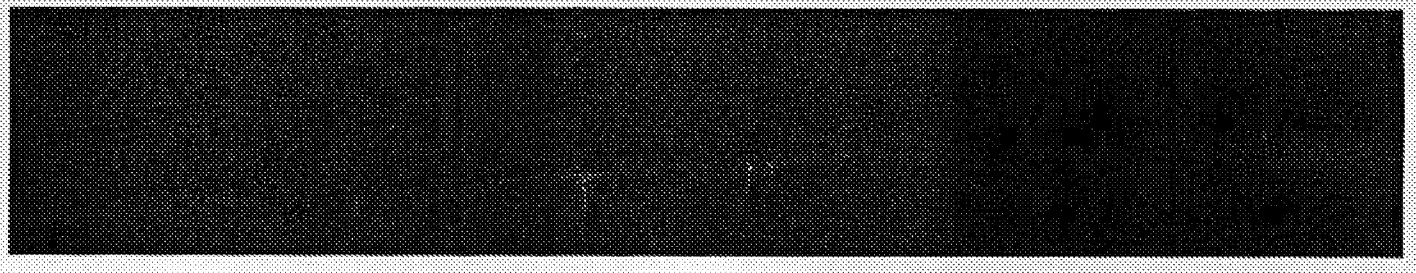
MANCHESTER OFFICE
76 King Street,
Manchester,
M2 4NH

Tel: 0161 413 6444

Please visit our website for more information.

enzygo.com

ARUN DISTRICT COUNCIL BE/27/17/DOC



From: Fiona Fitzgerald
Sent: 01 February 2017 10:07
To: Simon Davis; Planning.Responses
Subject: BE/170/16/RES

Dear Simon,

1. Now we are aware of PAH and asbestos contamination on the site, a remediation strategy is required as part of condition 11 of BE/120/15/OUT. The report (Geo-Environmental Report ref: CRM 413.303.GE.R.001.A) proposes remedial action in the form of cover material in soft landscaped areas with a geo-textile membrane. The sampling rate for imported soils is acceptable. It is also noted that characteristic situation 2 measures are proposed to protect against the recorded ground gases.

   These remedial plans are adequate and need to validated prior to occupation of the building. I shall look forward to receiving the validation/verification report evidencing the remedial measures that have taken place.

2. Environmental Health have no further comments on the application providing that the noise mitigation measures detailed in the noise report Ref: 16/0754/R1 dated 24th November 2016 are implemented.

Regards

Fiona Fitzgerald

ARUN DISTRICT COUNCIL SOUTH SIDES

ARUN DISTRICT COUNCIL BE/27/17/DOC