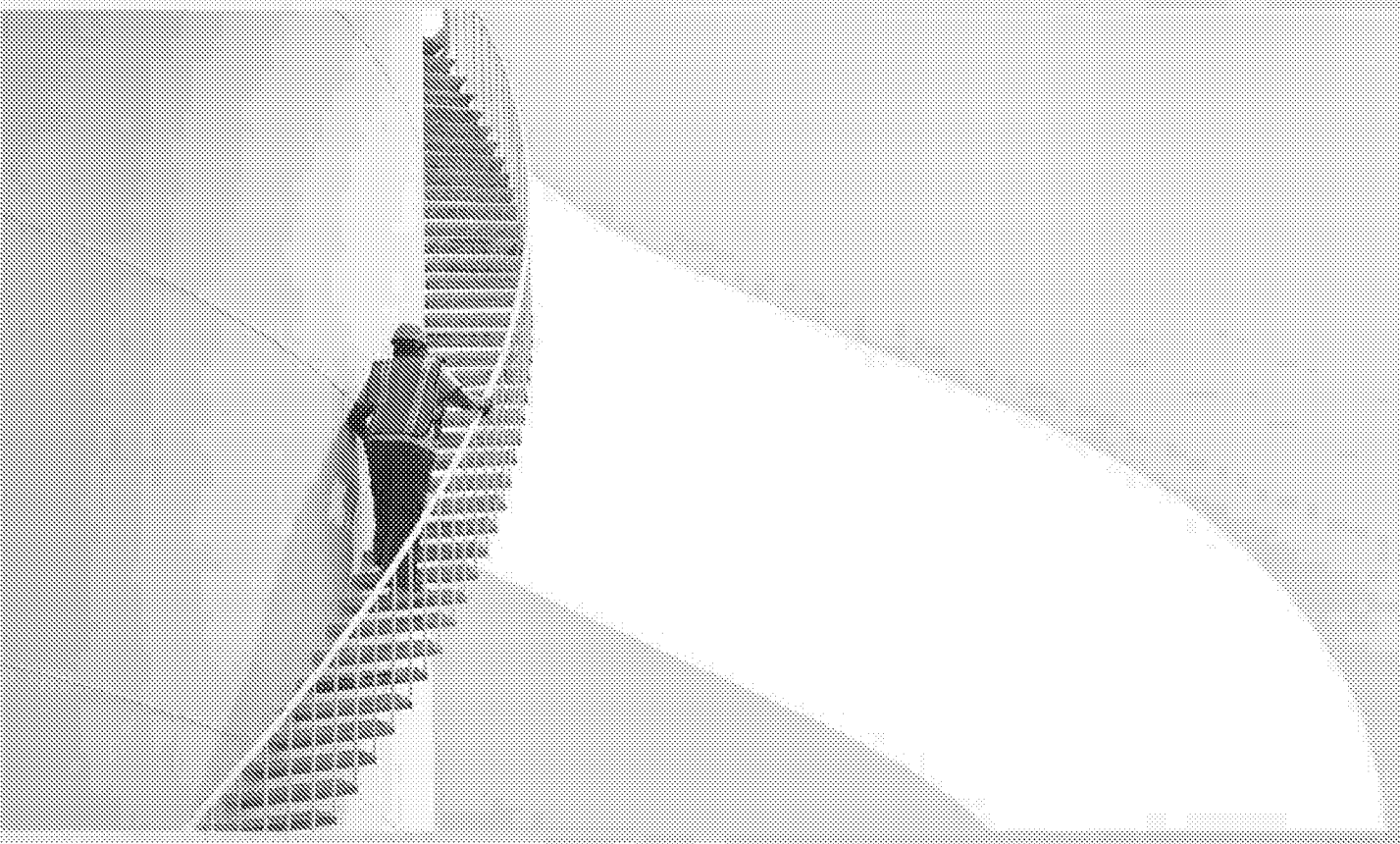
Hallam Land Management Limited

BOGNOR REGIS - SITE B - PROPOSED NEW GOLF COURSE

Phase I Preliminary Geo-Environmental Risk Assessment



70088068-GW2

DECEMBER 2021

FINAL (CONFIDENTIAL)

ARUN DISTRICT COUNCIL EXHIBIT

Hallam Land Management Limited

BOGNOR REGIS - SITE B - PROPOSED NEW GOLF COURSE

Phase I Preliminary Geo-Environmental Risk Assessment

FINAL (CONFIDENTIAL)

PROJECT NO. 70088068

OUR REF. NO. 70088068-GW2

DATE: DECEMBER 2021

ARUN DISTRICT COUNCIL M/16/22/PL

Hallam Land Management Limited

BOGNOR REGIS - SITE B - PROPOSED NEW GOLF COURSE

Phase I Preliminary Geo-Environmental Risk Assessment

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EXECUTIVE SUMMARY

Background	WSP UK Ltd has been instructed by Hallam Land Management Limited to undertake a Geo-Environmental Preliminary Risk Assessment (PRA) for land north of Ancton Way, Felpham, PO22 6JN (the 'Site'). This PRA has been produced to identify the likely ground conditions at the Site in association with a proposed plan to redevelop the land from agricultural use into a golf course and club.
Site Location and Setting	The Site is located in the north-east of Ancton. The Site is approximately 60 ha. To the south and south-west is development, mostly residential housing; to the north-east is an industrial estate (Hobbs New Barn). A caravan site is present to the west and a paintball centre is present to the east of the Site. The remaining surrounding land is in agricultural use. The A259 road borders the northern boundary of the Site. Beyond 500 m north of the Site is an airfield.
Site Use and Operational History	The Site is in agricultural use. Earliest available mapping (1870s) shows that this Site has primarily been in agricultural and forestry use since the 1870's, with the exception of a barn once present on the centre of the Site and an electricity substation was once present on the southern extent of the Site.
Environmental Setting	The Ryebank Rife flows through the northern section of the Site (west-east) and field drains are connected to this water body (from the north and south of the Ryebank Rife). The Ryebank Rife also borders the eastern boundary of the Site and outlets to the sea approximately 320 m to the south. The Site is underlain by superficial River Terrance Deposits. Across the south-east of the Site, Raised Beach Deposits are anticipated to be present and on the eastern extent of the Site are Raise Marine Deposits. These superficial deposits overlie the White Chalk Subgroup (formerly Upper Chalk Formation). The superficial deposits are classed as Secondary A aquifers and the bedrock as a Principal aquifer. A licenced groundwater abstraction point is located at Hobbs New Barn, approximately 110 m north-east of the Site. The Site is not within a groundwater Source Protection Zone (SPZ). Three surface water abstraction licences are allocated to the Site; abstracting water for irrigation purposes from the Ryebank Rife. The coastline, approximately 450 m to the south-west of the Site forms the most eastern extent of the Solent and Dorset Special Protection Area for rare and migratory birds.
Preliminary Contaminated Land Assessment	Potentially contaminative land uses identified on-site include: Historical electricity substation, made ground (historical North Barn, associated tracks and potential infilling of former ponds), storage of sludge and longstanding use of chemicals for agriculture. Off-site sources of potential contamination include: Waste businesses (transfer and treatment), haulage company, manufacturers, vehicle repair and a concrete products

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	company operating at Hobbs New Barn industrial estate adjacent to the north-east of the site; electricity substations; historical nursery; paintball area; engineering garage (and associated tanks); historical coastguard station; and two accounts of waste used in construction. Receptors identified are members of the public, off-site residents, future on-site construction workers and visitors and workers of the golf club, on-site and off-site property including buried services (existing and proposed) and controlled waters (surface water, Secondary A/Principal aquifers and water abstraction points). Overall, risks to receptors from potential contamination were conservatively considered to be between very low and low/moderate.
Conclusions and Recommendations	On the basis of the findings of this PRA, it is recommended that the following is carried out: ▪ A flood risk assessment to better understand how the Site is likely to be impacted by flooding; ▪ A ground investigation to obtain geotechnical and contaminated land data to confirm baseline ground conditions and inform the development design.
This sheet is intended as a summary only	

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1 INTRODUCTION

1.1 AUTHORISATION

WSP UK Ltd. (WSP) was instructed by Hallam Land Management Limited (the Client) to undertake a desk-based geo-environmental PRA. This is to inform the Client of the likely ground conditions at the Site, associated with plans to develop the Site for a golf course and associated facilities. The existing Bognor Regis golf course, approximately 3.2km west of the Site, is proposed to be redeveloped for residential use.

This PRA reviews a parcel of land north of Ancton Way, Felpham, PO22 6JN, herein referred to as the 'Site'. The PRA for the existing golf course is provided in Doc. Ref: 70088068-GW1.

1.2 OBJECTIVES

The overall aims and objectives of this PRA are to:

- Provide baseline information of the Site and study area (relevant features present up to 1 km from the Site), including geology, ground conditions and hydrogeology;
- Describe the geo-environmental setting (current and historical land uses);
- Assess the potential for contaminant linkages based on land use to develop a preliminary conceptual site model (CSM) for the proposed development works; and
- Make recommendations for any further action that needs to be taken to manage these potential risks or constraints.

The assessment has been carried out with reference to relevant UK legislation and guidance documents, including Land Contamination: Risk Management (LC:RM)[1] (superseding Model Procedures for the Management of Land Contamination (CLR11)[2], CIRIA C552[3] and CIRIA C665[4].

1.3 SCOPE OF WORKS

In order to meet the objectives listed above, the following scope of works was undertaken:

- A walkover of the Site, conducted on the 7th of September 2021;
- A review of the readily available Ordnance Survey (OS) historical maps to highlight historical land uses and potential sources of contamination;
- A review of the available published information relating to geology, hydrological features, hydrogeology, neighbouring land use, and ecologically sensitive uses;
- Development of a Preliminary CSM utilising the source-pathway-receptor contaminant-linkage model[1,3].

[1] Environment Agency (2019). Land contamination risk management. How to assess and manage the risks from land contamination. Accessed on 30/11/2021 from https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm
[2] Defra, Environment Agency (2019). Model Procedures for the Management of Land Contamination
[3] Construction Industry Research and Information Association (2001). Contaminated land risk assessment. A guide to good practice (C552).
[4] Construction Industry Research and Information Association(2007). Assessing risks posed by hazardous ground gases to buildings (C665)

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1.4 SOURCES OF INFORMATION

This assessment is based upon information presented in Table 1-1

Table 1-1 - Sources of Information

Information Type	Details
Site reconnaissance	▪ WSP Site walkover undertaken on 7th September 2021
Public information	▪ British Geological Survey (BGS) Map no. 317/332 (Chichester and Bognor) Solid and Drift (1:50,000 Series), 1996; ▪ British Geological Survey GeoIndex Onshore, available [https://mapapps2.bgs.ac.uk/geoindex/home.html], accessed 20th October 2021; ▪ British Geological Survey Lexicon of Named Rock Units, available [https://www.bgs.ac.uk/technologies/the-bgs-lexicon-of-named-rock-units/], accessed 20th October 2021; ▪ The Coal Authority Interactive Map Viewer, available [https://mapapps2.bgs.ac.uk/coalauthority/home.html], accessed 20th October 2021; ▪ Environment Agency Catchment Data Explorer, available [https://environment.data.gov.uk/catchment-planning/], accessed 20th October 2021; ▪ Environment Agency Main River Map, available [https://www.arcgis.com/apps/webappviewer/index.html?id=17cd53dfc524433980cc333726a56386], accessed 15th September 2021; ▪ MAGIC Interactive Maps (DEFRA and Natural England), available [https://magic.defra.gov.uk/MagicMap.aspx], accessed 20th October 2021; ▪ UK Flood Risk Maps for Planning, available [https://flood-map-for-planning.service.gov.uk/confirm-location?easting=495157&northing=100813&placeOrPostcode=PO22%208JD], accessed 20th October 2021; and ▪ Zetica UXB Risk Maps, available [https://zeticauxo.com/downloads-and-resources/risk-maps/], accessed 20th October 2021.
Third party reports	▪ Groundsure Report (ref: GS-8275705)

1.5 LIMITATIONS

This report is addressed to and may be relied upon by Hallam Land Management Ltd. It may not be relied upon or transferred to any other parties without the express written agreement of WSP. The report should be read and used in full. No responsibility will be accepted where this report is used, either in its entirety, or in part, by any other party. WSP cannot be held liable for third party information. Full detailed of the limitations are provided as **Appendix B**.

In support of the Groundsure Report (**Appendix E**), local authorities have been consulted. Information requests have been sent out to the Environment Agency, and to the Local Authority (contaminated land officer, and building control officer). To date, no additional information has been received.

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1.6 UNDERSTANDING RISK

It is important to recognise that any risks identified during a PRA, such as that presented below, are perceived risks based on the recorded information reviewed. A more detailed assessment would require Site specific data from intrusive investigation. The preliminary assessments presented herein are qualitative based on professional judgments following review of the available data and within the context of the existing/proposed use. Those risk categories presented (Very Low, Low, Low to Moderate, Moderate, High, and very High) follow guidance practice outlined in CIRIA Publication C552, Contaminated Land Risk Assessment- A Guide to Good Practice. CIRIA states that risk levels should be based on an understanding of both the probability (likelihood) of a risk occurring and the magnitude of the potential consequences (severity) of a risk. CIRIA defines four levels of probability with four levels of severity with relation to contaminated land, as presented in **Appendix G.**

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2 SUMMARY OF THE SITE AND THE SURROUNDING AREA

2.1 SITE LOCATION AND DESCRIPTION

The Site is located on the north-east of Ancton. A Site Location Plan is presented as Figure 1 in **Appendix A**, and an aerial photograph is provided as Figure 2, **Appendix A**.

A Site walkover was carried out on the 7th of September 2021. Pertinent information relating to the present-day condition of the Site is presented in Table 2-1 below:

Table 2-1 - Pertinent Site Information

Item	Description
Location	Land north of Ancton Way, Felpham, PO22 6JN
Grid Reference	E:498762 N:100636
Area in hectares (ha)	Approximately 70 ha
Site Layout and Structures	The Site is agricultural land with field boundaries and surface water features.
Site Access	The Site is accessible from field entrances directly from the A259 on the northern boundary, and from the east on an unnamed track which passes the paintball centre and Ryebank Corner Glamping campsite and across the Ryebank Rife.
Boundaries	North: The A259; East: Hobbs New Barn business park, Ryebank Rife, woodland, paintball centre and agricultural land; South: Woodland and residential properties; and West: Woodland, agricultural land, residential properties and a caravan site. An isolated, oblong-shaped surface water feature is present on the west of the Ryebank Rife, adjacent to the north-west boundary of the Site. Footpaths are present alongside the south, east and western boundaries.
Site elevation and topography	The Site is generally flat and level, ranging from 1 m above ordnance datum (AOD) to 3 m AOD.
Current land use	The Site is predominantly in agricultural use with public footpaths alongside boundaries. Woodland is present on the south and east extent of the Site. Tracks are also present across the fields, with one shown on aerial photography as particularly distinct, located on the eastern boundary of the Site, adjacent to the paintball centre.
Ground cover	The ground is vegetated (woodland, arable), with isolated areas of the Site occupied by surface water features.

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Item	Description
Current surrounding land use	Land north of the Site is the A259, beyond which is agricultural land. Approximately 1 km north is development associated with the airfield (buildings, warehouses, storage areas etc). South of the Site is occupied by woodland and residential properties and some commercial properties. The sea is approximately 320 m to the south. Land east of the Site is occupied by a paintball centre, beyond which is agricultural land and a camp site. North-east is Hobbs New Barn business park, including mechanics, window suppliers and waste services. Woodland, beyond which residential properties, occupies land immediately south-west of the Site. The majority of the land beyond the bordering woodland to the west is in agricultural use. A caravan site is present approximately 150 m west. Immediately north-west of the site, south of the A250 is an oblong shaped water body.
Storage of Potentially contaminative fluids	No storage of potentially contaminative fluids was identified during the walkover.
Waste	No storage or processing of waste was identified during the walkover.
Drainage	Drainage of the Site is provided by a network of culverts and drainage ditches, connected to the Ryebank Rife. As the Site has permeable ground cover, it is anticipated that any rainfall onto the Site will infiltrate directly into the soil and/or run-off into the Ryebank Rife.
Invasive species and pests	During the walkover, no invasive species were positively identified. However, this report does not purport to be an ecological survey.
Utilities	No utilities survey has been carried out for the purpose of this PRA and no detailed plans have been made available for review.

2.2 SITE HISTORY

The land use history of the Site and the surrounding area has been reviewed using publicly available aerial imagery and historical OS maps, and is summarised in Table 2-2 overleaf. Historical maps are provided in **Appendix C**.

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Table 2-2 - Pertinent Site History

Year	On-Site	Off-Site (<500m)	Scale
1878	The Site is shown to be open space, likely to be in agricultural use. On the centre of the site is a farm building (later labelled as North Barn), and a small unlabelled feature is located on the south-eastern extent of the Site, expected to be a small water feature amongst localised marsh area. Drains and field boundaries/hedgerows are present across the Site, and the Ryebank Rife flows west-east across the northern extent of the Site and beneath a bridge on the western boundary.	The wider vicinity is open space, likely to be in agricultural use. Notable buildings include Elmer Farm (350 m south), Elmer Coastguard Station (275 m south), and Ancton Farm (200 m west). Farm buildings are noted in the present-day location of Hobbs New Barn 250 m north-east. Another farm is present 280 m north-east. A track running east-west borders the northern boundary of the Site, generally in the configuration of the present day A259 road. Small ponds are present in the wider vicinity, scattered across the north, west and east. A well is present adjacent to the track to the north, approximately 300 m from the Site. Another is located 490 m south-west.	1:10,560
1896	No significant changes.	A barn has been erected 20 m east of the Site. The coastguard station is labelled as disused.	1:10,560
1910	No significant changes.	A sluice has been mapped approximately 325 m south of the Site.	1:10,560
1932	The barn in the centre of the Site is no longer shown, but the foundations are still mapped. The modern-day Site boundary has been established with a woodland along the south, east and west.	Residential properties have been developed to the south and south-west of the Site from the southern boundary. Sewage filter beds are present 500 m to the south-west.	1:10,560
1940	Tree plantations are present on the centre and south-east of the Site.	Land to the south and south-west of the Site has seen further development, mostly residential.	1:10,560
1961	No significant changes.	The barn 20 m east of the Site is no longer shown. Further development has occurred on land to the south and south-west. The sewage filter beds are no longer shown. The eastern boundary of the site (Ryebank Rife) appears to outlet into the sea approximately 320 m south.	1:10,560
1966	No significant changes.	No significant changes.	1:10,560

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Year	On-Site	Off-Site (<500m)	Scale
1981	The small water feature and localised marsh area on the south-east of the Site is no longer shown. The tree plantation on the centre of the Site is no longer shown. A small pond is present on the east of the Site.	A large building has been constructed at Hobbs' Barn Farm to the north-east. Further drains have been installed beyond 450 m west of the Site. Additional housing has been constructed along the south-western boundary of the Site. A caravan site is present approximately 200 m west.	1:10,000
1992	No significant changes.	Further development has occurred at Hobbs Barn Farm, and additional housing has been built in the town to the south-west. A nursery is mapped 150 m west of the Site.	1:10,000
2001	No significant changes, except the small pond on the east of the Site is no longer mapped.	Further development has occurred at Hobbs New Barn.	1:10,000
2010	No significant changes.	No significant changes.	1:10,000
2021	No significant changes.	Further development has occurred at Hobbs New Barn.	1:10,000

2.3 REGULATORY INFORMATION

Further to the review of historical maps, additional land uses and features identified in the Groundsure Report as (**Appendix C)** have been summarised below in Table 2-3 overleaf.

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Table 2-3 - Pertinent regulatory information

Information	On-site	0-50m	51-250m	0-500m	Details
Past land use					
Historical industrial land use	-	-	2	8	The two industrial land uses within 250 m noted in the Groundsure report are the historical nursery and historical coastguard station, identified on historical mapping. Other historical land uses between 250 m and 500 m (all of which to the south and west of the Site) noted in the Groundsure report are unspecified tanks, sewage filter beds, and a pumping station. Historically, the airfield to the north (now approximately 1.2 km north) was thought to have once been within 420 m from the Site.
Historical tanks	-	-	-	6	Unspecified tanks, and troughs were identified, with the closest present 270 m south of the Site.
Historical energy Features	1	-	4	2	An historical electricity substation has been identified on the south of the Site, present between 1970 and 1982. Additionally, six electricity substations have been identified between 55 m and 410 m from the Site.
Historical garages	-	-	-	1	One historical garage was identified within the vicinity of the Site, approximately 320 m south of the Site, expected to have been in operation between 1961 and 1992.
Waste and Landfill					
Historical landfill	-	-	-	-	No landfill sites have been identified within the vicinity of the Site.
Historical waste sites	-	-	1	-	The nearest historical waste site identified is 130 m north of the Site. It is identified as a Waste Transfer Station and operated from Hobbs New Barn.
Licensed waste sites	-	-	1	1	Licenced waste sites are currently in operation at Hobbs New Barn. These entail the treatment of waste to produce soil and a waste transfer station.
Waste exemptions	1	2	5	3	The waste exemption identified on-Site is for the storage of sludge. Waste exemptions in the vicinity of the Site include the storage, use, treatment, and disposal of waste, burning of waste and waste used in construction.
Current industrial land use					

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Information	On-site	0-50m	51-250m	0-500m	Details
Recent industrial land uses	1	-	12	-	One industrial land use has been identified on-Site, an electricity substation on the southern boundary. Additional industrial land uses include: electricity sub stations, pumps, construction completion services, cutting, drilling, and welding services, distribution and haulage, concrete products, and waste storage, processing and disposal.
Current or recent petrol stations	-	-	1	-	One recent petrol station has been identified, located 210 m south of the Site.
Licensed Discharges to controlled waters	-	-	3	6	The nearest identified discharge to controlled waters is for the discharge of surface water into a freshwater river, 175 m north of the Site. This discharge is associated with an agricultural land use and was effective from November 1973 through to March 1997. Of the remaining eight discharges, six cover the discharge of surface waters to either controlled seas or freshwater rivers. Two discharges are for the discharge of storm sewer overflow to the Ryebank Rife or River Arun.
Pollutions Incidents (EA/NRW)	-	-	1	1	Two pollution incidents have been identified in the vicinity. The nearest occurred nearly 20 years ago (in 2003) and was considered to have no impact to water or air, and a minor impact to land. This was 160 m north of the Site. The other occurred 420 m from the Site and was considered to have had no impact to land or air, but a minor impact to water. This also occurred nearly 20 years ago and entailed the release of crude sewage.
Other					
Nitrate Vulnerable Zone	1	-	-	-	The Site is identified as being situated within the Aldingbourne Rife Nitrate Vulnerability Zone (NVZ ID: S517)

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3 GEO-ENVIRONMENTAL SETTING

3.1 GEOLOGY

A review of the publicly available British Geological Survey (BGS) 1:50,000 scale solid and drift geology map of Chichester and Bognor, England and Wales Sheet 317/332, from 1996, with supplementary information provided by the Groundsure Report (**Appendix E**), indicates that the Site is underlain by superficial River Terrance Deposits. Across the south-east of the Site, Raised Beach Deposits are anticipated to be present and on the eastern extent of the Site are Raise Marine Deposits. The underlying solid geology comprises the White Chalk Subgroup (formerly the Upper Chalk Formation), specifically the Newhaven Chalk Member.

One BGS borehole log is available for on-Site geological description. Five boreholes associated with nearby developments and industrial uses are present within the vicinity and have been summarised in Table 3-1 below. However, some of these profiles are on differing superficial deposits to those expected at the Site.

Table 3-1 - Summary of local borehole logs

Log ID	Location and distance from site	Stratum description	Depths to top of stratum (m bgl)*	Depths to base of stratum (m bgl)	Water strikes (m bgl)
SU90SE35	On the north-west	Soil	0.00	0.20	Water not encountered
		Brickearth	0.20	2.20	
		Raised Beach Deposits	2.20	3.90	
		Upper Chalk	3.90	5.20**	
SU90SE7	250 m north-east	Topsoil	0.00	0.60	Rest water level (RWL) at 6.0
		Brown sandy Clay	0.60	2.28	
		Grey sandy clay and gravel	2.28	3.19	
		Soft chalk	3.19	12.19	
		Soft chalk with some flints	12.19	15.54**	
SU90SE9	350 m east	Topsoil	0.00	3.00	RWL at 1.5
		Soft chalk	3.00	16.00	
		Chalk and flint	16.00	117.00	
		Middle chalk	117.00	150.00	

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Log ID	Location and distance from site	Stratum description	Depths to top of stratum (m bgl)*	Depths to base of stratum (m bgl)	Water strikes (m bgl)
		Lower chalk	150.00	194.00	
		Lower chalk getting darker with depth	194.00	200.00	
		Lower chalk, very dark grey	200.00	250.00**	
SU90SE19	200 m south	Topsoil	0.00	0.61	RWL 1.8
		Yellow clay	0.61	1.52	
		Clay and Gravel	1.52	5.49	
		Marl	5.49	6.40	
		Chalk and flints	6.40	39.93**	
SU90SE20	350 m south-west	Clay	0.00	4.27	RWL 1.8
		Marl	4.27	11.58	
		Upper Chalk	11.58	76.20**	
SU90SE39	650 m east	Soil	0.00	0.20	Strike at 1.6
		Brickearth	0.20	1.10	
		Raised beach Deposits	1.10	2.60	
		Upper Chalk	2.60	3.50**	

*m bgl- metres below ground
**Base not proven

3.2 MINING HAZARDS

The Coal Authority Interactive Map viewer indicates that the Site is not in a Development High Risk Zone, nor is it in a coal mining reporting area. No records of past surface coal mining, or shallow coal mine workings are known, and not expected given the local geology.

The Groundsure Report indicates that one surface ground working has been identified on-site; a pond in the south western portion of the Site present from 1910 to 1940. This is a separate feature to that identified on the historical maps in the south-east of the Site. Additionally, two ponds have been identified within 250m of the Site, one 200 m west, and a second 250 m south-west of the Site. Other than these ponds, no hazards due to mining activities or ground workings have been identified. Infilling of these ponds with unknown material may have occurred.

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3.3 GROUND STABILITY HAZARDS

The Groundsure Report provides hazard rating from the BGS for potential ground stability hazards at the Site and within a 50 m radius, these are summarised in Table 3-2 below:

Table 3-2 - Potential ground stability hazards

Potential Hazard	BGS Risk Rating
Shrink swell clays	Low
Running sands	Low
Compressible deposits	Negligible
Collapsible deposits	Low
Landslides	Very Low
Ground dissolution of soluble rocks	Very Low

3.4 RADON

The Groundsure Report indicates that the northern and western extent of the Site is located in an area where less than 1% of properties are expected to have radon levels above the action level for radon. Across the remainder, 1 to 3% of properties are expected to experience greater than the action level for radon gas. In either case, no radon protection measures are required.

3.5 HYDROGEOLOGY

The groundwater within the superficial deposits (River Terrace Deposits, Raised Bed Deposits, and Raised Marine Deposits) is classified as a Secondary A aquifer, defined by the Environment Agency as a series of "*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*".

The Newhaven Chalk of the White Chalk Subgroup has been classified by the Environment Agency as a Principal aquifer, defined as having *"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"*.

Groundwater vulnerability designations provide an assessment of how vulnerable the groundwater within a 1 km square is to pollutant discharge, based on hydrological, hydrogeological, geological data, and soil properties; an assessment of high vulnerability indicates that pollution may be easily transmitted to groundwater, whereas an assessment of low vulnerability indicates that groundwaters are well protected from pollution. Within the Groundsure Report this information is provided as the Combined Groundwater Vulnerability Map. The Secondary A aquifers are classified as having a High groundwater vulnerability. The Principal aquifer is classified as having a Medium vulnerability.

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The Site is not within a SPZ. A groundwater abstraction licence is addressed to New Barn, approximately 100 m north of the Site. The licence has an 'active' status and used for general farm and domestic use. No other groundwater abstraction licences are present within 1 km of the Site.

3.6 HYDROLOGY

The Groundsure report has identified 50 surface water feature network features either on-site or within 250m of the Site. Twenty-one are on-site, and are described as *"Inland river not influenced by normal tidal action"*. These are all anticipated to be connected to the Ryebank Rife.

Under the WFD, two water features have been identified on-site:

- Ryebank Rife River Waterbody Catchment; and
- Ryebank Rife River which runs through the Site west to east, and borders the eastern boundary of the Site.

The Groundsure report lists six surface water abstraction licences within 1 km of the Site. Three of which are addressed to the Site, however, one of these is historical. The licences allow the abstraction of water from the Ryebank Rife for irrigation purposes.

A further three surface water abstractions have been identified within 1 km of the Site, drawing from the Ryebank Rife for irrigation purposes.

3.7 FLOODING

A review of the flood map for planning published by the UK Government indicates that the majority of the Site lies within a Flood Zone 3 (High Risk), indicating that the Site has a 1 in 100 or greater annual probability of river flooding or a 1 in 200 or greater annual probability of flooding from the sea. The Groundsure Report indicates that the Site is considered to be at high risk from groundwater flooding.

3.8 DESIGNATED ECOLOGICAL SITES AND OTHER SENSITIVE LAND USES

The coastline, approximately 450 m to the south-west of the Site forms the most eastern extent of the Solent and Dorset Special Protection Area for rare and migratory birds. No other designated sites of ecological interest have been identified within the vicinity of the Site.

3.9 UNEXPLODED ORDNANCE (UXO)

The Pre-Desk Study Assessment provided by Zetica UXO (**Appendix D**) indicates that the Site falls within in a Low-risk area for UXO. The Zetica UXO website also draws attention to the airfield to the north-east which would have been a Luftwaffe target.

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4 PRELIMINARY CONCEPTUAL MODEL

4.1 INTRODUCTION

This section of the report presents the characteristics of the Site and provides a systematic indication of the risks to enable uncertainties and further assessment needs or other actions to be identified. It draws on the information presented in earlier sections of the report to identify plausible contaminant-pathway-receptor contaminant linkages in the context of the proposed development.

The assessment followed a risk-based approach; with the potential environmental risk assessed qualitatively using the 'source-pathway-receptor' contaminant linkage concept introduced in the guidance documents (principally the Environment Agency's LC:RM) on the practical implementation of the Environmental Protection Act 1990.

Environmental risk can be defined as the combination of the consequence of a harmful effect and the probability of its occurrence. The existence of a contaminant linkage is primarily dependant on Site usage and environmental conditions. The risk assessment methodology is outlined in **Appendix G**.

The environmental risk assessment has been carried out by identifying and evaluating the significance of the following:

- Potential sources of contamination: these include any historical or current actual or potentially contaminating materials and activities, located either on or in the vicinity of the Site;
- Potential receptors of contamination: these include present and future land users, controlled water receptors or property located either on or in the vicinity of the Site; and
- Potential pathways for contamination migration: these are the routes or mechanisms by which contaminants may migrate from the source to the receptor.

4.2 POTENTIAL SOURCES

On-Site sources of contamination are summarised in Table 4-1 below:

Table 4-1 - Summary of potential sources of contamination and contaminants of concern

Source	Contaminants of concern
On-Site	
Historical electricity substation, made ground (historical North Barn, associated tracks and potential infilling of former ponds), storage of sludge and longstanding use of chemicals for agriculture.	Asbestos containing materials (ACMs), herbicides and pesticides, metals, polycyclic aromatic hydrocarbons (PAHs); total petroleum hydrocarbons (TPHs); volatile organic compounds (VOCs); semi-organic VOCs; polychlorinated biphenyls (PCBs); Benzene, Toluene, Ethylbenzene, Xylene (BTEX); sulphates and ground gases.
Off-Site	
Waste businesses (transfer and treatment), haulage company, manufacturers, vehicle repair and a concrete products company operating at Hobbs New Barn industrial estate adjacent to the north-east of the site; electricity substations; historical nursery;	ACMs, herbicides and pesticides, metals, polycyclic aromatic hydrocarbons (PAHs); total petroleum hydrocarbons (TPHs); VOCs; semi-organic VOCs; PCBs; BTEX; Sulphates; and ground gases.

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Source	Contaminants of concern
paintball area; engineering garage (and associated tanks); historical coastguard station; and two accounts of waste used in construction.	

The airfield is noted in the Groundsure report to have once been 420 m to the north of the Site, due to the distance, this is not considered as a source of potential contamination which may affect the Site. In addition, the storage of fuels, maintenance works and other associated activities with the established airfield are located beyond 1 km north-east of the Site, closer to the main runways. The historical sewage filter beds were present 500 m to the south-west of the Site and not considered to have a pathway linkage to the Site.

4.3 POTENTIAL RECEPTORS

In the context of future use, the following receptors were identified.

Human Health

- Current Site users (farm workers and members of the public);
- Future Site users (workers and visitors at the golf club);
- Future Site uses (construction workers); and
- Adjacent Site users (residents, members of the public and workers at nearby commercial/industrial properties).

Construction workers employed during construction works for the development have not been included further in this assessment, as the mitigation of potential risks associated with their works will be covered under the Health and Safety at Work Act 1974 and associated regulations.

As the purpose of this CSM is to identify risks which could arise from a proposed redevelopment of the Site from a golf course to residential properties, the risks to current Site users (golf course visitors/members of the public) has also been omitted from this assessment.

Controlled Waters

- Surface water: WFD catchment, Ryebank Rife and numerous surface water features lacing the Site and the wider local area, surface water abstraction points; and
- Groundwater: Groundwater within the superficial deposits (Secondary A aquifers), the bedrock (Principal aquifer) and one groundwater abstraction point.

The superficial aquifers and bedrock aquifer are anticipated to be hydraulically connected, and therefore risks to these controlled water receptors have been assessed simultaneously.

Infrastructure

- On-site current and future below ground services and foundations; and
- Off-site below ground services and foundations.

4.4 POTENTIAL PATHWAYS

The following migration pathways are considered relevant to the Site:

- Pathways to Human Health receptors:

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- Dermal contact with/ingestion of dust or soils;
- Inhalation of dusts and fibres; and
- Inhalation of hazardous ground gases/vapours.

- Pathways to Controlled Waters receptors:

  - Runoff to surface water features;
  - Leaching of contaminants through the unsaturated zone and subsequent impact on groundwater/ vertical migration to underlying aquifers;
  - Lateral migration with groundwater to surface water features (baseflow); and
  - Lateral migrations of contaminants within groundwater to Site (off Site sources only).

- Pathways applicable to property receptors:

  - Direct contact with corrosive substances (e.g. hydrocarbons) in the soil, made ground or shallow groundwater; and
  - Migration and accumulation of hazardous gases within structures (explosive risk).

4.5 PLAUSIBLE CONTAMINANT LINKAGES

Table 4-2 provides an evaluation of the potential contaminant linkages and preliminary risk appraisal associated with current Site use and future redevelopment on the basis of the information currently available.

It should be noted this is a conservative CSM as concentrations of contaminants are not known (i.e. assigning consequence for human health is reliant on site-specific soil testing).

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Table 4-2 - Conceptual Site Model

Sources of potential contamination	Receptors	Pathways	Risk (Consequence, probability)	Comment
On-Site: Historical electricity substation, made ground (historical North Barn, associated tracks and potential infilling of former ponds), storage of sludge and longstanding use of chemicals for agriculture.	Human health (on-site future workers and visitors at the golf club)	Dermal contact with/ ingestion of contaminated dust or soils	**Low/ Moderate** (medium, low likelihood)	Soft landscaping is a major component of the proposed development. It is not known whether clean, imported soil will be brought onto the Site. Due to the unknown ground conditions, it is possible that harm could arise. However, it is either relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
		Dermal contact with/ ingestion of contaminated water	**Low/ Moderate** (medium, low likelihood)	It is not likely that future site users will come into contact with perched/shallow groundwater. However, surface water features may be part of the design and therefore it is possible that harm could arise from contact with surface water. It is relatively unlikely that such harm would be severe, or if any harm were to occur, it is more likely that the harm would be relatively mild. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
		Inhalation of dusts and fibres	**Low/ Moderate** (medium, low likelihood)	This source-receptor-pathway considers risk from asbestos. Localised areas of made ground may include buried ACMs. Soft landscaping is a major component of the proposed development. It is not known whether clean, imported soil will be brought onto the Site, but final design will include vegetation cover, reducing risk of dust generation during operation. Due to the unknown ground conditions (i.e. material buried within made ground), it is possible that harm could arise. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
		Inhalation of hazardous ground gases/ vapours	**Low/ Moderate** (severe, unlikely)	Hard standing and enclosed spaces is not a major component of the proposed land use therefore there will be limited situations where gases and/or vapours could accumulate. Very small, isolated areas of potential infilling/made ground have been identified on-site. Due to the vast amount of existing permeable surfacing, it is not considered likely that significant quantities of ground gases/vapours are currently accumulating in the sub-surface from legacy contamination.

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Sources of potential contamination	Receptors	Pathways	Risk (Consequence, probability)	Comment
	Human health (off-site residents, members of the public and workers at nearby commercial/ industrial properties)	Dermal contact with/ingestion of migrated contaminated dust or soils	**Low** (medium, unlikely)	A management plan will be required during construction, in order to reduce the possibility of migration of windblow dust to off-site receptors and due to the limited areas of identified potential sources of contamination identified on site, the pollutant linkage is considered improbable to occur. During operation, there are not anticipated to be any pathways as soft landscaping will reduce the risk of erosion and generating dust.
		Dermal contact with/ingestion of migrated contaminated water	**Low** (medium, unlikely)	It is not likely that off-site human health receptors will come into contact with perched/shallow groundwater. Surface water features in the design of the development are not known and therefore it is possible that harm could arise from contact with surface water features which are hydraulically connected to the site. It is unlikely that such harm would be severe due to dilution factors.
		Inhalation of migrated contaminated dusts and/or fibres	**Low** (medium, unlikely)	This source-receptor-pathway considers risk from asbestos. A management plan will be required during construction, in order to reduce the possibility of migration of windblow dust to off-site receptors. Soft landscaping is a major component of the proposed development. It is not known whether clean, imported soil will be brought onto the Site, but during operation, there are not anticipated to be any pathways as soft landscaping will reduce the risk of erosion and generating dust.
		Inhalation of migrated hazardous ground gases/vapours	**Low/ Moderate** (severe, unlikely)	Hard standing and enclosed spaces is not a major component of the proposed land use therefore there will be limited situations where gases and/or vapours could accumulate and migrate laterally off-site. Very small, isolated areas of potential infilling/made ground have been identified on-site. Due to the vast amount of existing permeable surfacing, it is not considered likely that significant quantities of ground gases/vapours are currently accumulating in the sub-surface from legacy contamination.
	WFD Secondary A aquifers and Principal aquifer and	Leaching of contaminants through the unsaturated zone/vertical	**Low/ Moderate** (medium, low likelihood)	Groundwater was reported as not encountered on-site in the north-west exploratory hole log, however, strikes in the vicinity were encountered from 1.5 m bgl, with expected connectivity to groundwater present in the chalk aquifer. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.

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Sources of potential contamination	Receptors	Pathways	Risk (Consequence, probability)	Comment
	abstraction point	migration to underlying aquifers		
	WFD Surface water features and abstraction point	Surface water run-off	**Low/ Moderate** (medium, low likelihood)	Contaminants may enter surface water drains and the Ryebank Rife. A management plan will be required during construction, in order to reduce the possibility of migration of leachable contaminants (i.e. run-off from stockpiles) via run-off. Surface water features/drainage design for the proposed development is not known. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
		Lateral migration within groundwater to surface water features (baseflow)	**Low/ Moderate** (medium, low likelihood)	Groundwater was reported as not encountered on-site in the north-west exploratory hole log, however, strikes in the vicinity were encountered from 1.5 m bgl, with expected connectivity to off-site surface water features. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
	On-site property (current and future below ground services and foundations)	Direct contact with corrosive substances (e.g. sulphates) in the soil, made ground or shallow groundwater	**Very Low** (minor, low likelihood)	There is potential for localised contamination to be present on-site which may pose a risk to new underground services or foundations. If present, high sulphate or sulphide contents present a risk to buried concrete. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
		Migration and accumulation of hazardous gases within	**Low/ Moderate** (severe, unlikely)	Hard standing and enclosed spaces is not a major component of the proposed land use therefore there will be limited situations where gases and/or vapours could accumulate. Very small, isolated areas of potential infilling/made ground have been identified on-site. Due to the vast amount of existing permeable surfacing, it is not considered likely that significant

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Sources of potential contaminati on	Receptors	Pathways	Risk (Consequence, probability)	Comment
		structures (explosive risk)		quantities of ground gases/vapours are currently accumulating in the sub-surface from legacy contamination.
	Off-site property (below ground services and foundations)	Direct contact with migrated corrosive substances (e.g. sulphates) in shallow groundwater	**Very Low** (minor, unlikely)	There is potential for localised contamination to be present on-site which may laterally migrate and pose a risk to off-site underground services or foundations. If present, high sulphate or sulphide contents present a risk to buried concrete. Investigation is required in the localised areas (i.e. site of North Barn, historical electricity substation) to clarify the risk. Some remedial works may be required in the longer term in the localised areas on-site.
		Migration and accumulation of hazardous gases within structures (explosive risk)	**Low/ Moderate** (severe, unlikely)	Hard standing and enclosed spaces is not a major component of the proposed land use therefore there will be limited situations where gases and/or vapours could accumulate and migrate laterally off-site. Very small, isolated areas of potential infilling/made ground have been identified on-site. Due to the vast amount of existing permeable surfacing, it is not considered likely that significant quantities of ground gases/vapours are currently accumulating in the sub-surface from legacy contamination.
Off-site: Waste businesses (transfer and treatment), haulage company, manufacturer s, vehicle repair and a concrete products	Human health (on-site future workers and visitors at the golf club)	Dermal contact with/ingestion of migrated contaminated dust or soils	**Low** (medium, unlikely)	Off-site sources of potential contamination have been identified, however, it is unlikely that such harm to future site users would be severe, or if any harm were to occur it is more likely that the harm would be mild. The likelihood of this pathway onto the Site is considered to be limited to during off-site construction works.
		Dermal contact with/ ingestion of migrated contaminated water	**Low** (medium, unlikely)	Off-site sources of potential contamination have been identified, however, it is unlikely that such harm to future site users would be severe, or if any harm were to occur it is more likely that the harm would be mild. The majority of off-site sources of potential contamination are/were located at Hobbs New Barn, which is approximately 150 m upstream of the Site.

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Sources of potential contamination	Receptors	Pathways	Risk (Consequence, probability)	Comment
company operating at Hobb's New Barn industrial estate adjacent to the north-east of the site; electricity substations; historical nursery; paintball area; engineering garage (and associated tanks); historical coastguard station; and two accounts of waste used in construction.		Inhalation of migrated contaminated dusts and/or fibres	**Low** (medium, unlikely)	This source-receptor-pathway considers risk from asbestos. Off-site sources of potential contamination have been identified. The likelihood of this pathway onto the Site is considered to be limited to during off-site construction works.
		Inhalation of migrated hazardous ground gases/vapours	**Low/ Moderate** (severe, unlikely)	Hard standing and enclosed spaces is not a major component of the proposed land use therefore there will be limited situations where gases and/or vapours could migrate onto site and accumulate. Due to the vast amount of existing permeable surfacing, it is not considered likely that significant quantities of ground gases/vapours are currently accumulating in the sub-surface/migrating laterally from off-site contamination.
	WFD Secondary A aquifers and Principal aquifer and abstraction point	Off-site leaching of contaminants through the unsaturated zone/vertical migration to underlying aquifers on-site	**Low/ Moderate** (medium, low likelihood)	Groundwater was reported as not encountered on-site in the north-west exploratory hole log, however, strikes in the vicinity were encountered from 1.5 m bgl. Groundwater flow direction is not known across the wider area. Consequence of this pathway being realised may be lesser due to dilution factor before reaching the Site. Numerous surrounding surface water drains may intercept lateral migration of contaminated perched/shallow groundwater prior to reaching the Site.
	WFD Surface water features and abstraction point	Surface water run-off	**Low/ Moderate** (medium, low likelihood)	The long-standing commercial land uses at Hobbs New Barn, north-east of the Site are generally within 150 m of the Site and flow direction of the Ryebank Rife is to the south and towards the Site from Hobbs New Barn.
		Lateral migration within groundwater to surface water	**Low/ Moderate** (medium, low likelihood)	Groundwater was reported as not encountered on-site in the north-west exploratory hole log, however, strikes in the vicinity were encountered from 1.5 m bgl. Groundwater flow direction is not known across the wider area, however, the long-standing commercial land uses at Hobbs New Barn, north-east of the Site are generally within 150 m of the Site and based on the flow direction of the Ryebank Rife, (to the south and towards the Site) groundwater flow might be onto site from this off-site source.

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Sources of potential contamination	Receptors	Pathways	Risk (Consequence, probability)	Comment
		features (baseflow)		
	On-site property (current and future below ground services and foundations)	Direct contact with migrated corrosive substances (e.g. sulphates) in shallow groundwater	**Very Low** (minor, unlikely)	There is limited potential for off-site contamination to be present on-site which may have laterally migrated on-site to pose a risk to underground services or foundations.
		Migration and accumulation of hazardous gases within structures (explosive risk)	**Low/ Moderate** (severe, unlikely)	Hard standing and enclosed spaces is not a major component of the proposed land use therefore there will be limited situations where gases and/or vapours could accumulate and migrate laterally and accumulate on-site. Very small, isolated areas of potential infilling/made ground have been identified on-site. Due to the vast amount of existing permeable surfacing, it is not considered likely that significant quantities of ground gases/vapours are currently accumulating in the sub-surface from off-site sources.

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5 CONCLUSIONS & RECOMMENDATIONS

5.1 SUMMARY

WSP was instructed by Hallam Land Management Ltd. to undertake a desk based geo-environmental PRA for agricultural land to inform development of the Site to a golf club and associated facilities.

Based on the findings of the Site walkover (7th September 2021) and a desk-based risk assessment, the risks were considered to generally range from very low to low/moderate due to isolated areas of unknown ground conditions associated with identified sources of potential contamination, majority of which being historical.

5.2 CONTAMINATION RISK POTENTIAL AND DEVELOPMENT CONSTRAINTS

The Site and the Site's vicinity contain receptors of medium and high sensitivity, including human health receptors, Secondary A aquifers, a Principal aquifer, surface water receptors and water abstraction points.

Land use surrounding the Site is a mixture of arable, residential and industrial/commercial.

Identified sources of potential contamination include on-site: Historical electricity substation, made ground (historical North Barn, associated tracks and potential infilling of former ponds), storage of sludge and longstanding use of chemicals for agriculture and off-site: Waste businesses (transfer and treatment), haulage company, manufacturers, vehicle repair and a concrete products company operating at Hobbs New Barn industrial estate adjacent to the north-east of the site; electricity substations; historical nursery; paintball area; engineering garage (and associated tanks); historical coastguard station; and two accounts of waste used in construction.

It is not anticipated that these sources could constrain development or programme, however, the following recommendations should be implemented in order to further assess risks and identify remediation/mitigation if required.

5.2.1 RECOMMENDATIONS

On the basis of the findings of this preliminary risk assessment, WSP makes the following recommendations:

- A flood risk assessment to better understand how the site is likely to be impacted by flooding;
- A ground investigation to obtain geotechnical and contaminated land data in order to confirm baseline ground conditions to inform development design;

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Appendix A

FIGURES



DO NOT SCALE

Information Classification:

INTERNAL

Information that is only intended for internal distribution among WSP employees, independent consultants, contractors, sub-contractors, clients and authorised third parties.

Legend :

Site Boundary

Title : Figure 1 - Site Location Plan
Author : ArcGIS Web AppBuilder
Scale : 1:36,112
Layout : WSP A4 Landscape
Current Time : 29/10/2021 10:21

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DO NOT SCALE

Information Classification:

INTERNAL

Information that is only intended for internal distribution among WSP employees, independent consultants, contractors, sub-contractors, clients and authorised third parties.

Legend :

Site Boundary

Title : Figure 2 - Site Layout Plan

Author : ArcGIS Web AppBuilder

Scale : 1:9,028

Layout : WSP A3 Landscape

Current Time : 28/10/2021 16:46

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Appendix B

LIMITATIONS

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

GENERAL

1. WSP UK Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.

2. Unless explicitly agreed otherwise, in writing, this report has been prepared under WSP UK Limited standard Terms and Conditions as included within our proposal to the Client.

3. Project specific appointment documents may be agreed at our discretion and a charge may be levied for both the time to review and finalise appointments documents and also for associated changes to the appointment terms. WSP UK Limited reserves the right to amend the fee should any changes to the appointment terms create an increase risk to WSP UK Limited.

4. The report needs to be considered in the light of the WSP UK Limited proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEO ENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

Coverage: *This section covers reports with the following titles or combination of titles: phase 1; desk top study; geo environmental assessment; development appraisal; preliminary environmental risk assessment; constraints report; due diligence report; geotechnical development review; environmental statement; environmental chapter; project scope summary report (PSSR), program environmental impact report (PEIR), geotechnical development risk register; and, baseline environmental assessment.*

5. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. WSP UK Limited cannot be held responsible for any disclosures that are provided post production of our report and will not automatically update our report.

6. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP UK Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

7. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.

8. WSP UK Limited does not warrant work / data undertaken / provided by others.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

INTRUSIVE INVESTIGATION REPORTS

Coverage: *The following report titles (or combination) may cover this category of work: geo environmental site investigation; geotechnical assessment; GIR (Ground Investigation reports); preliminary environmental and geotechnical risk assessment; and, geotechnical risk register.*

9. The investigation has been undertaken to provide information concerning either:

    i. The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or

    ii. Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.

10. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.

11. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.

12. For geotechnical investigations the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.

13. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.

14. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

15. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, WSP UK Limited has used reasonable skill and care to extrapolate conditions between these points based upon assumptions to develop our interpretation and conclusions. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation. Conditions can change between investigation points and these interpretations should be considered indicative.

16. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective

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effects of any future changes or amendments to these values. Specific assumptions associated with the WSP UK Limited risk assessment process have been outlined within the body or associated appendix of the report.

17. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.

18. Where soil contamination concentrations recorded as part of this investigation are used for commentary on potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed.

19. The results of the asbestos testing are factually reported and interpretation given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and / or trace loose asbestos fibres within the soil matrix at the site.

20. If costs have been included in relation to additional site works, and / or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

21. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.

22. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIAL STRATEGY REPORTS

23. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected on the basis of the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.

REPORT LIMITATIONS - GROUND RISK AND REMEDIATION

24. The outputs of the Detailed Quantitative Risk Assessments are based upon WSP UK Limited manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.

25. Prior to adoption on site they will need discussing and agreeing with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of WSP UK Limited. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.

GEOTECHNICAL DESIGN REPORT (GDR)

26. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS)

27. These reports are factual in nature and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of an earthworks or remedial works.

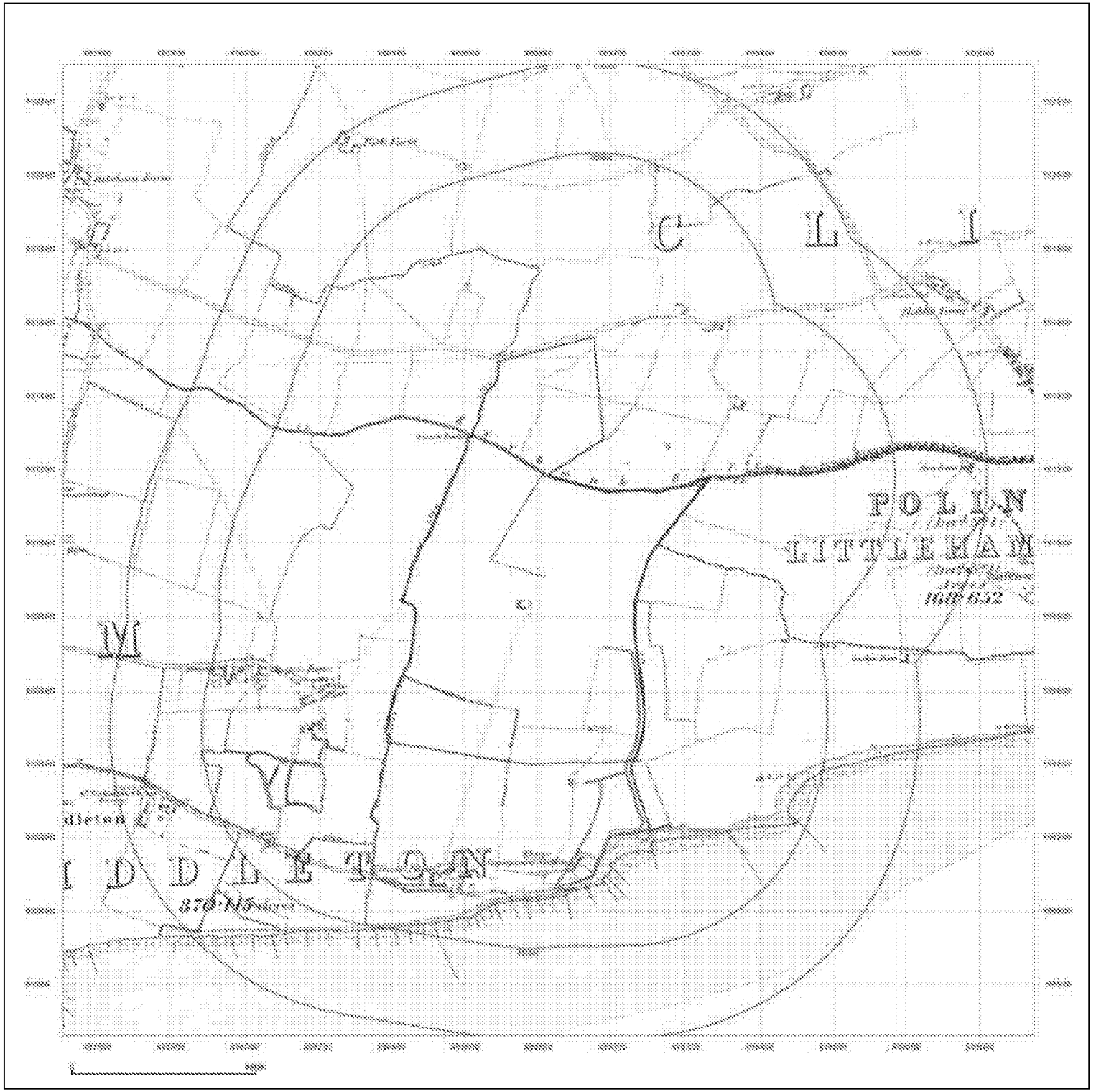
28. The data is presented and will be compared with assessment criteria.

Appendix C

HISTORICAL MAPPING

ARUN DISTRICT COUNCIL M/16/22/PL

ARUN DISTRICT COUNCIL M/16/22/PL



Groundsure INSIGHTS

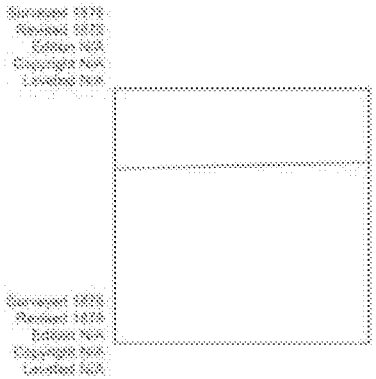
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BOGNOR REGIS GOLF CLUB,
BOGNOR REGIS GOLF CLUB,
DOWNVIEW ROAD, FELPHAM,
PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

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Map date: **1876**
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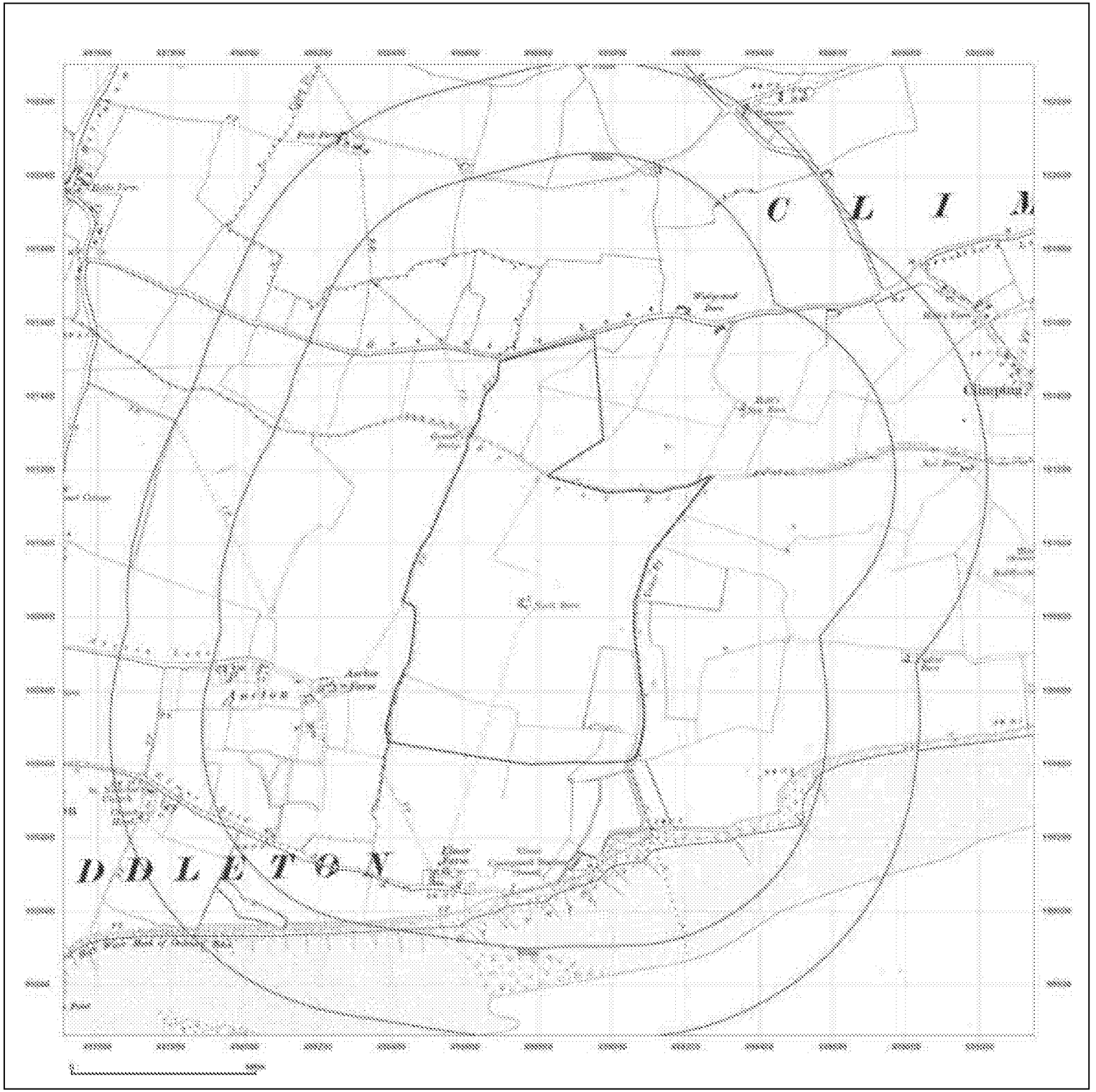
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Production date: 20 October 2021

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ARUN DISTRICT COUNCIL M/16/22/PL



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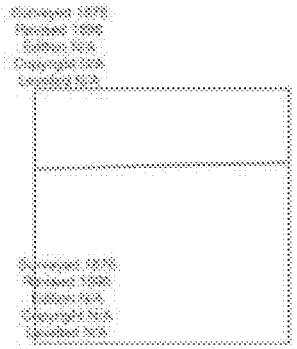
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PO22 8JD

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Grid Ref: 498826, 100981

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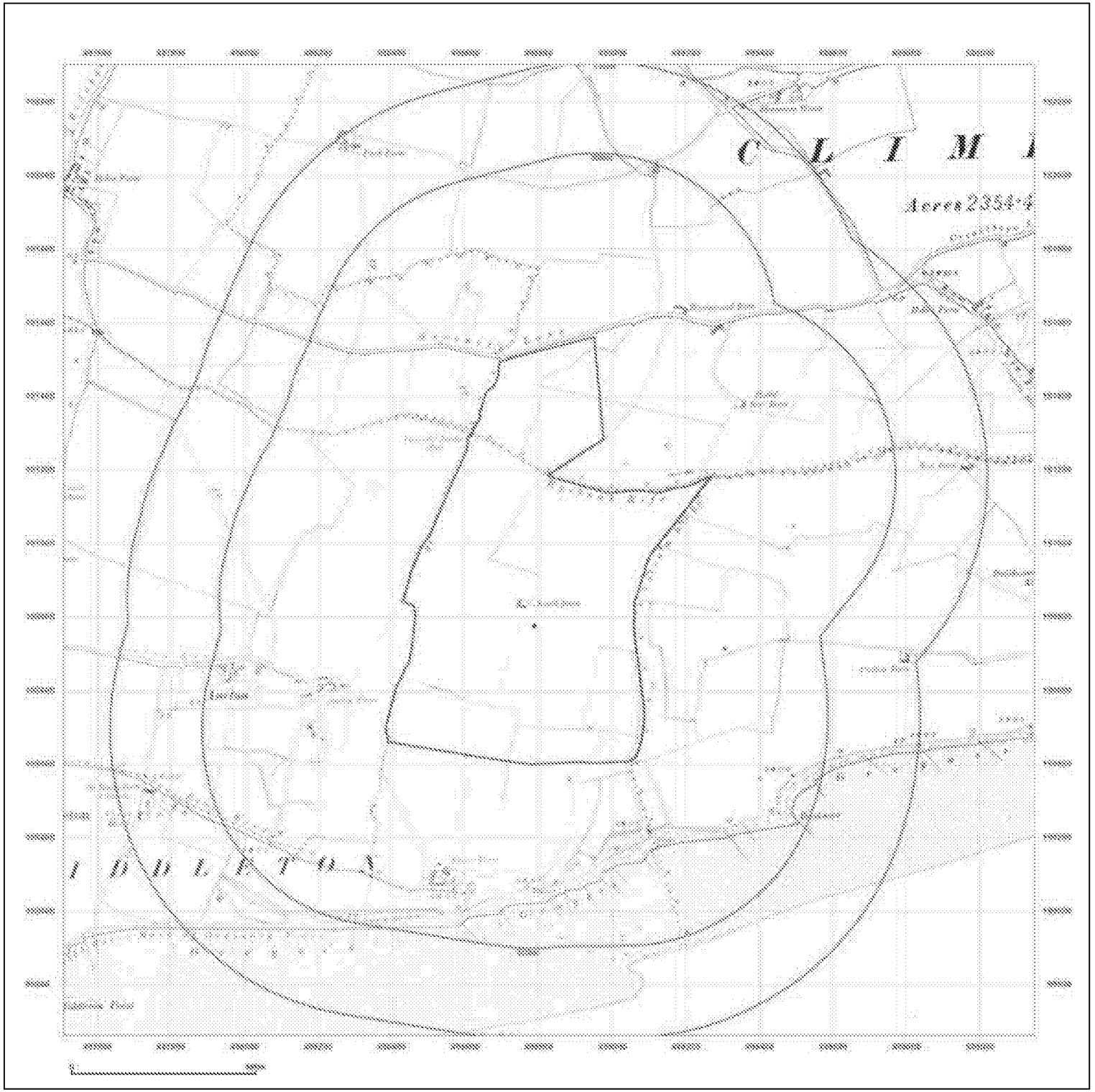
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ARUN DISTRICT COUNCIL M/16/22/PL



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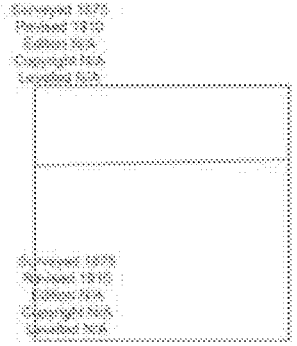
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PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

Map Name: County Series
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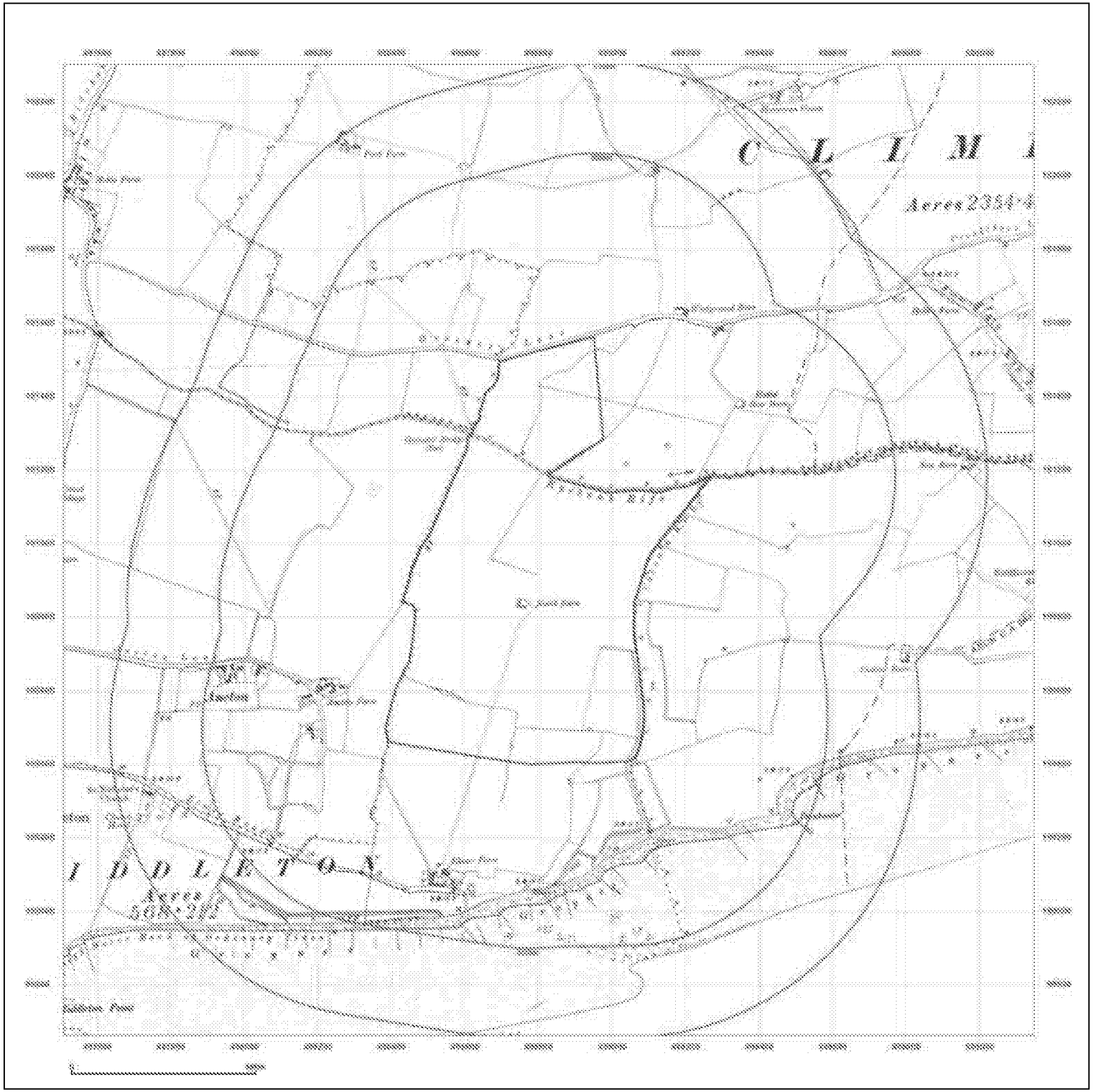
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ARUN DISTRICT COUNCIL M/16/22/PL



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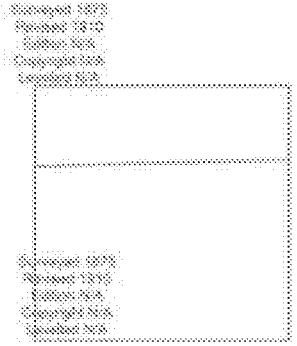
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DOWNVIEW ROAD, FELPHAM,
PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

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

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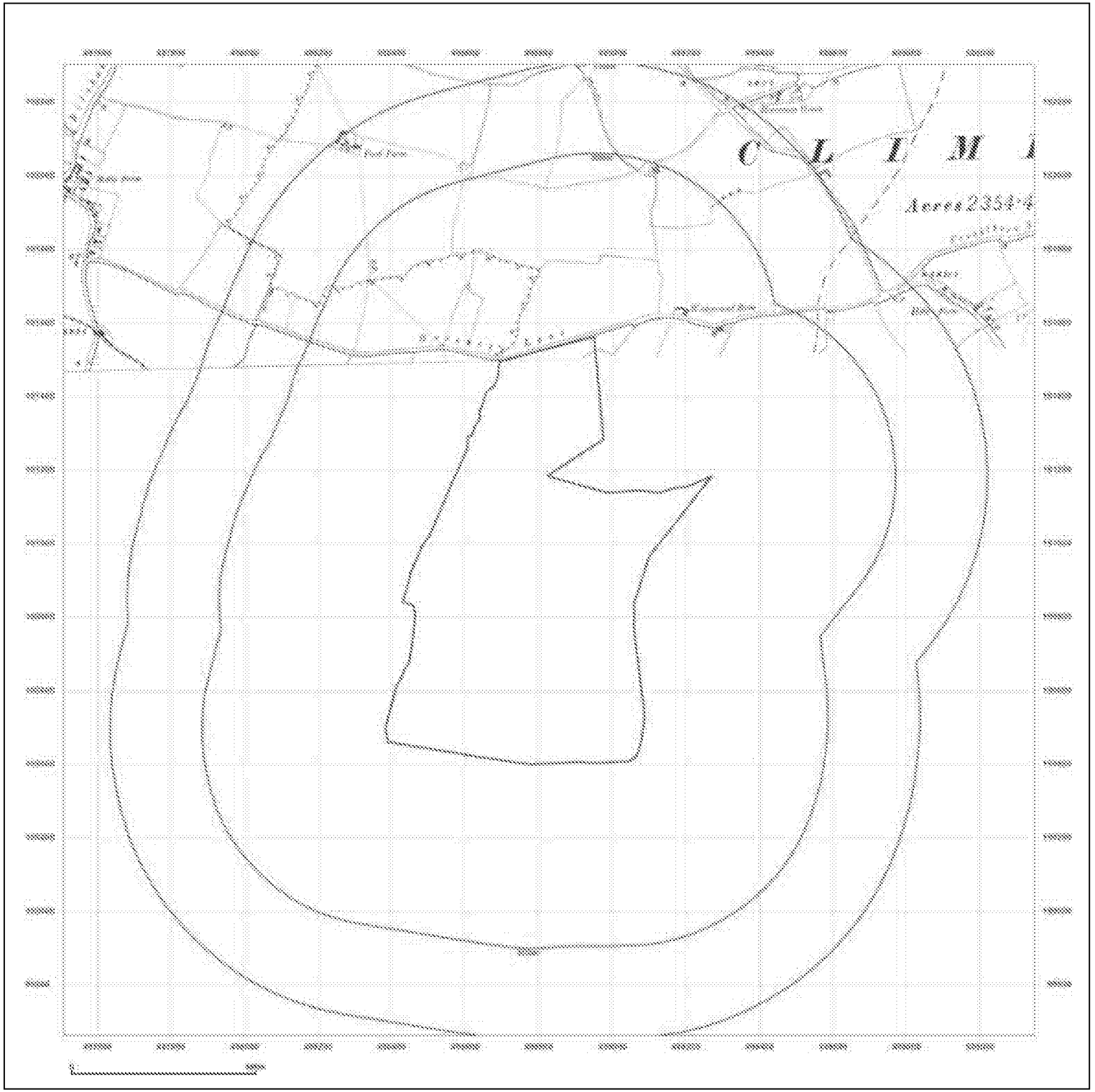
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Production date: 20 October 2021

Map legend available at:
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ARUN DISTRICT COUNCIL M/16/22/PL



Groundsure INSIGHTS

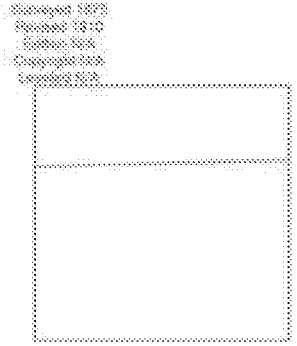
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Grid Ref: 498826, 100981

Map Name: County Series
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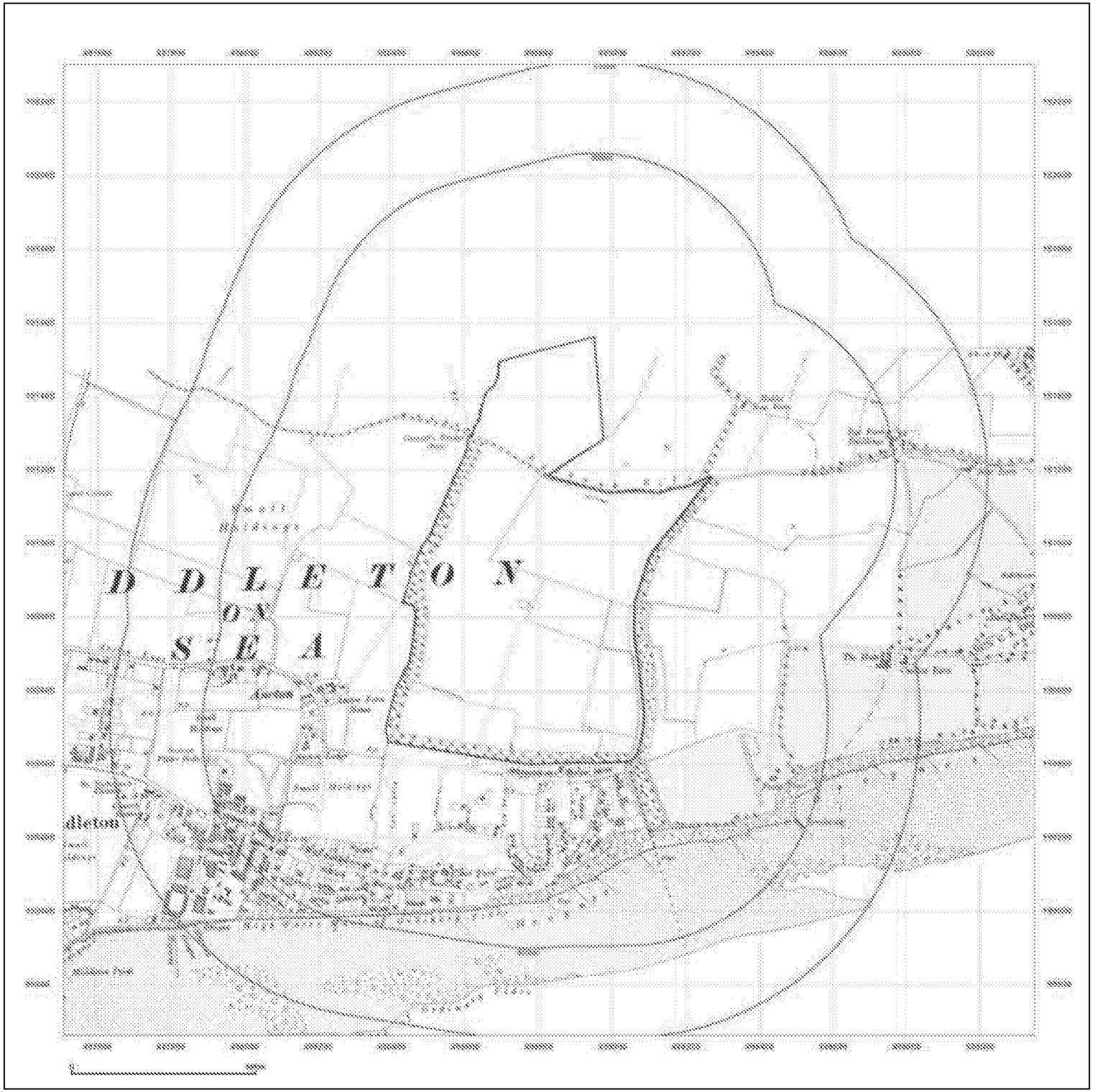
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ARUN DISTRICT COUNCIL M/16/22/PL



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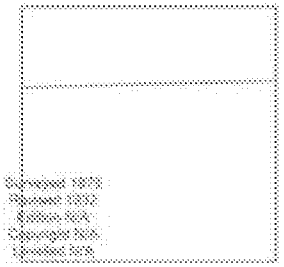
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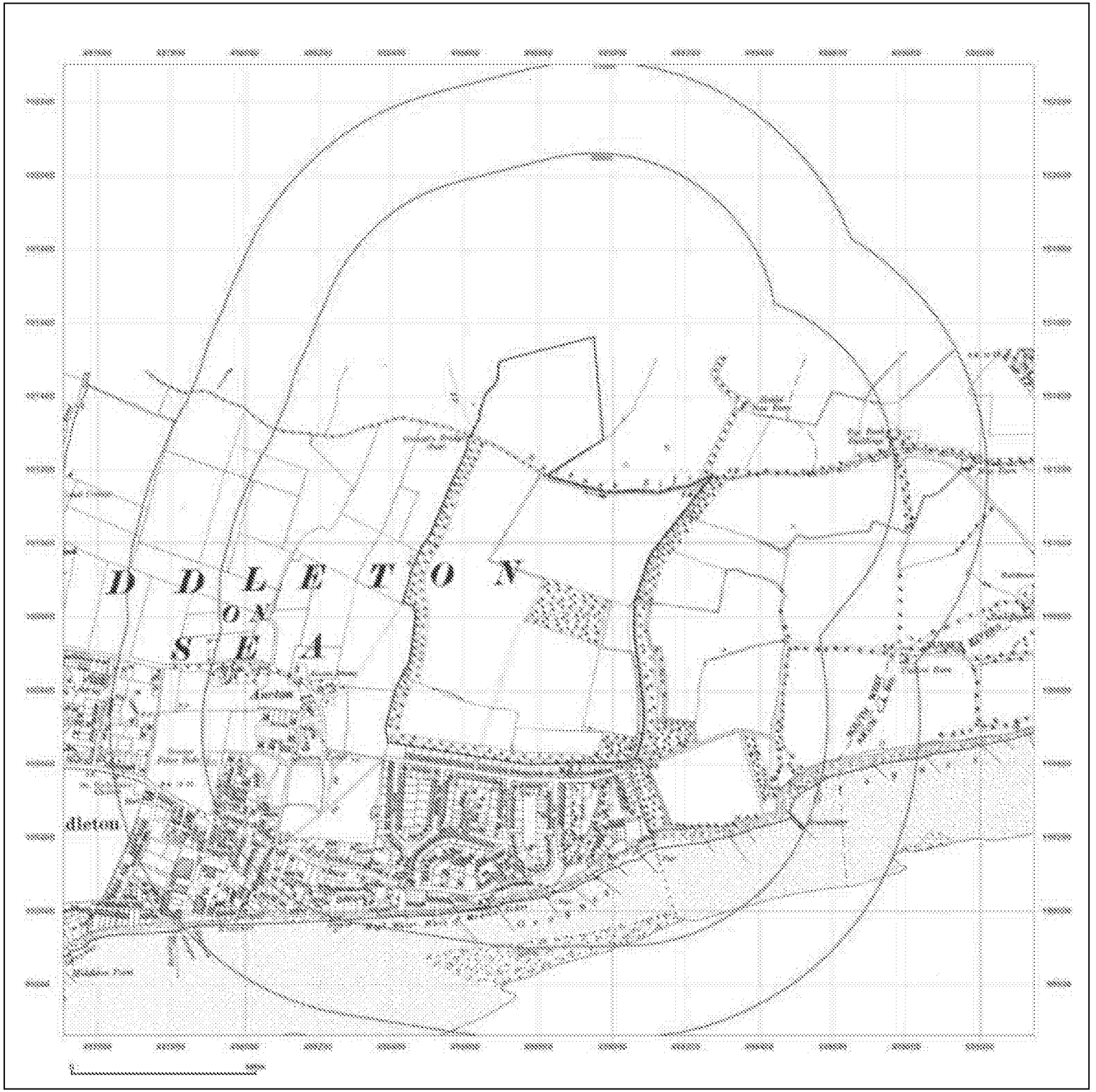
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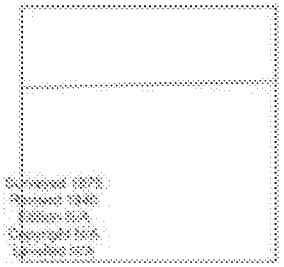
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PO22 8JD

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Grid Ref: 498826, 100981

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Scale: 1:10,560
Printed at: 1:10,560

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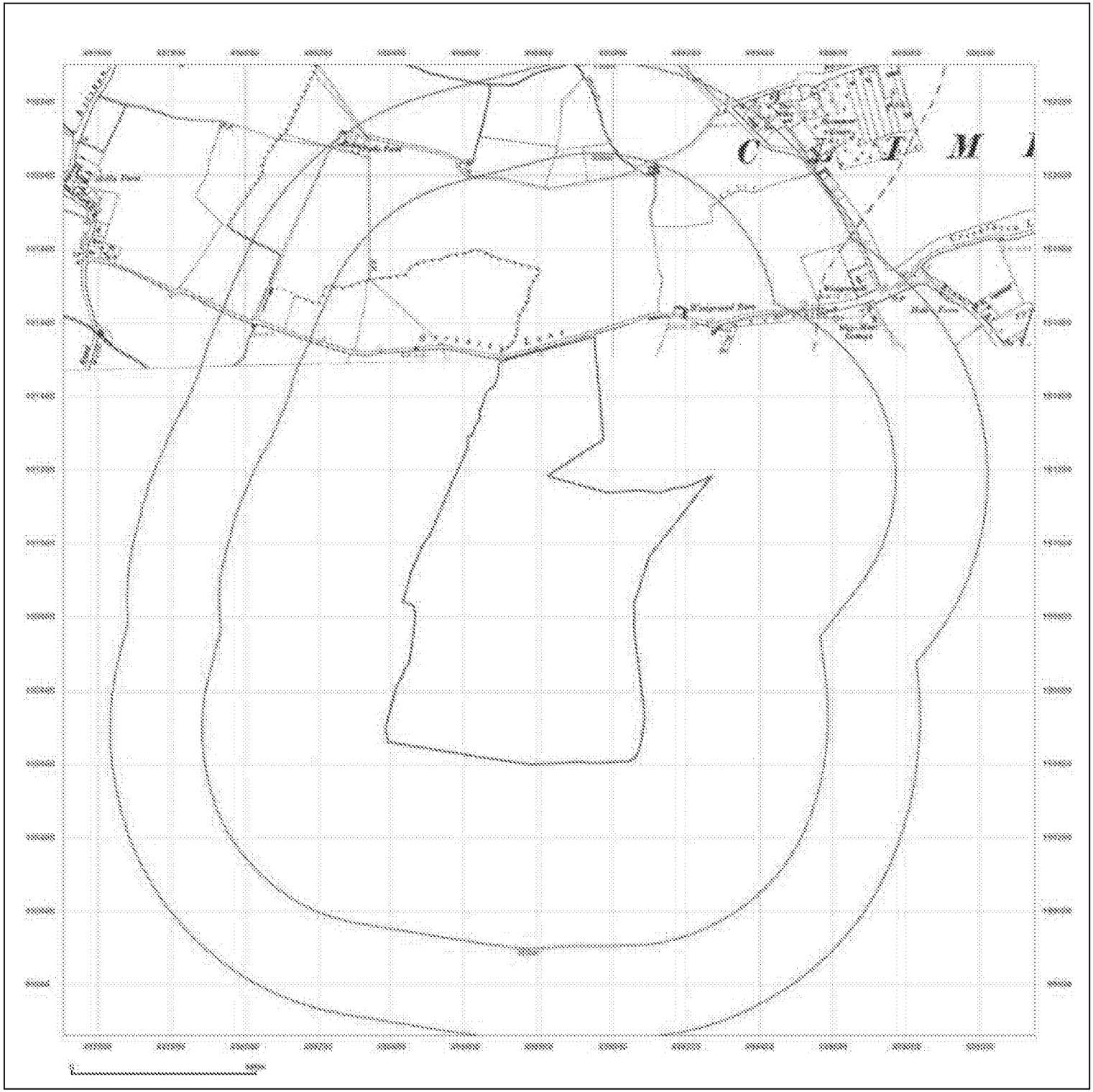
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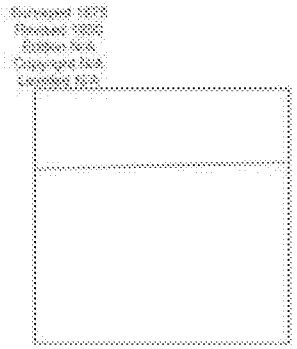
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PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

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

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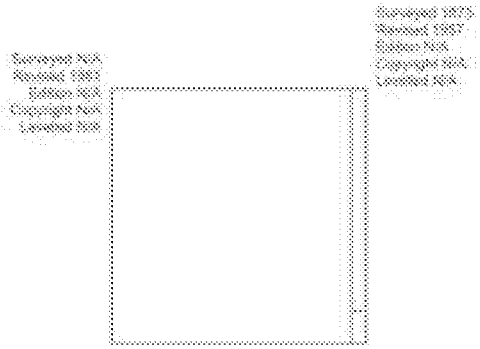
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PO22 8JD

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Grid Ref: 498826, 100981

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

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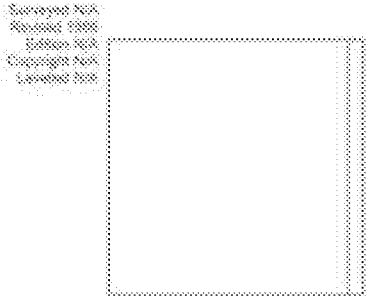
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DOWNVIEW ROAD, FELPHAM,
PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

Map Name: Provisional
Map date: 1966
Scale: 1:10,560
Printed at: 1:10,560

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ARUN DISTRICT COUNCIL M/16/22/PL



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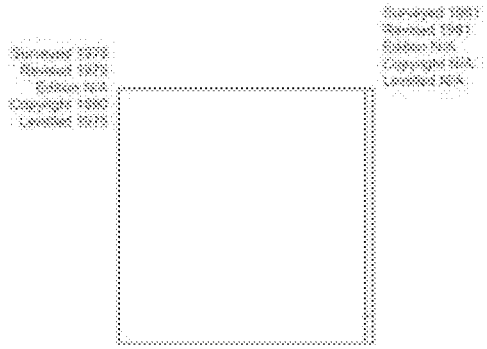
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BOGNOR REGIS GOLF CLUB,
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PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

Map Name: National Grid
Map date: **1980-1981**
Scale: 1:10,000
Printed at: 1:10,000

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ARUN DISTRICT COUNCIL M/16/22/PL



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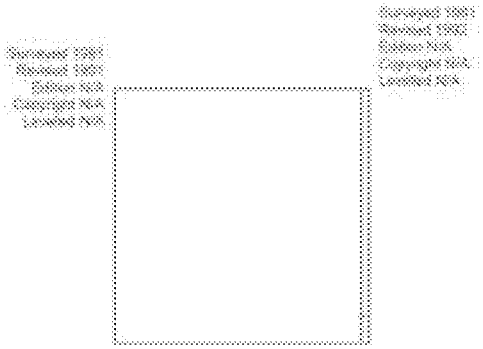
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Printed at: 1:10,000

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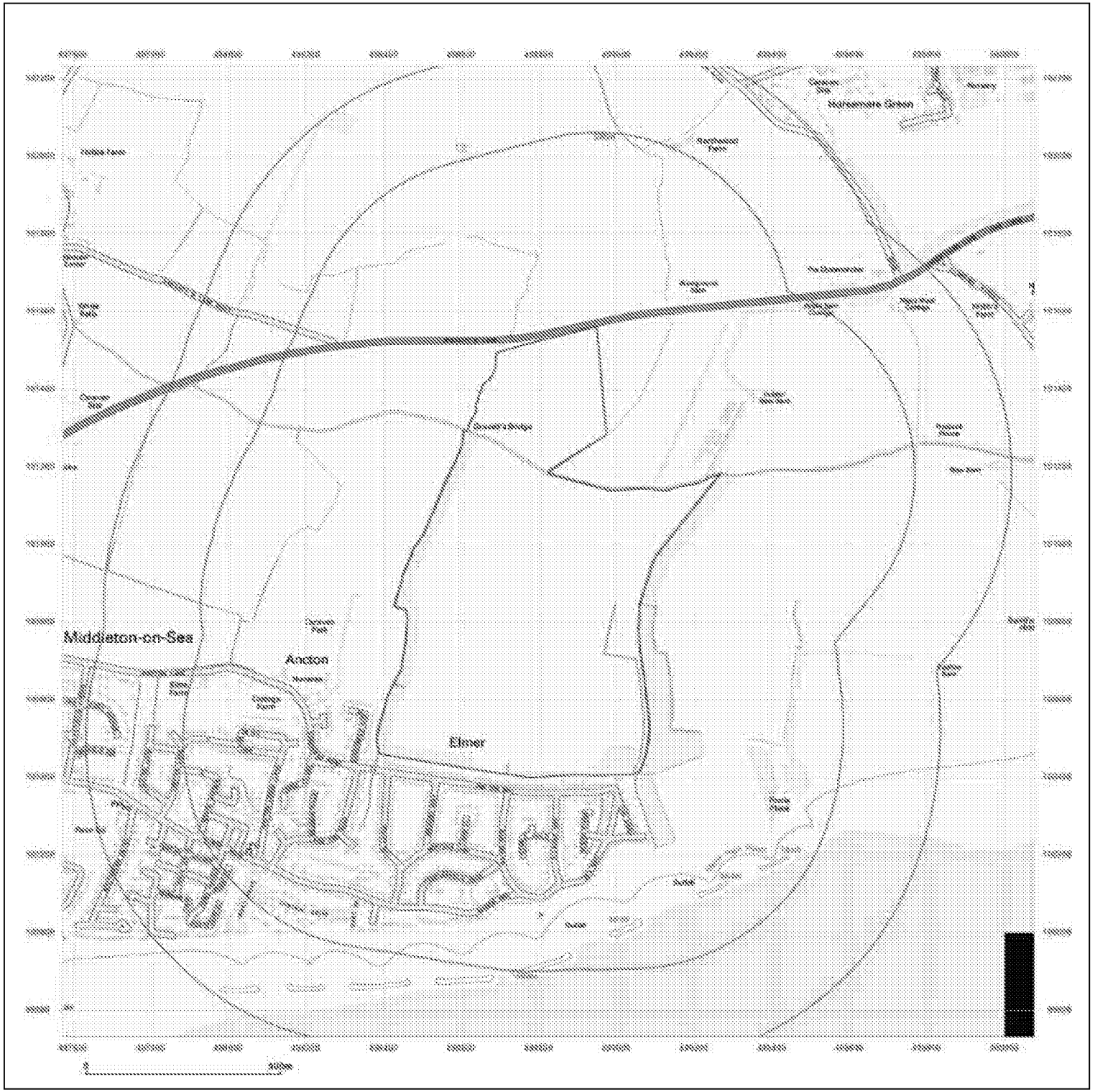
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ARUN DISTRICT COUNCIL M/16/22/PL



Groundsure INSIGHTS

Site Details:

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BOGNOR REGIS GOLF CLUB,
DOWNVIEW ROAD, FELPHAM,
PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
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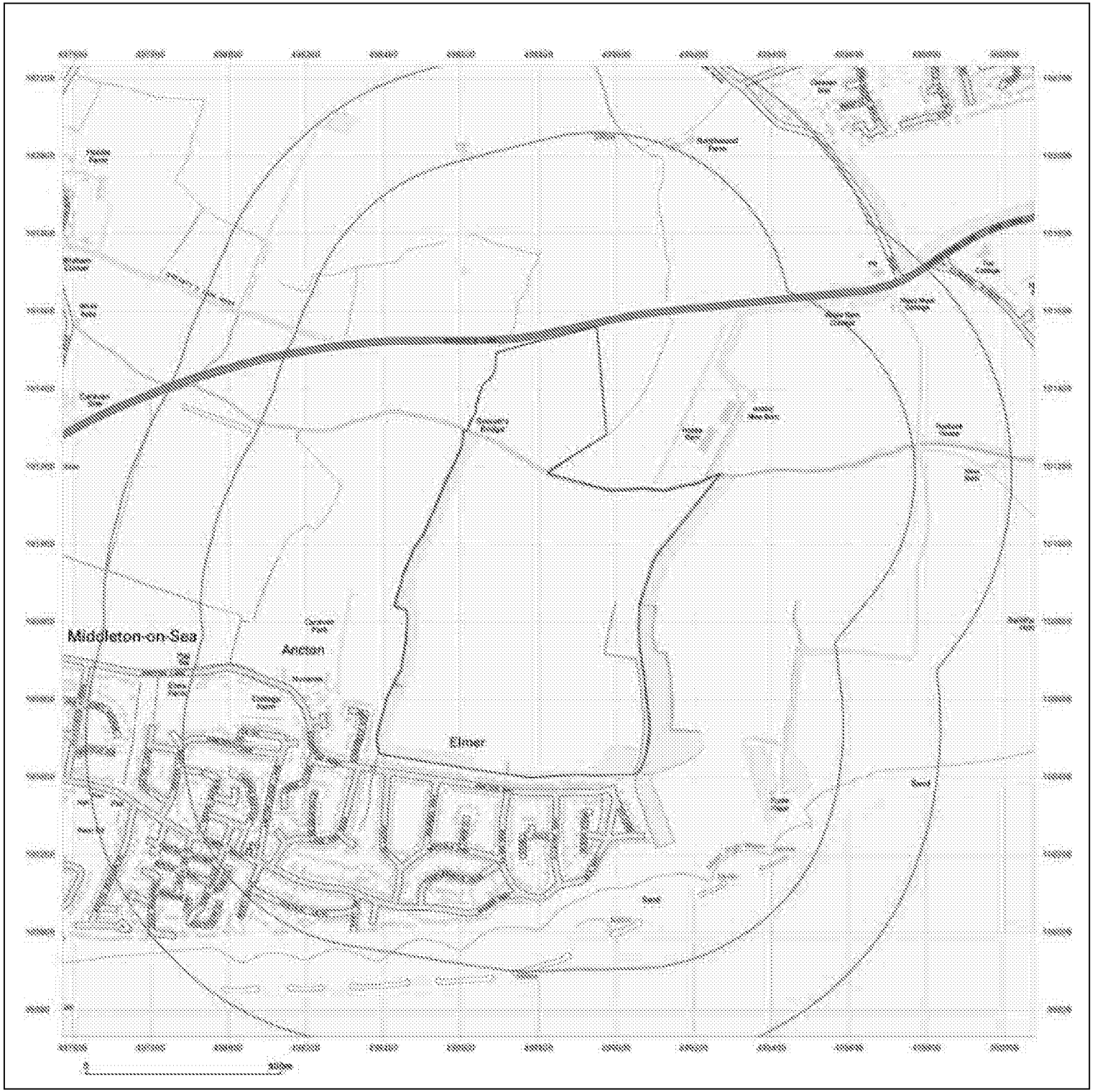
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ARUN DISTRICT COUNCIL M/16/22/PL



Groundsure INSIGHTS

Site Details:

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BOGNOR REGIS GOLF CLUB,
DOWNVIEW ROAD, FELPHAM,
PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

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

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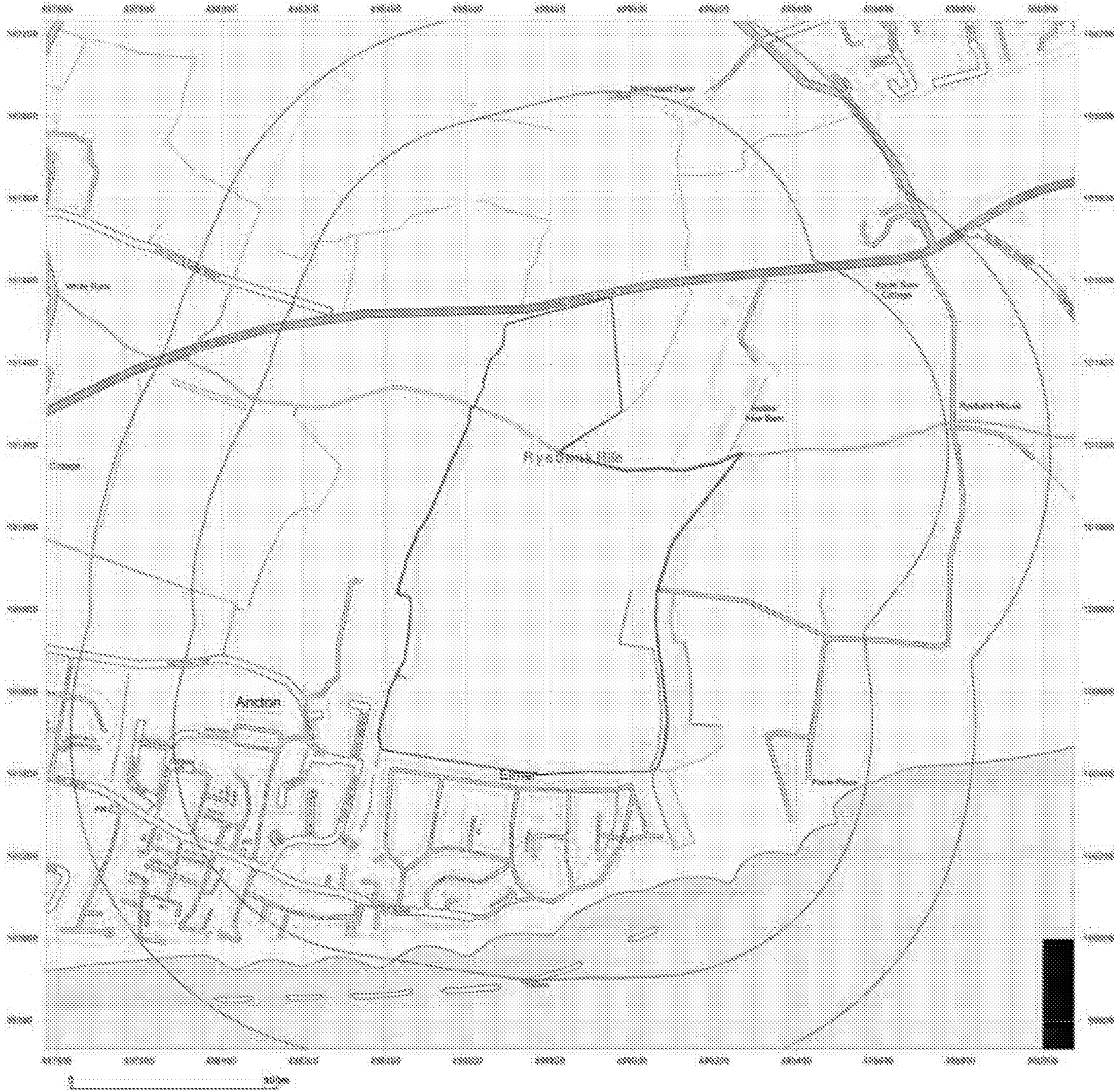
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ARUN DISTRICT COUNCIL M/16/22/PL



Groundsure INSIGHTS

Site Details:

BOGNOR REGIS GOLF CLUB,
BOGNOR REGIS GOLF CLUB,
DOWNVIEW ROAD, FELPHAM,
PO22 8JD

Client Ref: 20135079
Report Ref: GS-8275704
Grid Ref: 498826, 100981

Map Name: National Grid

Map date: 2021

Scale: 1:10,000

Printed at: 1:10,000

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Appendix D

UXO REPORT

Final (Confidential)

ARUN DISTRICT COUNCIL M/16/22/PL

From: Kim Pelling <kim.pelling@zetica.com>
Sent: 05 November 2021 16:34
To: FitzPatrick, Jack
Cc: Uxo; Research
Subject: RE: request for a PDSA on a proposed Site

Good afternoon Jack

Please find the PDSA below as requested. Any further queries, don't hesitate to contact us.

zeticauxo

Pre-Desk Study Assessment

Site:	Land north of Ancton Way, Bognor Regis, West Sussex
Client:	WSP
Contact:	Jack FitzPatrick
Date:	5th November 2021
Pre-WWI Military Activity on or Affecting the Site	None identified.
WWI Military Activity on or Affecting the Site	None identified.
WWI Strategic Targets (within 5km of Site)	The following strategic targets were located in the vicinity of the Site: Littlehampton Harbour. Transport infrastructure and public utilities. Industries important to the war effort, including aircraft manufacturing. Royal Flying Corps (RFC) Ford.
WWI Bombing	None identified on the Site.
Interwar Military Activity on or Affecting the Site	None identified.
WWII Military Activity on or Affecting the Site	None identified.
WWII Strategic Targets (within 5km of Site)	The following strategic targets were located in the vicinity of the Site: Littlehampton Harbour. Transport infrastructure and public utilities. Royal Air Force (RAF) Ford. Anti-Aircraft (AA) and anti-invasion defences.
WWII Bombing Decoys (within 5km of Site)	None identified.
WWII Bombing	During WWII the Site was located in the Rural District (RD) of Chichester, which officially recorded 1,221No. High Explosive (HE) bombs with a bombing density of 11.9 bombs per 405 hectares (ha). No readily available records have been found to indicate that the Site was bombed.
Post-WWII Military Activity on or Affecting the Site	None identified.
Recommendation	A detailed desk study, whilst always prudent, is not considered essential in this instance.
Further information	For information about Zetica's detailed UXO desk studies and other UXO services, please visit our website: [redacted]. Details and downloadable resources covering the most common sources of UXO hazard affecting sites in the UK can be found here. If you have any further queries, please don't hesitate to get in contact with us at [redacted]

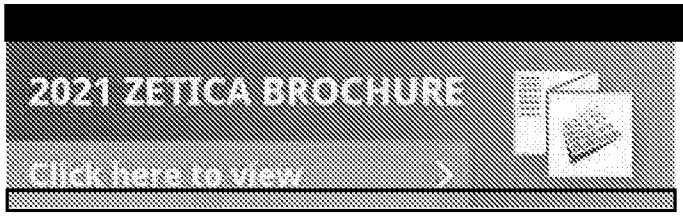
[redacted]

Many thanks

Kim

Kim Pelling
Risk Assessor
Zetica Limited

[redacted]



From: Kim Pelling <[redacted]>
Sent: 29 October 2021 11:05
To: FitzPatrick, Jack <[redacted]>
Cc: Uxo <[redacted]>; Research <[redacted]>
Subject: RE: request for a PDSA on a proposed Site

Good morning Jack

That's not a problem. We'll get a PDSA for this and Bognor Regis Golf Club completed for you as quickly as possible.

Many thanks

Kim

Appendix E

GROUNDSURE REPORT

Final (Confidential)

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo
Insight

BOGNOR REGIS GOLF CLUB, BOGNOR REGIS GOLF CLUB, DOWNVIEW ROAD, FELPHAM, PO22 8JD

Order Details

Date: 20/10/2021

Your ref: 20135079

Our Ref: GS-8275705

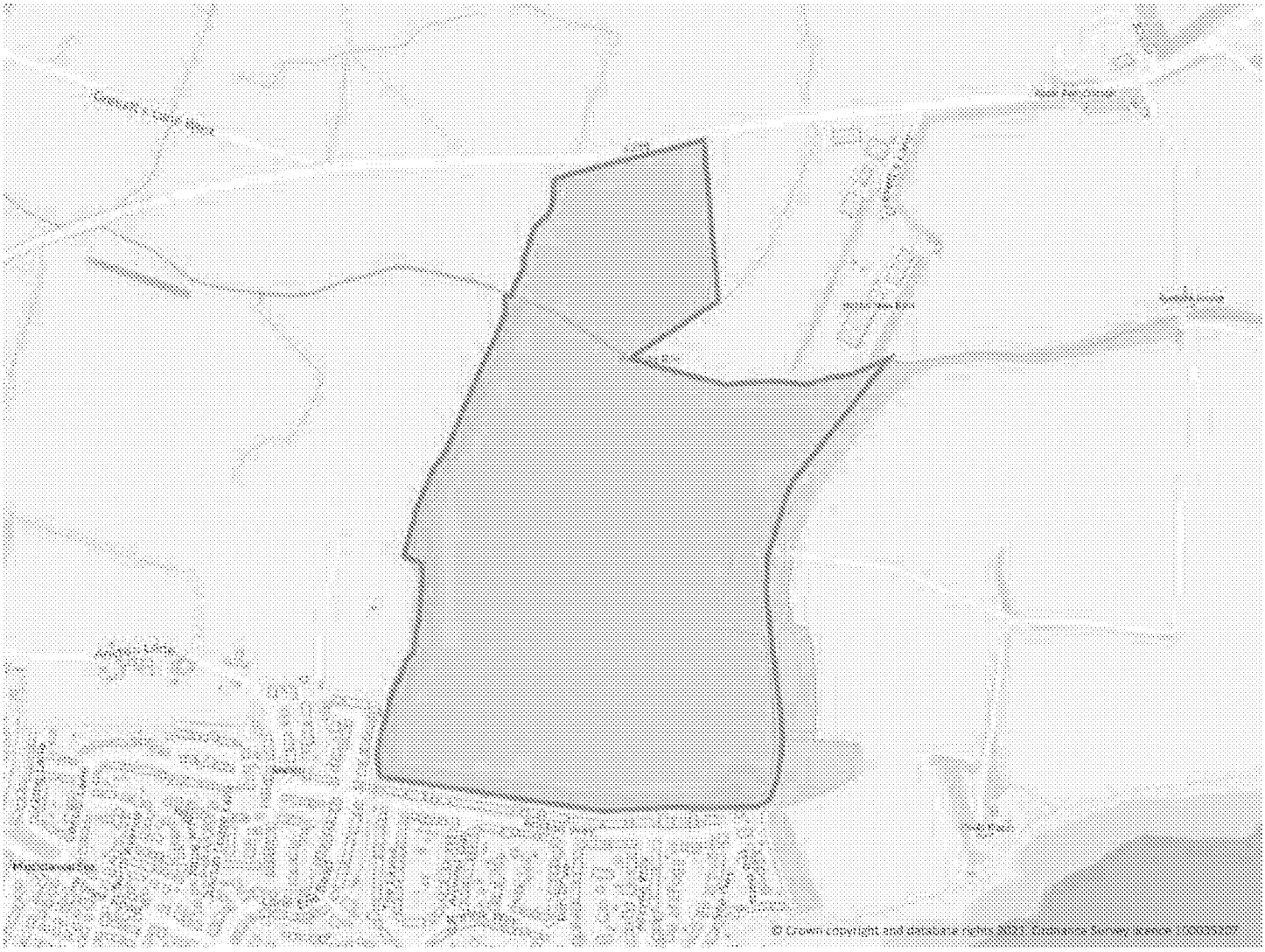
Client: WSP UK Limited

Site Details

Location: 498774 100900

Area: 58.85 ha

Authority: Arun District Council



Summary of findings p. 2

OS MasterMap site plan N/A: >10ha

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
08444 159 000

ARUN DISTRICT COUNCIL M/16/22/PL

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
12	1.1	Historical industrial land uses	0	0	2	8	-
13	1.2	Historical tanks	0	0	0	6	-
14	1.3	Historical energy features	1	0	4	2	-
14	1.4	Historical petrol stations	0	0	0	0	-
14	1.5	Historical garages	0	0	0	4	-
15	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
16	2.1	Historical industrial land uses	0	0	2	10	-
17	2.2	Historical tanks	0	0	0	6	-
18	2.3	Historical energy features	2	0	8	7	-
19	2.4	Historical petrol stations	0	0	0	0	-
19	2.5	Historical garages	0	0	0	7	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
20	3.1	Active or recent landfill	0	0	0	0	-
20	3.2	Historical landfill (BGS records)	0	0	0	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
21	3.5	Historical waste sites	0	0	2	0	-
22	3.6	Licensed waste sites	0	0	2	4	-
24	3.7	Waste exemptions	1	2	5	3	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
26	4.1	Recent industrial land uses	1	0	12	-	-
27	4.2	Current or recent petrol stations	0	0	1	0	-
28	4.3	Electricity cables	0	0	0	0	-
28	4.4	Gas pipelines	0	0	0	0	-
28	4.5	Sites determined as Contaminated Land	0	0	0	0	-

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28	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
28	4.7	Regulated explosive sites	0	0	0	0	-
29	4.8	Hazardous substance storage/usage	0	0	0	0	-
29	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
29	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
29	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
29	4.12	Radioactive Substance Authorisations	0	0	0	0	-
30	**4.13**	**Licensed Discharges to controlled waters**	0	0	3	6	-
31	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
31	4.15	Pollutant release to public sewer	0	0	0	0	-
31	4.16	List 1 Dangerous Substances	0	0	0	0	-
32	4.17	List 2 Dangerous Substances	0	0	0	0	-
32	**4.18**	**Pollution Incidents (EA/NRW)**	0	0	1	1	-
32	4.19	Pollution inventory substances	0	0	0	0	-
33	4.20	Pollution inventory waste transfers	0	0	0	0	-
33	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
34	**5.1**	**Superficial aquifer**	Identified (within 500m)				
36	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
38	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
39	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
40	5.5	Groundwater vulnerability- local information	None (within 0m)				
41	**5.6**	**Groundwater abstractions**	0	0	1	0	4
43	**5.7**	**Surface water abstractions**	3	0	0	0	3
44	**5.8**	**Potable abstractions**	0	0	0	0	2
45	5.9	Source Protection Zones	0	0	0	0	-
45	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
46	**6.1**	**Water Network (OS MasterMap)**	18	16	16	-	-

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50	6.2	Surface water features	1	9	12	-	-
51	6.3	WFD Surface water body catchments	1	-	-	-	-
51	6.4	WFD Surface water bodies	1	0	1	-	-
52	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
53	7.1	Risk of flooding from rivers and the sea	High (within 50m)				
54	7.2	Historical Flood Events	0	0	0	-	-
54	7.3	Flood Defences	0	0	1	-	-
54	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
55	7.5	Flood Storage Areas	0	0	0	-	-
56	7.6	Flood Zone 2	Identified (within 50m)				
57	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
58	8.1	Surface water flooding	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
60	9.1	Groundwater flooding	High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
61	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
62	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
62	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
62	10.4	Special Protection Areas (SPA)	0	0	0	1	0
62	10.5	National Nature Reserves (NNR)	0	0	0	0	0
63	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
63	10.7	Designated Ancient Woodland	0	0	0	0	0
63	10.8	Biosphere Reserves	0	0	0	0	0
63	10.9	Forest Parks	0	0	0	0	0
64	10.10	Marine Conservation Zones	0	0	0	0	0
64	10.11	Green Belt	0	0	0	0	0
64	10.12	Proposed Ramsar sites	0	0	0	0	0

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64	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
64	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
65	10.15	Nitrate Sensitive Areas	0	0	0	0	0
65	**10.16**	**Nitrate Vulnerable Zones**	1	0	0	0	0
66	**10.17**	**SSSI Impact Risk Zones**	2	-	-	-	-
67	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
68	11.1	World Heritage Sites	0	0	0	-	-
69	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
69	11.3	National Parks	0	0	0	-	-
69	**11.4**	**Listed Buildings**	0	0	1	-	-
70	11.5	Conservation Areas	0	0	0	-	-
70	11.6	Scheduled Ancient Monuments	0	0	0	-	-
70	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
71	**12.1**	**Agricultural Land Classification**	Grade 1 (within 250m)				
72	12.2	Open Access Land	0	0	0	-	-
73	12.3	Tree Felling Licences	0	0	0	-	-
73	12.4	Environmental Stewardship Schemes	0	0	0	-	-
73	**12.5**	**Countryside Stewardship Schemes**	2	2	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
74	**13.1**	**Priority Habitat Inventory**	10	4	5	-	-
75	**13.2**	**Habitat Networks**	1	0	5	-	-
76	13.3	Open Mosaic Habitat	0	0	0	-	-
76	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
77	**14.1**	**10k Availability**	Identified (within 500m)				
78	14.2	Artificial and made ground (10k)	0	0	0	0	-
79	**14.3**	**Superficial geology (10k)**	4	0	1	2	-

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80	14.4	Landslip (10k)	0	0	0	0	-
81	14.5	Bedrock geology (10k)	1	0	1	2	-
82	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
83	15.1	50k Availability	Identified (within 500m)				
84	15.2	Artificial and made ground (50k)	0	0	0	0	-
84	15.3	Artificial ground permeability (50k)	0	0	-	-	-
85	15.4	Superficial geology (50k)	3	1	1	1	-
86	15.5	Superficial permeability (50k)	Identified (within 50m)				
86	15.6	Landslip (50k)	0	0	0	0	-
86	15.7	Landslip permeability (50k)	None (within 50m)				
87	15.8	Bedrock geology (50k)	1	0	1	0	-
88	15.9	Bedrock permeability (50k)	Identified (within 50m)				
88	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
89	16.1	BGS Boreholes	0	0	2	-	-
Page	Section	Natural ground subsidence					
90	17.1	Shrink swell clays	Low (within 50m)				
91	17.2	Running sands	Low (within 50m)				
93	17.3	Compressible deposits	Negligible (within 50m)				
94	17.4	Collapsible deposits	Low (within 50m)				
95	17.5	Landslides	Very low (within 50m)				
96	17.6	Ground dissolution of soluble rocks	Very low (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
98	18.1	Natural cavities	0	0	0	0	-
99	18.2	BritPits	0	0	0	0	-
99	18.3	Surface ground workings	3	0	2	-	-
99	18.4	Underground workings	0	0	0	0	0
99	18.5	Historical Mineral Planning Areas	0	0	0	0	-

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100	18.6	Non-coal mining	0	0	0	0	0
100	18.7	Mining cavities	0	0	0	0	0
100	18.8	JPB mining areas	None (within 0m)				
100	18.9	Coal mining	None (within 0m)				
100	18.10	Brine areas	None (within 0m)				
101	18.11	Gypsum areas	None (within 0m)				
101	18.12	Tin mining	None (within 0m)				
101	18.13	Clay mining	None (within 0m)				

Page	Section	Radon					
102	**19.1**	**Radon**	Between 1% and 3% (within 0m)				

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
104	**20.1**	**BGS Estimated Background Soil Chemistry**	23	4	-	-	-
105	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
105	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
106	21.1	Underground railways (London)	0	0	0	-	-
106	21.2	Underground railways (Non-London)	0	0	0	-	-
106	21.3	Railway tunnels	0	0	0	-	-
106	21.4	Historical railway and tunnel features	0	0	0	-	-
106	21.5	Royal Mail tunnels	0	0	0	-	-
107	21.6	Historical railways	0	0	0	-	-
107	21.7	Railways	0	0	0	-	-
107	21.8	Crossrail 1	0	0	0	0	-
107	21.9	Crossrail 2	0	0	0	0	-
107	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 28/06/2018

Site Area: 58.85ha

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Recent site history - 2015 aerial photograph



Capture Date: 20/05/2015

Site Area: 58.85ha

ARUN DISTRICT COUNCIL M/16/22/PL

Recent site history - 2012 aerial photograph



Capture Date: 13/09/2012

Site Area: 58.85ha

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Recent site history - 1999 aerial photograph

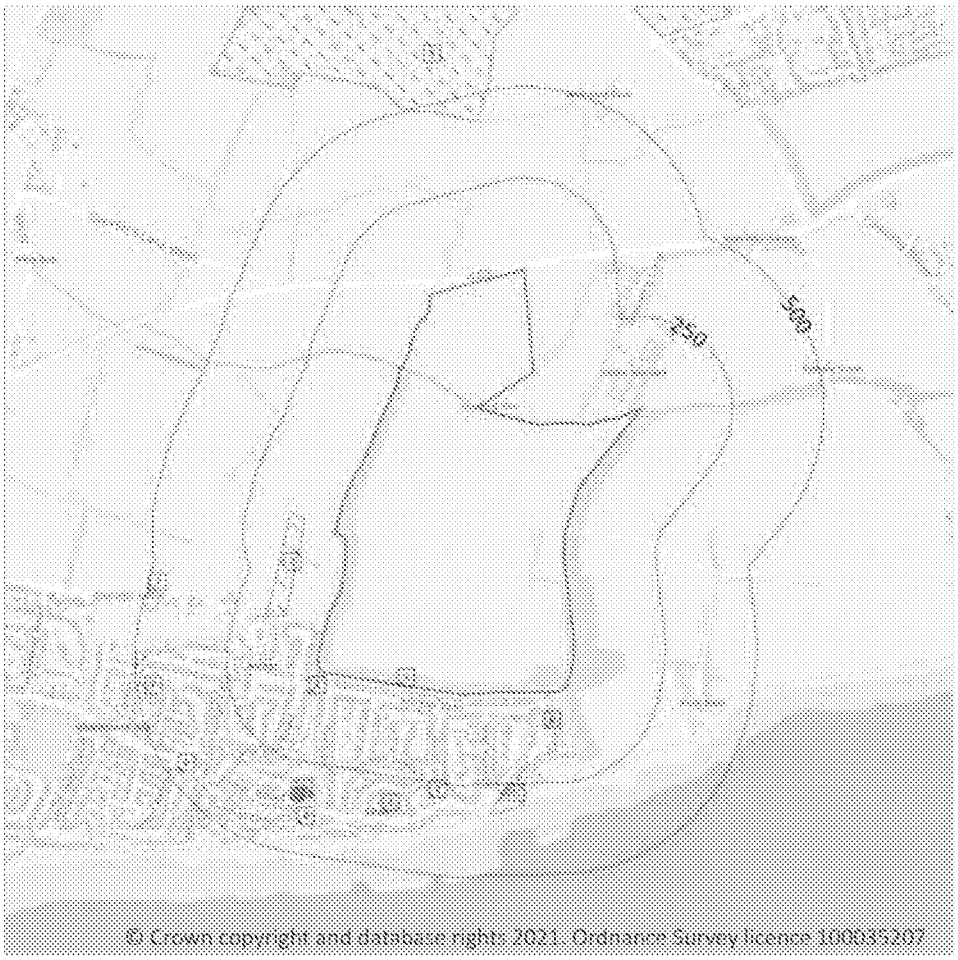


Capture Date: 06/09/1999

Site Area: 58.85ha

ARUN DISTRICT COUNCIL M/16/22/PL

1 Past land use



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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	10

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 12**

ID	Location	Land use	Dates present	Group ID
2	87m W	Nursery	1991	1868118

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ID	Location	Land use	Dates present	Group ID
C	249m S	Coastguard Station	1876	1871166
C	258m S	Disused Coastguard Station	1896	1862495
C	276m S	Unspecified Tank	1876	1859341
C	282m S	Unspecified Tank	1876	1859343
E	338m S	Unspecified Tank	1876	1859342
5	425m N	Aerodrome	1978	2365493
F	465m W	Sewage Filterbeds	1932 - 1940	1893227
7	478m W	Pumping Station	1991	1859613
F	478m W	Sewage Filterbeds	1932 - 1940	1906582

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	6

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 12**

ID	Location	Land use	Dates present	Group ID
C	272m S	Tanks or Troughs	1970	309349
C	273m S	Tanks or Troughs	1961	309350
C	276m S	Unspecified Tank	1898	309035
C	282m S	Unspecified Tank	1898	309036
E	340m S	Tank or Trough	1876	312417
6	461m SW	Unspecified Tank	1933	309034

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	7

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 12**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Electricity Substation**	**1970 - 1982**	**206443**
A	55m SW	Electricity Substation	1970 - 1992	212174
A	58m SW	Electricity Substation	1991	196781
B	90m S	Electricity Substation	-	187642
B	92m S	Electricity Substation	1974	191398
3	282m S	Electricity Substation	1970 - 1982	195032
4	411m S	Electricity Substation	1979 - 1992	197417

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	4

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-

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grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 12**

ID	Location	Land use	Dates present	Group ID
D	317m S	Garage	1979 - 1992	63702
D	318m S	Garage	1961	61508
D	318m S	Garage	1970	61652
D	321m S	Garage	1991	61189

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

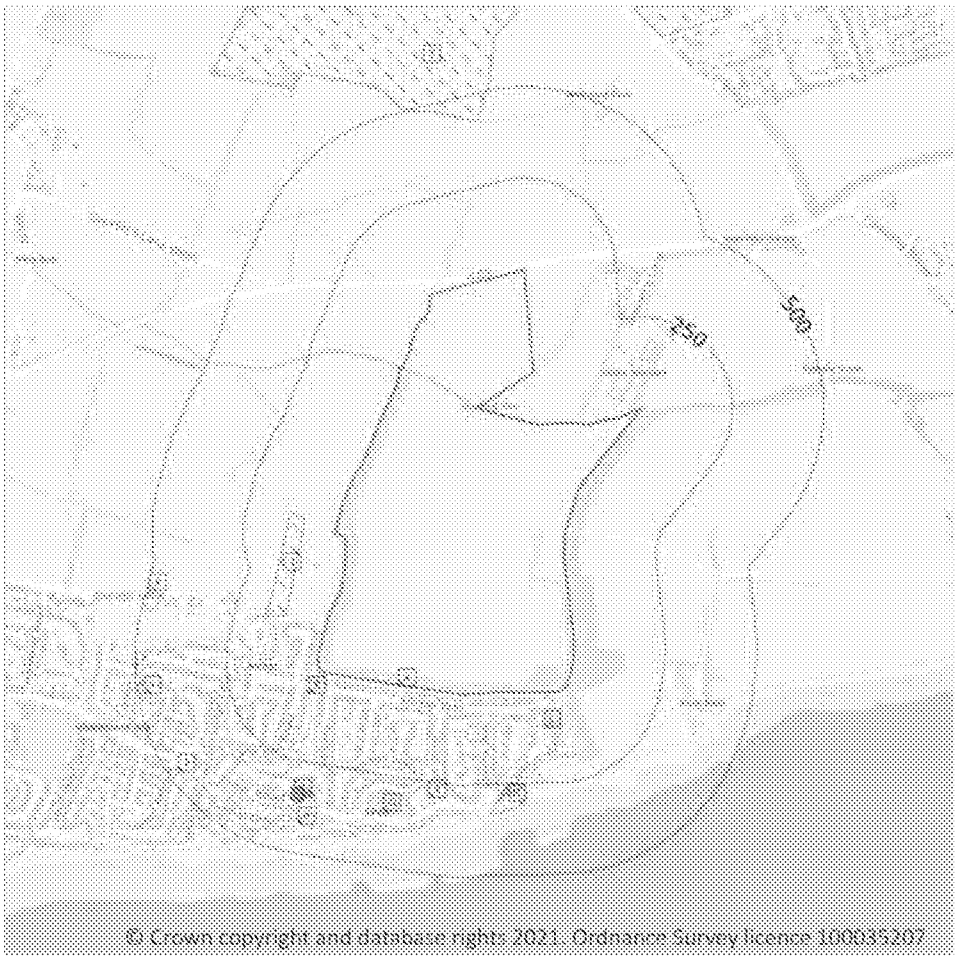
Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

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2 Past land use - un-grouped



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Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	12

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
1	87m W	Nursery	1991	1868118
D	249m S	Coastguard Station	1876	1871166
D	258m S	Disused Coastguard Station	1896	1862495

ID	Location	Land Use	Date	Group ID
D	276m S	Unspecified Tank	1876	1859341
D	282m S	Unspecified Tank	1876	1859343
G	338m S	Unspecified Tank	1876	1859342
2	425m N	Aerodrome	1978	2365493
I	465m W	Sewage Filterbeds	1932	1893227
I	465m W	Sewage Filterbeds	1940	1893227
4	478m W	Pumping Station	1991	1859613
I	478m W	Sewage Filterbeds	1940	1906582
I	480m W	Sewage Filterbeds	1932	1906582

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	6

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
D	272m S	Tanks or Troughs	1970	309349
D	273m S	Tanks or Troughs	1961	309350
D	276m S	Unspecified Tank	1898	309035
D	282m S	Unspecified Tank	1898	309036
G	340m S	Tank or Trough	1876	312417
3	461m SW	Unspecified Tank	1933	309034

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	17

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
A	**On site**	**Electricity Substation**	**1970**	**206443**
A	**On site**	**Electricity Substation**	**1982**	**206443**
B	55m SW	Electricity Substation	1979	212174
B	55m SW	Electricity Substation	1989	212174
B	55m SW	Electricity Substation	1989	212174
B	55m SW	Electricity Substation	1992	212174
B	55m SW	Electricity Substation	1970	212174
B	58m SW	Electricity Substation	1991	196781
C	90m S	Electricity Substation	-	187642
C	92m S	Electricity Substation	1974	191398
E	282m S	Electricity Substation	1982	195032
E	282m S	Electricity Substation	1970	195032
H	411m S	Electricity Substation	1979	197417
H	411m S	Electricity Substation	1989	197417
H	411m S	Electricity Substation	1989	197417
H	411m S	Electricity Substation	1992	197417
H	413m S	Electricity Substation	1991	197417

This data is sourced from Ordnance Survey / Groundsure.

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2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	7

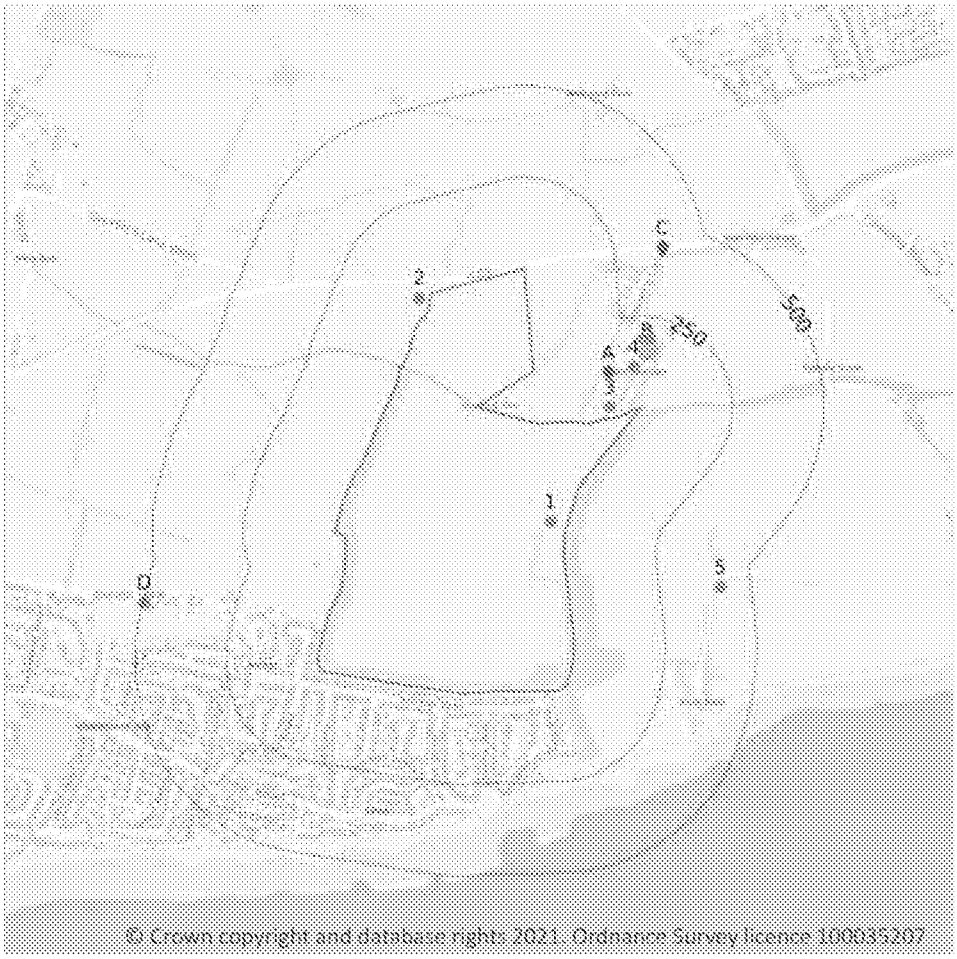
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
F	317m S	Garage	1979	63702
F	317m S	Garage	1989	63702
F	317m S	Garage	1989	63702
F	317m S	Garage	1992	63702
F	318m S	Garage	1961	61508
F	318m S	Garage	1970	61652
F	321m S	Garage	1991	61189

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



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Site Outline

Search buffers in metres (m)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

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3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	2

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 20**

ID	Location	Address	Further Details	Date
8	131m N	Site Address: Hobbs Barn,Grevatts Lane, Climping, LITTLEHAMPTON, West Sussex, BN17 5RE	Type of Site: Waste Transfer Station Planning application reference: CM/2/11/ Description: Scheme comprises change of use of factory unit 7 from B1/B8 to a waste transfer and recycling station, this application will be determined by West Sussex County Council. An application (ref: CM/2/11/) for detailed planning permission was granted by Arun D.C. A detailed planning application has been granted. Data source: Historic Planning Application Data Type: Point	03/08/2011
8	134m N	Site Address: Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Type of Site: Waste Transfer Station Planning application reference: CM/21/15/WS Description: Scheme comprises construction & operation of a waste transfer station & materials recycling facility at baird's business park. this is a county matter & will be determined by West Sussex County Council. Data source: Historic Planning Application Data Type: Point	27/11/2015

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This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	6

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 20**

ID	Location	Details		
A	120m NW	Site Name: Grab And Tip (Littlehampton) Limited Site Address: Hobbs Farm, Gravetts Lane, Climping, Littlehampton, West Sussex, BN17 5RE Correspondence Address: -	Type of Site: Treatment of waste to produce soil 75,000 tpy Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: GRA006 EPR reference: EA/EPR/FB3605CX/A001 Operator: Grab And Tip (Littlehampton) Limited Waste Management licence No: 404366 Annual Tonnage: 74999.999	Issue Date: 27/03/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: 17/03/2020 Cancelled Date: - Status: Expired
A	120m NW	Site Name: Grab And Tip (Littlehampton) Limited Site Address: Hobbs Farm, Gravetts Lane, Climping, BN17 5RE Correspondence Address: -	Type of Site: Treatment of waste to produce soil 75,000 tpy Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: GRA006 EPR reference: EA/EPR/FB3605CX/A001 Operator: Grab And Tip (Littlehampton) Limited Waste Management licence No: 404366 Annual Tonnage: 74999.999	Issue Date: 27/03/2018 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
C	381m E	Site Name: Unit 7 Hobbs Barn Site Address: Unit 7, Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE Correspondence Address: -	Type of Site: 75kte HCI Waste Transfer Station Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ARU007 EPR reference: EA/EPR/DB3630RC/A001 Operator: Arun Waste Services Ltd Waste Management licence No: 103634 Annual Tonnage: 74999	Issue Date: 12/01/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

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ID	Location	Details		
C	381m E	Site Name: Unit 7, Hobbs Barn Site Address: Unit 7, Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE Correspondence Address: -	Type of Site: 75kte HCI Waste Transfer Station Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ARU007 EPR reference: EA/EPR/DB3630RC/V004 Operator: Arun Waste Services Limited Waste Management licence No: 103624 Annual Tonnage: 74999	Issue Date: 12/01/2012 Effective Date: - Modified: 11/10/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
C	381m E	Site Name: Unit 7, Hobbs Barn Site Address: Unit 7, Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE Correspondence Address: -	Type of Site: 75kte HCI Waste Transfer Station Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ARU007 EPR reference: EA/EPR/DB3630RC/V004 Operator: Arun Waste Services Limited Waste Management licence No: 103624 Annual Tonnage: 74999	Issue Date: 12/01/2012 Effective Date: - Modified: 11/10/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
C	381m E	Site Name: Unit 7, Hobbs Barn Site Address: Unit 7, Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE Correspondence Address: -	Type of Site: 75kte HCI Waste TS + treatment Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ARU007 EPR reference: EA/EPR/DB3630RC/V005 Operator: Arun Waste Services Limited Waste Management licence No: 103624 Annual Tonnage: 74999	Issue Date: 12/01/2012 Effective Date: - Modified: 23/04/2021 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

This data is sourced from the Environment Agency and Natural Resources Wales.

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3.7 Waste exemptions

Records within 500m **11**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

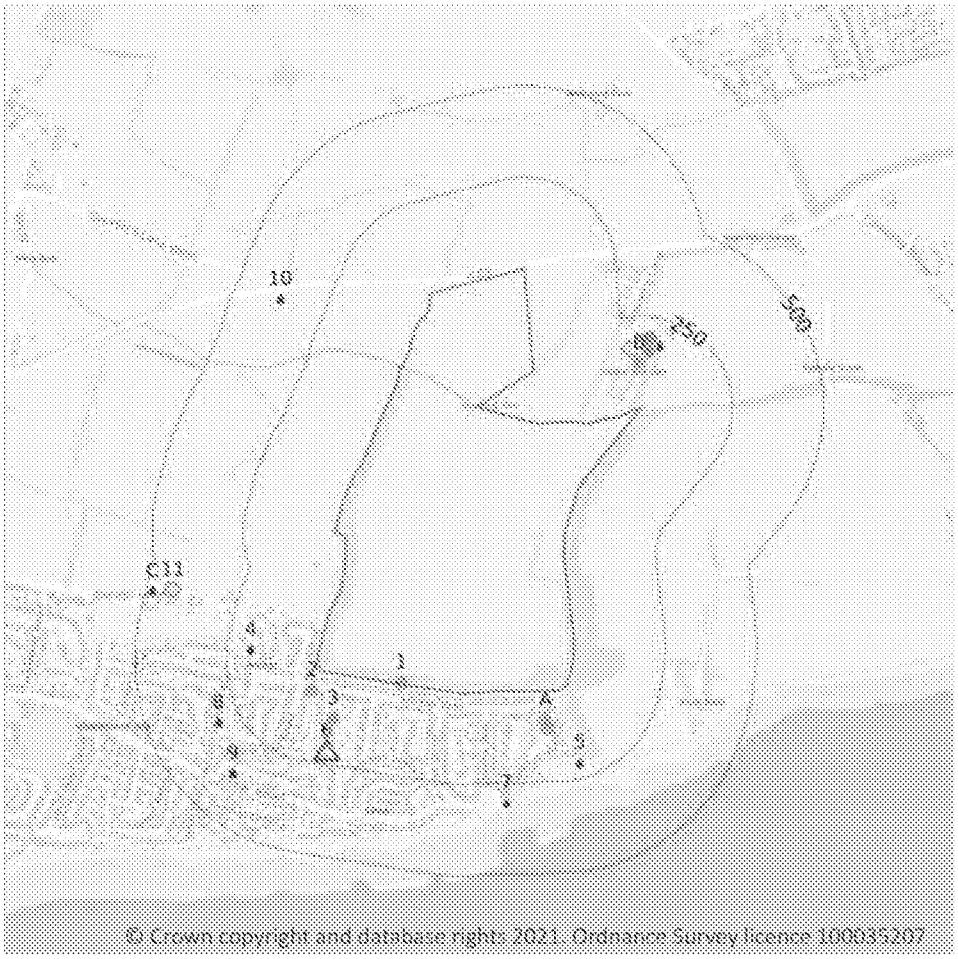
Features are displayed on the Waste and landfill map on **page 20**

ID	Location	Site	Reference	Category	Sub-Category	Description
1	**On site**	**HOME FARM CLIMPING, CLIMPING STREET, LITTLEHAMPTON, BN17 5RQ**	**WEX130500**	**Storing waste exemption**	**On a farm**	**Storage of sludge**
2	29m W	Home Farm Climping Climping Street LITTLEHAMPTON West Sussex BN17 5RQ	EPR/UF0807HE/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of sludge
3	29m N	-	WEX266915	Using waste exemption	Not on a farm	Use of waste in construction
4	111m N	-	WEX266944	Using waste exemption	Not on a farm	Use of waste in construction
B	186m N	Hobbs Barn Grevatts Lane Littlehampton West Sussex BN17 5RE	EPR/ZF0501ZD/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
B	186m N	Hobbs Barn Grevatts Lane Littlehampton West Sussex BN17 5RE	EPR/ZF0501ZD/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
B	189m N	HOBBS BARN, GREVATTS LANE, CLIMPING, LITTLEHAMPTON, BN17 5RE	WEX106492	Treating waste exemption	Not on a farm	Screening and blending of waste
B	189m N	BAIRDS BUSINESS PARK, GREVETTS PLACE, CLIMPING, BN17 5RE	WEX081761	Using waste exemption	Not on a farm	Use of waste in construction
5	416m E	-	WEX002791	Storing waste exemption	On a farm	Storage of sludge
D	496m W	Elms Farm Ancton Lane BOGNOR REGIS West Sussex PO22 6NJ	EPR/LE5380LY/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
D	496m W	Elms Farm Ancton Lane BOGNOR REGIS West Sussex PO22 6NJ	EPR/LE5380LY/A001	Disposing of waste exemption	Agricultural Waste Only	Burning waste in the open

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This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m **13**

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Electricity Sub Station**	**West Sussex, PO22**	**Electrical Features**	**Infrastructure and Facilities**
2	55m S	Electricity Sub Station	West Sussex, PO22	Electrical Features	Infrastructure and Facilities
A	80m S	Pump	West Sussex, PO22	Water Pumping Stations	Industrial Features

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ID	Location	Company	Address	Activity	Category
A	101m S	Electricity Sub Station	West Sussex, PO22	Electrical Features	Infrastructure and Facilities
3	122m S	M I A Property Services Ltd	33, The Layne, Bognor Regis, West Sussex, PO22 6JL	Office and Shop Equipment	Industrial Products
B	123m N	D J B Projects	Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Construction Completion Services	Construction Services
B	159m N	Climping Fabrication Co	Unit 14 Hobbs New Barn, Grevatts Lane, Climping, West Sussex, BN17 5RE	Cutting, Drilling and Welding Services	Construction Services
B	159m N	Robinsons Haulage Sussex Ltd	Area 3 Bairds Business Park, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RX	Distribution and Haulage	Transport, Storage and Delivery
B	159m N	Fabco Sanctuary	Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Glass	Industrial Products
B	159m N	Performanc e Tuning Services	Hobbs New Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Vehicle Repair, Testing and Servicing	Repair and Servicing
B	189m N	X P S Hire Services Ltd	Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Construction and Tool Hire	Hire Services
B	189m N	Eka Concrete Littlehampt on	Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Concrete Products	Industrial Products
B	189m N	Grab & Tip Littlehampt on Ltd	Hobbs Barn, Grevatts Lane, Climping, Littlehampton, West Sussex, BN17 5RE	Waste Storage, Processing and Disposal	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Company	Address	LPG	Status
6	212m S	OBSOLETE	131, Elmer Road, Middleton-On-Sea, Bognor Regis, West Sussex, PO22 6HZ	Not Applicable	Obsolete

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m 9

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Address	Details	
B	174m N	AGRICULTURAL STORAGE BARN, LAND @ HOBBS NEW BARN, OFF GREVATTS LANE CLIMPING, LITTLEHAMPTON WEST SUSSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S02228 Permit Version: 1 Receiving Water: FRESHWATER RIVER	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 08/11/1973 Effective Date: 08/11/1973 Revocation Date: 31/03/1997
4	184m W	DEV. LAND TO WEST OF ANCTON LN	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01714 Permit Version: 1 Receiving Water: CONTROLLED SEA	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 18/04/1968 Effective Date: 18/04/1968 Revocation Date: 01/07/1991
5	205m S	ROAD FROM ELMER SAND TO MIDDLETON, ROAD FROM ELMER SAND TO MIDDLETO	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S02804 Permit Version: 1 Receiving Water: CONTROLLED SEA	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 23/05/1962 Effective Date: 23/05/1962 Revocation Date: 01/07/1991
7	306m S	HOUSE ADJACENT TO SOUTHING, SEA WAY, MIDDLETON, WEST SUSSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01411 Permit Version: 1 Receiving Water: CONTROLLED SEA	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 03/09/1965 Effective Date: 03/09/1965 Revocation Date: -
8	312m SW	RESIDENTIAL DEV. ANCTON LODGE LNE, RESIDENTIAL DEV. ANCTON LODGE LN, MIDDLETON-ON-SEA, SUSSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S02656 Permit Version: 1 Receiving Water: FRESHWATER RIVER	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 15/03/1971 Effective Date: 15/03/1971 Revocation Date: 30/05/1997
9	368m SW	DEVELOPMENT, CARISSIMA ELMER ROAD	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: S01505 Permit Version: 1 Receiving Water: CONTROLLED SEA	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 15/07/1966 Effective Date: 15/07/1966 Revocation Date: 01/07/1991

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ID	Location	Address	Details	
10	376m NW	BOGNOR-LITTLEHAMPTON RD, REALIGNMENT GREVATTS LN, CLYMPING, WEST SUSSEX	Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: SO1140 Permit Version: 1 Receiving Water: CONTROLLED SEA	Status: LAPSED UNDER SCHEDULE 23 ENVIRONMENT ACT 1995 Issue date: 01/05/1962 Effective Date: 01/05/1962 Revocation Date: 31/03/1997
C	482m W	ANCTON LANE MIDDLETON-ON-SEA CSO, ANCTON LANE, MIDDLETON-ON-SEA, WEST SUSSEX, PO22 6NJ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: SO1076 Permit Version: 1 Receiving Water: RYEBANK RIFE/RIVER ARUN	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 23/01/1964 Effective Date: 23/01/1964 Revocation Date: 10/08/2017
C	482m W	ANCTON LANE MIDDLETON-ON-SEA CSO, ANCTON LANE, MIDDLETON-ON-SEA, WEST SUSSEX, PO22 6NJ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: SO1076 Permit Version: 2 Receiving Water: RYEBANK RIFE/RIVER ARUN	Status: VARIED UNDER EPR 2010 Issue date: 11/08/2017 Effective Date: 11/08/2017 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	2

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 26**

ID	Location	Details	
8	162m N	Incident Date: 27/03/2003 Incident Identification: 146409 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
11	429m W	Incident Date: 13/02/2003 Incident Identification: 136885 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution Inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

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4.20 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory radioactive waste

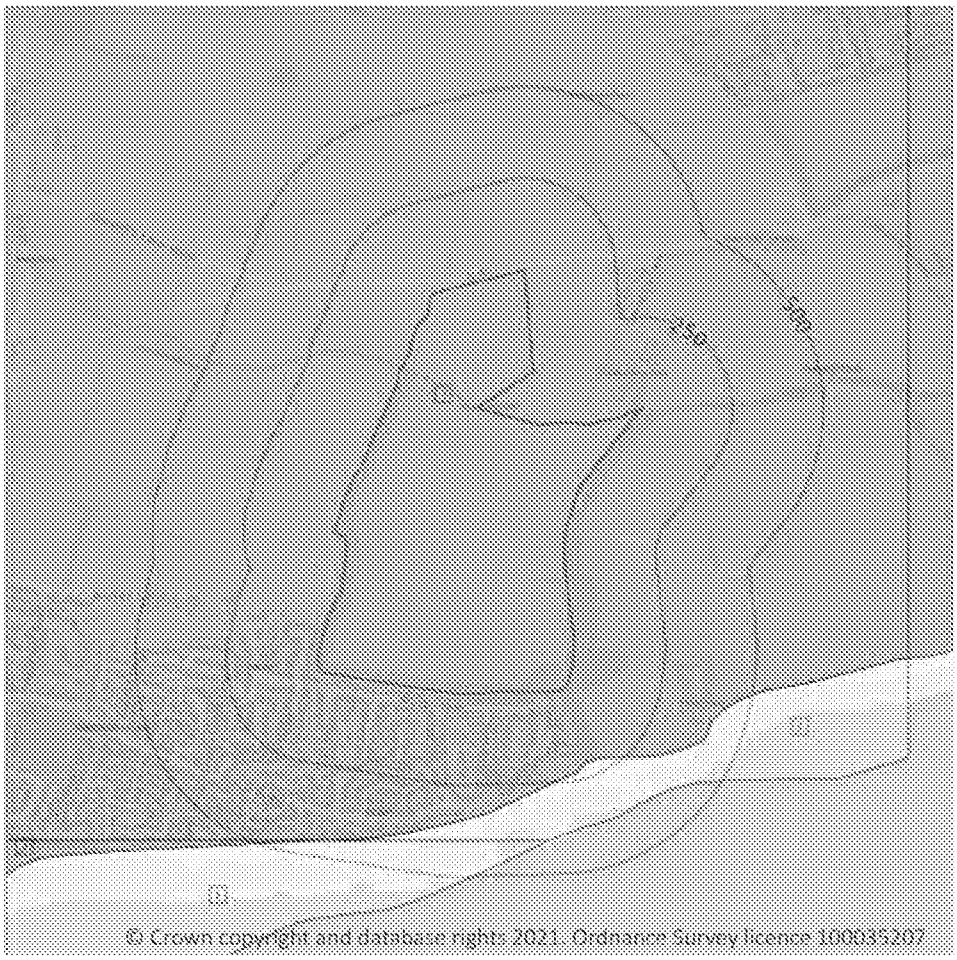
Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

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5 Hydrogeology - Superficial aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive
- Unknown

5.1 Superficial aquifer

Records within 500m 4

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 34**

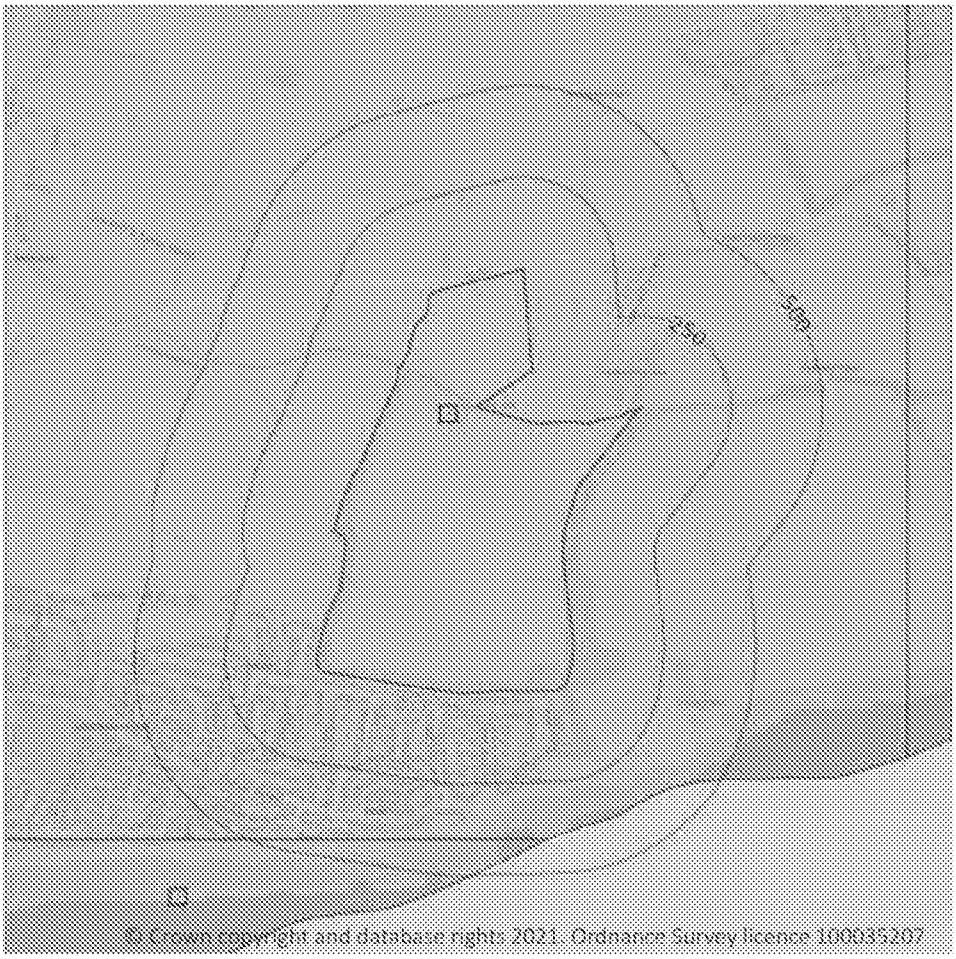
ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	209m S	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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ID	Location	Designation	Description
3	400m S	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	453m S	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m **2**

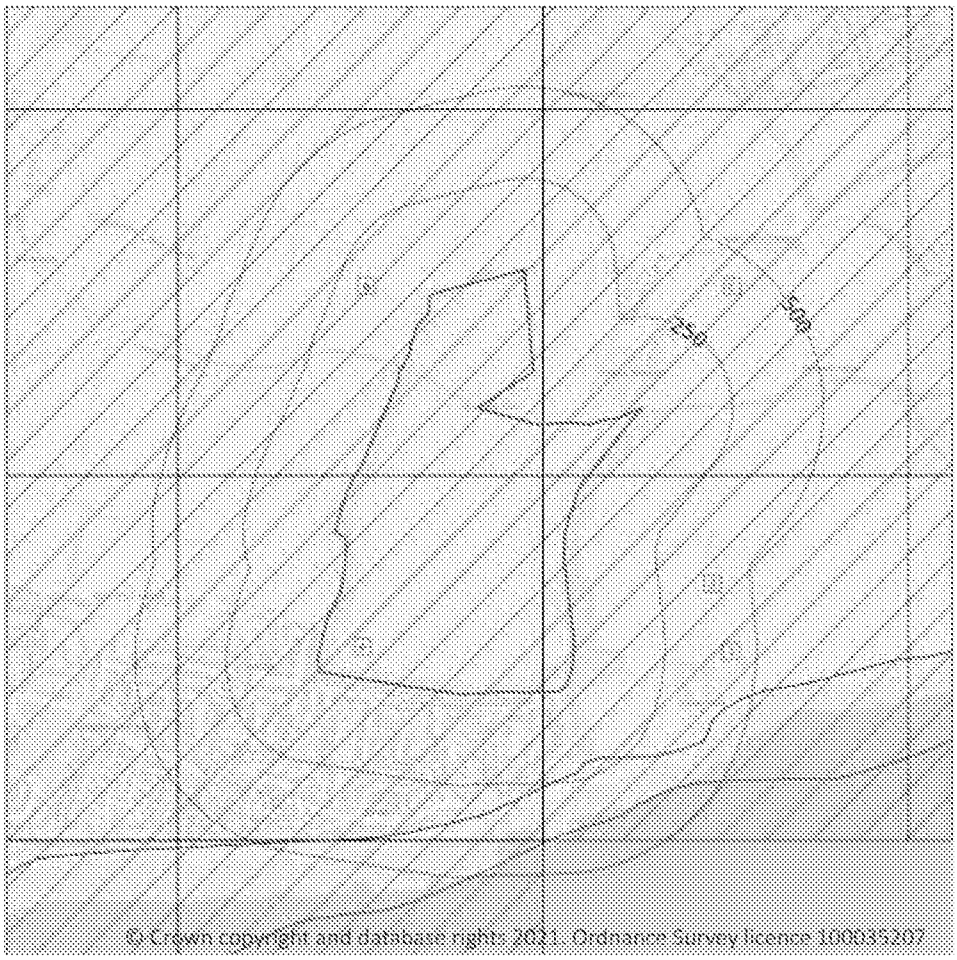
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 36**

ID	Location	Designation	Description
1	**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**
2	400m S	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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability

- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability

- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information

- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	4

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 38**

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ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
2	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Medium Aquifer type: Principal Flow mechanism: Well connected fractures
A	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Medium Aquifer type: Principal Flow mechanism: Well connected fractures
B	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Medium Aquifer type: Principal Flow mechanism: Well connected fractures
C	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300-550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Medium Aquifer type: Principal Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	4

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
1	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	67.0%
A	Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.	97.0%

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ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
B	**Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.**	**100.0%**
C	**Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.**	**100.0%**

This data is sourced from the British Geological Survey and the Environment Agency.

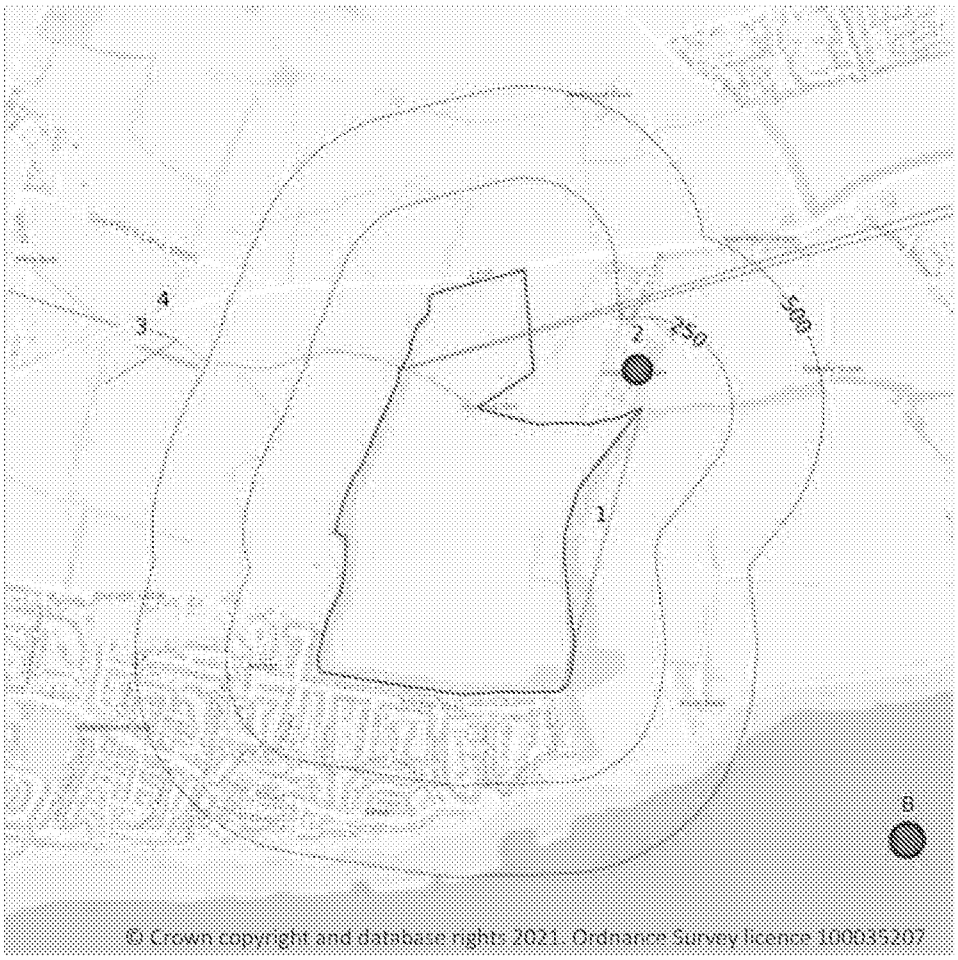
5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



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Site Outline

Search buffers in metres (m)

- Source Protection Zone 1 — Inner catchment
- Source Protection Zone 2 — Outer catchment
- Source Protection Zone 3 — Total catchment
- Source Protection Zone 4 — Zone of Special Interest
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	5

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Details	
2	107m N	Status: Active Licence No: 10/41/542009 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: POINT A AT NEW BARN, CLIMPING Data Type: Point Name: Baird Easting: 499260 Northing: 101230	Annual Volume (m^3): 36,368 Max Daily Volume (m^3): 136.30 Original Application No: - Original Start Date: 21/03/1977 Expiry Date: - Issue No: 100 Version Start Date: 16/04/2019 Version End Date: -
B	1027m SE	Status: Historical Licence No: 28/39/39/0120C Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: 2 BOREHOLES AT THAMES HOUSE (CROWN USE) Data Type: Point Name: BUILDING SERVICES GROUP Easting: 500000 Northing: 100000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/01/1966 Expiry Date: - Issue No: 1 Version Start Date: 01/01/1966 Version End Date: -
B	1027m SE	Status: Historical Licence No: 28/39/28/0441C Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BOREHOLES GROUPED AT HMS WARRIOR Data Type: Point Name: MINISTRY OF DEFENCE Easting: 500000 Northing: 100000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 14/12/1976 Version End Date: -
-	1849m W	Status: Historical Licence No: 10/41/541002 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: POINT 3 AT SHRIPNEY FARM & FLANSHAM FARM Data Type: Point Name: The Donald Langmead Partnership Easting: 496680 Northing: 101460	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 21/03/2001 Version End Date: -

ID	Location	Details	
-	1918m N	Status: Historical Licence No: 27/138 Details: Process Water Direct Source: Southern Region Groundwater Point: FORD INDUSTRIAL ESTATE, ARUNDEL Data Type: Point Name: Tarmac Ltd Easting: 499530 Northing: 103330	Annual Volume (m^3): 109000 Max Daily Volume (m^3): 351 Original Application No: - Original Start Date: 04/01/2001 Expiry Date: - Issue No: 1 Version Start Date: 04/01/2001 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	6

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

ID	Location	Details	
1	On site	**Status: Active** **Licence No: 10/41/411016** **Details: Spray Irrigation - Direct** **Direct Source: Southern Region Surface Waters** **Point: ELMER RIFE** **Data Type: Line** **Name: Baird Farming Partnership** **Easting: 499270** **Northing: 101180**	**Annual Volume (m^3): 27,272** **Max Daily Volume (m^3): 1,091** **Original Application No: -** **Original Start Date: 13/06/1967** **Expiry Date: -** **Issue No: 102** **Version Start Date: 21/06/2021** **Version End Date: -**
A	On site	**Status: Historical** **Licence No: 10/41/411016** **Details: Spray Irrigation - Direct** **Direct Source: Southern Region Surface Waters** **Point: RYEBANK RIFE AND ELMER RIFE** **Data Type: Line** **Name: Baird** **Easting: 501710** **Northing: 102210**	**Annual Volume (m^3): 27272** **Max Daily Volume (m^3): 1091** **Original Application No: -** **Original Start Date: -** **Expiry Date: -** **Issue No: 100** **Version Start Date: 08/12/2005** **Version End Date: -**

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ID	Location	Details	
A	**On site**	**Status: Active** **Licence No: 10/41/411016** **Details: Spray Irrigation - Direct** **Direct Source: Southern Region Surface Waters** **Point: RYEBANK RIFE** **Data Type: Line** **Name: Baird Farming Partnership** **Easting: 501720** **Northing: 102160**	**Annual Volume (m^3): 27,272** **Max Daily Volume (m^3): 1,091** **Original Application No: -** **Original Start Date: 13/06/1967** **Expiry Date: -** **Issue No: 102** **Version Start Date: 21/06/2021** **Version End Date: -**
3	597m NW	Status: Historical Licence No: 10/41/542011 Details: Spray Irrigation - Storage Direct Source: Southern Region Surface Waters Point: POINTS A&B AT RYEBANK RIFE,MIDDLETON Data Type: Line Name: Gibbs Easting: 497800 Northing: 101250	Annual Volume (m^3): 4550 Max Daily Volume (m^3): 45 Original Application No: - Original Start Date: 19/08/1988 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2016 Version End Date: -
4	597m NW	Status: Historical Licence No: 10/41/542011 Details: Spray Irrigation - Storage Direct Source: Southern Region Surface Waters Point: POINTS C&D AT RYEBANK RIFE,MIDDLETON Data Type: Line Name: Gibbs Easting: 498000 Northing: 101370	Annual Volume (m^3): 4550 Max Daily Volume (m^3): 45 Original Application No: - Original Start Date: 19/08/1988 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2016 Version End Date: -
5	770m NW	Status: Historical Licence No: 10/41/411016 Details: Spray Irrigation - Direct Direct Source: Southern Region Surface Waters Point: RYEBANK RIFE - NEW REACH Data Type: Line Name: James D Baird (Home Farm) Ltd Easting: 496190 Northing: 101940	Annual Volume (m^3): 27272 Max Daily Volume (m^3): 2182 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 101 Version Start Date: 08/06/2009 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	2

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 41**

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ID	Location	Details	
B	1027m SE	Status: Historical Licence No: 28/39/39/0120C Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: 2 BOREHOLES AT THAMES HOUSE (CROWN USE) Data Type: Point Name: BUILDING SERVICES GROUP Easting: 500000 Northing: 100000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 01/01/1966 Expiry Date: - Issue No: 1 Version Start Date: 01/01/1966 Version End Date: -
B	1027m SE	Status: Historical Licence No: 28/39/28/0441C Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: THAMES GROUNDWATER Point: BOREHOLES GROUPED AT HMS WARRIOR Data Type: Point Name: MINISTRY OF DEFENCE Easting: 500000 Northing: 100000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 14/12/1976 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

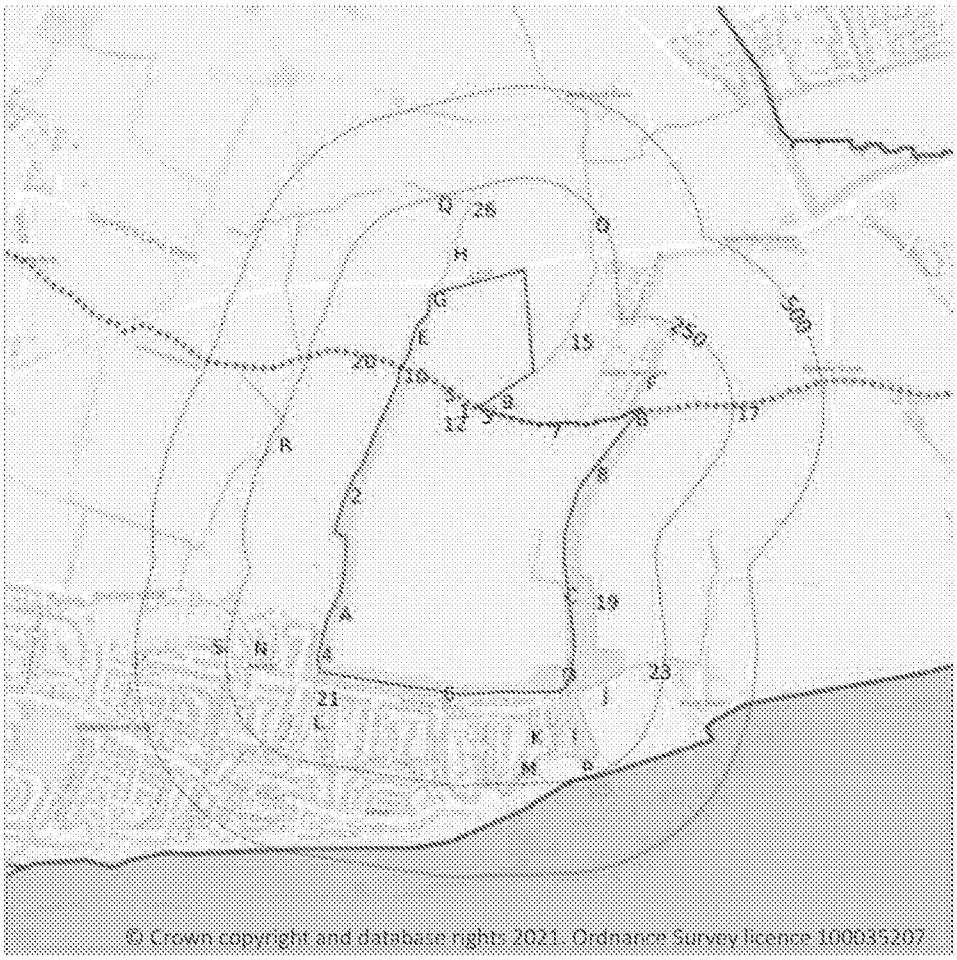
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	50

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type of water feature	Ground level	Permanence	Name
2	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
3	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
5	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
6	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
8	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
9	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
10	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
C	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
C	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
F	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
15	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
17	1m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
B	2m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
19	2m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
20	3m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Ryebank Rife
D	4m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	4m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
G	6m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
H	12m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	15m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
1	27m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	27m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
21	44m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
K	48m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	63m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
23	144m E	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-
M	157m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	174m S	Lake, loch or reservoir.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	179m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	187m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

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ID	Location	Type of water feature	Ground level	Permanence	Name
N	192m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
P	197m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
P	197m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
25	200m S	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
N	204m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	213m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
26	215m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Q	215m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
R	236m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
S	243m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	22

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 46**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	1

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
12	**On site**	**River WB catchment**	**Ryebank Rife**	**GB107041006620**	**Lower Arun**	**Arun and Western Streams**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	2

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 46**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
11	**On site**	**River**	**Ryebank Rife**	**GB107041006620**	**Moderate**	**Good**	**Moderate**	**2016**
27	242m S	Coastal	Sussex	GB640704540003	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

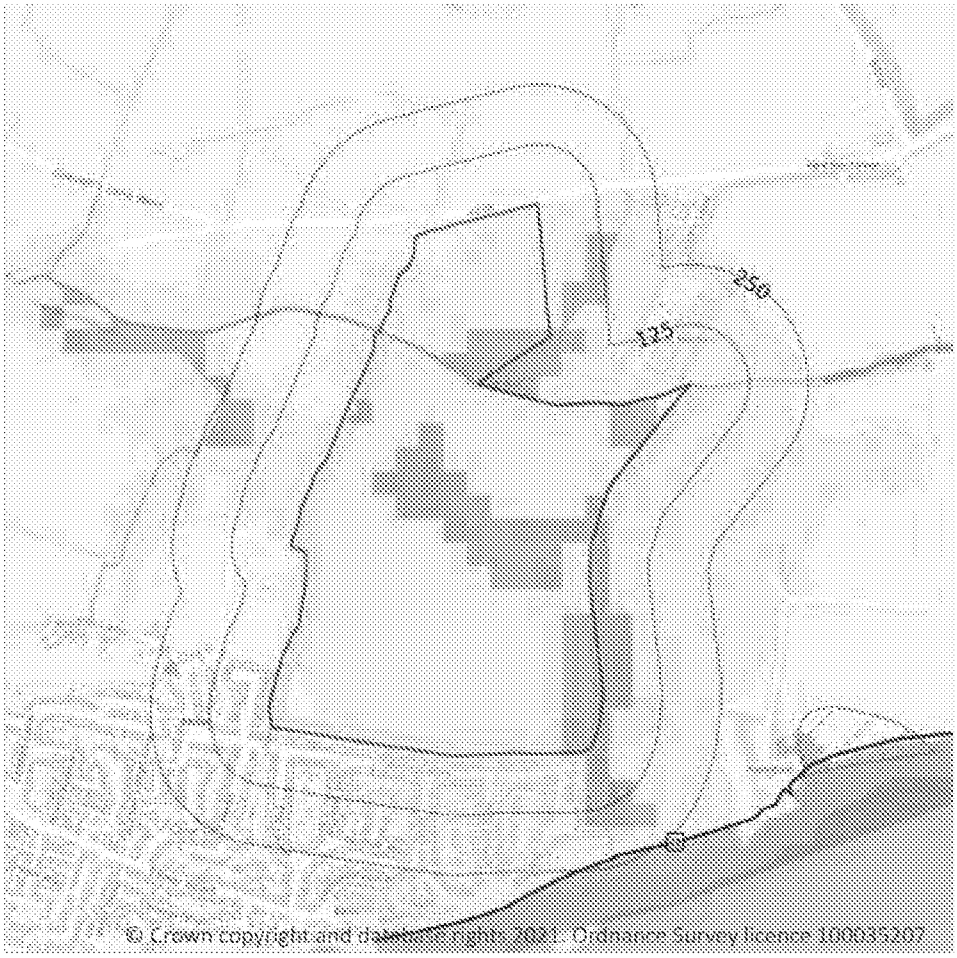
Features are displayed on the Hydrology map on **page 46**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
1	On site	Littlehampton Anticline West	GB40701G504900	Poor	Good	Poor	2015

This data is sourced from the Environment Agency and Natural Resources Wales.

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7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	26

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 53**

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Distance	Flood risk category
On site	**High**
0 - 50m	High

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	1

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

Features are displayed on the River and coastal flooding map on **page 53**

ID	Location	Update
28	229m S	01/09/2021

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

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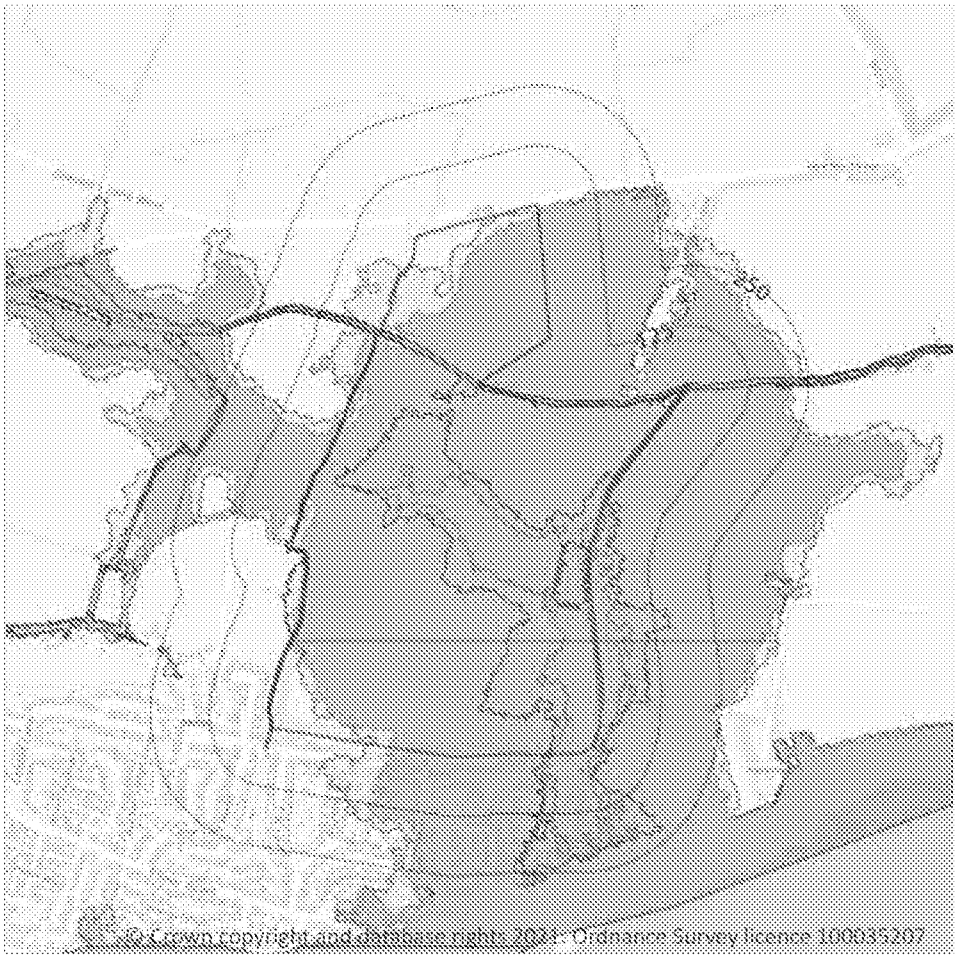
7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 53**

Location	Type
On site	Zone 2 - (Fluvial /Tidal Models)

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

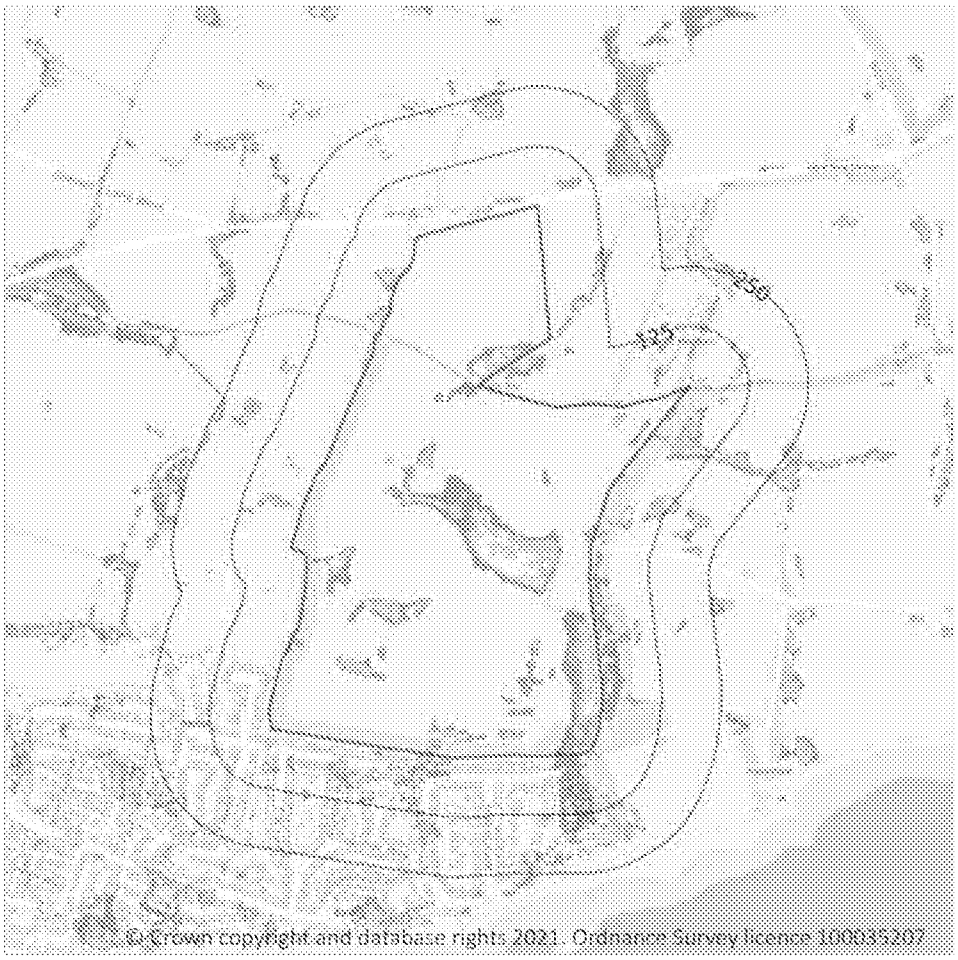
Features are displayed on the River and coastal flooding map on **page 53**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

ARUN DISTRICT COUNCIL M/16/22/PL

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 58**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

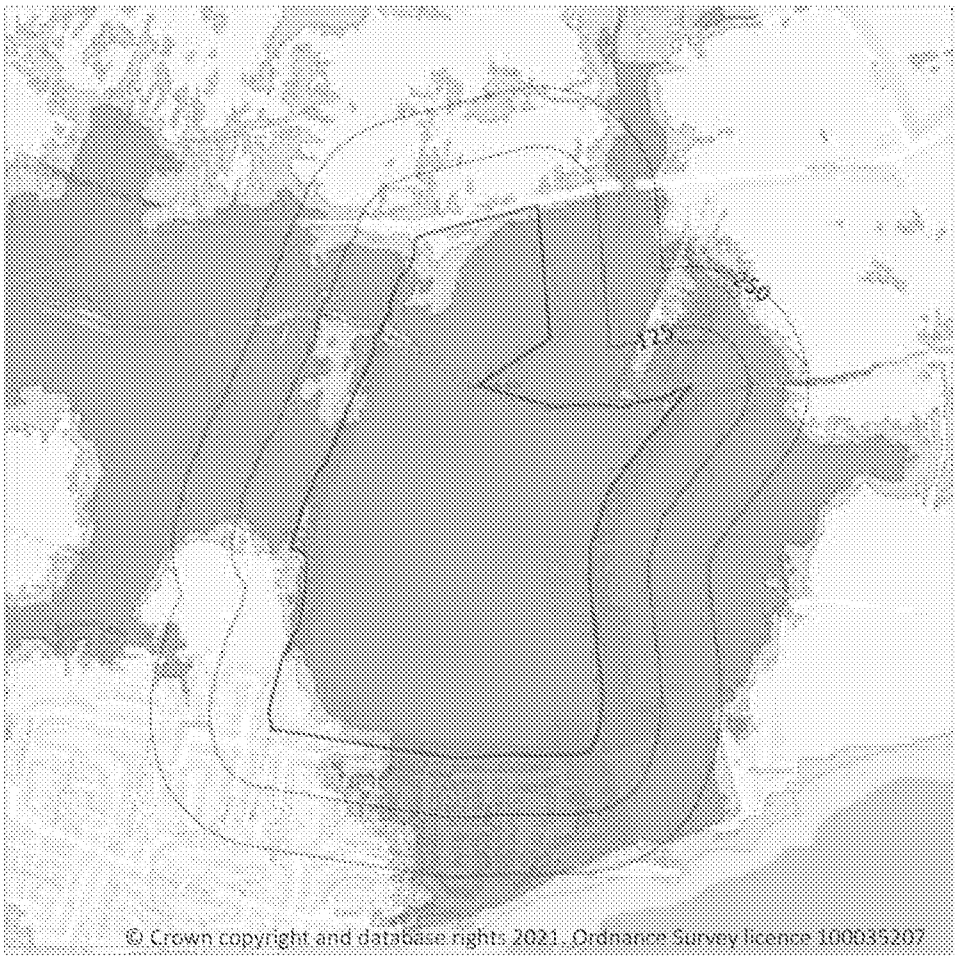
ARUN DISTRICT COUNCIL M/16/22/PL

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Greater than 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

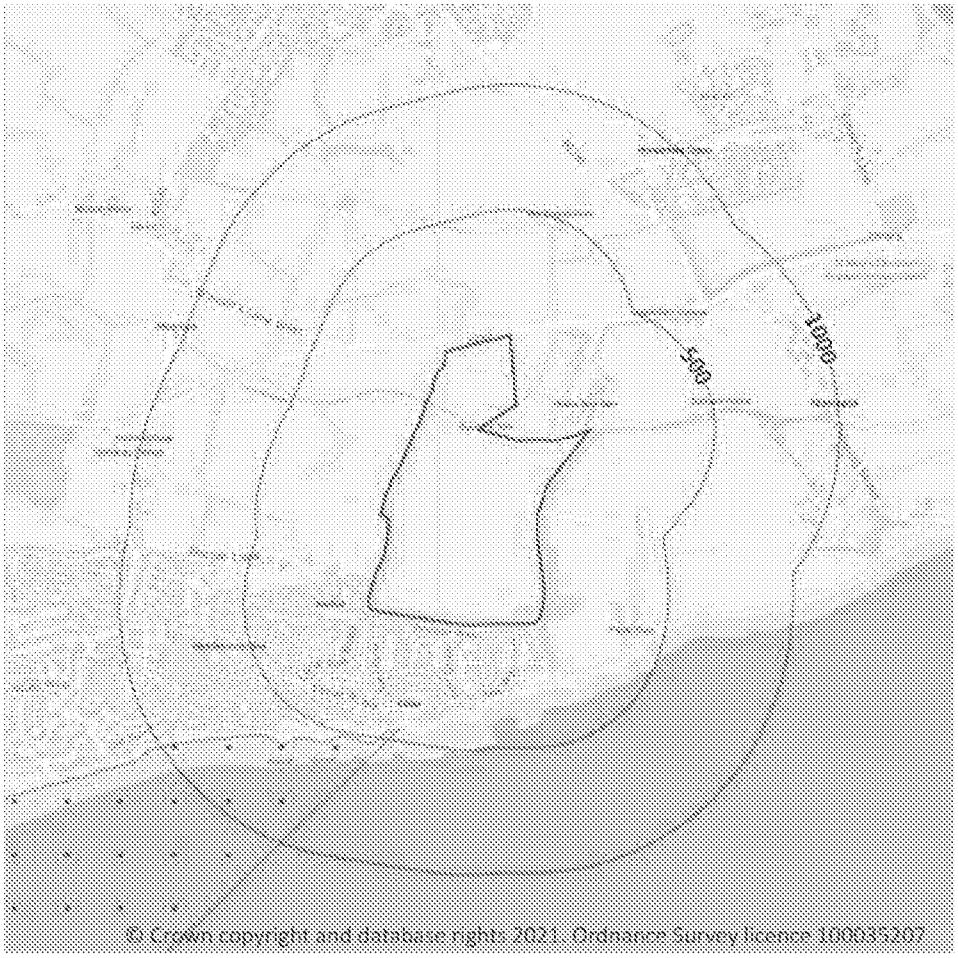
Highest risk on site	**High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 60**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

Special Protection Areas (SPA)

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

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10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	1

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

Features are displayed on the Environmental designations map on **page 61**

ID	Location	Name	Species of interest	Habitat description	Data source
1	453m S	Solent and Dorset Coast			Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

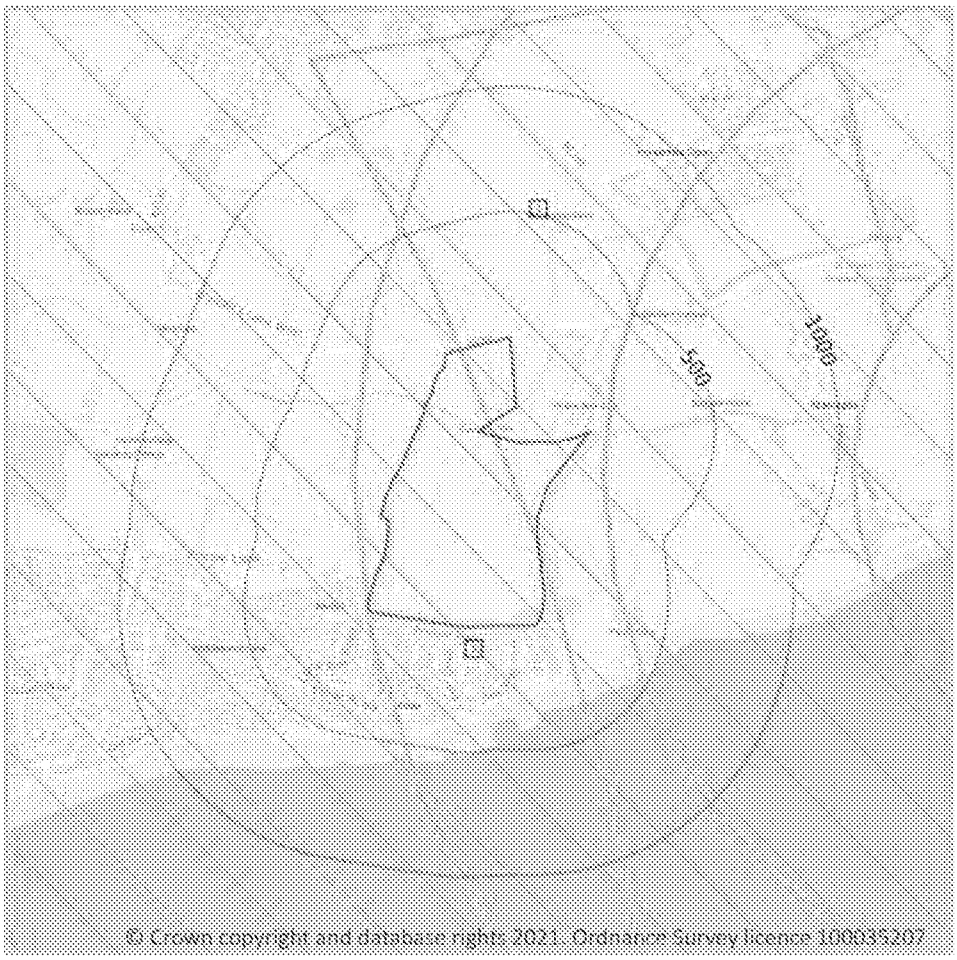
Records within 2000m	1

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	**Aldingbourne Rife NVZ**	**Surface Water**	**S517**	**Existing**

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 66**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Airports, helipads and other aviation proposals.** **Wind and Solar - Wind turbines.** **Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t.** **Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.**

ID	Location	Type of developments requiring consultation
2	On site	**Infrastructure - Airports, helipads and other aviation proposals.** **Wind and Solar - Wind turbines.** **Air pollution - Livestock & poultry units with floorspace > 500m², slurry lagoons > 750m² & manure stores > 3500t.** **Combustion - General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion** **Waste - Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.**

This data is sourced from Natural England.

10.18 SSSI Units

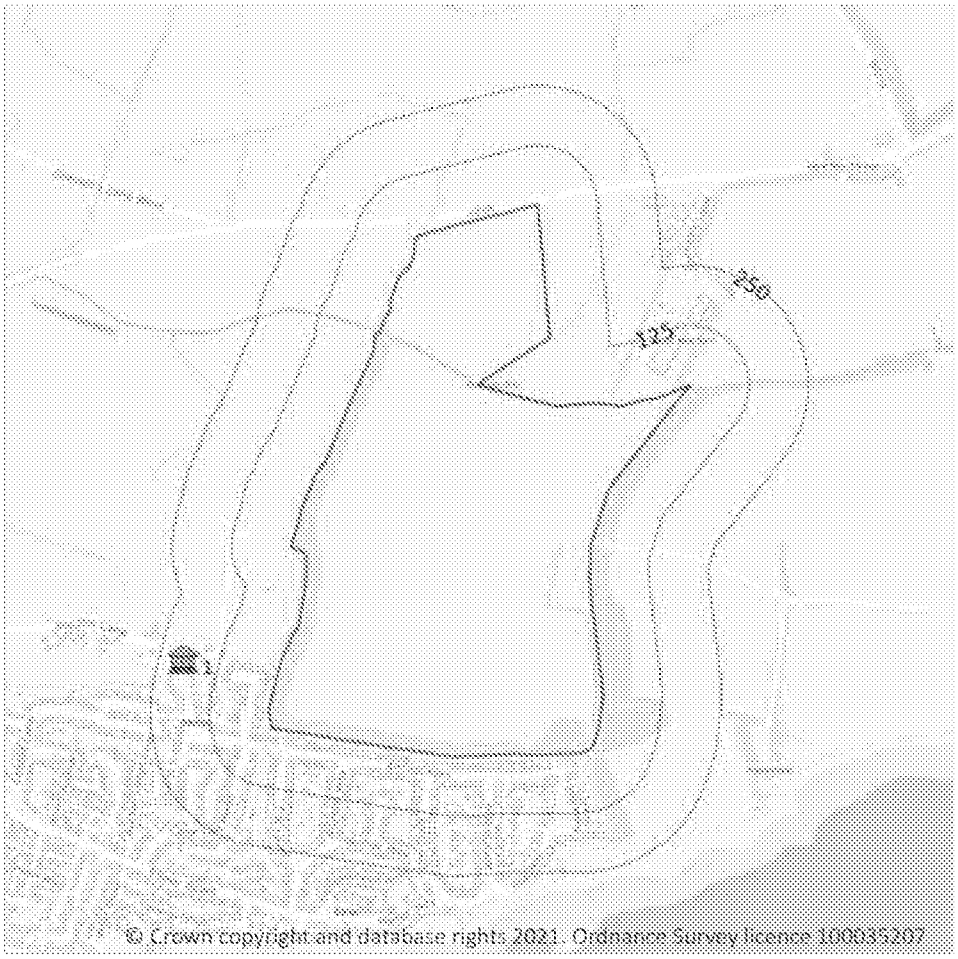
Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

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11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	1

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

Features are displayed on the Visual and cultural designations map on **page 68**

ID	Location	Name	Grade	Reference Number	Listed date
1	201m W	Ancton House Hotel, Middleton-On-Sea, Arun, West Sussex, PO22	II	1353001	10/06/1983

This data is sourced from Historic England, Cadw and Historic Environment Scotland

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11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

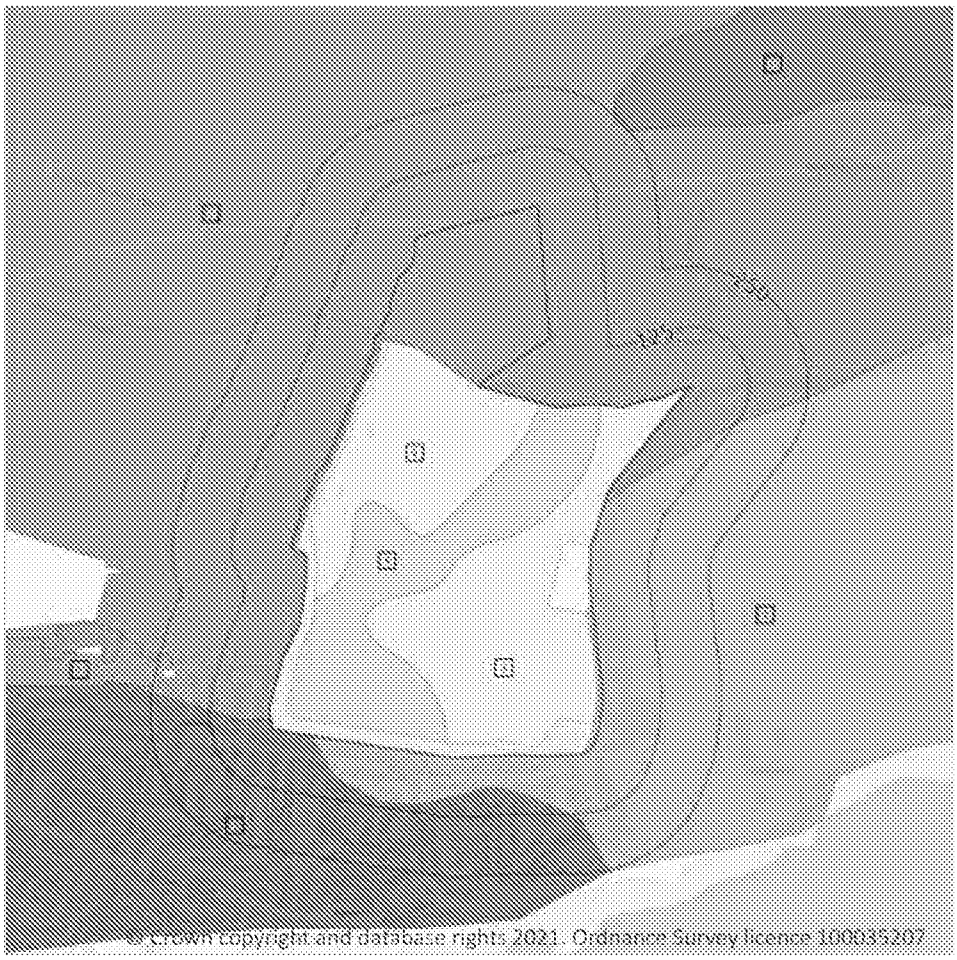
Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

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12 Agricultural designations



12.1 Agricultural Land Classification

Records within 250m	8

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 71**

ID	Location	Classification	Description
1	On site	Urban	-
3	On site	Grade 3b	Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

ID	Location	Classification	Description
4	On site	Grade 3a	**Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.**
6	On site	Grade 3b	**Moderate quality agricultural land. Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.**
7	On site	Grade 2	**Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.**
8	On site	Grade 3	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**
10	217m W	Grade 2	Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.
11	240m NE	Grade 1	Excellent quality agricultural land. Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

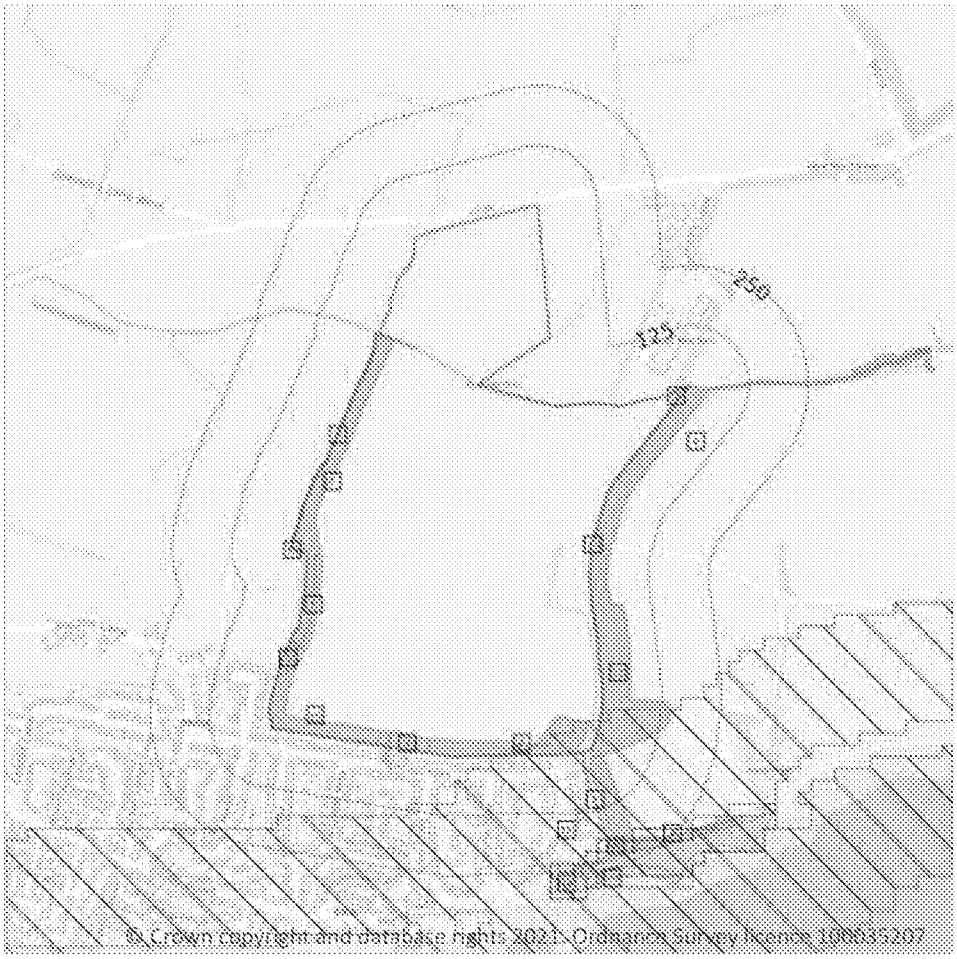
Records within 250m	4

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
On site	**1061495**	**Countryside Stewardship (Middle Tier)**	**01/01/2021**	**31/12/2025**
On site	**1061495**	**Countryside Stewardship (Middle Tier)**	**01/01/2021**	**31/12/2025**
28m SE	1061495	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025
42m E	1061495	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025

This data is sourced from Natural England.

13 Habitat designations



Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks
Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	19

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 74**

ID	Location	Main Habitat	Other habitats
1	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	On site	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
5	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
6	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
7	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
8	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
9	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
10	**On site**	**Deciduous woodland**	**Main habitat: DWOOD (INV > 50%)**
12	1m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
13	3m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
14	4m S	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
15	15m SE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
8	201m S	Maritime cliff and slope	Main habitat: MCSLP (INV > 50%)
A	205m SE	Maritime cliff and slope	Main habitat: MCSLP (INV > 50%)
17	228m SE	Maritime cliff and slope	Main habitat: MCSLP (INV > 50%)
C	230m S	Coastal vegetated shingle	Main habitat: MCSLP (INV > 50%); CVSHI (INV > 50%)
19	248m S	Maritime cliff and slope	Main habitat: MCSLP (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	6

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

Features are displayed on the Habitat designations map on **page 74**

ID	Location	Type	Habitat
11	**On site**	**Network Enhancement Zone 2**	**Not specified**
16	186m S	Primary Habitat	Maritime cliff and slope
A	190m SE	Primary Habitat	Maritime cliff and slope
B	208m S	Primary Habitat	Maritime cliff and slope
C	210m S	Primary Habitat	Coastal vegetated shingle

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ID	Location	Type	Habitat
18	230m S	Primary Habitat	Maritime cliff and slope

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

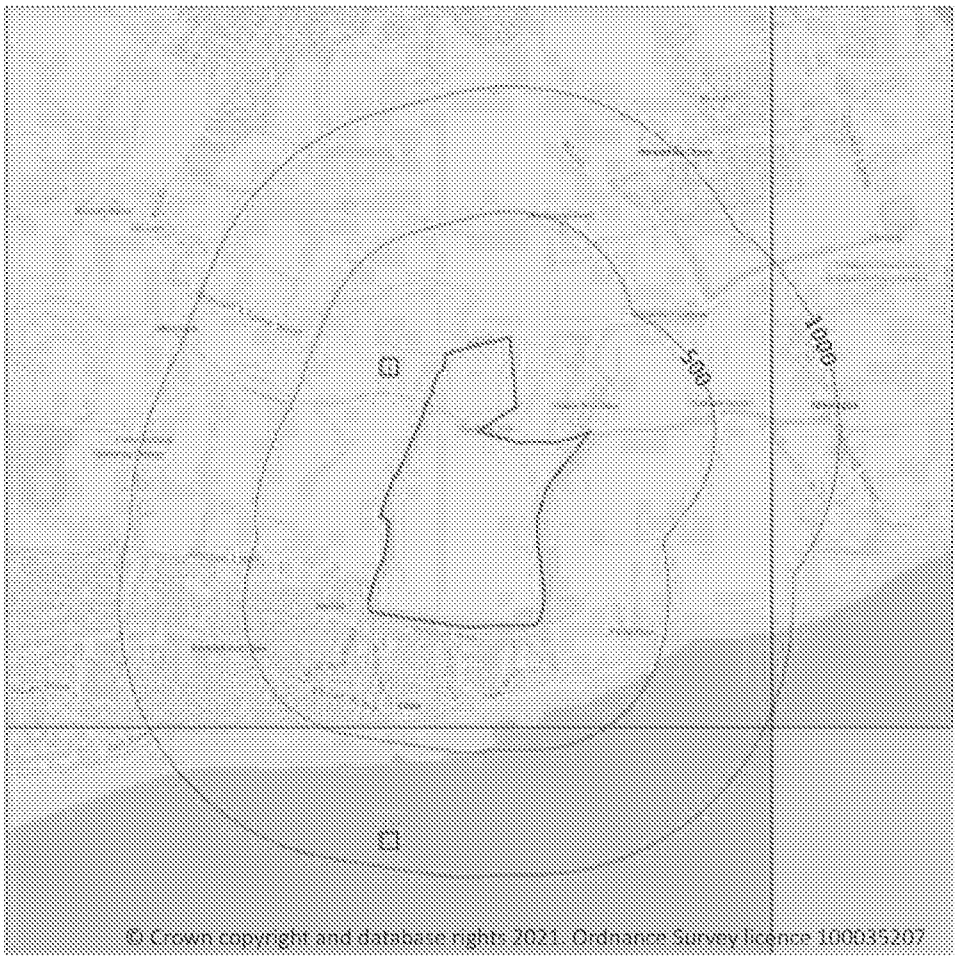
Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

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14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m **2**

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 77**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**SU90SE**
2	400m S	No coverage	Full	Full	No coverage	SZ99NE

This data is sourced from the British Geological Survey.

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Geology 1:10,000 scale - Artificial and made ground

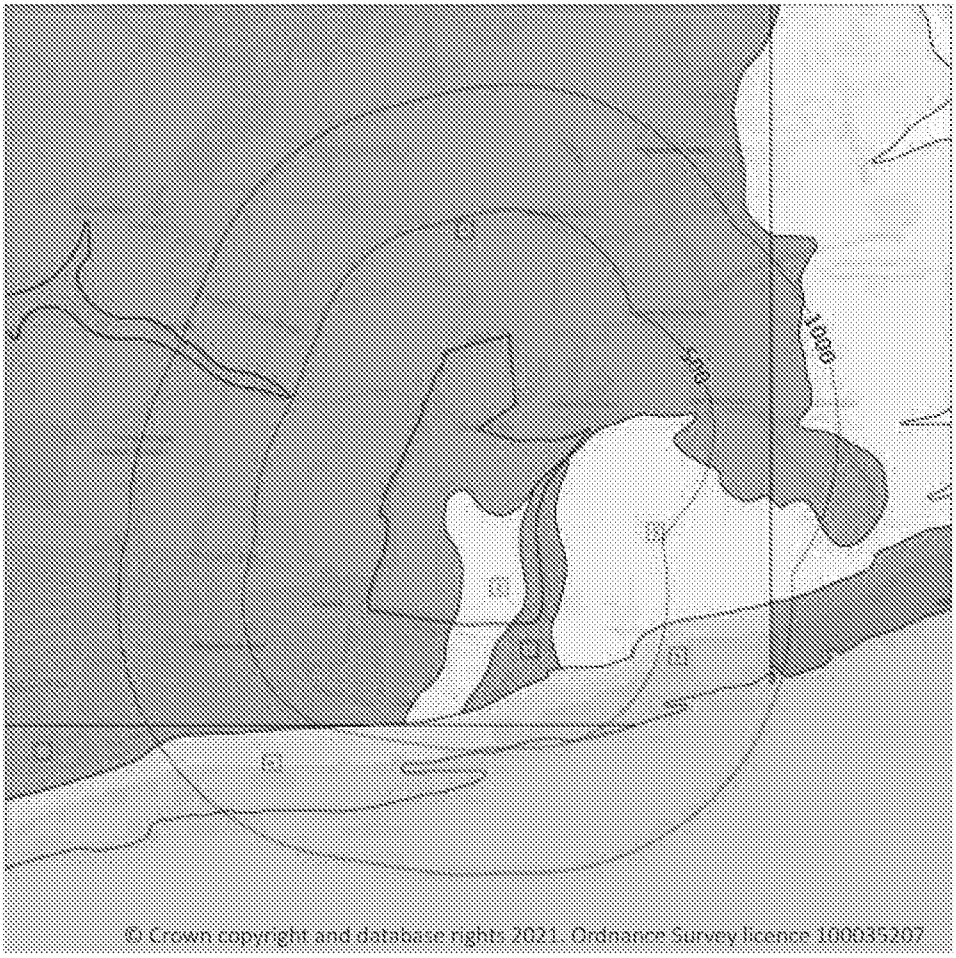
14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



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Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m 7

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 79**

ID	Location	LEX Code	Description	Rock description
1	On site	RMD-CZ	Raised Marine Deposits - Silty Clay	Clay, Silty
2	On site	RBD1-XSV	Raised Beach Deposits, 1 - Sand And Gravel	Sand And Gravel
3	On site	RBD1-XSV	Raised Beach Deposits, 1 - Sand And Gravel	Sand And Gravel

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ID	Location	LEX Code	Description	Rock description
4	**On site**	**RTDU-Z**	**River Terrace Deposits (undifferentiated) - Silt (unlithified Deposits Coding Scheme)**	**Silt**
5	203m S	BTPU-XCZSV	Beach And Tidal Flat Deposits (undifferentiated) - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
6	400m S	BTPU-XCZSV	Beach And Tidal Flat Deposits (undifferentiated) - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
7	452m S	RTDU-Z	River Terrace Deposits (undifferentiated) - Silt (unlithified Deposits Coding Scheme)	Silt

This data is sourced from the British Geological Survey.

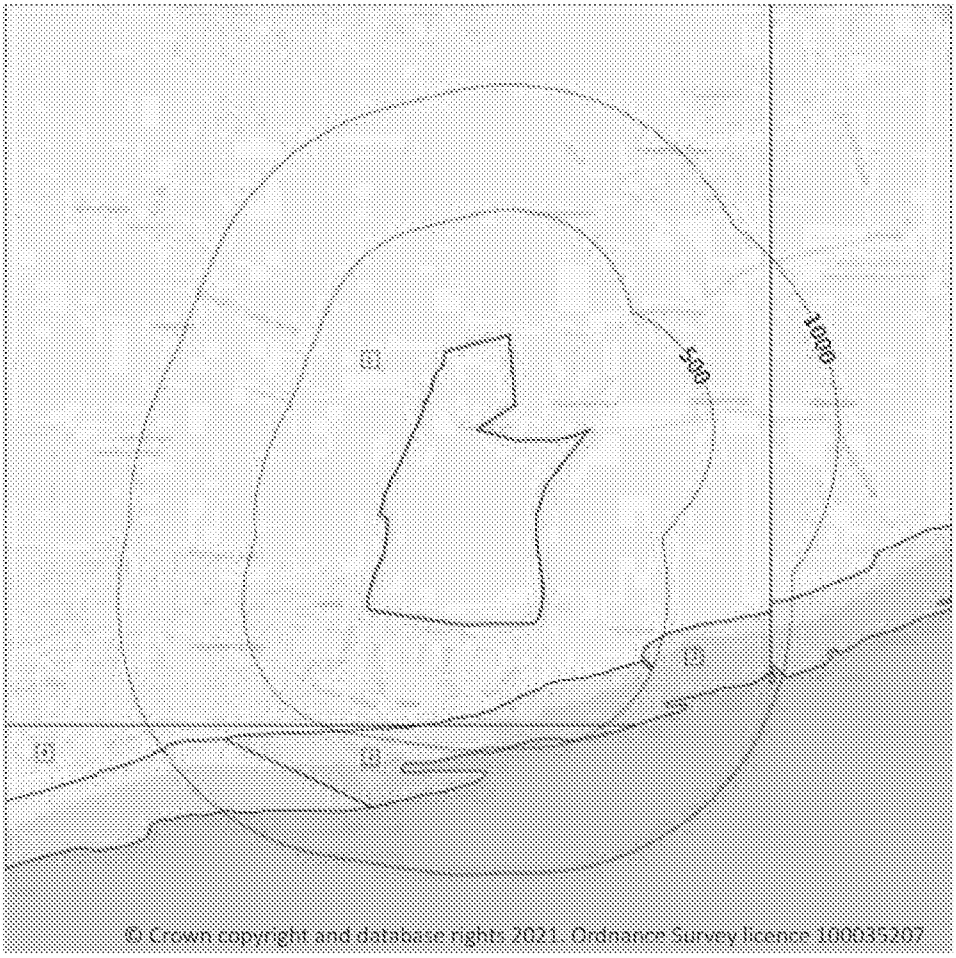
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m 4

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 81**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**LPCK-CHLK**	**Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation And Portsdown Chalk Formation (undifferentiated) - Chalk**	**Campanian Age - Turonian Age**
2	249m S	NCK-CHLK	Newhaven Chalk Formation - Chalk	Campanian Age - Santonian Age

ID	Location	LEX Code	Description	Rock age
3	400m S	NCK-CHLK	Newhaven Chalk Formation - Chalk	Campanian Age - Santonian Age
4	422m S	LPCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation And Portsdown Chalk Formation (undifferentiated) - Chalk	Campanian Age - Turonian Age

This data is sourced from the British Geological Survey.

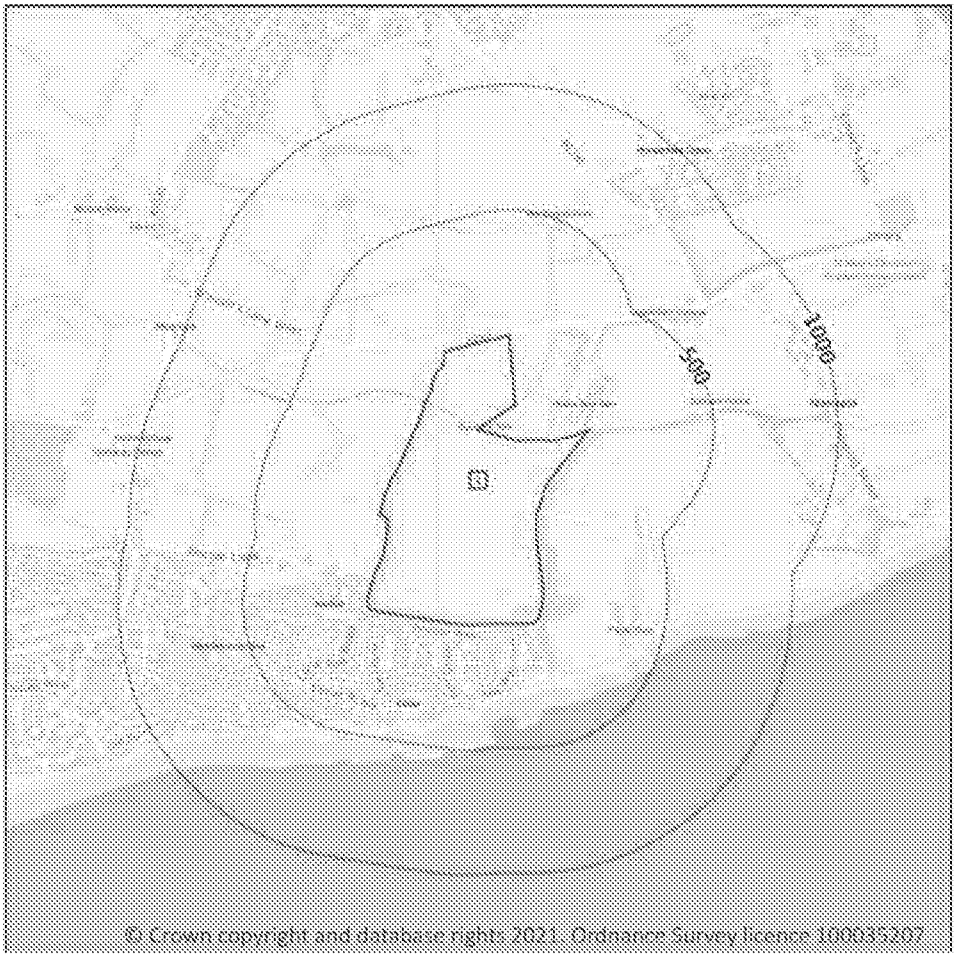
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 83**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	Full	EW317_332_chichester_and_

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

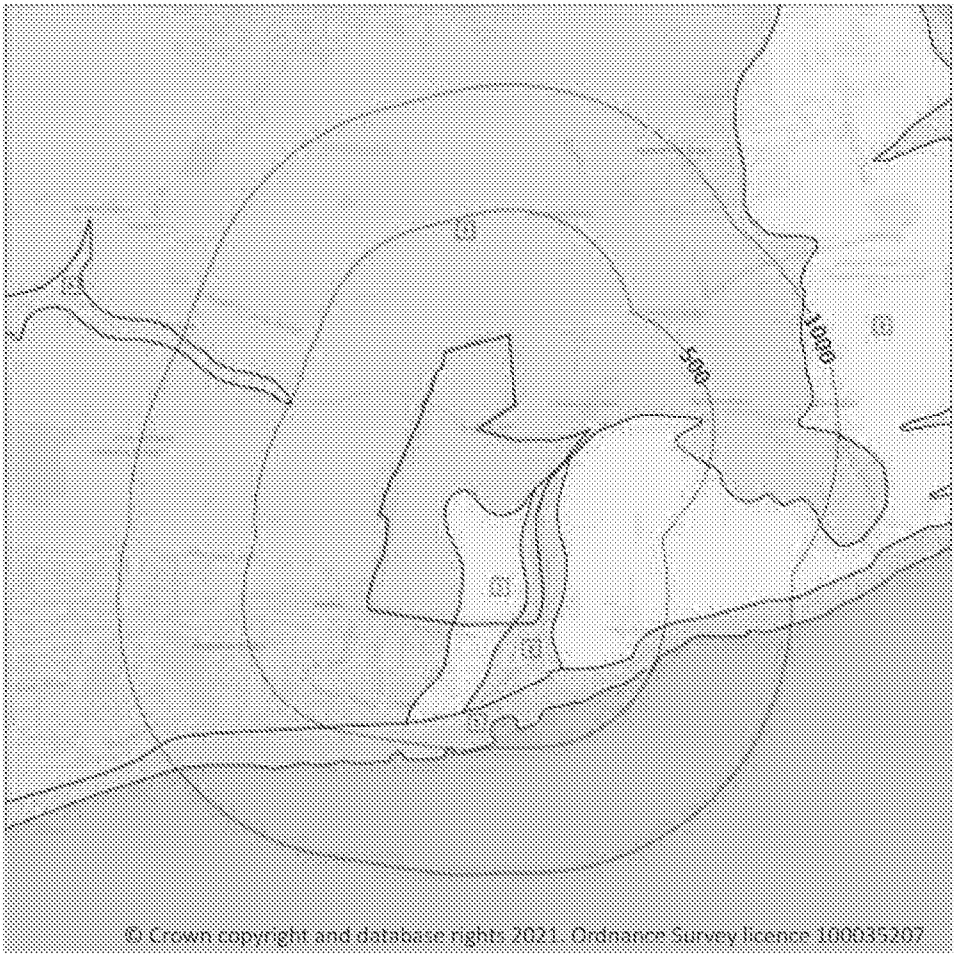
Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

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Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m 6

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 85**

ID	Location	LEX Code	Description	Rock description
1	On site	RBD1-XSV	RAISED BEACH DEPOSITS, 1	SAND AND GRAVEL
2	On site	RMD-XCZSV	RAISED MARINE DEPOSITS	CLAY, SILT, SAND AND GRAVEL
3	On site	RTDU-XSZC	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
4	10m SE	RBD1-XSV	RAISED BEACH DEPOSITS, 1	SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
5	209m S	BTFU-XCZSV	BEACH AND TIDAL FLAT DEPOSITS (UNDIFFERENTIATED)	CLAY, SILT, SAND AND GRAVEL
6	493m NW	RMD-XCZSV	RAISED MARINE DEPOSITS	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	4

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Very Low**
On site	**Intergranular**	**Very High**	**High**
On site	**Intergranular**	**High**	**Low**
10m E	Intergranular	Very High	High

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

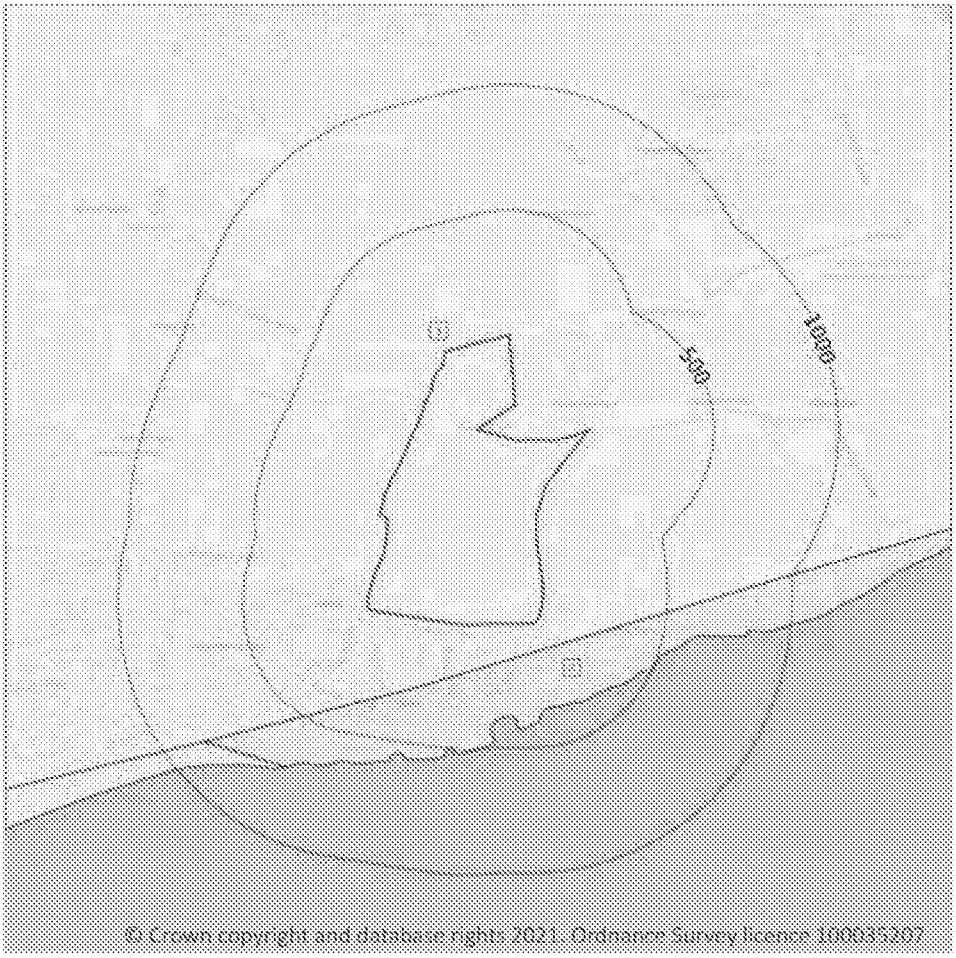
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 87**

ID	Location	LEX Code	Description	Rock age
1	On site	LPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED) - CHALK	TURONIAN
2	113m S	NCK-CHLK	NEWHAVEN CHALK FORMATION - CHALK	SANTONIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	1

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Fracture	Very High	Very High

This data is sourced from the British Geological Survey.

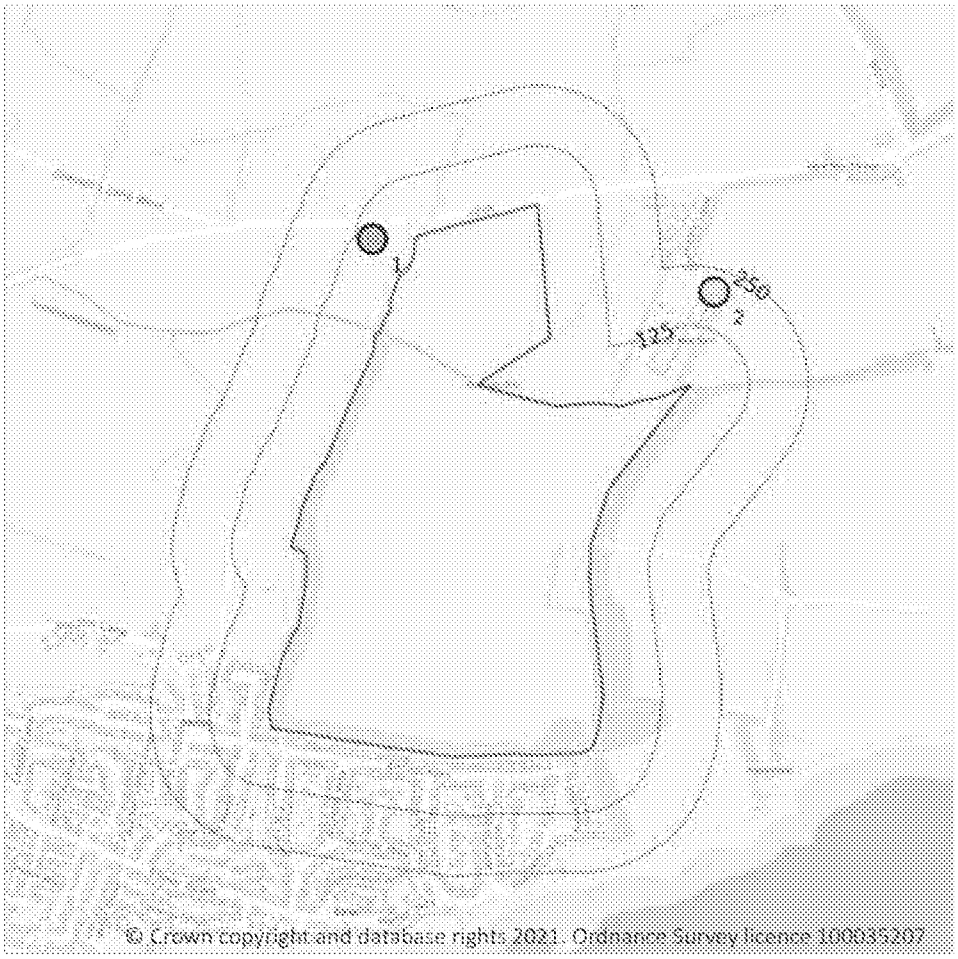
15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m **2**

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

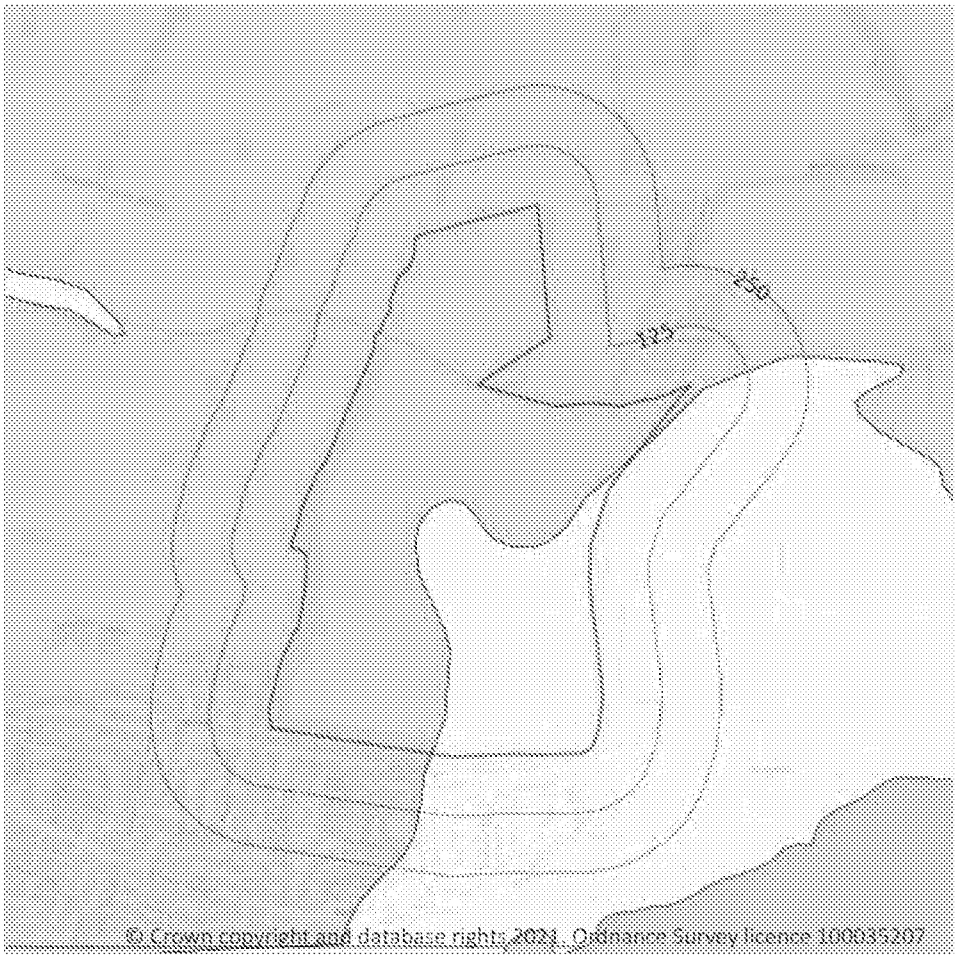
Features are displayed on the Boreholes map on **page 89**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	90m W	498600 101490	A259 NORTH OF GREVATTS BRIDGE	5.2	N	434413
2	203m N	499320 101380	NEW BARN GLYMPING	15.54	N	434285

This data is sourced from the British Geological Survey.

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17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	2

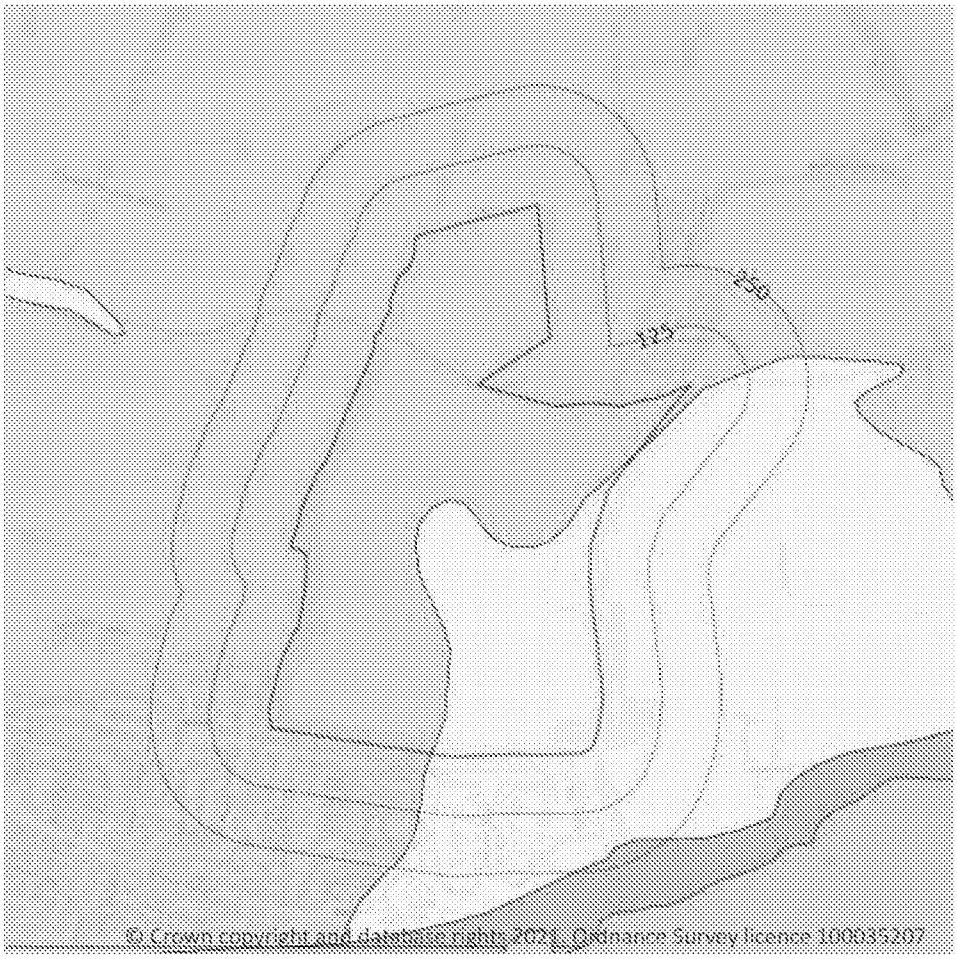
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 90**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Low**	**Ground conditions predominantly medium plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

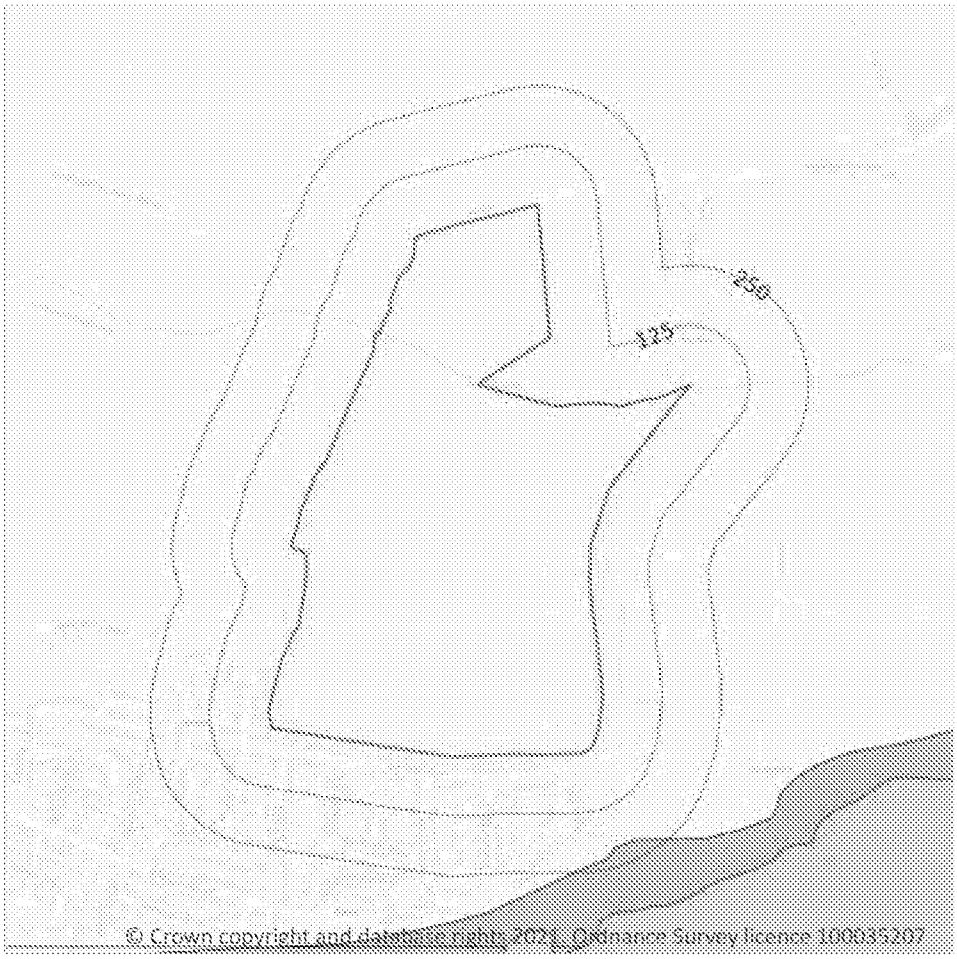
Features are displayed on the Natural ground subsidence - Running sands map on **page 91**

Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

Location	Hazard rating	Details
On site	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

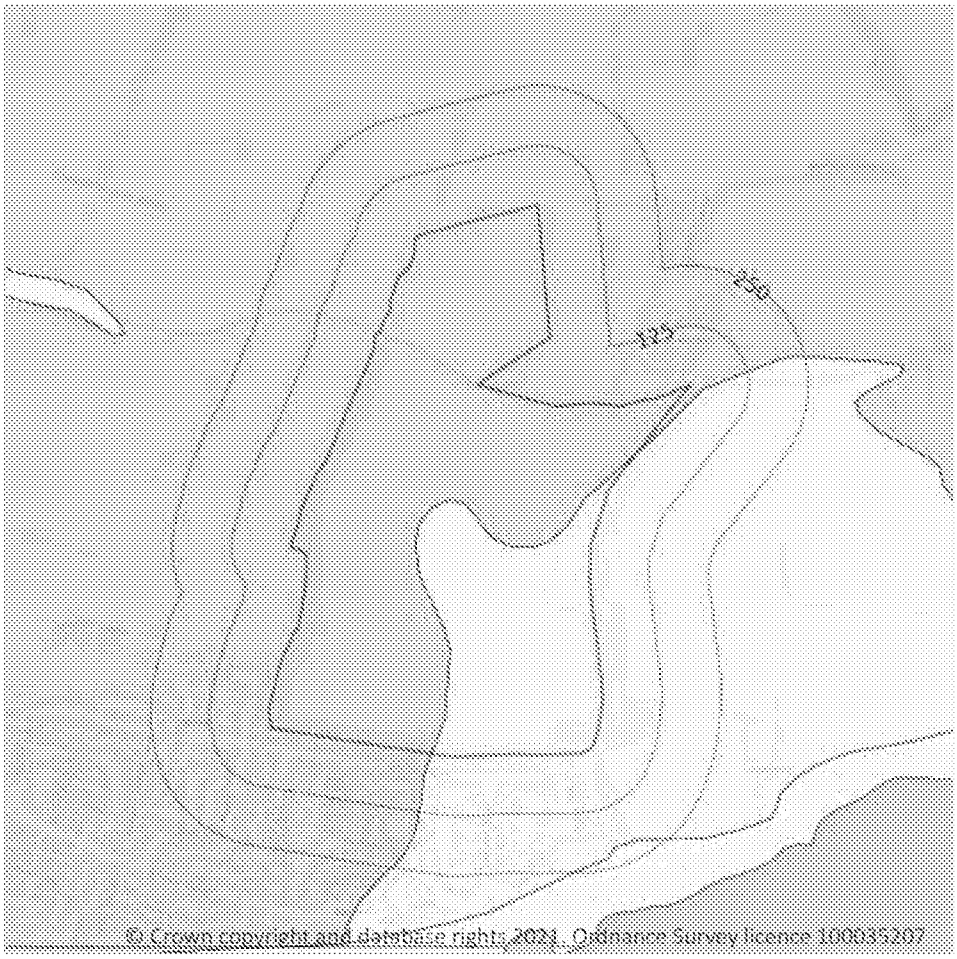
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 93**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

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Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	2

The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 94**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.
On site	Low	Deposits with potential to collapse when loaded and saturated are possibly present in places.

This data is sourced from the British Geological Survey.

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Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 95**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

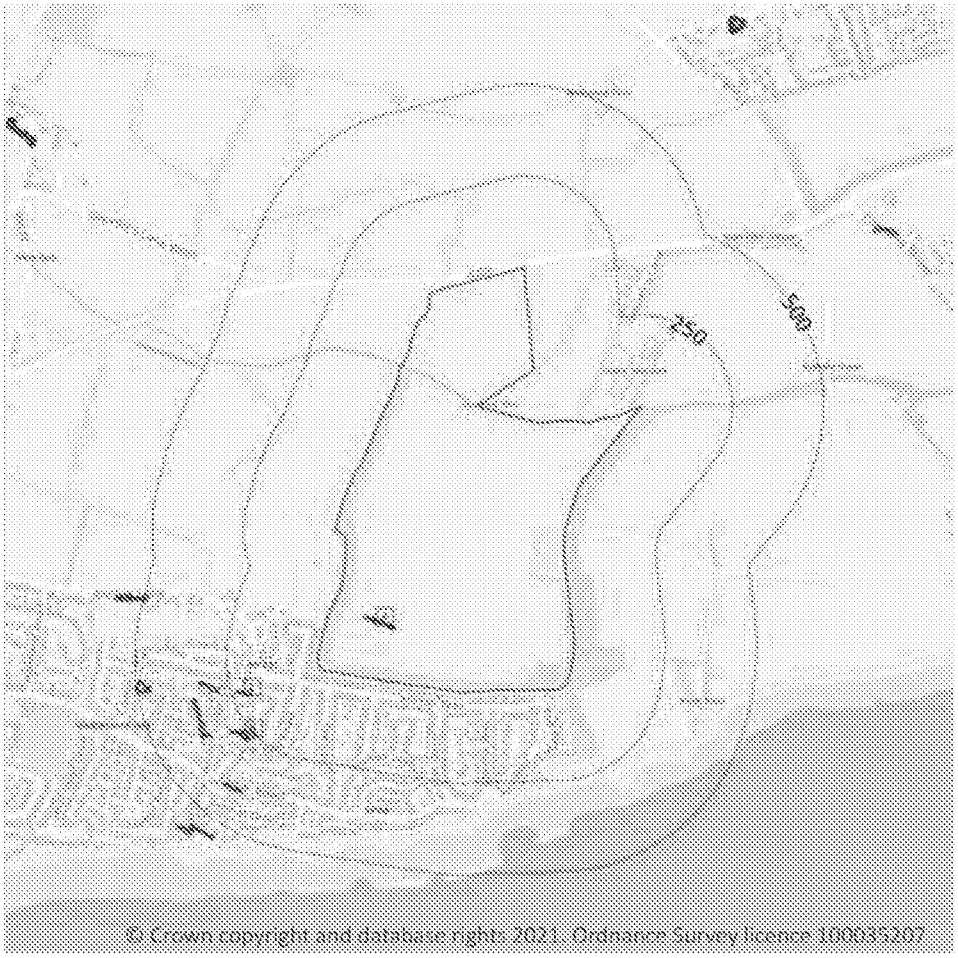
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 96**

Location	Hazard rating	Details
On site	**Very low**	**Soluble rocks are present within the ground. Few dissolution features are likely to be present. Potential for difficult ground conditions or localised subsidence are at a level where they need not be considered.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



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Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	5

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 98**

ID	Location	Land Use	Year of mapping	Mapping scale
A	**On site**	**Pond**	**1910**	**1:10560**
A	**On site**	**Pond**	**1940**	**1:10560**
A	**On site**	**Pond**	**1932**	**1:10560**
1	196m W	Pond	1910	1:10560
8	247m SW	Pond	1991	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

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This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

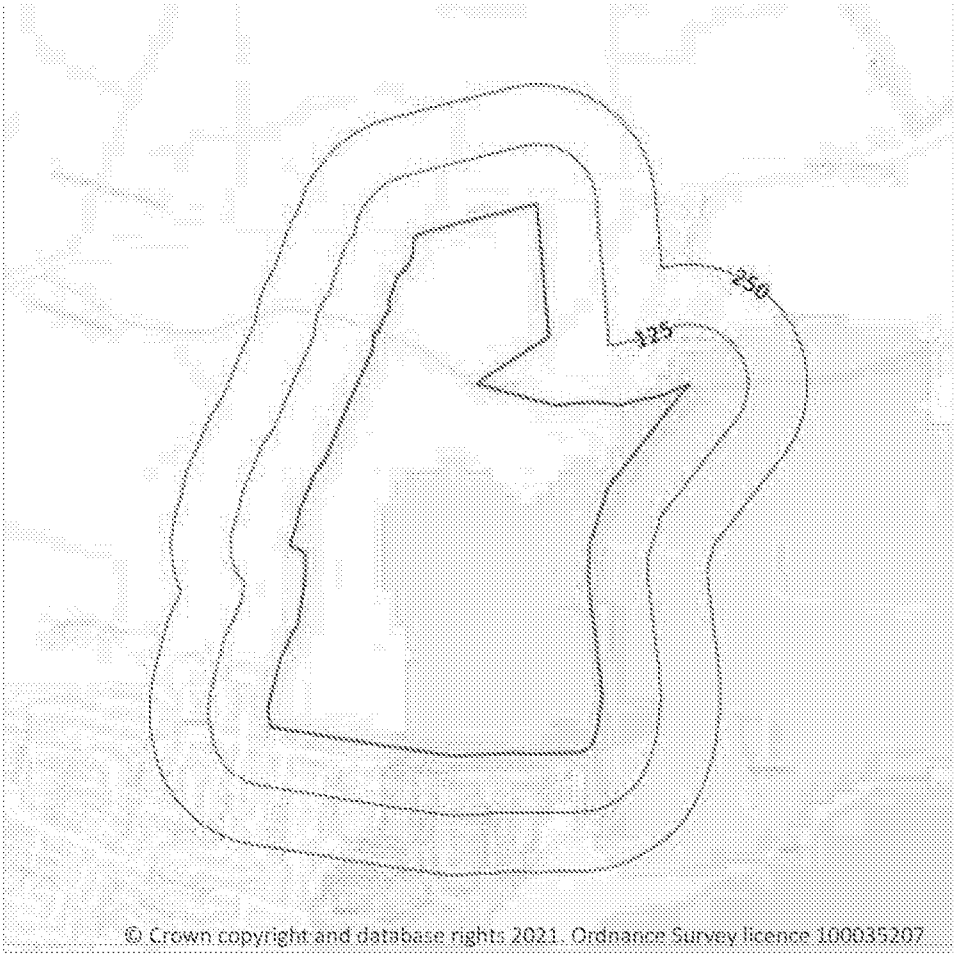
18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	2

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 102**

Location	Estimated properties affected	Radon Protection Measures required
On site	Less than 1%	None**
On site	Between 1% and 3%	None

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	27

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

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Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
10m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
38m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
38m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
45m NE	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

Appendix F

BOREHOLE LOGS

Sheet No. 15

No. of Bags or Other Unit | Nature of Goods | Tonnage | Rate

No. of Bags or Other Unit	Nature of Goods (Particulars of any dangerous goods to be given hereunder)	Tonnage Ton	Tonnage Cwts	Tonnage Value	Rate Ton	Rate Cwts	Rate Value
	Top Soil	2		6 00	2		6 00
	Brown Sandy Clay	5	6	3 37	2	6	3 25
	Grey Sandy Clay + Gravel	3	-	2 91	18	3	2 49
	Light Chalk	39	5	12 44	6	-	12 31
	Chalk with some Flint	11	-	3 75	5	-	3 58

DRIFT

WATER CHALK

[redacted]

19/5/72

ARUN DISTRICT COUNCIL M/16/22/PL

ER 102 Nf: SU 90 SE/1

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N 16895

332/115

SU90/83

RECORD OF WELL

at ... New Barn ...

Town or Village ... Clymping ...

County ... Sussex ...

Six-inch County Sheet ... Sussex 76 NE ...

Six-inch National Grid sheet and reference ... SU 90 SE (9939 0188) ...

For ...

State whether owner, tenant, builder, contractor, consultant, etc. ...

Address (if different from above) ...

Level of ground surface above sea level (O.D.) ... ft (... m)

If well top is not at ground level, state how far above/below ... ft (... m)

SHAFT ... ft (... m) diameter ... ft (... m)

HEADINGS (please attach details – dimensions and directions)

BORE ... 57 ... ft (18.56) m diameter at top ... 6 ... in (152.4 mm) at bottom ... in (... mm)

Full details of permanent lining tubes (position, length, diameter, plain, slotted, etc.) ...

(152 mm) 6 in plain casing – 25 ft (7.62 m) top 1 ft (0.30 m) BGL

(152 mm) 6" n.s. slotted casing for 25 (7.62 m) to bottom of bore

Water struck at depths of ... ft (... m) below well top.

Rest level of water ... 6' 1" ... ft (1.88) m above/below well top. Suction at ... ft (... m)

Yield on ... 4 ... hours/days test pumping at 15 000 ... gph ([illegible] m³/h) with

depression to ... 16' 6" ... ft (... m) below well top. Recovery to rest level in ... mins/hours

Capacity of pump ... gph (... m³/h)

Date of measurements ...

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type ... Motive power ...

Capacity ... gph (... m³) per hour. Suction at ... ft (... m)

below well top. Average pumped ... gpd (... m³) per day. Estimated

consumption ... gph (... m³) per week.

Well made by ... Duke and Ockenden Ltd ... Date of sinking ... 22-7-1976

ADDITIONAL NOTES – ANALYSIS (please attach copy if available)

Received from ... Duke and Ockenden ...

Date ... 8.10.76 ...

Information ref ...

Recorder ...

G.S. file ...

Six-inch N.M. ...

1" map ... [redacted]

½" map ...

Geologist

Copy to ...

Date ...

Exact site of well

Nature of structure

Test conditions

Pumping equipment

Site of other wells

Institute of Geological Sciences,
Water Department,
London, S.W.7.

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SU81NE/9

332/118

RECORDS OF STRATA

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA (note any additional remarks)	THICKNESS METRES	DEPTH METRES
Quaternary	Sandy topsoil	3.00	3.00
	Soft chalk	15.00	18.00
	Chalk and flints	103.00	121.00
	Middle chalk	22.00	143.00
	Lower chalk	96.00	239.00
	Lower chalk, getting darker grey in colour	6.00	245.00
	Lower chalk, very dark grey	39.00	284.00
	[redacted]		(230/1 Sim)

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SU90173

332/52 Elmer Farm, Middleton-on-Sea. (7 Filled in)

Surface c.15. Lining tubes: 62 × 2 in from surface. R.W.L. c.5. Dando, Mar. 1910.

Made	...	...	...	2	2
Drift	...	...	...	19	21
Ck	...	...	...	110	131

Top Soil		2	2
Yellow clay		3	5
Clay & gravel		3	8
Marl		13	21
Chalk & flints		110	131.

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WELL BORING at *Middleton* County *Sussex* *82*

Geol. map — 1 in. map New Series *332* — 6 in. map *74*

Made by *Duke & Ockenden* Date

Bank feet. Bored feet.

Communicated by *Duke & Ockenden*

Height above Ordnance Datum — Rest level of water

Yield

Quality (with copy of analysis on separate sheet) *SU 9802 0019*

SU90/74 **43**

GEOLOGICAL FORMATION.	NATURE OF STRATA.	THICKNESS Feet.	THICKNESS Inches.	DEPTH Feet.	DEPTH Inches.

Middleton (nr Bognor) Sussex
Drillers Duke & Ockenden

Borehole ... 250 . 0
lined 6 in. ... 50 . 0
4½ ... 125 . 0

pipe clay ... 14 . 14
Marl ... 24 . 38
Chalk & flints ... 212 . 250 (*upper chalk*)

Water cut at 18
2nd ... 55
3rd ... 78
4th ... 230-240
Tested at 600 g.p. hour suction at 60

Information from Messrs Duke and Ockenden Ltd

Middleton—Map N.S.G. 332.

319. New City, ¾ mile S.E. of Middleton Church. Ht. above O.D. 20 ft. Map 74 N.E.

		Thickness Ft.	Depth Ft.
Drift	Clay	14	14
Upper Chalk	Marl	24	38
	Chalk and flints	212	250

1st water cut at 18 ft.
2nd water cut at 55 ft.
3rd water cut at 78 ft.
4th water cut at 230-240 ft.
R.L.W. 5 ft. below surface. Tested at 600 g.p. hour, suction at 60 ft.
Bored to 250 ft.; lined 6 in. tubes to 50 ft.; 4½ in. to 125 ft.
Information from Messrs. Duke and Ockenden, Ltd.
Analysis on p. 283.

now Southdean ... well disused ... 193[illegible] ... OD 16 ... [illegible]

Middleton-on-Sea ... 1 in. ... Sussex

Published in
'Wells & Springs
of Sussex.'
page 153

ARUN DISTRICT COUNCIL M/16/22/PL

Geological Survey and Museum,
Jermyn Street, London, S.W.

SU 96 SE 39 9965 6148 — 8358, north of Greywells Bridge — Block B

Surface level +5.8 m
Water not struck
September 1981

Water —
Bedrock 3.3 m

LOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.8	0.8
Brickearth	Clay, mottled brown, greyish brown and olive grey, with fine sand and chalk granules	2.9	3.7
Raised Beach Deposits (probable)	Silt, very sandy, with pebbles of chalk and some flint	1.0	4.7
	'Very sloppy' sandy gravel Gravel: flint with quartz, chalk with some nodular flint Sand: fine and medium with mainly quartz and chalk Clasts: silt and clay, chalky	0.7	5.4
Upper Chalk	Chalk, weathered, cobbly, with sand near top	1.3+	6.7

GRADING

Mean for deposit: percentages			Depth below surface (m)	Percentages							
				Fines	Sand			Gravel			
Fines	Sand	Gravel		<63	63-2	2-.6	.6-.2	2-.06	.06-.002	<.002	dust
38	44	18	3.8-5.5	39	85	62	7	52	5	3	

SU 98 SE 58 | 9858 0054 | Cardrow Farm | Sheet 32

Surface level: +8.0 m
Water strand at 12.5 m
September 1981

Overburden 1.5 m
Mineral 1.5 m
Bedrock 6.0 m+

BOG

Geological classification	Lithology	Thickness m	Depth m
	Soil	0.3	0.3
Brickearth	Silt, clayey, mottled orange brown and pale yellowish olive, with lignite granules and a few flint pebbles	0.9	1.2
Raised Beach Deposits (patches)	Very clayey sandy gravel Clayey: coarse and fine, angular to subrounded flint with some chalk and traces of other rock fragments Sandy: fine and medium with some coarse Fines: silt, stodgy	1.8	3.0
Upper Chalk	Chalk, weathered, sandy and silty at top member Flints	3.0	6.0

GRADING

Mean for deposit (percentages)			Depth below surface (m)	Percentages						
				Fines	Sand			Gravel		
Fines	Sand	Gravel		<6	6-2	2-0.6	0.6-0.2	6-20	20-63	>63 mm
35	45	20	1.2-2.5	46	21	16	3	3	5	6
			2.5-3.8	33	25	11	4	11	8	4
			Mean	38	30	12	3	8	6	3

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Appendix G

RISK ASSESSMENT METHODOLOGY

CIRIA C552 RISK ASSESSMENT

The identification of potential pollutant linkages is a key aspect of the evaluation of potentially contaminated land. An approach based on the UK CIRIA 552 report C552 (Contaminated Land Risk Assessment: A Guide to Good Practice, 2001) has been adopted within this report. The assessment considers which source – pathway – receptor pollutant linkages are likely to be plausible and potentially complete, and the potential risk they represent. For each of the pollutant linkages, an estimate of:

- the potential severity (consequence) of the risk, and
- the probability (likelihood) of the risk occurring

has been undertaken to assess the potential risk associated with a complete pollutant linkage.

Table 1 – Classification of consequence (CIRIA C552, 2001)

Classification	Category	Definition	Examples
Severe Short term (acute) risks only	Humans	Short term (acute) risk to human health likely to result in "significant harm" as defined by the Environmental Protection Act 1990, Part 2a	High concentrations of cyanide on the surface of an informal recreation area
	Controlled Waters	Short term risk of pollution of sensitive water resource	Major spillage of contaminants from site into controlled waters
	Property	Catastrophic damage to buildings / property	Explosion causing building collapse
	Ecological Systems	Short term risk to a particular ecosystem or organism forming part of such ecosystem	
Medium Chronic (long term) risks; 'significant harm'	Humans	Chronic damage to human health ("significant harm" as defined in DEFRA, 2006)	Concentrations of a contaminant from a site exceed the generic or site-specific assessment criteria
	Controlled Waters	Pollution of sensitive water resources	Leaching of contaminants from a site into a Principal or Secondary A aquifer
	Ecological Systems	Significant change in a particular ecosystem or organism forming part of such ecosystem	Death of a species within a designated nature reserve
Mild Chronic (long term) risks; less sensitive receptors	Controlled Waters	Pollution of non-sensitive water resources	Pollution of non-classified surface watercourse
	Property	Significant damage to buildings, structures, crops and services ("significant harm" as defined in DEFRA, 2006) and damage to sensitive buildings / structures and services	Foundation damage to a building rendering it unsafe to occupy due to instability
	Ecological Systems	Damage to the environment	
Minor Chronic (long term) risk; mild	Humans	Non-permanent health effects to human health that are easily prevented by the use of PPE	Presence of contaminants at such concentrations that protective equipment is required during site works
	Property	Easily repairable effects of damage to buildings, structures and services	Discoloration of concrete
	Financial / Project	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve	

Table 2 – Classification of probability (CIRIA C552, 2001)

Classification	Definition
High likelihood	There is a pollutant linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollutant linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low likelihood	There is a pollutant linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even or a longer period such an event would take place, and is less likely in the shorter term.
Unlikely	There is a pollutant linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

Table 3 – Comparison of consequence against probability (CIRIA C552, 2001)

	Severe	Medium	Mild	Minor
High Likelihood	Very High Risk	High Risk	Moderate Risk	Low / Moderate Risk
Likely	High Risk	Moderate Risk	Low to Moderate Risk	Low Risk
Low Likelihood	Moderate Risk	Low / Moderate Risk	Low Risk	Very Low Risk
Unlikely	Low / Moderate Risk	Low Risk	Very Low Risk	Very Low Risk

Table 4 - Risk classification descriptions (CIRIA C552, 2001)

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



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