



**RWE Renewables UK Dogger Bank
South (West) Limited**

**RWE Renewables UK Dogger Bank
South (East) Limited**

Dogger Bank South Offshore Wind Farms

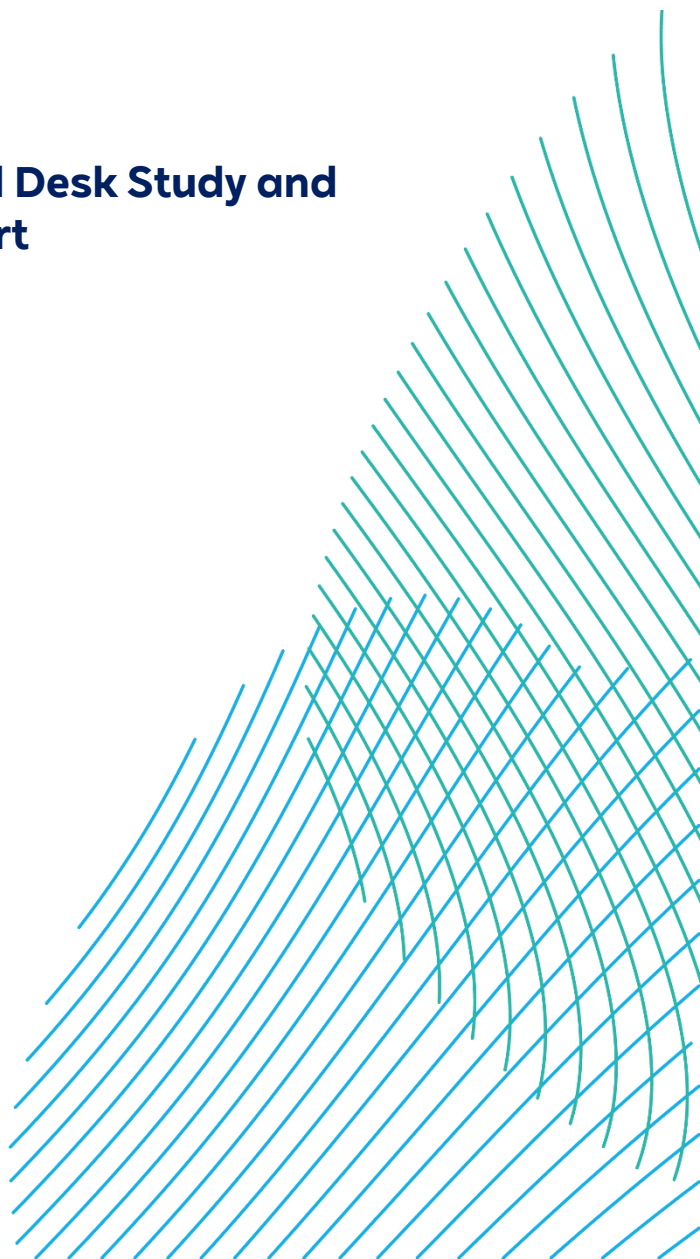
**Appendix 19.1 Geo-Environmental Desk Study and
Preliminary Risk Assessment Report**

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Glossary

Term	Definition
Agricultural Land Classification	Agricultural Land Classification is a grading system used to assess and compare the quality of agricultural land in England and Wales. A combination of climate, topography and soil characteristics and their unique interaction determines the grade of the land. The grades range from 1 to 5. Grade 1 being excellent, Grade 2 very good, Grade 3 good to moderate (no subdivide), Grade 4 poor and Grade 5 very poor.
Countryside Stewardship Scheme	The Countryside Stewardship Scheme provides financial incentives for farmers, woodland owners, foresters and land managers to look after and improve the environment. Mid Tier Scheme agreements provide a range of options to help deliver environmental benefits. The Higher Tier agreements require more complex management tailored to individual sites.
Environmental Stewardship Scheme	Environmental Stewardship is an agri-environment scheme run by DEFRA which aims to secure widespread environmental benefits through improving water quality, reducing soil erosion, improving conditions for farmland wildlife, maintaining and enhancing landscape character and protecting the historic environment. The Entry Level aims to encourage large numbers of farmers to deliver effective environmental management in exchange for pay-outs. The Higher Level is designed to support more specific and environmentally beneficial management practices.
Grade II Listed Building	A property or building listed as Grade II has particular historic and / or cultural significance and is subject to regulations that protect its unique character.

Term	Definition
High groundwater vulnerability	High groundwater vulnerability areas can easily transmit pollution to groundwater. They are characterised by high-leaching soils and the absence of low-permeability superficial deposits.
Licensed industrial activities (Part A(1))	A1 installations are facilities which carry out industrial processes like refineries, food and drink factories and intensive farming activities (for example large-scale chicken farms). They also include certain waste activities like disposing of waste to landfill, hazardous waste treatment and waste incineration.
Licensed pollutant release (Part A(2) / B))	A2 or B installations are facilities that carry out processes like foundries, solvent coating installations, dry cleaners, concrete batching plants and petrol stations.
Low groundwater vulnerability	Low groundwater vulnerability areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low-leaching soils and/or the presence of low-permeability superficial deposits.
Medium groundwater vulnerability	Medium groundwater vulnerability areas offer some groundwater protection from the transmission of pollution to groundwater.
Principal Aquifer	These are layers of rock or drift deposits that have high intergranular and / or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and / or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifers.
Secondary A Aquifer	These are 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.

Term	Definition
Secondary B Aquifer	These are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
Secondary Undifferentiated Aquifer	These are assigned in cases where it has not been possible to attribute either a Secondary A or B aquifer to the soil type due to the variable characteristics. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifers in different locations due to the variable characteristics of the rock type.
Source Protection Zone I	Inner protection zone - defined as the 50-day travel time from any point below the water table to the abstraction source. This zone has a minimum radius of 50 metres.
Source Protection Zone II	Outer protection zone - defined by a 400-day travel time from a point below the water table. This zone has a minimum radius of 250 or 500 metres around the abstraction source, depending on the size of the abstraction.
Source Protection Zone III	Source catchment protection zone - defined as the area around an abstraction source within which all groundwater recharge is presumed to be discharged at the abstraction source.

Acronyms

Term	Definition
AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
BRE	Building Research Establishment
CDM	Construction Design Management
CIRIA	Construction Industry Research Information Association
CL:AIRE	Contaminated Land: Applications in Real Environments
CoCP	Code of Construction Practice
COMAH	Control of Major Accident Hazard sites
CSM	Conceptual Site Model
DBS	Dogger Bank South
DCO	Development Consent Order
DEFRA	Department for Environment, Food and Rural Affairs
GIS	Geographical Information System
GQRA	Generic Quantitative Risk Assessment
HDD	Horizontal Directional Drilling
IDB	Internal Drainage Board
LNR	Local Nature Reserve
MAGIC	Multi Agency Government Information for the Countryside
MSA	Mineral Safeguarding Area
NNR	National Nature Reserve

Term	Definition
NVZ	Nitrate Vulnerable Zone
OS	Ordnance Survey
PCL	Potential Contaminant Linkage
PEIR	Preliminary Environmental Information Report
PRA	Preliminary Risk Assessment
RoFRaS	Risk of Flooding from Rivers and Sea
SAC	Special Area of Conservation
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
UXB	Unexploded Bomb
UXO	Unexploded Ordnance
WFD	Water Framework Directive

19.1 Geo-Environmental Desk Study and Preliminary Risk Assessment Report

19.1.1. Introduction

1. Royal HaskoningDHV has been commissioned by RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited to carry out a Geo-Environmental Desk Study and Preliminary Risk Assessment (PRA). The report has been written to support the Preliminary Environmental Information Report (PEIR) for the Onshore Development Area for the Dogger Bank South Offshore Wind Farms (hereafter referred to as DBS East and DBS West). The Onshore Development Area for this PRA is described within section 19.1.5.
2. DBS East and DBS West will consist of offshore and onshore elements. These elements include offshore wind turbines and subsea array cables, offshore and onshore export cables and onshore substations to accommodate the connection to the transmission grid. A full description of both DBS East and DBS West is provided within **Chapter 5 Project Description**.

19.1.2. Objectives

3. The overall objectives of the PRA are as follows:
 - Provide information on the current conditions of the site with respect to the potential for ground contamination;
 - Provide an initial Conceptual Site Model (CSM) to identify and assess potential contaminant linkages associated with the Onshore Development Area; and
 - Provide high level recommendations for further work and assessments.

19.1.3. Methodology

4. The PRA has been completed in general accordance with the Environment Agency 'Land Contamination Risk Management Framework', 2021.
5. The PRA is a desk-based study and forms the initial step in the assessment of potentially contaminated land.
6. The main purpose of the PRA is to identify potential contamination sources and assist in identifying potential liabilities that may be present which may have consequences for the DBS East and DBS West projects.

7. The following desk-based information sources have been reviewed to inform the PRA:
- Environmental Database GIS data comprising environmental sensitivity data and permitting records within the Onshore Development Area, December 2022 (Order Reference GSIP-2022-13169-12044);
 - British Geological Survey (BGS) Onshore Geoindex web portal (accessed November 2022);
 - BGS Geological Map for Flamborough and Bridlington Solid and Drift (Sheet number 55 and 65), 1985, 1:50,000;
 - BGS Geological Map for Beverley Solid and Drift (Sheet number 72), 1995, 1:50,000;
 - BGS Geological Map for Hornsea Solid and Drift (Sheet number 73), 1998, 1:50,000;
 - BGS Hydrogeological Map of East Yorkshire (Sheet number 10), 1980, 1:100,000;
 - Google Earth, accessed November 2022;
 - Multi Agency Government Information for the Countryside (MAGIC) map application (accessed November 2022);
 - UK Health Security Agency UK maps of Radon; and
 - Zetica UXO Unexploded Bomb (UXB) Risk Map accessed November 2022.

19.1.4. Limitations

8. The direct assessments and judgements given in this report are limited by both the finite data on which they are based and the proposed works to which they are addressed. The acquisition of data is constrained by both physical and economic factors and, by definition, is subject to limitations. Conditions at the site will change over time due to natural variations and may be affected by human activities.
9. This document has been prepared for the titled project and should not be relied upon or used for any other project. Royal HaskoningDHV accepts no responsibility or liability for the consequences of this document being used for a purpose other than that purpose for which it was commissioned. The assessments and judgements contained herein should not be relied upon as legal opinion.

10. The findings and opinions are relevant to the dates of the information reviewed and should not be relied upon to represent conditions at later dates. The opinions included herein are based on the information obtained from the assessments undertaken in the study area and from the experience of the reviewers.
11. This Geo-environmental Desk Study and Preliminary Risk Assessment utilised a variety of publicly available data sources such as the Environment Agency, Groundsure, historical maps and the British Geological Survey. Therefore, the study is limited by the age and limitations inherent in the data described.

19.1.5. Study Area

12. The study area for the PRA, located within the East Riding of Yorkshire, consists of the Onshore Development Area for the Projects plus a 250m buffer as illustrated on **Figure 19.1**. A 100m buffer zone is also included on Figure 19.1 to illustrate the spatial extent in relation to a review of historical mapping (see Section 19.1.7). Due to the agricultural nature of the surrounding area and based on professional judgement, a 100m buffer zone has been deemed appropriate.
13. The buffer zone around the Onshore Development Area is extended to 1km for assessing the presence of Control of Major Accident Hazard (COMAH) sites, groundwater abstraction wells and Source Protection Zones (SPZ). This is due to the higher risk posed by COMAH sites and the sensitivity of groundwater abstraction wells and Source Protection Zones (SPZs).
14. The Onshore Development Area includes the possible landfall locations, the onshore export cable corridor and the onshore substation zones.
15. For the purposes of this report, references to on site features refers exclusively to features located within the Onshore Development Area boundary. References to off site features refer to those within the 250m or 1km buffer zone.

19.1.6. Environmental Setting

19.1.6.1. Introduction

16. Regulatory authority information relevant to the Onshore Development Area for the Projects and their surroundings has been obtained from the undertaking of an environmental database search. The information is summarised in subsequent sections. Distances stated are approximate and are taken from the Onshore Development Area boundary to the database recorded entries.
17. The following summary is generally limited to locations within 250m of the Onshore Development Area boundary unless it is considered that installations or activities beyond that range could potentially have an impact on or be affected by the Projects for example in relation to potable groundwater abstraction wells.

19.1.6.2. Pollution Control

18. The presence (or absence) of active pollution controls related to industrial processes at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-1** with further details provided in **Table 19-2**.

Table 19-1 Summary of Pollution Controls

Control type	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Sites determined as Contaminated Land	No	No	No	No
Historical licensed industrial activities (IPC)	No	No	No	No
Licensed industrial activities (Part A(1))	No	No	No	Yes
Licensed pollutant release (Part A(2) / B))	No	No	No	Yes

Table 19-2 Details of Off Site Pollution Controls

Control type - off site	Site name & location	Location & direction from Onshore Development Area	Detail
Licensed industrial activities (Part A(1))	Westfield Farm Poultry Unit, West Road, HU11 5QL.	30m east of the onshore export cable corridor – to the north of West Road.	Operator name: Cullingworth Commercials and Freight Services Limited. Activity: Intensive farming - >40,000 poultry. Permit number: TP3409SD. Permit Issued: 06 / 10 / 2020. Status: Effective .
Licensed pollutant release (Part A(2) / B))	Imerys, Queensgate Quarry, Walkington Road, Beverley, HU17 8RX.	90m east of onshore export cable corridor – south east of the junction of Broadgate and Walkington Road.	Permit type: B. Process: Other mineral processes. Status: Current permit.
	Bill Dodds Motor Engineers, Manor Farm, Catfoss, HU11 5QN.	120m west of onshore export cable corridor – to the east of Catfoss Lane.	Permit type: B. Process: Waste oil burner <0.4 MW. Status: New legislation applies.

19.1.6.3. Waste

19. The presence (or absence) of waste facilities at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-3** with further detail provided in **Table 19-4** and **Table 19-5**. Identified waste facilities are illustrated on **Figure 19.2**.

Table 19-3 Summary of Waste Facilities

Facility type	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Active or recent landfill	No	No	No	No
Historical landfill (BGS records)	No	No	No	No
Historical Landfill (LA / mapping records)	No	No	No	No
Historical Landfill (Environment Agency records)	No	Yes	Yes	Yes
Licenced waste sites	No	No	No	Yes
Waste exemptions	Yes	Yes	No	Yes

Table 19-4 Details of On Site Waste Exemptions

Facility Type – On Site	Name	Location	Detail	Figure 19.2 Reference
Historical Landfill (Environment Agency records)	Bentley (Manor Farm / A164 Realignment).	Located in both the onshore export cable corridor and onshore substation zone.	Licence holder: Mowlems. Permitted waste: Inert. First input: 31 / 12 / 1979; Last input: 31 / 12 / 1990. Permit Reference: EAHLD34164.	1
Waste exemptions (Storage of sludge unless otherwise stated)	The Grange, Hornsea Road, Skipsea, Driffield, YO25 8SY and Low Skirlington, Skipsea, Driffield YO25 8SY.	Landfall – adjacent to Hornsea Road.	Reference: WEX109282, WEX109285, EPR / RF0000MF / A001.	2
	Rise Park Hull HU11 5BL.	Onshore export cable corridor – to the north of west Road, east of Catfoss Lane.	Reference: EPR / QF0639ZK / A001.	3
	Stephen Caley Field: 32.	Onshore export cable corridor – adjacent to Whitecross Road.	Reference: WEX264778.	4
	Not recorded.	Onshore export cable corridor – adjacent to Eske Lane.	Reference: WEX235266.	5
	Tamara Hall Field: 29.	Onshore export cable corridor – to the west of Beverly and Barmston Drain, south of South Bullock Dike.	Reference: WEX270304.	6
	Not recorded.	Onshore export cable corridor – south of Sisterbeck Drain.	Reference: WEX255052.	7
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	Onshore export cable corridor – adjacent to Grange Lane.	Reference: WEX160858.	8
		Onshore export cable corridor – to the north of the A1035.	Reference: WEX160861.	9
		Onshore export cable corridor – to the east of Ings Road, south of Sisterbeck Drain.	Reference: WEX118337.	10
		Onshore export cable corridor – adjacent to Driffield Road.	Reference: WEX118347.	11
		Onshore export cable corridor – adjacent to Constitutional Hill.	Reference: WEX118356.	12

Facility Type – On Site	Name	Location	Detail	Figure 19.2 Reference
		Onshore export cable corridor – adjacent to Constitutional Hill.	Reference: EPR / NF0405UT / A001.	13
	Not recorded.	Onshore export cable corridor –to the east of Grange Lane.	Reference: WEX193516, WEX254886.	14
	Catfoss Airfield, Brandesburton, Driffield, YO25 8EJ.	Onshore export cable corridor – to the east of Ings Road, north of Sisterbeck Drain.	Reference: WEX095555.	15
	Worlaby Hall, The Hill, Brigg, DN20 ONP.	Onshore export cable corridor – to the west of Driffield Road.	Reference: EPR / RH0479SX / A001. Category: Burning of waste as a fuel in a small appliance.	16
	Not recorded.	Onshore export cable corridor – adjacent to Constitutional Hill.	Reference: WEX283065.	17

Table 19-5 Details of Off Site Waste Exemptions

Facility type – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.2 Reference
Historical Landfill (Environment Agency records)	Catfoss.	Immediately adjacent to the western boundary of onshore export cable corridor.	Licence holder: Humberside County Council. Permitted waste: Inert, Industrial, Commercial, Household, Liquid sludge. First input: 01 / 01 / 1957; Last input: 01 / 02 / 1977; Permit Reference: EAHLD05752.	18
	Catwick Crossroads, Catwick.	60m west of onshore export cable corridor.	Licence holder: Caird Environmental Limited. Permitted waste: Inert, Industrial, Commercial, Household, Special, Liquid sludge. First input: 01 / 01 / 1977; Last input: 31 / 12 / 1993; Permit Reference: EAHLD05752. Due to the proximity to the landfill described above, it is anticipated that the Caird Environmental Limited landfill forms an extension to the Humberside County Council historical landfill.	19
	Cosalt Quarry Landfill Site, Victoria Road, Beverley.	70m east of onshore export cable corridor.	Licence holder: Cosalt Quarry Landfill Site. Permitted waste: Inert. First input: 18 / 03 / 1993; Last input: Not recorded, licence surrendered 24 / 08 / 2010; Permit Reference: EAHLD35737.	20
	West End Farm, Bentley.	60m south west of onshore substation zones.	Licence holder: Stoneledge Plant and Transport Limited. Permitted waste: Inert, Industrial. First input: 31 / 12 / 1983; Last input: 31 / 12 / 1990; Permit Reference: EAHLD34377.	21
Licenced waste sites	Sandsfield, Catwick Lane, Brandesburton, Driffield, YO25 8SA.	220m west of onshore export cable corridor.	Licence holder: Sandsfield Gravel Co Ltd. Licence number: SAN002. Type description: Other landfill site taking special waste. Status: Issued (no dates recorded). The location of this licenced wate site is within the boundary of the Caird Environmental Limited historical landfill described above.	22

Facility type – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.2 Reference
	Victoria Barracks, Victoria Road, HU17 8PA.	220m east of onshore export cable corridor.	Licence holder: Stoneledge Plant & Transport Ltd. Licence number: STO001. Type description: Landfill taking non-biodegradable wastes. Status: Surrendered 24 / 08 / 2010. The location of this licenced waste site is within the boundary of the Cosalt Quarry Landfill Site historical landfill described above.	23
Waste exemptions	Southfield Farm, Hornsea Road, Skipsea, Driffield, YO25 8SY.	30m east of landfall.	Reference: WEX321623; Category: Burning waste in the open.	24
			Reference: EPR / UH0271CY / A001; Category: Disposal by incineration (agricultural waste only).	25
	East Farm, Ulrome, Driffield, YO25 8TT.	30m east, 140m west, 160m west of landfall.	Reference: WEX182969, WEX313931, WEX023776 and EPR / LE5451DN/A001; Category: Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Spreading waste on agricultural land to confer benefit. Burning waste in the open. Use of waste in construction. Deposit of waste from dredging of inland waters. Burning of waste as a fuel in a small appliance. Storage of waste in secure containers.	26
	Mill Lane, Skipsea, YO25 8TZ.	140m south of landfall.	Reference: WEX236308; Category: Burning waste in the open.	27
	Skipsea Grange, Hornsea Road, Skipsea, YO25 8SY.	200m west of landfall.	Reference: WEX109062; Category: Storage of sludge.	28
	Butt Farm Victoria Road Beverley North Humberside HU17 8PJ.	Adjacent to the onshore export cable corridor.	Reference: EPR / YF0901KC / A001, WEX133511; Category: Use of waste in construction. Deposit of waste from dredging of inland waters. Spreading waste on agricultural land to confer benefit. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Spreading of plant matter to confer benefit. Burning waste in the open. Use of waste for a specified purpose. In addition to the above permit WEX133511 also allows for storage of waste in a secure place.	29
	Not recorded.	Adjacent to, 30m south of the onshore export cable corridor.	Reference: WEX283058, WEX231140, WEX231139; Category: Storage of sludge.	30
		40m east of the onshore export cable corridor.	Reference: WEX140538, WEX140534; Category: Use of waste in construction.	31

Facility type – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.2 Reference
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	Adjacent to, 20m south, 60m east, 60m south of the onshore export cable corridor.	Reference: WEX118341, WEX125510, WEX125512, WEX118333, WEX231136, WEX132559, WEX160863; Category: Storage of sludge.	32
		180m west of the onshore export cable corridor.	Reference: WEX304049, WEX170746 WEX007076; Category: Storage of waste in secure containers. Sorting mixed waste. Deposit of waste from dredging of inland waters. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Burning waste in the open. Recovery of scrap metal. Storage of sludge.	33
			Reference: WEX304049 WEX170746 WEX007062; Category: Spreading waste on agricultural land to confer benefit. Use of waste for a specified purpose. Use of waste in construction. Spreading of plant matter to confer benefit. Incorporation of ash into soil.	34
			Reference: WEX304049 WEX170746; Category: Cleaning, washing, spraying or coating relevant waste. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Use of waste in the construction of entertainment or educational installations etc. Use of mulch. Burning of waste as a fuel in a small appliance.	35
			Reference: WEX007076; Category: Disposal by incineration. Treatment of waste in a bio bed or biofilter. Manual treatment of waste.	36
	Poplar Farm, Park Lane, Cottingham, HU16 5SA.	10m east of the onshore export cable corridor.	Reference: WEX194656, WEX032688; Category: Use of waste in construction. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Deposit of waste from dredging of inland waters. Burning waste in the open. In addition to the above, WEX194656 also permits the spreading waste on agricultural land to confer benefit. WEX137569 permits the spreading waste on agricultural land to confer benefit only.	37
			Reference: EPR / ME5981PV / A001; Category: Deposit of waste from dredging of inland waters. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Burning waste in the open.	38
	Not recorded (anticipated to be associated with Poplar Farm due to location of record).	20m south of the onshore export cable corridor.	Reference: WEX306086; Category: Use of waste in construction.	39

Facility type – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.2 Reference
	Manor House Farm, Meaux Lane, Routh, Beverley, HU179SR.	20m west of the onshore export cable corridor.	Reference: WEX171489, WEX304484; Category: Deposit of waste from dredging of inland waters. Burning waste in the open. Spreading waste on agricultural land to confer benefit. In addition to the above, permit WEX012424 also allows for: Use of waste in construction. Use of mulch. Permit EPR / HH0277BR / A001 also allows for: Spreading of plant matter to confer benefit. Use of waste for a specified purpose.	40
	Rise Park, Rise, Hull, HU11 5BL.	20m east and west, 240m east of the onshore export cable corridor.	Reference: WEX152979, WEX083445, EPR / QF0739ZH / A001, EPR / DF0239ZF / A001, WEX152984 EPR / YF0909NG / A001; Category: Storage of sludge.	41
	Field House Farm, Beverley, HU17 9SL.	30m north east of the onshore export cable corridor.	Reference: EPR / DF0530XY / A001; Category: Aerobic composting and associated prior treatment. Deposit of waste from dredging of inland waters. Burning waste in the open. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Use of waste for a specified purpose. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Storage of waste in secure containers. Disposal by incineration. Spreading waste on agricultural land to confer benefit. Burning of waste as a fuel in a small appliance. Cleaning, washing, spraying or coating relevant waste. Use of waste in construction.	42
	Tamara Hall, Field: 28.	30m north of the onshore export cable corridor.	Reference: WEX268807; Category: Storage of sludge.	43
	Stables, Burton gates, Walkington, Beverley, HU17 8EF.	40m north east of the onshore export cable corridor.	Reference: WEX114594; Category: Recovery of textiles. Preparatory treatments (baling, sorting, shredding etc).	44
	Hornsea Road, Sigglesthorne, Hull, HU11 5QL.	40m east of the onshore export cable corridor.	Reference: WEX077407; Category: Use of waste in construction.	45
	Acron Hill Farm Driffield North Humberside YO25 8EH.	50m north of the onshore export cable corridor.	Reference: EPR / EH0078AZ / A001; Category: Burning waste in the open. Preparatory treatments (baling, sorting, shredding etc). Spreading waste on agricultural land to confer benefit. Deposit of waste from dredging of inland waters.	46
			Reference: WEX039523; Category: Use of waste in construction.	47
	Manor House, Nunkeeling, Driffield, YO25 8EH.	50m west of the onshore export cable corridor.	Reference: EPR / UH0976LX / A001; Category: Use of waste in construction. Burning waste in the open. Burning of waste as a fuel in a small appliance. Deposit of waste from dredging of inland waters. Spreading waste on agricultural land to confer benefit.	48

Facility type – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.2 Reference
		180m east of the onshore export cable corridor.	Reference: WEX175039; Category: Deposit of agricultural waste consisting of plant tissue under a Plant Health notice.	49
	Stephen Caley Field: 34.	80m south of the onshore export cable corridor – adjacent to Whitecross Road.	Reference: WEX264798; Category: Storage of sludge.	50
	Fox Covert Farm, Driffield, YO25 8EH.	100m east of the onshore export cable corridor.	Reference: EPR / NH0478AX / A001; Category: Preparatory treatments (baling, sorting, shredding etc). Spreading waste on agricultural land to confer benefit. Deposit of waste from dredging of inland waters. Burning waste in the open.	51
	Church Farm, Meaux Road, Routh, Beverley, HU17 9SR.	100m north of the onshore export cable corridor.	Reference: WEX017179, WEX179431, WEX310866, EPR / CH0878XS / A001; Category: Spreading waste on agricultural land to confer benefit. Use of waste in construction.	52
	Nunkeeling, Driffield, YO25 8EH.	130m west of the onshore export cable corridor.	Reference: WEX187712, WEX268449, WEX316126, WEX122455, WEX262439; Category: Use of waste in construction. Storage of waste in a secure place. Burning waste in the open. Deposit of waste from dredging of inland waters. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Spreading waste on agricultural land to confer benefit. Spreading of plant matter to confer benefit.	53
	Molescroft Grange Farm, Grange Way, Beverley, HU17 9FS.	190m south of the onshore export cable corridor.	Reference: EPR / BH0417JR / A001; Category: Spreading of plant matter to confer benefit. Burning waste in the open. Use of waste for a specified purpose. Incorporation of ash into soil. Treatment of waste in a bio bed or biofilter. Spreading waste on agricultural land to confer benefit. Deposit of waste from dredging of inland waters. Storage of waste in a secure place. Use of waste in construction.	54
	Stephen Caley Field: 33.	220m south of the onshore export cable corridor – adjacent to Whitecross Road.	Reference: WEX264791; Category: Storage of sludge.	55
			Reference: WEX264771; Category: Storage of sludge.	56
	Manor Farm Beverley North Humberside HU17 8PP.	80m south west of the onshore substation zones.	Reference: EPR / VH0977JG / A001; Category: Use of waste in construction. Deposit of waste from dredging of inland waters. Spreading waste on agricultural land to confer benefit. Burning waste in the open. Use of waste for a specified purpose. Cleaning, washing, spraying or coating relevant waste. Storage of waste in a secure place. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Aerobic composting and associated prior treatment.	57

Facility type – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.2 Reference
		190m south west of the onshore substation zones.	Reference: WEX201543, WEX046451, WEX201539; Category: Deposit of waste from dredging of inland waters. Burning waste in the open. Storage of waste in a secure place. In addition to the above, permits WEX201543, WEX046451 also allow for: Use of waste in construction. Spreading waste on agricultural land to confer benefit. Use of waste for a specified purpose. Cleaning, washing, spraying or coating relevant waste. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising. Aerobic composting and associated prior treatment.	58
	Not recorded.	90m west of the onshore substation zones.	Reference: WEX227384; Category: Use of waste in construction.	59
		160m east of the onshore substation zones.	Reference: WEX285908; Category: Use of waste in construction. Treatment of waste aerosol cans. Use of mulch.	60
	Old Hall Farm, Long Lane, Beverley, HU17 0RN.	110m east of the onshore substation zones.	Reference: WEX189077, WEX322035, WEX023008, EPR / VH0379KP / A001; Category: Spreading waste on agricultural land to confer benefit. Deposit of agricultural waste consisting of plant tissue under a Plant Health notice. Deposit of waste from dredging of inland waters. Burning waste in the open. Storage of waste in a secure place. Storage of waste in secure containers. Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising.	61

19.1.6.4. Hazardous Substances and Health & Safety

20. The presence (or absence) of sites subject to restrictions in relation to Health & Safety at or within 250m of the Onshore Development Area boundary, or in the case of COMAH sites within 1km of the Onshore Development Area, has been summarised in **Table 19-6**.

Table 19-6 Summary of Facilities Subject to Active Consents

Facility type	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m/1km)
Control of Major Accident Hazard sites (COMAH)	No	No	No	No
Regulated explosive sites	No	No	No	No
Hazardous substance storage / usage	No	No	No	No
Radioactive Substance Authorisations (RSA)	No	No	No	No

19.1.6.5. Environmentally Sensitive Areas and Visual / Cultural Designations

21. The presence (or absence) of environmentally sensitive areas as well as visual and cultural designations at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-7** with further details provided in **Table 19-8** and **Table 19-9**. Identified environmentally sensitive areas are illustrated on **Figure 19.3**.

Table 19-7 Summary of Environmentally Sensitive Areas and Visual / Cultural Designations

Feature / Designation	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Sites of Special Scientific Interest (SSSI)	Yes	No	No	Yes
Conserved wetland sites (Ramsar)	No	No	No	No
Special Areas of Conservation (SAC)	No	No	No	No
Special Protected Areas (SPA)	Yes	No	No	Yes
National Nature Reserves (NNR)	No	No	No	No
Local Nature Reserves (LNR)	No	No	No	Yes
Designated ancient woodland	No	No	Yes	Yes
Biosphere reserves	No	No	No	No
Forest parks	No	No	No	No
Marine Conservation Zones (MCZ)	Yes	No	No	Yes
Green belt	No	No	No	No
Proposed Ramsar sites	No	No	No	No
Possible SACs (pSAC)	No	No	No	No
Potential SPAs (pSPA)	No	No	No	No
Nitrate sensitive areas	No	No	No	No
Nitrate vulnerable zones	Yes	Yes	Yes	Yes
SSSI impact risk zones	Yes	Yes	Yes	Yes
SSSI Units	Yes	No	No	Yes

Feature / Designation	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
World heritage sites	No	No	No	No
Areas of Outstanding Natural Beauty (AONB)	No	No	No	No
National parks	No	No	No	No
Listed buildings	No	No	No	Yes
Conservation areas	No	No	No	No
Scheduled ancient monuments	No	No	No	Yes
Registered parks and gardens	No	No	No	No
Priority habitat inventory	Yes	Yes	Yes	Yes
Habitat networks	Yes	Yes	Yes	Yes
Open mosaic habitat	No	No	No	Yes
Limestone pavement orders	No	No	No	No
Local Geological Sites (LoGS)	Yes	Yes	No	Yes

Table 19-8 Details of On Site Environmentally Sensitive Areas and Visual / Cultural Designations

Feature / designation	Name and location	Detail
SSSI and SSSI Units	Withow Gap, Skipsea – landfall.	The site is designated due to the presence of Late Devensian and Flandrian deposits. A favourable SSSI unit is located to the south of Cliff Road.
SPA	Greater Wash – landfall.	Habitats: Marine areas, Sea inlets; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins). Species of interest present: Red-throated diver; Black (common) scoter; Little gull; Sandwich tern; Common tern; Little tern. Present along the entire coastal edge of landfall.
Designated ancient woodland	Unnamed – onshore substation zones.	Area located to the west of the junction of Beverley Road and A1079.
MCZ	Holderness Inshore – landfall.	Designated features: High energy circalittoral rock, intertidal sand and muddy sand, moderate energy circalittoral rock, spurn Head (subtidal), subtidal coarse sediment, subtidal mixed sediments, subtidal mud and subtidal sand. Present south of Cliff Road along the coastal edge of landfall.
Nitrate vulnerable zones	Barmston Sea Drain from Skipsea Drain to N Sea NVZ.	Present within landfall and the onshore export cable corridor.
	River Hull from Arram Beck to Humber NVZ.	Present within the onshore export cable corridor and onshore substation zones.
	Holderness Drain from Fordyke Stream to Humber NVZ.	Present within the onshore export cable corridor.
	Yorkshire Chalk.	Present within the onshore export cable corridor and onshore substation zones.
SSSI impact risk zones	Landfall, onshore export cable corridor and onshore substation zones.	SSSI impact risk zones are present throughout the Onshore Development Area.
Priority habitat inventory	Landfall.	Main habitat present: maritime cliff and slope.
	Onshore export cable corridor.	Main habitat present: deciduous woodland. Present at the junction of Catwick Heads and the A1035.
		Main habitat present: coastal and floodplain grazing marsh. Present in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
		Main habitat present: no main habitat but additional habitats present. Present in the areas surrounding South Bullock Dike (north west of Tickton).
		Main habitat present: traditional orchard. Present in the area to the south of the A164 and A1079 junction.

Feature / designation	Name and location	Detail
	Onshore substation zones.	Main habitat present: deciduous woodland. Present within the Bently Moor Wood area.
Habitat networks	Landfall.	Primary habitat: maritime Cliff and slope. Network Enhancement Zone 1 and 2: habitat not specified.
	Onshore export cable corridor.	Network Enhancement Zone 1 and 2: habitat not specified. Restorable habitat: habitat not specified. The above are present in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
LoGS	Landfall and onshore export cable corridor.	Skipsea Drain located to the north of Hornsea Road extending towards Steam Dike.

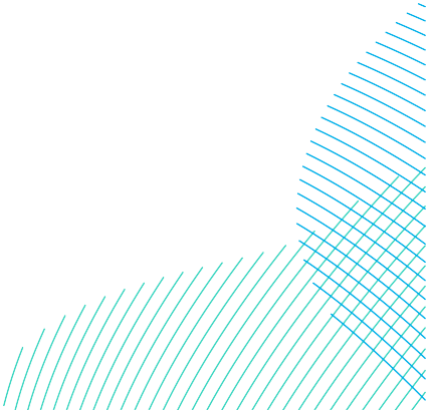


Table 19-9 Details of Off Site Environmentally Sensitive Areas and Visual / Cultural Designations

Feature / designation	Site name & location	Location & distance from the Onshore Development Area	Detail
SSSI	Withow Gap, Skipsea.	Adjacent to landfall 9.	The designated site extends northwards from within the boundary of landfall 9. The site is designated due to the presence of Late Devensian and Flandrian deposits.
SSSI and designated ancient woodland	Burton Bushes.	Adjacent to the east of onshore export cable corridor - located between York Road and Newbald Road.	Designated due to presence of oak woodland >200 years in age. The woodland canopy contains about 50% oak (mainly <i>Quercus robur</i>), with a range of other tree species including birch <i>Betula pubescens</i> , field maple <i>Acer campestre</i> and wych elm <i>Ulmus glabra</i> . The understorey is well developed and dominated by holly <i>Ilex aquifolium</i> .
Designated ancient woodland	Birkhill Wood.	Adjacent to the west boundary of the onshore export cable corridor.	Located to the east of Beverley Road.
SPA	Greater Wash.	Adjacent to the east of landfall.	Habitats: Marine areas, Sea inlets; Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins). Species of interest present: Red-throated diver; Black (common) scoter; Little gull; Sandwich tern; Common tern; Little tern.
LNR	Beverley Parks.	Adjacent to the east boundary of the onshore substation zones (located adjacent to Shepherds Lane).	Designated due to its wildlife value and importance to the local community.
MCZ	Holderness Inshore.	Adjacent to landfall to the south of Cliff Road.	Designated features: High energy circalittoral rock, intertidal sand and muddy sand, moderate energy circalittoral rock, spurn Head (subtidal), subtidal coarse sediment, subtidal mixed sediments, subtidal mud and subtidal sand.
Nitrate vulnerable zones	Barmston Sea Drain from Skipsea Drain to N Sea.	Adjacent to landfall and onshore export cable corridor.	Present to the north and south of landfall and the onshore export cable corridor.
	Holderness Drain from Fordyke Stream to Humber.	Adjacent to the onshore export cable corridor.	Present to the north, east, south and west of the onshore export cable corridor.
	River Hull from Arram Beck to Humber.	Adjacent to the onshore export cable corridor and onshore substation zones.	Present to the north, east, south and west of the onshore export cable corridor and onshore substation zones.
	Yorkshire Chalk.	Adjacent to the onshore export cable corridor and onshore substation zones.	Present to the north, east, south and west of the onshore export cable corridor and onshore substation zones.

Feature / designation	Site name & location	Location & distance from the Onshore Development Area	Detail
SSSI impact risk zones	N/A	Adjacent to landfall, onshore export cable corridor and onshore substation zones.	Present to the north, east, south and west of landfall, onshore export cable corridor and onshore substation zones.
SSSI Units	Withow Gap, Skipsea.	Adjacent to landfall.	A favourable SSSI unit expands northwards of landfall, located to the south of Cliff Road.
	Burton Bushes.	Adjacent to the onshore export cable corridor.	A favourable SSSI unit is located between York Road and Newbald Road.
Listed buildings (All Grade II listed)	Skipsea Grange, Skipsea, YO25.	200m west of landfall.	None.
	Church of Saint Mary Magdalene and Saint Helena, Bewholme, YO25.	40m west of the onshore export cable corridor.	List date: 26 / 11 / 1985; List entry: 1249440; Located south west of Billings Lane.
	Catfoss Hall, Seaton, HU11.	40m east of the onshore export cable corridor.	List date: 26 / 11 / 1985; List entry: 1249759; Located east of Catfoss Lane.
	Hull Bridge Mills, Tickton, HU17.	180m south of the onshore export cable corridor.	List date: 09 / 02 / 1987; List entry: 1103423; Located at the junction of Weel Road and Hull Bridge Road.
	Manor Farmhouse, Seaton, HU11.	220m east of the onshore export cable corridor.	List date: 26 / 11 / 1985; List entry: 1263751; Located west of Catfoss Lane.
	Wayside Cross, Bewholme, YO25.	230m west of the onshore export cable corridor.	List date: 26 / 11 / 1985; List entry: 1249375; Located south west of Billings Lane.
	Garden Walls At Low Hall, Woodmansey, HU17.	10m east of the onshore substation zones.	List date: 26 / 03 / 1987; List entry: 1310090; Located to the west of Shepherds Lane.
	White Hall, Woodmansey, HU17.	70m north of the onshore substation zones.	List date: 26 / 03 / 1987; List entry: 1161458; Located to the west of Shepherds Lane.
	Barn At Low Hall, Woodmansey, HU17.	110m east of the onshore substation zones.	List date: 26 / 03 / 1987; List entry: 1103419; Located to the west of Shepherds Lane.
	Old Hall, Woodmansey, HU17.	120m east of the onshore substation zones.	List date: 26 / 03 / 1987; List entry: 1103420; Located to the west of Shepherds Lane.
	Gate Piers At Low Hall Farm, Woodmansey, HU17.	140m east of the onshore substation zones.	List date: 26 / 03 / 1987; List entry: 1346992; Located to the west of Shepherds Lane.

Feature / designation	Site name & location	Location & distance from the Onshore Development Area	Detail
Scheduled ancient monuments	Royal Observer Corps underground monitoring post and World War II visual spotting post, 200m north of Southfield House.	Adjacent to landfall.	List entry: 1021192; Located to the east of Hornsea Road.
	Hallgarth medieval hall and moat.	200m west of landfall.	List entry: 1013705; Located to the east of Hornsea Road.
	Beverley sanctuary limit stone, Bishop Burton cross.	40m west of the onshore export cable corridor.	List entry: 1012589; Located south of York Road, east of A1079.
	Romano-British enclosure and two adjoining fields on Westwood Common, 510m south west of Blackmill.	50m north east of the onshore export cable corridor.	List entry: 1013999; Located south east of Newbald Road.
	Beverley sanctuary limit stone, Bentley cross.	80m south west of the onshore export cable corridor.	List entry: 1012590; Located adjacent to Beverley Road.
	Eske medieval settlement and field system, west and south of Eske Manor.	160m north of the onshore export cable corridor.	List entry: 1005216; Located on Eske Lane.
	Moated grange at Moor Grange.	180m west of the onshore export cable corridor.	List entry: 1007971; Located north east of Towns Lane.
	Romano-British enclosure in Burton Bushes, Westwood Common.	190m east of the onshore export cable corridor.	List entry: 1014001; Located south west of York Road.
	Heavy Anti-aircraft gunsite, 350m west of Butt Farm.	Adjacent to onshore substation zones.	List entry: 1019186; Located north east of Bentley Lane, south west of A1079.
Priority habitat inventory (Deciduous woodland unless otherwise stated)	N/A	Adjacent to landfall.	Maritime cliff and slope; Located to the north and south of landfall.
		Adjacent to onshore export cable corridor.	Traditional orchard; Present to the west of Billings Lane.
			Present to the east of Catfoss Lane.
			Coastal and floodplain grazing marsh; Present in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
			No main habitat but additional habitats present; Present in the areas surrounding South Bullock Dike (north west of Tickton).
			Coastal and floodplain grazing marsh; Present to the south of Hull Bridge Road.

Feature / designation	Site name & location	Location & distance from the Onshore Development Area	Detail
			Present to the north of Newbald Road.
			Present to the south of Newbald Road.
			Present to the south of Newbald Road.
		10m north of the onshore export cable corridor.	Present to the north east of Eske Lane.
		30m north of the onshore export cable corridor.	Present to the west of Dunnington Lane.
		70m east of the onshore export cable corridor.	Present to the south of Broadgate.
		70m north of the onshore export cable corridor.	Present to the east of Whitecross Road.
		100m east of the onshore export cable corridor.	Present to the north of Catfoss Road.
		120m north of the onshore export cable corridor.	Present to the south of Bowlams Dike.
		150m west of the onshore export cable corridor.	Present to the north of Hornsea Road.
		150m north of the onshore export cable corridor.	Present to the north west of Hornsea Road.
		150m west of the onshore export cable corridor.	Present to the west of Catfoss Lane.
		180m east of the onshore export cable corridor.	Present to the east of Catfoss Lane.
		220m east of the onshore export cable corridor.	Present to the south of Dunnington Lane.
		250m west of the onshore export cable corridor.	Present to the west of Catfoss Lane.

Feature / designation	Site name & location	Location & distance from the Onshore Development Area	Detail
		Adjacent to the onshore substation zones.	Present to the north east of Bentley Lane.
		Adjacent to the onshore substation zones.	Present to the east of Bentley Lane.
		30m east of the onshore substation zones.	Traditional orchard; Present to the west of Shepherds Lane.
Habitat networks	N/A	Adjacent to landfall.	Primary habitat: maritime Cliff and slope; Network Enhancement Zone 1 and 2: habitat not specified; The priority habitats extend to the north and south of landfall.
		Adjacent to the onshore export cable corridor.	Network Enhancement Zone 1 and 2: habitat not specified; Restorable habitat: habitat not specified. The priority habitats are present to the north and south of the onshore export cable corridor in the areas surrounding the River Hull and Beverley and Barmston Drain (north of Tickton).
Open mosaic habitat	N/ .A	30m east of the onshore export cable corridor.	Site reference: 123500; Identification confidence: low.
LoGS	Skipsea Drain.	Adjacent to landfall and onshore export cable corridor.	The Skipsea Drain LoGS extends northwards from the landfall / onshore export cable corridor.

19.1.6.6. Agricultural Designations

22. The presence (or absence) of agricultural designations at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-10** with further details provided in **Table 19-11** and **Table 19-12**.

Table 19-10 Summary of Agricultural Designation

Designation type	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Agricultural designation	Yes	Yes	Yes	Yes
Open access land	No	No	No	Yes
Tree felling license	No	Yes	No	Yes
Environmental stewardship schemes	Yes	Yes	No	Yes
Countryside stewardship schemes	Yes	Yes	Yes	Yes

Table 19-11 Details of On Site Agricultural Designations

Designation type – on site	Location	Detail
Agricultural designation	Landfall.	Agricultural Land Classification (ALC) Grades 2 and 3 are present within the landfall area.
	Onshore export cable corridor.	ALC Grades 2 and 3 are present throughout the onshore export cable corridor. An area of non-agricultural land is located between the settlements of Tickton and Arram.
	Onshore substation zones.	The onshore substation zones are located entirely within land designated as ALC Grade 2.
Tree felling license	Onshore export cable corridor.	Tree Felling Licences: Selective Fell / Thin (Unconditional); Reference: 012 / 174 / 08-09; Date: 08 / 04 / 2009; Located east of Catfoss Lane, north of West Road.
Environmental stewardship schemes	Landfall.	Entry Level plus Higher Level; Reference: AG00472712; Start date: 01 / 10 / 2013; End date: 30 / 09 / 2023.
	Onshore export cable corridor.	Entry Level plus Higher Level; Reference: AG00418410; Start date: 01 / 03 / 2013; End date: 28 / 02 / 2023. Located to the east of Catfoss Lane, north of West Road. Also present to the west of Catwick Lane, east of Whitecross Road.
		Entry Level plus Higher Level; Reference: AG00451023; Start date: 01 / 07 / 2013; End date: 30 / 06 / 2023. Located to the north of Hornsea Road, east and west of Main Street.
	Onshore substation zones.	Entry Level plus Higher Level; Reference: AG00305272; Start date: 01 / 03 / 2010; End date: 28 / 02 / 2021.
Countryside stewardship schemes	Landfall.	Middle Tier; Reference: 524081; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2021.
	Onshore export cable corridor.	Middle Tier; Reference: 1031343; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025; Located to the north of West Road, east of Catfoss Lane.
		Woodland Management Plan; Reference: 831782; Start date: 01 / 11 / 2019; End date: 31 / 10 / 2021.
		Higher Tier; Reference: 307188; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2026. Located to the north and south of Sisterbeck Dike and Carr Road. Also present to east and west of Drifffield Road, as well as to the north and south of Constitutional Hill.
	Onshore substation zones.	Middle Tier; Reference: 646343; Start date: 01 / 01 / 2019; End date: 31 / 12 / 2023. Located to the east and west of the A1079, also extends into the onshore cable corridor.
		Middle Tier; Reference: 1014915; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025; Located to the north of Bentley Road.

Table 19-12 Details of Off Site Agricultural Designations

Designation type – off site	Site name & location	Location & distance from the Onshore Development Area	Detail
Agricultural designation	N/A	Adjacent to landfall.	Grades 2 and 3 ALC land extend to the north, south and west of the landfall.
		Adjacent to the onshore export cable corridor.	Grades 2 and 3 ALC land extends in all directions along the boundary of the onshore export cable corridor.
			Grade 4 ALC land is present adjacent to the southern boundary of the onshore export cable corridor at Hull Bridge Road.
			Non-agricultural ALC land extends to the north of the onshore export cable corridor between the settlements of Tickton and Arram.
			Non-agricultural ALC land is also present adjacent to the eastern boundary of the onshore export cable corridor at York Road and Newbald Road.
			Urban ALC land is present adjacent to the eastern boundary of the onshore export cable corridor at Keldgate Road.
		30m south west of the onshore export cable corridor.	Urban ALC land is located to the north east and south west of Grange Way.
		60m east of the onshore export cable corridor.	Urban ALC land is located to the north and south of Wingfield Way.
		120m south of the onshore export cable corridor.	Urban ALC land is located to the north and south of Woodhall Way.
		Adjacent to the onshore substation zones.	Grade 2 ALC extends in all directions along the boundary of the onshore substation zones.
		110m east of the onshore substation zones.	Grade 3 ALC land is located to the west of Long Lane, as well as to the north and south of Minster Way.
Tree felling license	N/A	130m north of the onshore substation zones.	Tree Felling Licence: Clear Fell (Conditional); Reference: 012 / 540 / 98-99; Date: 21 / 10 / 1998; Located to the north of the A1079.
Environmental stewardship schemes	N/A	Adjacent to landfall.	Entry Level plus Higher Level; Reference: AG00472712; Start date: 01 / 10 / 2013; End date: 30 / 09 / 2023. Located to the east of Hornsea Road, south of Cliff Road.

Designation type – off site	Site name & location	Location & distance from the Onshore Development Area	Detail
		Adjacent to the onshore export cable corridor.	Entry Level plus Higher Level; Reference: AG00418410; Start date: 01 / 03 / 2013; End date: 28 / 02 / 2023. Located to the east and west of Catfoss Lane, north and south of West Road. Also present to the east of Catwick Heads Lane, and north of Catwick Lane.
			Entry Level plus Higher Level; Reference: AG00451023; Start date: 01 / 07 / 2013; End date: 30 / 06 / 2023. Located to the north and south of Hornsea Road, east and west of Main Street.
		240m south of the onshore export cable corridor.	Entry Level plus Higher Level; Reference: AG00414290; Start date: 01 / 11 / 2012; End date: 30 / 10 / 2022. Located to the east and west of Whitecross Road.
		Adjacent to the onshore substation zones.	Entry Level plus Higher Level; Reference: AG00305272; Start date: 01 / 03 / 2010; End date: 28 / 02 / 2022. Located to the east Bentley Lane, south of Broadgate. Also present to the west of Beverley Road.
Countryside stewardship schemes	N/A	Adjacent to landfall.	Middle Tier; Reference: 524081; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2021. Extends northwards from landfall crossing North Turnpike.
		160m north of landfall.	Middle Tier; Reference: 109953; Start date: 01 / 01 / 2016; End date: 31 / 12 / 2021. Located north of Mill Lane, west of Second Avenue.
		Adjacent to onshore export cable corridor.	Middle Tier; Reference: 1031343; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025. Located east of Catfoss Lane, north of West Road. Also located 140m east of the onshore export cable corridor north of Catfoss Road.
			Woodland Management Plan; Reference: 831782; Start date: 01 / 11 / 2019; End date: 31 / 10 / 2021. Located north of West Road. Also located 150m west of the onshore export cable corridor, west of Catfoss Lane.
			Higher Tier; Reference: 307188; Start date: 01 / 01 / 2017; End date: 31 / 12 / 2026. Located to the south of Sisterbeck Dike and South Bullock Dike. Also present to the north and south of Carr Road, to the north of Grange Way and to south of Constitution Hill.

Designation type – off site	Site name & location	Location & distance from the Onshore Development Area	Detail
		30m south of the onshore export cable corridor.	Middle Tier; Reference: 1060831; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025; Located south of Stream Dike.
		150m east of the onshore export cable corridor.	Middle Tier; Reference: 1052477; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025. Located north of Harsall Lane.
		Adjacent to the onshore export cable corridor and onshore substation zones.	Middle Tier; Reference: 646343; Start date: 01 / 01 / 2019; End date: 31 / 12 / 2023. Located to the north east and south west of the A1079.
		Adjacent to onshore substation zones.	Middle Tier; Reference: 1014915; Start date: 01 / 01 / 2021; End date: 31 / 12 / 2025. Located to the north of Bentley Road and east of Bentley Lane.
Open access land	Swinemoor.	Adjacent to onshore export cable corridor.	Located to the south of Hull Bridge Road.
	Westwood and Hurn.		Located north and south of York Road extending southwards to Keldgate Road.

19.1.6.7. Historical Industrial Land Use

23. The presence (or absence) of historical industrial land uses, tanks, energy features (e.g. electricity substations and gas works), petrol stations, garages and military land at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-13** with further details provided in **Table 19-14** and **Table 19-15**. The locations of potentially contaminative historical land uses are illustrated on **Figure 19.4**.

Table 19-13 Summary of Historical Industrial Land Uses

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Industrial land uses	Yes	Yes	Yes	Yes
Tanks	No	No	No	Yes
Energy features	No	No	No	Yes
Petrol stations	No	No	No	No
Garages	No	No	No	Yes
Military land	No	No	No	No

Table 19-14 Details of On Site Historical Industrial Land Uses

Feature – on site	Name	Location	Detail	Figure 19.4 Reference
Industrial land uses	N/A	Landfall.	Feature: Unspecified hole (associated with the Folly hole on historical mapping); Date: 1909 – 1948.	1
		Onshore export cable corridor.	Feature: Old sand pit / unspecified pits; Date: 1909 – 1952; Located east of Catfoss Lane, north of West Road.	2
			Feature: Pumping station; Date: 1909 – 1988 (recorded as disused from 1974); Located between the River Hull and Beverley & Barnston Drain.	3
			Feature: Unspecified heap; Date: 1946; Located to the west of the River Hull, north of Hull Bridge Road.	4
			Feature: Old gravel pits / unspecified ground workings; Date: 1909 – 1988; Located to the west of the River Hull, north of Hull Bridge Road.	5
			Feature: Sewage works and unspecified tanks; Date: 1952 – 1993; Located to the south of Carr Road, east of Ings Road.	6
			Feature: Cuttings; Date: 1908 – 1952; Located in the area between Driffield Road and Ings Road.	7
			Feature: Old butts; Date: 1938 – 1952; Located north of York Road.	8
			Feature: Unspecified pit; Date: 1889 – 1992; Located south east of Newbald Road.	9
			Feature: Sewage works; Date: 1908; Located to the north east of the A1079.	10
		Onshore export cable corridor and onshore substation zones.	Feature: Cuttings; Date: 1981 – 1992; Located along the route of the A1079.	11
		Onshore substation zones.	Feature: Chalk pit; Date: 1908 – 1952; Located to the south west of the A1079.	12

Table 19-15 Details of Off Site Historical Industrial Land Uses

Feature – off site	Location & distance from Onshore Development Area	Detail	Figure 19.4 Reference
Industrial land uses	Adjacent to landfall – to the east of Hornsea Road.	Feature: Disused brickworks; Date: 1909.	13
	25m and 90m west of landfall – west of Southfield Lane.	Feature: Coastguard station; Date: 1909 – 1952.	14
	50m north of landfall – centred around South Field.	Feature: Unspecified holes; Date: 1909 – 1981.	15
	130m west of landfall – at the junction of Green Lane and Mill Lane.	Feature: Pump house; Date: 1981.	16
	Adjacent to the onshore export cable corridor – west of Hornsea Road.	Feature: Unspecified tank; Date: 1981.	17
	Adjacent to the onshore export cable corridor – extends from within the Onshore Development Area southwards towards Hull Bridge Road.	Feature: Unspecified heap; Date: 1946.	18
	Adjacent to the onshore export cable corridor – extends from within the Onshore Development Area westwards parallel to Hull Bridge Road.	Feature: Old gravel pits / unspecified ground workings; Date: 1909 – 1988.	19
	Adjacent to and 180m east of the onshore export cable corridor – adjacent to Hull Bridge Road.	Feature: Nurseries; Date: 1973 – 1993.	20
	Adjacent to the onshore cable corridor – extending north westwards from the Onshore Development Area west of Driffeld Road.	Feature: Cuttings; Date: 1908 – 1952.	21
	Adjacent to the onshore export cable corridor – extending northwards of the Onshore Development Area, south east of Newbald Road.	Feature: Unspecified pit; Date: 1889 – 1992.	22
	Adjacent to the onshore export cable corridor- south of Broadgate.	Feature: Whiting works; Date: 1889 – 1981.	23
		Feature: Unspecified heap; Date: 1889 – 1908.	24
		Feature: Chalk pit; Date: 1938 – 1992.	25
		Feature: Water works; Date: 1889 – 1992.	26
	10m west of the onshore export cable corridor – south of Broadgate.	Feature: Mental hospital / hospital; Date: 1889 – 1981.	27
	20m east of the onshore export cable corridor – to the west of Billings Lane.	Feature: Unspecified pits; Date: 1981.	28
	30m west of the onshore export cable corridor – south of York Road.	Feature: Unspecified ground workings; Date: 1908 – 1948.	29
	30m north west of the onshore export cable corridor – east of Beverley Road.	Feature: Unspecified pit / old chalk pit; Date: 1908 – 1970.	30

Feature – off site	Location & distance from Onshore Development Area	Detail	Figure 19.4 Reference
	60m west of the onshore export cable corridor – north of A1035, West of Catfoss Lane.	Feature: Refuse heap; Date: 1982.	31
	60m north of the onshore export cable corridor – west of Leconfield Road.	Feature: Garage; Date: 1973 – 1993.	32
	60m east of the onshore export cable corridor – west of Victoria Road.	Whiting works / unspecified works; 1947 – 1970.	33
	70m north of the onshore export cable corridor – west of Riston Road.	Feature: Brick and tile works; Date: 1909.	34
	70m north of the onshore export cable corridor – north of Carr Road.	Feature: Airfield; Date: 1973 – 1993 (recorded as discussed in 1993).	35
	90m east of the onshore export cable corridor – south of West Road.	Feature: Unspecified pit; Date: 1926.	36
	120m north east of the onshore export cable corridor – south east of Newbald Road.	Feature: Unspecified ground workings / pit; Date: 1889 – 1992.	37
	120m north of the onshore export cable corridor – north of York Road.	Feature: Old chalk pits / unspecified pits / unspecified heap; Date: 1908 – 1952.	38
	120m east of the onshore export cable corridor – west of Victoria Road.	Feature: Chalk pit / unspecified quarry; Date: 1947 – 1992 (recorded as disused from 1981).	39
	160m west of the onshore export cable corridor – along the route of the A1079.	Feature: Cuttings; Date: 1981 – 1992.	40
	170m south east of the onshore export cable corridor – east of Weel Road.	Feature: Superphosphate works / fertiliser works; Date: 1952 – 1988.	41
	180m west of the onshore substation zones – west of the A1079.	Feature: Sewage works; Date: 1952 – 1992 (recorded as disused in 1992).	42
	190m north the onshore export cable corridor – south west of Eske Lane.	Feature: Unspecified pit; Date: 1974 – 1988.	43
	200m north of the onshore export cable corridor – west of Riston Road.	Feature: Unspecified ground workings / unspecified pit; Date: 1909 – 1952. The location of the ground workings / pit is within the footprint of the brick and tile works located 70m north of the onshore export cable corridor – west of Riston Road.	44
	210m west of the onshore export cable corridor – to the west of Catfoss Lane.	Feature: Airfield; Date: 1952 – 1982 (recorded as disused in 1982).	45
	230m east of the onshore export cable corridor – adjacent to Dunnington Lane.	Feature: Gas valve compound; Date: 1981.	46
	230m south of the onshore export cable corridor – west of Weel Road.	Feature: Unspecified depot; Date: 1974 – 1988.	47

Feature – off site	Location & distance from Onshore Development Area	Detail	Figure 19.4 Reference
	230m north of the onshore export cable corridor – north of Ings Road.	Feature: Unspecified heap; Date: 1973.	48
	240m west of the onshore export cable corridor – north of A1035, west of Catfoss Lane.	Feature: Sand pit; Date: 1909.	49
	240m north of the onshore export cable corridor – north of Meaux Lane.	Feature: Unspecified heap; Date: 1952.	50
	250m west of the onshore export cable corridor – north of A1035, west of Catfoss Lane.	Feature: Unspecified pits; Date: 1925 – 1952.	51
	250m north east the onshore export cable corridor – west of Park View.	Feature: Smithy; Date: 1909.	52
	Adjacent to the onshore export cable corridor and onshore substation zones – extending northwards and southwards of the Onshore Development Area along the route of the A1079.	Feature: Cuttings; Date: 1981 – 1992.	53
	Adjacent to the onshore substation zones – extending westward of the Onshore Development Area south west of the A1079.	Feature: Chalk pit; Date: 1908 – 1952.	54
	40m west of the onshore substation zones – north east of Bentley Lane.	Feature: Unspecified pit; Date: 1952 – 1992.	55
	70m south of the onshore substation zones – North of Bentley Road.	Feature: Unspecified pit / Chalk pit; Date: 1889 – 1992.	56
	230m south of the onshore substation zones – north of Bentley Road.	Feature: Unspecified ground workings; Date: 1908 – 1992.	57
Tanks	Adjacent to the onshore export cable corridor – west of Hornsea Road.	Date: 1975 – 1995.	58
	120m north of the onshore export cable corridor – west of Oriel Close.	Gasometer / gas works; Date: 1893 – 1910.	59
	210m north west of the onshore export cable corridor – south of Newbald Road.	Date: 1965 – 1967.	60
Energy features	70m east of landfall – north of Sand Lane.	Feature: Electricity substation; Date: 1975.	61
	190m west of landfall – north of Mill Lane, west of Central Avenue.	Feature: Electricity substation; Date: 1995.	62
	Adjacent to the onshore export cable corridor – east of Driffield Road.	Feature: Electricity substation; Date: 1971 – 1994.	63
	80m east of the onshore export cable corridor – east of the A1079.	Feature: Gas works; Date: 1910.	64
	80m north east of the onshore export cable corridor – south of Broadgate.	Feature: Electricity substation; Date: 1996.	65
	90m south west of the onshore export cable corridor – south of Grange Way.	Feature: Electricity substation; Date: 1971.	66

Feature – off site	Location & distance from Onshore Development Area	Detail	Figure 19.4 Reference
	220m north west of the onshore export cable corridor – adjacent to Speedwell Lane.	Feature: Electricity substation; Date: 1994 – 1997.	67
	250m south of the onshore export cable corridor – south of Grange Way.	Feature: Gas governor; Date: 1984 – 1994.	68
	250m north of the onshore export cable corridor – west of Victoria Road.	Feature: Electricity substation; Date: 1967 – 1985.	69
Garages	160m west of landfall – north of Cliff Road.	Date: 1994.	70
	100m north of the onshore export cable corridor – west of Leconfield Road.	Date: 1994.	71
	120m south of the onshore export cable corridor – south of Hull Bridge Road.	Date: 1971 – 1994.	72
	150m north of the onshore export cable corridor – west of Park View.	Date: 1971 – 1994.	73

19.1.6.8. Current Industrial Land Use

24. The presence (or absence) of current industrial land uses, petrol stations, electricity cables and gas pipelines at or within 250m of the Onshore Development Area boundary has been summarised in **Table 19-16** with further details provided in **Table 19-17** and **Table 19-18**.

Table 19-16 Summary of Current Industrial Land Uses

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Industrial land uses	No	Yes	Yes	Yes
Current or recent petrol stations	No	No	No	Yes
Electricity cables*	No	No	No	No
Gas pipelines*	No	Yes	Yes	Yes

*As defined by the database and does not constitute a utility search.

25. An area identified within the East Riding of Yorkshire Council, East Riding Local Plan 2012 – 2029 (2016) as a Military and Technical Site Consultation Zone (Leconfield) bisects the onshore export cable corridor to the north of Carr Road. The consultation area extends northwards offsite extending to distances >250m.
26. The boundary of the consultation area corresponds to that of the Ministry of Defence's Defence School of Transport (DTS). The facility, established in 1996, provides driver training for Army, Royal Airforce and Royal Marines personnel (MOD, 2020). The southern end of the DTS is located within the 250m buffer of the Onshore Development Area but does not intersect the onshore export cable corridor.

Table 19-17 Details of On Site Current Industrial Land Uses

Feature – on site	Name	Location	Detail	Figure 19.5 Reference
Industrial land uses	YO25.	Onshore export cable corridor.	Electrical features – electricity poles; Located south of Catfoss Road.	1
	HU17.		Sheep dips and washes – sheep dip; Located west of Meaux Lane.	2
			Electrical features – pylon; Located west of Hornsea Road.	3
			Gas features – gas distribution station; Located west of A1079.	4
	HU16 and HU17.		Electrical features – pylon (six records – all running parallel to the A1079); Located south west of the A1079.	5
	Land South East of Poplar Farm, Park Lane, Cottingham, HU16 5SA.	Energy production – Poplar Farm turbine.	6	
	HU17.	Onshore substation zone.	Electrical features – pylon (one record –running parallel to the A1079); Located south west of the A1079.	7
			Electrical features – electricity poles; Located north of the A1079	8
Gas pipelines	Pipe name – Burton Agnes to Paull.	Onshore export cable corridor.	National Grid high pressure gas pipeline running north south bisecting the onshore export cable corridor at Catfoss Road and west of Dunnington Lane.	9
	Pipe name – Easington to Asselby.	Onshore export cable corridor and onshore substation zone.	National Grid high pressure gas pipeline running north east to west.	10

Table 19-18 Details of Off Site Current Industrial Land Uses

Feature – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.5 Reference
Industrial land uses	YO25.	Adjacent to landfall – east of Hornsea Road.	Energy production - Southfield House Farm Turbine (3 records).	11
	Mr Moo's Real Dairy Ice Cream Southfield House Farm, Hornsea Road, Skipsea, YO25 8SY.	30m east of landfall.	Dairy products – foodstuffs.	12
	YO25.	60m east of landfall – north of Sand Lane.	Electrical features – electricity substation.	13
		150m west of landfall – between Green Lane and South Field.	Waste storage, processing and disposal – sewage pumping station.	14
			Water pumping stations – pumping station	
		160m west of landfall – west of Southfield Lane.	Water pumping stations – pump house.	15
		110m west of landfall – north of Sand Lane.	Hoppers and silos – silos.	16
	Skipsea Service Station Ltd Hornsea Road, Skipsea, , YO25 8ST.	180m west of landfall.	Vehicle repair, testing and servicing – repair and servicing.	17
	HU17.	Adjacent to the onshore export cable corridor – north west of Hornsea Road.	Electrical features – electricity substation.	18
		Adjacent to the onshore export cable corridor – east of Driffeld Road	Electrical features – electricity substation.	19
	HU17.	10m east of the onshore export cable corridor – south of Broadgate.	Tanks (Generic) – tank.	20
		20m west of onshore export cable corridor – west of A1079.	Electrical features – pylon.	21
	YO25.	40m west of the onshore export cable corridor – south west of Billings Lane.	Hoppers and silos – silos.	22
	HU11.	40m west of the onshore export cable corridor – east of Catfoss Lane.	Hoppers and silos – hopper.	23
	Imerys Keldgate Road, Beverley, HU17 8RQ.	40m east of the onshore export cable corridor.	Unspecified quarries or mines - extractive industries.	24

Feature – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.5 Reference
	Staal Smokehouse Ltd The Cottage Riston Grange, White Cross Road, Long Riston, HU11 5SA.	60m north of the onshore export cable corridor.	Fish, meat and poultry products – foodstuffs.	25
	HU17.	70m south of the onshore export cable corridor – north of Grange Lane.	Telecommunications features – mast.	26
	Beverley Ambulance Station, HU17.	70m south of the onshore export cable corridor – west of Driffeld Road.	Ambulance and medical transportation services – health support services.	27
	HU17.	70m west of the onshore export cable corridor – west of the A1079.	Hoppers and silos – silo.	28
	H N Sinkler & Son Havers Manor House Farm, Meaux Lane, Routh, HU17 9SR.	80m north of the onshore export cable corridor.	Livestock farming – farming.	29
	YO25.	80m west of the onshore export cable corridor – north of Catfoss Road.	Waste storage, processing and disposal – slurry lagoon.	30
	HU17.	90m south of the onshore export cable corridor – north of Hornsea Road.	Electrical features – pylon.	31
		90m east of the onshore export cable corridor – south of Broadgate.	Electrical features – electricity substation.	32
		90m south west of the onshore export cable corridor – south west of the A1079.	Electrical features – pylon.	33
		100m west of the onshore export cable corridor – north of Grange Lane.	Energy production – solar panels.	34
		100m south of the onshore export cable corridor – located between Pighill Land and Lockwood Road.	Gas features – gas governor.	35
	YO25.	110m west of the onshore export cable corridor – south west of Billings Lane.	Telecommunications features – mast.	36
	YO25.	120m east of the onshore export cable corridor – north of Catfoss Road.	Electrical features – electricity poles.	37
	HU11.	140m west of the onshore export cable corridor – east of Catfoss Lane.	Water pumping stations – pump.	38

Feature – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.5 Reference
	Dent-tech P D R Ltd 26, Hambling Drive, Molescroft, HU17 9GD.	140m south of the onshore export cable corridor – north of Grange Lane.	Vehicle repair, testing and servicing - repair and servicing.	39
	HU17.	140m north west of the onshore export cable corridor – west of the A1079.	Electrical features – pylon.	40
	B A T A 310, Hull Bridge Road, Tickton, East Riding of Yorkshire, HU17 9RT.	150m south of the onshore export cable corridor.	Agricultural machinery and goods - industrial products.	41
	East Riding of Yorkshire, HU17.	150m north west of the onshore substation zones – west of the A1079.	Electrical features – pylon.	42
		160m north of the onshore export cable corridor – north west of Hornsea Road.	Electrical features – pylon.	43
		160m north of the onshore substation zones – west of Victoria Road.	Hoppers and silos – silo.	44
	HU16.	160m east of the onshore substation zones – south of the A1079.	Electrical features – pylon.	45
	R B 2000 Main Road, Routh, HU17 9SL.	170m north of the onshore export cable corridor.	Second-hand Vehicles – motoring.	46
	HU17.	170m south of the onshore export cable corridor – west of Weel Road.	Moorings and unloading facilities - mooring posts.	47
	Car Body & Paint Centre Ltd Hull Bridge Road, BeverleyHU17 9RS.	170m west of the onshore export cable corridor.	Vehicle repair, testing and servicing - repair and servicing.	48
	HU17.	190m south of the onshore export cable corridor – north of Lockwood Road.	Electrical features – electricity substation.	49
		190m north of the onshore substation zones – north west of Victoria Road.	Unspecified quarries or mines – pit.	50
	Beverad Radiator & Air Conditioning Specialist Unit 8 Riverside Works, Hull Bridge Road, Tickton, HU17 9RT.	200m south of the onshore export cable corridor.	Vehicle repair, testing and servicing - repair and servicing.	51
	Martin Motors 249, Hull Bridge Road, Tickton, HU17 9RS.	200m south of the onshore export cable corridor.	Vehicle repair, testing and servicing - repair and servicing.	52

Feature – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.5 Reference
	Frenchs of Beverley Bramble Hill Farm, Victoria Road, Beverley, HU17 8PW.	200m north of the onshore export cable corridor.	Dairy products – foodstuffs.	53
	HU17.	210m south of the onshore export cable corridor – south of Hull Bridge Road.	Unspecified works or factories – works.	54
	Bill Dodds Motor Engineers Manor Farm Catfoss Lane, Sigglesthorne, Hull, HU11 5QN.	220m west of the onshore export cable corridor.	Vehicle repair, testing and servicing - repair and servicing.	55
	HU17.	220m south of the onshore export cable corridor – north of Hornsea Road.	Electrical features – pylon.	56
		220m east of the onshore export cable corridor – north of York Road.	Tanks (generic) – tank.	57
		220m west of the onshore export cable corridor – south of Megson Way.	Electrical features – electricity substation.	58
		220m east of the onshore export cable corridor – north of the A1079.	Electrical features – pylon.	59
	YO25.	230m south east of the onshore export cable corridor – south east of Dunnington Lane.	Gas features – gas valve compound.	60
	HU17.	230m west of the onshore export cable corridor – north of Hull Bridge Road.	Telecommunications features – mast.	61
		230m north west of the onshore export cable corridor – west of the A1079.	Waste storage, processing and disposal - sewage works (disused).	62
	Manor Farm (East Riding of Yorkshire, Dunnington) Skipsea Lane, Dunnington, YO25 8EG	250m south of onshore export cable corridor.	Energy Production - wind turbine.	63
	Bob Trice Mechanics Unit 11 Riverside Works, Hull Bridge Road, Tickton, HU17 9RT.	250m south of the onshore export cable corridor.	Vehicle repair, testing and servicing - repair and servicing.	64
	HU17.	250m south of the onshore export cable corridor – north of Woodhall Way.	Gas features – gas governor station.	65
	HU17.	110m east of the onshore substation zones –west of Shepherds Lane.	Water pumping stations – pump.	66

Feature – off site	Site name & location	Location & distance from Onshore Development Area	Detail	Figure 19.5 Reference
		120m west of the onshore substation zones – north of Bentley Road.	Sheep dips and washes – sheep dip.	67
		150m north of the onshore substation zones – east of Victoria Road.	Tanks (generic) – tank.	68
		150m south of the onshore substation zones – south west of Shepherds Lane.	Tanks (generic) – tank.	69
		190m west of the onshore substation zones – east of Bentley Lane.	Unspecified quarries or mines – pit.	70
		250m north of the onshore substation zones – north of Minster Way.	Electrical features – electricity substation.	71
Current or recent petrol stations	Hornsea Road, Skipsea, Driffield, YO25 8ST.	80m west of landfall.	Status: obsolete.	72
	Main Road, Routh, Beverley, HU17 9SL.	95m north east of the onshore export cable corridor.		73

19.1.7. Historical Land Use

19.1.7.1. Introduction

27. The historical development of the Onshore Development Area has been assessed using information available from historical Ordnance Survey (OS) maps within the Environmental Database GIS data.
28. In the context of the summary of historical development of the surrounding area, the descriptions are limited to within approximately 100m of the Onshore Development Area boundary, unless specified in the following section.

19.1.7.2. Site History

Table 19-19 Summary of On Site Historical Data

Feature	Map years	Notes	Figure 19.4 Reference
Landfall			
Agricultural land	1890 – present.	Agricultural land is present throughout the landfall area.	N/A
Folly Hole	1855 – present.	Located to the east of Hornsea Road.	74
Onshore export cable corridor			
Potential pit / pond / infilled land	1893 – present.	Located throughout the onshore export cable corridor.	75
Agricultural land	1854 – present.	Agricultural land is located throughout the onshore export cable corridor.	N/A
Old Sand Pit	1891 – 1970.	Located to the north of West Road.	76
Potential pit / pond	1891 – 1982 (latest available map).	Located to east and west of Catwick Heads.	77

Feature	Map years	Notes	Figure 19.4 Reference
		Located west of Meaux Lane.	78
South Bullock Pumping Station	1891 – 1988 (latest map available).	Located between the Rive Hull and Beverley and Barstom Drain. Recorded as disused by 1972.	79
Hull and Scarborough Railway	1854 – present.	Located north and south of Grange Way.	80
York, Market Weighton and Beverley Railway	1893 – 1972.	Railway runs north west to south east. Located to the west of Ings Road. Recorded as dismantled by 1972.	81
Springs and potential pond	1893 – 1966.	Located north of Burton Bushes.	82
Old Butts (potential pit)	1926 – 1966.	Located north of Burton Bushes.	83
Sewage works	1908 – 1926.	Located to the north east of the A1079.	84
	1972 – 1995 (latest map available.)	Located to the north east of Ings Road. Recorded as disused by 1994.	85
Onshore substation zones			
Potential pit / pond / infilled land	1893 – present.	Located throughout the onshore substation zones.	86

19.1.7.3. Surrounding History

29. There are a number of potentially contaminative land uses identified within the Onshore Development Area, the main ones within 100m of the Onshore Development Area boundary are listed in **Table 19-20**.

Table 19-20 Summary of Off Site Historical Data

Feature	Map years	Distance	Notes	Figure 19.4 reference
Brickworks	1855 - 1929.	Adjacent to landfall.	Recorded as disused by 1890.	87
Potential pits / ponds / chalk pits / old gravel pits	1854 - present.	Adjacent - 250m.	Potential pits / ponds, and therefore potentially infilled areas are located throughout the 250m area surrounding the Onshore Development Area.	88
Sheep wash	1891 - 1927.	40m west of onshore export cable corridor.	Located to the north of West Road.	89
	1910 - 1927.	80m west of landfall.	Located north of Sand Lane.	90
Hull and Scarborough Railway	1854 - present.	Adjacent to onshore export cable corridor.	Rail line extends north and south of the Onshore Development Area.	91

Feature	Map years	Distance	Notes	Figure 19.4 reference
York, Market Weighton and Beverley Railway	1893 – 1972.	Adjacent to onshore export cable corridor.	Rail line extends north west and south east of the Onshore Development Area. Recorded as dismantled by 1972.	92
Chalk pit, Kilns and Victoria Whiting Works	1854 – present.	70m east of the onshore export cable corridor.	N/A	93
Beverley Water Works and Reservoir	1889 – present	10m east of the onshore export cable corridor.	N/A	94
Electricity substation	1976 – 1982 (latest available map).	80m north of landfall.	Google Earth imagery indicates that the electricity substation is still present.	95

19.1.7.4. Unexploded Ordnance

30. An unexploded ordnance (UXO) risk map has been obtained from Zetica and is presented in **Annex A**. The map indicates that the Onshore Development Area is located within an area deemed as containing a low risk of encountering a UXO.

19.1.8. Geology, Soil Background Chemistry, Groundwater, Hydrology and Radon

19.1.8.1. Geology

31. Information on geological conditions within the Onshore Development Area has been collated from BGS datasets, including 1:50,000 scale geological mapping, historical BGS borehole records and Environmental Database GIS data. Geological conditions are summarised in **Table 19-21**. It must be noted, however, that the proportions of each stratum may be variable along the length of the Onshore Development Area. Geological conditions within the Onshore Development Area, including Source Protection Zones (discussed in section 19.1.8.4.3), are illustrated on **Figure 19.6**.

Table 19-21 Anticipated Geology

Stratum	Unit	Description
Superficial deposits	Lacustrine Deposits.	Isolated areas of Lacustrine Deposits within landfall and the onshore export cable corridor.
	Alluvium.	Isolated areas of Alluvium within landfall, the onshore export cable corridor and onshore substation zones.
	Head.	Located between Beverley Road and Bentley Lane within the onshore export cable corridor and onshore substation zones.
	Glaciofluvial Deposits.	Isolated areas of Glaciofluvial Deposits within landfall and the onshore export cable corridor.
	Glacial Till.	Located throughout landfall, the onshore export cable corridor and onshore substation zones.
	Sand and gravel (of uncertain age and origin).	Located to the north of Grange Way within the onshore export cable corridor and to the west of Beverly Road and A1079 of the onshore substation zones.

Stratum	Unit	Description
Bedrock	Rowe Chalk Formation.	Located throughout landfall and within the initial section of the onshore export cable corridor east of Dunnington.
	Flamborough Chalk Formation.	Located throughout the onshore export cable corridor (west of Dunnington) and onshore substation zones. Recorded on BGS geological cross sections as underlying the Rowe Chalk Formation.
	Burnham Chalk Formation.	Located along the southern edge of the onshore substation zones. Recorded on BGS geological cross sections as underlying the Flamborough Chalk Formation.

32. BGS logs have been referred to for information only. The presence (or absence) of BGS logs at or within 100m of the Onshore Development Area boundary has been summarised in **Table 19-22** with further details provided in **Table 19-23** and **Table 19-24**. Copies of the BGS borehole logs are presented as **Annex B**. All coordinates are to National Grid Eastings and Northings.

Table 19-22 Summary of BGS Borehole Logs

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 100m)
BGS borehole logs	No	Yes	Yes	Yes

Table 19-23 Details of On Site BGS Borehole Logs

Reference Number (Hole Type and Depth) Coordinates – On Site	Details
Onshore Cable Corridor	
TA04SE2 (Borehole, 23m below ground level (bgl)) 505332E, 442639N	Soil and clay: to 1.8m bgl; Very soft black warp: to 10.4m bgl; Thin bed of flinty gravel: to 10.5m bgl; Very soft Chalk: > 23.0m bgl.
TA04SE3 (Borehole, 24m bgl) 506548E, 442842N	Topsoil: to 0.3m bgl; Gravel and sand: to 1.2m bgl; Clay and marl: to 7.9m bgl; Chalk and gravel: to 11.0m bgl; Chalk: 11.0 – >24.4m bgl.
TA04SW15 (Borehole, 6.7m bgl) 501987E, 441604N	Boulder Clay: to 6.1m bgl; Chalk: > 6.7m bgl.
TA04SW17 / A (Borehole, 5.5m bgl) 502652E, 441540N	Topsoil: to 0.3m bgl; Sandy clay: to 0.6m bgl; Red clay: to 1.5m bgl; Sand: to 2.1m bgl; Blue clay: to 4.3m bgl; White gravel: to 4.9m bgl; Marl and gritty chalk: to >5.5m bgl.
TA04SW17 / B (Borehole, 15.2m bgl) 502654E, 441540N	Topsoil: to 0.8m bgl; Sandy clay: to 1.1m bgl; Brown to blue clay: to 4.4m bgl; White gravel: to 5.6m bgl; Chalky marl: to 6.1m bgl; Yellow sand: to 7.0m bgl; Chalk: to >15.2m bgl.
TA04SW17 / C (Borehole, 5.4m bgl) 502677E, 441521N	Topsoil and brown to blue clay: to 4.7m bgl; White gravel: to 5.2m bgl; Chalky marl: to >5.4m bgl.
TA04SW17 / D (Borehole, 5.0m bgl) 502618E, 441531N	Topsoil: to 0.8m bgl; Sandy clay: to 1.4m bgl; Sand: to 1.7m bgl; Yellow gravel: to 2.6m bgl; Blue clay: to 4.3m bgl; Red clay: to 4.4m bgl; White gravel: to 4.7m bgl; Chalky marl: to >5.0m bgl.
TA04SW17 / E (Borehole, 5.5m bgl) 502704E, 441509N	Topsoil and brown to blue clay: to 5.0m bgl; White gravel: to 5.2m bgl; Chalky marl: to >5.5m bgl.

Reference Number (Hole Type and Depth) Coordinates – On Site	Details
TA04SW17 / F (Borehole, 5.5m bgl) 502591E, 441596N	Topsoil: to 0.8m bgl; Sandy clay: to 1.5m bgl; Sand: to 2.1m bgl; Gravel: to 3.7m bgl; Red clay: to 4.3m bgl; White gravel: to 4.4m bgl; Chalky marl: to >5.5m bgl.
TA14NW84 (Borehole, 20.5m bgl)	Topsoil: to 0.2mbgl; Stiff brown sandy silt Clay: to 1.8m bgl; Sand: to 1.9m bgl; Stiff silty Clay: > 20.5m bgl.

Table 19-24 Details of Off Site BGS Borehole Logs

Reference Number (Hole Type and Depth) Coordinates – Of Site	Distance (Direction)	Details
TA03NW3 (Borehole, 38.5m bgl) 503619E, 435653N	10m (east of the onshore export cable corridor).	Topsoil: to 0.6m bgl; Yellow clay: to 6.7m bgl; Boulder Clay: to 10.7m bgl; Chalk: to >38.5m bgl.
TA03NW7 (Borehole, 71.2m bgl) 502030E, 437990N	20m (east of the onshore export cable corridor).	Drift: to 1.8m bgl; Flamborough Chalk: to 53.6m bgl; Burnham Chalk: to >71.2m bgl.
TA04SE7 (Borehole, 23.2m bgl) 509160E, 442265N	20m (north of the onshore export cable corridor).	Soil: to 0.3mbgl; Clay: to 1.7m bgl; Sand: to 2.4m bgl Clay: to 2.9m bgl; Sandy soil, with clay: to 8.1m bgl; Clay: to 11.3m bgl; Chalk: to >23.2m bgl.
TA04SE14 / A (Borehole, 10.0m bgl) 505410E, 441723N	50m (south of the onshore export cable corridor).	Loose rubble and grit: to 2.7m bgl; Soft clay: to 4.6m bgl; Dark peaty warp: to 6.6m bgl; Soft warpy clay: to 9.9m bgl; Chalk: to >10.0m bgl.
TA04SE14 / B (Borehole, 12.2m bgl) 505274E, 441661N	20m (south of the onshore export cable corridor).	Topsoil and Made Ground: to 3.1m bgl; Dark peat: to 4.0m bgl; Soft warpy clay: to 9.5m bgl; Chalk: to >12.2m bgl.
TA04SE14 / C (Borehole, 9.8m bgl) 505479E, 441777N	100m (west of the onshore export cable corridor).	Bricks, stones and Made Ground: to 4.7m bgl; Soft warp: to 9.6m bgl; Chalk: to >7.8m bgl.

Reference Number (Hole Type and Depth) Coordinates – Of Site	Distance (Direction)	Details
TA04SE14 / D (Borehole, 10.5m bgl) 505376E, 441721N	30m (south of the onshore export cable corridor).	Stone and Made Ground: to 4.0m bgl; Black peat: to 4.4m bgl; Soft warp clay: to 9.6m bgl; Chalk: to >10.5m bgl.
TA04SW16 / A (Borehole, 17.1m bgl) 502740E, 441350N	70m (south west of the onshore export cable corridor).	Topsoil: to 0.6m bgl; Red: –to 2.4m bgl; Sand and gravel: to 3.0m bgl; Blue clay: to 4.3m bgl; Yellow clay: to 7.6 m bgl; Chalk: to >17.1m bgl.
TA04SW16 / B (Borehole, >8.2m bgl – total depth not recorded) 502810E, 441370N	30m (south of the onshore export cable corridor).	Topsoil: to 0.3m bgl; Brown clay: to 0.9m bgl; Blue clay (1): to 2.4m bgl; Sand and gravel: to 3.0m bgl; Blue clay (2): to 4.9m bgl; Yellow clay: to 8.2 m bgl; Chalk: to >8.2m bgl.
TA04SW33 (Borehole, 7.0m bgl) 504492E, 442283N	40m (south of the onshore export cable corridor).	Topsoil (peaty): to 1.8m bgl; Warp: to 3.7m bgl; Gravel: to 3.8m bgl; Marly clay: to 4.7m bgl; Yellow marl: to 6.4m bgl; Chalk: to >7.0m bgl.
TA04SW44 (Borehole, 22.9m bgl) 504785E, 441221N	100m (west of the onshore export cable corridor).	Soil: to 0.6m bgl; Clay: to 3.1m bgl; Sand: to 4.6m bgl; Sandy clay and gravel: to 5.8m bgl; Chalk: to >22.9m bgl.
TA04SW160 (Borehole, 6.0m bgl) 504550E, 442665N	50m (north of the onshore export cable corridor).	Soft, loose ash, soil, stone and clay fill: to 1.3m bgl; Firm brown and grey mottled sandy clay: to 2.7m bgl; Soft brown laminated sandy clay / sandy silty clay: to >6.0m bgl.
TA14NW35 (Borehole, 66.0m bgl) 514400E, 449240N	80m (west of the onshore export cable corridor).	Concrete and hardcore: to 0.4m bgl; Boulder Clay: to 11.4m bgl; Brown clay: to 17.0m bgl; Sandy boulder clay: to 27.0m bgl; Brown clay: to 32.1m bgl; Chalk: to >66.0m bgl.

Reference Number (Hole Type and Depth) Coordinates – Of Site	Distance (Direction)	Details
TA14NW83 (Borehole, 60.0m bgl) 514430E, 449240N	80m (west of the onshore export cable corridor).	Concrete and hardcore: to 0.4m bgl; Boulder Clay: to 11.4m bgl; Brown clay: to 17.0m bgl; Sandy boulder clay: to 27.0m bgl; Brown clay: to 32.1m bgl; Chalk: to >60.0m bgl.
TA14NW85 (Borehole, 20.0m bgl) 514530E, 446070N	Adjacent to the onshore export cable corridor.	Topsoil: to 1.0mbgl; Sandy silt Clay: to 1.5m bgl; Silt: to 1.6mbgl; Sand: to 1.8m bgl; Stiff silty Clay: to 3.2m bgl; Sand: to 3.3m bgl; Firm to stiff clay: to >20.0m bgl.
TA14NW91 (Borehole, 60.0m bgl) 514889E, 449592N	60m (east of the onshore export cable corridor).	Fill: to 0.8m bgl; Sandy clay: to 5.6m bgl; Clay : to 7.5m bgl; Sand and gravel: to 10.5m bgl; Clay: to 13.1m bgl; Clay, sand bands: to 17.5m bgl; Clay: to 35.5m bgl; Chalk: to >60.0m bgl.

33. Additional boreholes are located on and within 100m of the Onshore Development Area, however the logs are marked as confidential or not available online and so cannot be viewed.
34. The potential ground stability hazards on site, as obtained from the environmental database have been summarised in **Table 19-25**.

Table 19-25 Ground Stability Hazards

Ground Stability Hazard	Risk		
	Landfall	Onshore export cable corridor	Onshore substation zones
Shrinking / swelling of clays	Negligible to low.	Negligible to low.	Negligible to very low.
Running sands	Very low to low.	Very low to low.	Negligible to low.
Compressible deposits	Negligible to moderate.	Negligible to moderate.	Negligible to moderate.
Collapsible deposits	Negligible to very low.	Negligible to very low.	Negligible to very low.
Landslides	Very low to moderate.	Very low.	Negligible to very low.
Ground dissolution of soluble rocks	Negligible to very low.	Negligible to very low.	Negligible to very low.

- 35.** Structural geological features have been identified within the Onshore Development Area, as obtained from the BGS data sets and have been summarised in **Table 19-26** with further details provided in

37. Table 19-27.

Table 19-26 Summary of Structural Geological Features

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 100m)
Linear features	No	Yes	Yes	Yes

Table 19-27 Details of On and Off Site Structural Features

Feature	Location	Details
Linear feature	Onshore export cable corridor - Located between Ings Road and Driffield Road.	Category: Landform. Details: Back-feature marking former coastline.
	Onshore substation zones - Located between Minister Way and the A1079.	North south orientation. A review of geological maps indicates that the linear feature is a single continuous feature of Ipswichian age. This feature extends to the north and south of the Onshore Development Area.
	Onshore export cable corridor and onshore substation zones - south west of the A1079, north of Bentley	A fault with a east west orientation bisects the southern reaches of the onshore export cable corridor and onshore substation zones. The fault appears to correlate with the boundary between the Flamborough Chalk Formation and Burnham Chalk Formation.

19.1.8.2. Mining and Mineral Extraction

38. The site is not located in an area which may be affected by coal mining.
39. The presence (or absence) of mining, ground workings and natural cavities at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-28** with further details provided in **Table 19-29** and **Table 19-30**. The locations of Mineral Safeguarding Areas are illustrated on **Figure 19.7**.
40. Features such as ponds which are still present and identifiable on google earth have not been included within **Table 19-29** and **Table 19-30**.

Table 19-28 Summary of Ground Workings and Natural Cavities

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Natural cavities	No	No	No	No
British Pits (BritPits)	No	Yes	No	Yes
Surface ground workings	Yes	Yes	Yes	Yes
Underground workings	No	No	No	No
Historical mineral planning areas	No	Yes	No	Yes
Non-coal mining activities	No	No	No	No
Mining cavities	No	No	No	No
JBA mining areas	No	No	No	No
Coal Mining	No	No	No	Yes
Brine areas	No	No	No	No
Gypsum areas	No	No	No	No
Tin mining	No	No	No	No
Clay mining	No	No	No	No
Mineral Safeguarding Areas	Yes	Yes	Yes	Yes

Table 19-29 Details of On Site Features / Cavities

Feature – On Site	Name	Location	Detail
BritPits (Surface Working)	Catfoss Hall Pit.	Catwick, Beverley, East Riding of Yorkshire. Located within the onshore export cable corridor to the north of West Road and east of Catfoss Lane.	Commodity: Sand and gravels; Status: Ceased.
Surface ground workings (Ponds)	N/A	Landfall – located on the beach	The ponds located to the east of landfall are recorded as ‘Tidal Pond’s on historical mapping. A review of Google Earth imagery indicates that these ponds are no longer present. It is, however, possible that these ponds appear intermittently depended on tidal conditions.
		Onshore export cable corridor – east of Bewholme Lane.	Date 1929 – 1956. A review of Google Earth imagery indicates that this feature has been infilled.
		Onshore export cable corridor – west of Billings Lane.	Date 1956. Historical mapping indicates that the pond was still present in 1980. A review of Google Earth imagery, however, indicates that this feature has been infilled.
	For further details of onsite surface ground workings, including pits and cuttings, please see Table 19-14 and Table 19-16 .		
Historical mineral planning areas	Hall Farm	Onshore export cable corridor -north of West Road, east of Catfoss Lane.	Commodity: Sand and gravel surface mineral working. Grant date: 16 / 04 / 1948; Status: Valid. Historical mapping indicates the presence of an ‘Old Sand Pit’ within the mineral planning area. This feature, however, was recorded on maps from the 1890s and so predates the grant date in 1948. It is possible that this feature was reworked following planning approval, however, this is not recorded on historical records. A review of Google Earth imagery shows a covering of trees in the former sand pit area which appears to be topographically lower than the surrounding land suggesting it has not been infilled.
Mineral Safeguarding Areas	Mineral Safeguarding Areas are located in isolated areas throughout the Onshore Development Area. Sand and gravel preferred areas are located within the onshore export cable corridor between Riston Road and A165, Catwick. Sand and gravel areas of search are also located within the onshore export cable corridor to the north of Sigglesthorne and to the east and west of Whitecross Road.		

Table 19-30 Details of Off Site Features / Cavities

Feature – Off Site	Site Name & Location	Location & distance from Onshore Development Area	Detail
BritPits (Surface Workings)	Skipsea Brick Works, Driffield.	40m north to north east of landfall – to the north of Hornsea Road.	Commodity: Clay and shale; Status: Ceased
	Acorn Hill Brick Yard, Bewholme, Driffield.	30m north of the onshore export cable corridor – north of Catfoss Road, east of Bilinings Lane.	Commodity: Clay and shale; Status: Ceased .
	Catfoss Grange Gravel Pit, Brandesburton, Driffield.	30m west of the onshore export cable corridor – north east of Remington Avenue.	Commodity: Sand and gravels; Status: Ceased.
	Washdike Bridge Pit, Catwick, Beverley.	30m west of the onshore cable corridor – to the west of Catfoss Lane and north of West Road.	Commodity: Sand and gravels; Status: Ceased.
	Storkhill Farm Gravel Pits, Storkhill, Beverley.	30m south of the onshore export cable corridor – north of A1035.	Commodity: Sand and gravels; Status: Ceased.
	Bentley Moor Wood, Bentley, Beverley.	30m north of onshore substation zones – south east of Beverley Road.	Commodity: Chalk; Status: Ceased.
	Skipsea Hill Sand Pit, Driffield.	80m south of the onshore export cable corridor – to the west of Hornsea Road.	Commodity: Sand; Status: Ceased.
	Queensgate Quarry, Westwood, Beverley.	160m east of the onshore export cable corridor – south east of the junction of Broadgate and Keldgate Road.	Commodity: Chalk; Status: Active.
	Mount Pleasant; Molescroft, Beverley.	190m west of the onshore export cable corridor – north of York Road, east of Dog Kennel Lane.	Commodity: mineral; Status: Ceased.
	Catwick Mill Farm; Catwick, Driffield.	200m west of the onshore cable corridor – to the west of Catfoss Lane and north of A1035.	Commodity: Sand and gravels; Status: Ceased.
	Beverley Barracks Pit.	220m east of the onshore export cable corridor – north west of Victoria Road, south of Wingfield Way.	Commodity: Chalk; Status: Ceased.

Feature – Off Site	Site Name & Location	Location & distance from Onshore Development Area	Detail
	Wood Dike; Beverley.	Adjacent to west boundary of onshore substation zones – west of the A1079, south of Broadgate.	Commodity: Chalk; Status: Ceased.
	Old Hall Gravel Pit; Beverley.	20m south of onshore substation zones – west of Shepherds Lane.	Commodity: Sand and gravels; Status: Ceased.
	Bentley Chalk Pit, Cottingham, Hull.	80m south of onshore substation zones – north of Bentley Road.	Commodity: Chalk; Status: Ceased.
Surface ground workings (Ponds unless otherwise stated)	N/A	20m west of the onshore export cable corridor – north of Catfoss Road.	Historical mapping indicates that this feature as no longer present by 1982. Google Earth imagery indicates that the pond is no longer present and has been infilled.
		20m north of the onshore export cable corridor – north of Sisterbeck Drain.	Historical maps indicate that the feature as still present in 1993, historical mapping of this area following 1993 is not available to review. Google Earth imagery shows a covering of vegetation in the area of the pond, therefore the is the potential for this area to have been infilled.
		30m west of the onshore export cable corridor – west of Catfoss Lane.	Historical mapping indicates that this feature as still present in 1981, historical mapping of this area following 1981 is not available to review. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.
		60m north of the onshore export cable corridor – west of Meaux Lane.	Historical mapping indicates that this feature as no longer present by 1974. Google Earth imagery indicates that the pond is no longer present and has been infilled.
		70m north of the onshore export cable corridor – north of Carr Road.	Historical mapping indicates that this feature as no longer present by 1972. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.
		90m north west of the onshore export cable corridor – west of Meaux Lane.	Historical maps indicate that the feature was present in 1988, historical mapping of this area following 1988 is not available to review. Google Earth imagery shows the area of the pond to be covered in an area of trees that are topographically lower than the surrounding land. Therefore, there is the potential that this feature has not been infilled.
		100m west of the onshore export cable corridor – west of Catfoss Lane.	Historical mapping indicates that this feature as no longer present by 1982. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.

Feature – Off Site	Site Name & Location	Location & distance from Onshore Development Area	Detail
		110m north of the onshore export cable corridor – east of Meaux Lane.	Historical maps indicate that the feature was no longer present in 1974. Google Earth imagery shows the area of the pond to be covered in an area of trees that appear to be at the same topographically level as the surrounding land. Therefore, there is the potential that this feature has been infilled.
		120m north of the onshore export cable corridor – east of Dunnington Sewer.	Historical mapping covers this area until 1981, following this date maps for this area are not available for review. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.
		150m north of the onshore export cable corridor – east of Holderness Drain.	Historical mapping indicates that the feature was no longer present in 1972. Google Earth imagery shows the area of the pond to be covered in an area of trees that are topographically lower than the surrounding land. Therefore, there is the potential that this feature has not been infilled.
		160m north of the onshore export cable corridor – west of Oriel Close.	Historical mapping indicates that the feature was no longer present in 1966. A review of Google Earth imagery shows the location previously occupied by the reservoir is now a residential area. Therefore indicating the reservoir has been infilled.
		220m south of the onshore export cable corridor – west of Bewholme Lane.	Historical mapping indicates that the feature was no longer present in 1975. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.
		225m west of the onshore export cable corridor – west of Catfoss Lane.	Historical mapping indicates that the feature was no longer present in 1970. Google Earth imagery indicates that the pond is no longer present and the area is used as agricultural land. Therefore, indicating that the area has been infilled.
		For further details of offsite surface ground workings, including pits and cuttings, please see Table 19-15 and Table 19-18 .	
Historical mineral planning areas	Catwick Mill Farm.	Adjacent to the onshore export cable corridor – west of Catfoss Lane.	Commodity: Sand and gravel surface mineral working; Grant date: 08 / 10 / 1947; Status: Valid. This area corresponds with that of Humberside County Council Catfoss Landfill (see Table 19-4).
	Hall Farm.	Adjacent to the onshore export cable corridor – extending eastwards of the Onshore Development Area north of West Road, east of Catfoss Lane.	Commodity: Sand and gravel surface mineral working; Grant date: 16 / 04 / 1948; Status: Valid. Historical mapping does not suggest this area has been worked and ground remains topographically level with its surroundings.

Feature – Off Site	Site Name & Location	Location & distance from Onshore Development Area	Detail
	Catwick.	140m west of the onshore export cable corridor – west of Catfoss Lane.	Commodity: Sand and gravel surface mineral working; Grant date: 24 / 04 / 1947; Status: Valid. Historical mapping does not suggest this area has been worked and ground remains topographically level with its surroundings.
	Victoria Whiting Works.	Adjacent to the onshore cable corridor – south of Keldgate Road, west of Victoria Road.	Commodity: Chalk surface mineral working; Grant date: 22 / 09 / 1947; Status: Valid. Extraction of mineral resources remains active at this site, land has not been infilled.
	Queensgate.	180m east of the onshore cable corridor – south of Keldgate Road, west of Victoria Road.	Commodity: Chalk surface mineral working; Grant date: Not recorded; Status: Valid. This area corresponds with that of Cosalt Quarry Landfill Site (see Table 19-5).
	Bently.	40m south of the onshore substation zones – north of Bentley Road.	Commodity: Chalk surface mineral working; Grant date: 17 / 09 / 1947; Status: Valid. This area corresponds with that of Stoneledge Plant and Transport Limited landfill (see Table 19-5).
Coal Mining	N/A	250m east of landfall – offshore.	Mineable coal.
Mineral Safeguarding Areas	N/A	Adjacent – 250m.	Isolated areas of Mineral Safeguarding Areas are located within 250m of the Onshore Development Area.

19.1.8.3. Soil Background Chemistry

41. The Environmental Report also provides Soil Chemistry Averages for the Onshore Development Area (source: Urban Soil and Soil Chemistry data provided by the BGS). The information is summarised in **Table 19-31**.

Table 19-31 BGS Soil Chemistry Data

Determinand	Estimated background soil chemistry		Estimated urban soil chemistry		Measured urban soil chemistry
	Soil concentration range (mg / kg)				
	Min	Max	Min	Max	Measure concentrations within Topsoil*
Arsenic (As)	15	25	11	12	9.2
Bio accessible As	N/A		1.9	2.1	N/A
Lead (Pb)	100	300	71	85	60.8
Bio accessible Pb	60	240	49	58	N/A
Cadmium	1.8	1.8	0.3	0.8	0.5
Chromium	40	120	60	60	61.0
Nickel	15	45	20	21	19.9
Copper	N/A	N/A	33	44	21.3
Tin	N/A	N/A	9	11	10.6
Zinc	N/A				

*(data point 460m south of the Onshore Development Area)

19.1.8.4. Groundwater

19.1.8.4.1. Hydrogeology and Groundwater Vulnerability

19.1.8.4.1.1 Hydrogeology

42. Hydrogeological information for land within the Onshore Development Area boundary has been collated from the Environmental Database GIS data, BGS hydrogeological maps and DEFRA MAGIC map application. Superficial and bedrock strata are classified by the Environment Agency according to their resource value and vulnerability as shown in **Table 19-32**.

Table 19-32 Environment Agency Groundwater Classification

Stratum	Unit	Class
Superficial deposits	Lacustrine Deposits.	Secondary B Aquifer.
	Alluvium.	Secondary A Aquifer.
	Head.	Secondary Undifferentiated Aquifer.
	Glaciofluvial Deposits.	Secondary A Aquifer.
	Glacial Till.	Secondary Undifferentiated Aquifer.
	Sand and gravel.	Secondary A Aquifer.
Bedrock	Rowe Chalk Formation.	Principal Aquifer.
	Flamborough Chalk Formation.	
	Burnham Chalk Formation.	

19.1.8.4.2.1 Groundwater Vulnerability

43. The Environmental Database GIS data indicates that the groundwater vulnerability within the Onshore Development Area ranges from medium to high. Areas associated with the superficial Glacial Till deposits, which are the dominant superficial deposit, are predominantly of medium vulnerability. The Head deposits and sand and gravel deposits are also classified as medium vulnerability.
44. Areas associated with Lacustrine Deposits, Alluvium and Glaciofluvial Deposits are classified as high vulnerability areas.
45. The Principal Aquifers associated with bedrock formations have a low to high groundwater vulnerability.

19.1.8.4.2. Groundwater Abstractions

46. The presence (or absence) of groundwater abstraction wells at or within 1km of the Onshore Development Area have been summarised in **Table 19-33** with further detail provided in **Table 19-34**.

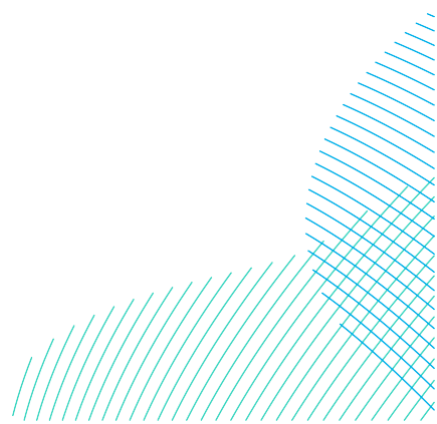


Table 19-33 Summary of Groundwater Abstraction Wells

Feature	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 1km)
Potable abstraction well	No	No	No	Yes
Other type of abstraction well	No	No	No	Yes

Table 19-34 Details of Active Off Site Abstraction Wells

Licence number	Location & distance from Onshore Development Area	Details	Potable abstraction
2 / 26 / 30 / 049	800m south of landfall.	Details: Make-up or top up water; drinking, cooking, sanitary, washing, (small garden) - commercial / industrial / public services; general use relating to secondary category (medium loss). Source: Borehole – Chalk; Name: Bourne Leisure Ltd; Coordinates: 517900 453000.	Yes
NE / 026 / 0032 / 011	950m north of the onshore export cable corridor.	Details: Drinking, cooking, sanitary, washing, (small garden) - commercial / industrial / public services. Source: Borehole – Chalk; Name: High Farm Ltd; Coordinates: 509102 443552.	Yes

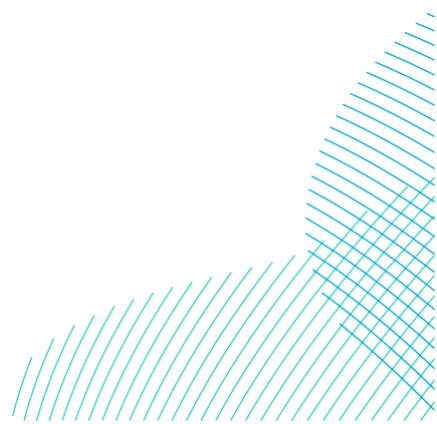
Licence number	Location & distance from Onshore Development Area	Details	Potable abstraction
2 / 26 / 32 / 221	250m south east of the onshore export cable corridor.	Details: Spray irrigation – direct. Source: Borehole – Chalk; Name: L Burnett & Sons; Coordinates: 506716 442480.	No
2 / 26 / 32 / 283	400m north of the onshore export cable corridor.	Details: Spray irrigation – direct; general farming & domestic. Source: Borehole – Chalk; Name: T Soanes & Sons; Coordinates: 500950 442000.	No
2 / 26 / 32 / 003	150m east of the onshore export cable corridor.	Details: Drinking, cooking, sanitary, washing, (small garden) - commercial / industrial / public services; spray irrigation – direct. Source: Borehole – Chalk; Name: Beverley Race Co Ltd; Coordinates: 501265 439717; 501343 439763.	Yes
2 / 26 / 32 / 380	140m east of the onshore export cable corridor.	Details: General use relating to secondary category (medium loss). Source: Borehole – Chalk; Name: Imerys Minerals Ltd; Coordinates: 502100 438120.	No

Licence number	Location & distance from Onshore Development Area	Details	Potable abstraction
2 / 26 / 32 / 424	340m east of the onshore export cable corridor.	Details: Spray irrigation – direct. Source: Borehole – Chalk; Name: Beverley and East Riding Golf Club; Coordinates: 502140 438520.	No
2 / 26 / 32 / 372	530m north east of the onshore export cable corridor.	Details: General farming & domestic. Source: Borehole – Chalk; Name: Clive Soanes Broilers Ltd; Coordinates: 500950 442000.	No
NE / 026 / 0032 / 027	960m east of the onshore substation zones.	Details: Spray irrigation – direct. Source: Borehole – Chalk; Name: Coletta & Tyson Ltd; Coordinates: 504930 437070.	No

47. It should be noted that the data search has not included identification of unlicensed water supplies abstracting less than 20m³ of water per day. For abstractions below 20m³ per day a license is not required provided that the abstraction is part of a single operation.

19.1.8.4.3. Groundwater Source Protection Zones

48. Groundwater Source Protection Zones (SPZs) are defined around abstraction boreholes used for potable water supply to delineate the area where release of a contaminant into the aquifer could impact on the abstraction.
49. Landfall and the onshore export cable corridor located to the east of Whitecross Road (A165) are not located within an SPZ. The onshore cable corridor to the west of the A165 through to Newbald Road is located within an SPZ 3 Total Catchment. The onshore export cable corridor to the south of Newbald Road, and the onshore substation zones (up to the area surrounding Park Lane) are located within an SPZ 2 Outer Catchment. The area of the onshore export cable corridor 200m southwards of the intersection of Park Lane and the A1079 is designated as an SPZ 1 Inner Catchment.
50. The SPZ 1 relates to a borehole located >1km from the onshore substation zone at Cottingham whereby groundwater is extracted from the underlying chalk aquifer for use as a potable water supply by Yorkshire Water Services Limited.



19.1.8.4.4. Groundwater Bodies

51. The presence (or absence) of groundwater bodies at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-35** with further details provided in **Table 19-36** and **Table 19-37**.

Table 19-35 Summary of Groundwater Bodies

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
WFD groundwater bodies	Yes	Yes	Yes	Yes

Table 19-36 Details of On Site Groundwater Bodies

Feature	Details
WFD groundwater bodies	Located throughout the Onshore Development Area. Name: Hull and East Riding Chalk (Waterbody ID: GB40401G700700). Overall waterbody classification: Poor

Table 19-37 Details of Off Site Groundwater Bodies

Feature	Location	Details
WFD groundwater bodies	Adjacent (all directions)	Name: Hull and East Riding Chalk (Waterbody ID: GB40401G700700). Overall waterbody classification: Poor.

19.1.8.5. Hydrology

19.1.8.5.1. Surface Waters

52. The presence (or absence) of surface water features within 250m of the Onshore Development Area boundary have been summarised in **Table 19-38** with further details provided in **Table 19-39** and **Table 19-40**.

Table 19-38 Summary of Surface Water Features

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Surface water features	Yes	Yes	Yes	Yes
WFD surface water body catchments	Yes	Yes	Yes	Yes
WFD surface water bodies	No	Yes	Yes	Yes

Table 19-39 Details of On Site Surface Water Features

Feature	Details
Surface water features (onshore cable corridor unless otherwise stated).	Streams and ditches associated with agriculture are present throughout the Onshore Development Area. The following Main Rivers located within the Onshore Development Area include: • Stream Dike; • Monk Dike; • Meaux and Routh East Drain; • Holderness Drain; • River Hull; • Beverley and Bramston Drain; and • Catchwater Drain. The Onshore Development Area also crosses the following drains which are part of the Beverley and North Holderness Internal Drainage Board (IDB): • Skipsea Drain; • Dunnington Sewer; • Arnold and Riston Drain; • Turf Gutter; • Turf Gutter and Eske River Side Drain; • South Bullock Drain; • Storkhill Drain; • South Bullock (N. Branch – Diggins Arms); and • South Bullock (S. Branch – Chalk Arm). There are a number of ponds and lakes located within the Onshore Development Area.
WFD surface water body catchments (Ecological and WFD classification 2019 all Moderate unless	Name: Coastal Catchment (name not recorded); Waterbody ID: 291; Location: Present across the landfall area. Name: Barmston Sea Drain / Skipsea Drain to Conf; Waterbody ID: GB104026077770; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and polybrominated diphenyls ethers (PBDE); Location: Present across the landfall area and onshore export cable corridor east of Dunnington Sewer.

Feature	Details
otherwise stated).	Name: Old Howe / Frodingham Beck to R Hull; Waterbody ID: GB104026067021; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor west of Dunnington Sewer to the south of Billings Lane.
	Name: Mickley Dike Catchment; Waterbody ID: GB104026066990; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor to the west of the Old Howe / Frodingham Beck to R Hull surface water catchment.
	Name: Catchwater Drain; Waterbody ID: GB104026066970; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor south of Billings Lane to the west of Catwick Heads Lane.
	Name: Foredyke Stream Upper; Waterbody ID: GB104026066890; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor west of Catwick Heads Lane to the east of Whitecross Road.
	Name: Foredyke Stream Lower to Holderness Dr; Waterbody ID: GB104026066910; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds), perfluorooctane sulphonate (PFOS) and PBDEs; Location: Present within the onshore export cable corridor west of Whitecross Road to the east of Meaux Lane.
	Name: Holderness Drain Source to Foredyke Stream; Waterbody ID: GB104026066950; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor east of Meaux Road to the east of the River Hull.

Feature	Details
	Name: Beverley and Barmston Drain; Waterbody ID: GB104026067211; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor west of the River Hull to the east of Driffield Road. Also present north of Newbald Road to Broadgate. Present within the onshore substation zones south of Shepherds Lane to beyond the southern boundary of the Onshore Development Area.
	Name: High Hunsley to Arram Area; Waterbody ID: GB104026066841; Chemical classification: Fail (2019) due to concentrations of benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor east of Driffield Road to the north of Newbald Road.
	Name: High Hunsley to Woodmansey Area; Waterbody ID: GB104026066820; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: Present within the onshore export cable corridor and onshore substation zones from Broadgate to the south of Shepherds Lane.
WFD surface water bodies (Ecological and WFD classification 2019 all Moderate unless otherwise stated).	Name: Yorkshire South; Waterbody ID: GB640402491000; Type: Coastal catchment; Chemical classification: Fail (2019) due to concentrations of benzo(g,h,i)perylene, mercury (and its compounds), PBDEs and tributyltin compounds; Location: landfall.
	Name: Barmston Sea Drain / Skipsea Drain to Conf; Waterbody ID: GB104026077770; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: onshore export cable corridor.
	Name: Foredyke Stream Upper; Waterbody ID: GB104026066890; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: onshore export cable corridor.
	Name: Foredyke Stream Lower to Holderness Dr; Waterbody ID: GB104026066910; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds), PFOS and PBDEs; Location: onshore export cable corridor.

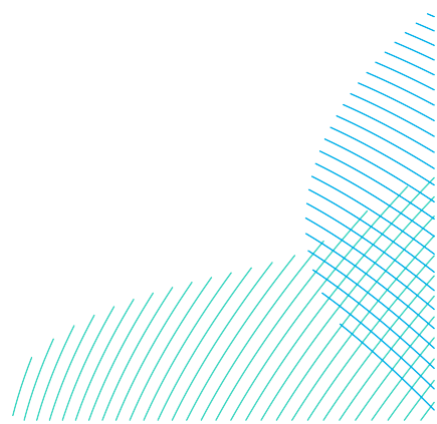
Feature	Details
	Name: Holderness Drain Source to Foredyke Stream; Waterbody ID: GB104026066950; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: onshore export cable corridor.
	Name: Hull from Arram Beck to Humber; Waterbody ID: GB104026067212; Type: River; Chemical classification: Fail (2019) due to concentrations of benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, mercury (and its compounds), PBDEs and tributyltin compounds; Location: onshore export cable corridor.
	Name: Beverley and Barmston Drain; Waterbody ID: GB104026067211; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: onshore export cable corridor.
	Name: High Hunsley to Arram Area; Waterbody ID: GB104026066841; Type: River; Chemical classification: Fail (2019) due to concentrations of benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, mercury (and its compounds) and PBDEs; Location: onshore export cable corridor.
	Name: High Hunsley to Woodmansey Area; Waterbody ID: GB104026066820; Type: River; Chemical classification: Fail (2019) due to concentrations of mercury (and its compounds) and PBDEs; Location: onshore substation zones.

Table 19-40 Details of Off Site Surface Water Features

Feature	Location	Details
Surface water features	Adjacent – 250m.	Streams and ditches are located within 250m of landfall, onshore export cable corridor and onshore substation zones. Named features include: • Skipsea Drain (West Branch); • Stream Dike; • Dunnington Sewer; • Bowlams Drain; • Stonleygaat Dike; • Arnold and Riston Drain; • Monk Dike; • Meaux and Routh East Drain; • River Hull; • Beverley and Barmston Drain; • South Bullock Dike; • Sisterbeck Drain; and • Autherd Drain.
		Ponds are located within 250m of the Onshore Development Area.
	Adjacent.	The North Sea is located immediately east of landfall.
WFD surface water body catchments	Adjacent – 250m.	The WFD surface waterbody catchments identified within the Onshore Development Area in Table 19-39 also extend 250m in all directions. No additional catchments are located within 250m.
WFD surface water bodies	Adjacent – 250m.	The WFD surface waterbodies identified within the Onshore Development Area in Table 19-39 also extend to distances up to 250m. No additional WFD surface waterbodies are located within 250m.

19.1.8.5.2. Flooding

- 53.** The presence (or absence) of flood potential and events at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-41** with further details provided in **Table 19-42** and



55. Table 19-43.

Table 19-41 Summary of Flooding Potential and Events

Designation type	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Flooding from groundwater	Yes	Yes	Yes	Yes
Risk of Flooding from Rivers and Sea (RoFRaS)	Yes	Yes	Yes	Yes
Flood Zone 2	Yes	Yes	Yes	Yes
Flood Zone 3	Yes	Yes	Yes	Yes
Historical flood events	No	Yes	Yes	Yes
Flood defences	No	Yes	No	Yes
Areas benefiting from flood defences	No	Yes	No	Yes
Flood storage areas	No	No	No	No

Table 19-42 Details of On Site Flooding Potential and Events

Designation type	Detail
Flooding from groundwater	Low to high risk at landfall.
	Predominantly low to high risk within the onshore export cable corridor. Negligible risk in the area around the River Hull.
	Onshore Substation Zones 1 and 4 are not located within an area not susceptible to groundwater flooding.
Risk of Flooding from Rivers and Sea (RoFRaS)	High risk along the eastern edges of landfall.
	Low to high risk in the area surrounding Stream Dike within the onshore export cable corridor.
	Low to high risk in the area surrounding Dunnington Sewer within the onshore export cable corridor.
	Low to high risk in the area to the east of the A165 within the onshore export cable corridor.
	Low to high risk in the areas surrounding Monk Dike and Meaux and Routh Drain, extending westwards towards Eske Lane within the onshore cable corridor.
	Low risk within the area between Eske Lane and the River Hull increasing to medium to high risk in the areas in and westwards of the River Hull, Beverley and Barmston Drain, South Bullock Dike and Sisterbeck Drain. All located within the onshore cable corridor.
	Low to medium risk within the area of Autherd Drain and an area between the A1079 and Shepherds Lane within the onshore substation zones.
Flood Zone 1	The majority of the onshore export cable corridor from Skipsea to Long Riston is located within a Flood Zone 1.
	The onshore export cable corridor from the A164 Drifffield Road to Onshore Substation Zone 4.
	Onshore Substation Zones 1 and 4 are located wholly within Flood Zone 1.
	The possible landfall locations are located within a Flood Zone 3.

Designation type	Detail
Flood Zone 2 and 3	- There are three isolated areas within the onshore export cable corridor between Skipsea and Long Riston that are located within Flood Zones 2 and 3. These locations pass through the watercourses of Skipsea Drain, Dunnington Sewer and Stream Dike. - The area west of the A165 and to the east of A164 Driffield Road is primarily located within Flood Zones 2 and 3. This area of the Onshore Development Area passes through several watercourses and four statutory main rivers,
Historical flood events	Historical flood events are recorded within the onshore export cable corridor in isolated areas located between Stream Dike and Carr Road.
Flood defences	Flood defences are located along the following waterbodies: - Monk Dike (onshore export cable corridor); and - River Hull (onshore export cable corridor).
Areas benefiting from flood defences	Areas benefiting from flood defences within the onshore export cable corridor include: - The areas surrounding Monk Dike and the Meaux and Routh East Drain; - Area between Hornsea Road and Eske Lane; and - Area surrounding and to the west of the River Hull, Beverley and Barmston Drain, South Bullock Dike and Sisterbeck Drain. Extending towards Carr Road.

Table 19-43 Details of Off Site Flooding Potential and Events

Designation type	Location	Detail
Flooding from groundwater	Adjacent – 250m.	The areas surrounding the Onshore Development Area are located within zones designated as negligible to high risk in relation to flooding from groundwater.
RoFRaS	Adjacent – 250m.	The areas at RoFRaS located within the Onshore Development Area (Table 19-42) also extend to distances of up to 250m.
	230m west of the onshore export cable corridor.	An additional areas at RoFRaS is located adjacent to and westwards of Catfoss Lane. The level of risk ranges from low to high.
Flood Zone 2 and 3	Adjacent – 250m.	Flood Zone 2 and 3 areas located within the Onshore Development Area (Table 19-42) also extend to distances of up to 250m.
	230m west of the onshore export cable corridor.	An additional area designated as both a Flood Zone 2 and 3 is located adjacent to and westwards of Catfoss Lane.
Historical flood events	Adjacent – 250m.	Historical flooding events have occurred in isolated areas within 250 of the onshore export cable corridor and onshore substation zones.
Flood defences	The flood defences located along Monk Dike and the River Hull extend to the north and south of the onshore export cable corridor. No additional flood defences are located within 250m of the Onshore Development Area.	
Areas benefiting from flood defences	Adjacent – 250m.	The areas benefiting from flood defences identified in Table 19-42 extend to distances >250m of the Onshore Development Area.

19.1.8.5.3.

19.1.8.5.4. Surface Water Abstractions

56. The presence (or absence) of surface water abstraction wells at or within 250m of the Onshore Development Area have been summarised in **Table 19-44** with further detail provided in **Table 19-45** and **Table 19-46**.

Table 19-44 Summary of Surface Abstraction

Feature	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 100m)
Surface water abstractions	No	Yes	No	Yes

Table 19-45 Details of Active On Site Surface Water Abstractions

Licence number	Details
2 / 26 / 32 / 253	Details: Spray irrigation – direct; Source: Bullock Dyke-Barmston-Sisterbeck; Name: Molescroft Farms Ltd; Coordinates: 504000 442000; Location: Onshore export cable corridor.

Table 19-46 Details of Active Off Site Surface Abstractions

Licence number	Location	Details
2 / 26 / 32 / 189	Adjacent to the onshore export cable corridor	Details: Spray irrigation – direct; Source: Holderness Drain Reach 4; Name: Albanwise Farming Ltd; Coordinates: 506637 442736.

57. It should be noted that the data search has not included identification of unlicensed water supplies abstracting less than 20m³ of water per day. For abstractions below 20m³ per day a license is not required provided that the abstraction is part of a single operation.

19.1.8.5.5. Discharges to Controlled Waters

58. The presence (or absence) of discharges to controlled waters at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-47** with further details provided in **Table 19-48** and **Table 19-49**.

Table 19-47 Summary of Discharges to Controlled Waters

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Licensed Active Discharges	No	Yes	No	Yes
Pollutant release to surface waters (red list)	No	No	No	No
Pollutant release to public sewer	No	No	No	No
Discharge of List 1 dangerous substances	No	No	No	No
Discharge of List 2 dangerous substances	No	No	No	No

Table 19-48 Details of On Site Discharges to Controlled Waters

Feature	Details
Licensed Active Discharges	Address: Molescroft Sps, Molescroft, Beverley; Effluent type: Sewage discharges - pumping station - water company; Permit reference: WADC307; Effective date: 14 / 04 / 2009; End date: Not recorded, assumed active; Receiving water: Nearby ditch.

Table 19-49 Details of Off Site Discharges to Controlled Waters

Feature	Location & direction from Onshore Development Area	Details
Licensed Active Discharges	20m south of the onshore export cable corridor.	Address: Storkhill Farm, 261 Hull Bridge Road, Beverley; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: WRA8823; Effective date: 19 / 04 / 2005; End date: Not recorded, assumed active; Receiving water: Tributary of Beverley & Barmston Drain.
	140m south of the onshore export cable corridor.	Address: Hewitt Tom Evergreen Hullbridge Tic; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: C5110; Effective date: 26 / 07 / 2012; End date: Not recorded, assumed active; Receiving water: Land adjacent to proposed bungalow.
	160m south west of the onshore export cable corridor.	Address: Molescroft Grange Farm & Cottages, Grange Way, Beverley, HU17 9FS; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: EPRNP3422GN; Effective date: 26 / 09 / 2011; End date: Not recorded, assumed active; Receiving water: Groundwater via an infiltration system.
	170m south of the onshore export cable corridor.	Address: Finch Park CSO, rear of No 12, Beverley; Effluent type: Sewage discharges - sewer storm overflow - water company; Permit reference: 3105; Effective date: 31 / 03 / 2004; End date: Not recorded, assumed active; Receiving water: Pighill Lane Sewer (drain).
	200m east of the onshore export cable corridor.	Address: 245 Hull Bridge Road, Tickton, Beverley, HU17 9RS; Effluent type: Sewage & trade combined - unspecified; Permit reference: WRA8116; Effective date: 27 / 11 / 2003; End date: Not recorded, assumed active; Receiving water: Tributary of Beverley & Barmston Drain.
	230m south east of the onshore export cable corridor.	Address: Weel Road, Hull Bridge, Tickton; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: C4254; Effective date: 26 / 07 / 2012; End date: Not recorded, assumed active; Receiving water: Land adjacent to dwelling.
	240m south east of the onshore export cable corridor.	Address: Sub Station, Long Lane, Beverley; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: H231; Effective date: 19 / 11 / 1964; End date: Not recorded, assumed active; Receiving water: Tributary of the River Hull.
	60m north east of the onshore substation zones.	Address: Creyke Beck Converter Station, land near A1079, near Beverley, HU16 5SB; Effluent type: Sewage discharges - final / treated effluent - not water company; Permit reference: EPRUB3190AK; Effective date: 01 / 06 / 2021; End date: Not recorded, assumed active; Receiving water: unnamed watercourse.

19.1.8.5.6. Pollution Incidents and Inventories

59. The presence (or absence) of pollution incidents at or within 250m of the Onshore Development Area boundary have been summarised in **Table 19-50** with further details provided in **Table 19-51** and **Table 19-52**.

Table 19-50 Summary of Incidents and Inventories

Features	Landfall	Onshore export cable corridor	Onshore substation zones	Offsite (within 250m)
Pollution Incidents	No	Yes	Yes	Yes
Pollutant inventory substances	No	No	No	Yes
Pollutant inventory waste transfers	No	No	No	Yes

Table 19-51 Details of On Site Incidents and Inventories

Feature	Details
Pollution Incidents	Category: 1 (major) to water; Date: 24 / 02 / 2013; Pollutant type: Agricultural materials and wastes; Pollutant: Slurry and dilute slurry; Incident ID: 1089119; Location: Onshore export cable corridor – Dunnington Sewer.
	Category: 3 (minor) to air; Date: 20 / 07 / 2001; Pollutant type: Atmospheric pollutants and effects; Pollutant: Effects on humans; Incident ID: 17737; Location: Onshore substation zones – west of Inglefield Close.

Table 19-52 Details of Off Site Incidents and Inventories

Feature	Location & direction from Onshore Development Area	Details
	50m west of landfall – east of Green Lane	Category: 3 (minor) to land; Date: 30 / 08 / 2002; Pollutant type: Specific waste materials; Pollutant: Household waste; Incident ID: 104108.
Pollution Incidents	60m south of the onshore export cable corridor, south of the A1035, north of Hull Bridge Road.	Category: 3 (minor) to water; Date: 29 / 06 / 2002; Pollutant type: Oils and fuel; Pollutant: Other Oil or fuel; Incident ID: 12364.
	90m south of the onshore export cable corridor – south of Grange Way, west of Lockwood Road.	Category: 3 (minor) to water; Date: 06 / 02 / 2002; Pollutant type: Sewage materials; Pollutant: Crude sewage; Incident ID: 56841.
	150m south east of the onshore export cable corridor – adjacent to the junction of Hull Bridge Road and Weel Road.	Category: 3 (minor) to water; Date: 26 / 08 / 2003; Pollutant type: Oils and fuel; Pollutant: Unidentified oil; Incident ID: 185068.
	90m east of the onshore substation zones – west of Inglefield Close.	Category: 4 (no impact) to air, land and water; Date: 18 / 07 / 2001; Pollutant type: Pollutant not identified; Pollutant: Not identified; Incident ID: 17148.
	90m north of the onshore substation zones – west of Victoria Road.	Category: 3 (minor) to land; Date: 15 / 01 / 2002; Pollutant type: Inert materials and wastes; Pollutant: Soils and clay; Incident ID: 52643.
	140m north of the onshore substation zones – located on the A164.	Category: 3 (minor) to land; Date: 14 / 01 / 2002; Pollutant type: Inert materials and wastes; Pollutant: Soils and clay; Incident ID: 52275.
	200m east of the onshore substation zones – north west of Victoria Road.	Category: 3 (minor) to air; Date: 07 / 08 / 2002; Pollutant type: Pollutant not identified; Pollutant: Not identified; Incident ID: 98183.
	230m north of the onshore substation zones – west of Victoria Road.	Category: 3 (minor) to land; Date: 23 / 02 / 2003; Pollutant type: Inert materials and wastes; Pollutant: Soils and clay; Incident ID: 138691.
	240m north of the onshore substation zones – west of Victoria Road.	Category: 3 (minor) to land and water; Date: 06 / 06 / 2002; Pollutant type: Inert materials and wastes; Pollutant: Soils and clay; Incident ID: 83408.
Pollutant inventory substances & pollutant inventory waste transfers	20m east of the onshore export cable corridor.	Operator name: Cullingworth Commercials and Freight Services Limited; Activity description: Intensive farming; > 40,000 poultry; Permit ID: GP3834TT; Location: Westfield Farm, Poultry Unit, Sigglesthorne, HU11 5QI.

19.1.8.6. Radon Gas

60. The presence of radon gas is assessed in the UK according to the number of homes likely to be above the Action Level (200 Becquerel per cubic metre (Bq m³)). Under Building Regulations, the requirement for protection measures (as described in BRE, 2001) in the construction of new buildings, conversions or extension is dependent on Radon Potential.
61. BGS data indicates that the Onshore Development Area is located within a lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Therefore, no protective measures are necessary in the construction of new buildings.

19.1.9. Preliminary Conceptual Site Model and Qualitative Risk Assessment

62. Land contamination is assessed through the identification of Potential Contaminative Linkages (PCLs) The assessment involves the development of a Conceptual Site Model (CSM) which describes the relationship between on and offsite potential sources of contamination (and contaminants), potential receptors to such contamination and anticipated pathways between the two. Where all three (source-pathway-receptor linkage) are present, they are described as a PCL which can be subject to the risk assessment process.
63. The following discusses the potential sources, pathways and receptors present.

19.1.9.1. Potential Sources, Receptors and Pathways

64. The potential sources of contamination and contaminants of concern are summarised below in **Table 19-53** and **Table 19-54**. Potential receptors and pathways are outlined in **Table 19-55**.

Table 19-53 Potential On site Sources

Potential source	Associated contaminants	Landfall	Onshore export cable corridor	Onshore substation zones
Agricultural land / practices for fertilisers, pesticides and herbicides.	Herbicides and pesticides, in addition it is not uncommon for discarded material to be buried on farmland which could potentially contain a range of contaminants including asbestos. Although not recorded on historical mapping, there is the potential for sheep dips to be present within the Onshore Development Area. Contaminants associated with sheep dipping include, but are not limited to, metals, organophosphorus and synthetic pyrethroids.	✓	✓	✓
Potentially infilled pits / ponds.	Localised Made Ground may be present in areas associated with the backfilling of former pits and / or ponds should this have been undertaken within the Onshore Development Area. Potential contaminants include, but are not limited to, asbestos, metals and metalloids, polycyclic aromatic hydrocarbons (PAHs), fuel and oil hydrocarbons, volatile and semi-volatile organic compounds (VOCs and SVOCs), inorganic and organic contaminants, herbicides, polychlorinated biphenyls (PCBs) and ground gas.	✓	✓	✓
Made Ground (including potentially demolished infrastructure).	Asbestos containing materials and associated fibres are commonly identified in Made Ground deposits, particularly localised to where building demolition has occurred, and material has been buried / used. Other contaminants of concern that may be present are dependent on the nature of the Made Ground materials present within the Onshore Development Area.	✓	✓	✓
Railway land.	Railway land (both current and historical) is a potential source of contamination and Made Ground. Contaminants associated with railway land includes herbicides, metals and metalloids, fuel and oil hydrocarbons, PAHs, PCBs, glycols and sulphates. Asbestos can also be associated with the materials used within the track bedding material, fill used in the formation of embankments and within the trains themselves.	X	✓	X
Historical landfills (EA records) / unspecified heaps.	The contaminants of concern are dependent on the materials deposited in areas of landfilling. Potential contaminants include, but are not limited to, asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons, VOCs and SVOCs, inorganic and organic contaminants, PCBs, polyfluoroalkyl substances (PFAS), landfill leachate and ground gas.	X	✓	✓
Electricity substation.	Asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons and PCBs.	X	X	X
Pumping station.	Lubricants and greases, PAHs and metals.	X	✓	X
Sewage works.	The processing of sewage could release contaminants into the environment depending on the site's full operational history and usage. Potential contaminants could include, but are limited to, metals, cyanides, nitrates, sulphates, asbestos, fuel and oil hydrocarbons, VOCs and SVOCs, PCBs and PFAS. Biological contaminants, such as pathogens, may also be associated with the sewage works.	X	✓	X

Table 19-54 Potential Off Site Sources

Potential source	Associated contaminants
Agricultural land and historical practices (including sheep dipping).	Herbicides and pesticides, in addition it is not uncommon for discarded material to be buried on farmland which could potentially contain a range of contaminants. Contaminants associated with sheep dipping include, but are not limited to, metals, organophosphorus and synthetic pyrethroids.
Landfill.	Potential contaminants include, but are not limited to, asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons, VOCs and SVOCs, inorganic and organic contaminants, PCBs, polyfluoroalkyl substances (PFAS), landfill leachate and ground gas.
Potentially infilled pits / ponds. Made Ground.	Asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons, VOCs and SVOCs, inorganic and organic contaminants, PCBs vapours and ground gas.
Railway land.	Contaminants associated with railway land includes herbicides, metals and metalloids, fuel and oil hydrocarbons, PAHs, PCBs, glycols and sulphates. Asbestos can also be associated with the materials used within the track bedding material, fill used in the formation of embankments and within the trains themselves.
Travelling cranes.	Potential contaminants may include fuel and oil hydrocarbons, metals and metalloids, PAHs, asbestos, sulphates and sulphides.
Airfield.	Potential contaminants may include metals, VOCs and SVOCs, glycols, fuel / oil hydrocarbons, phenols, PFAS and PCBs.
Unspecified tanks.	A number of unspecified tanks have been recorded within 250m of the Onshore Development Area, therefore a range of potential contaminants of concern may be associated with these areas. These may include, but are not limited to, fuel and oil hydrocarbons, PAHs, VOCs and SVOCs. Vapour risks may also be present.
Superphosphate works / fertiliser works.	Potential contaminants may include metals and metalloids, ammonium salts, phosphates and superphosphates, organic and inorganic contaminants, fuels and oil hydrocarbons, lubricating oils, PCBs and asbestos.
Gas valve compound / gasometer / gas works / gas governor.	Contaminants of concern include, but are not limited to, asbestos, metals and metalloids, inorganic and organic compounds, fuels, and oil hydrocarbons, PAHs and phenols.
Smithy.	Metals and metalloids, cyanides, sulphates, phosphates, PAHs, fuel and oil hydrocarbons, solvents, and asbestos. There is the potential for vapours to be generated within the area of the former smithy which have the potential to migrate into the Onshore Development Area.
Sewage works.	Potential contaminants could include, but are limited to, metals, cyanides, nitrates, sulphates, asbestos, fuel and oil hydrocarbons, VOCs and SVOCs, PCBs and PFAS. Biological contaminants, such as pathogens, may also be associated with the sewage works.
Brickworks. Whiting works.	Potential contaminants could include, but are limited to, metals and metalloids, fuel and oil hydrocarbons, VOCs, SVOCs, organic and inorganic contaminants, PCBs, PAHs, PFAS and asbestos.
Water works.	Potential contaminants could include, but are limited to, metals and metalloids, nitrates, sulphates, fuel and oil hydrocarbons, VOCs, SVOCs, organic and inorganic contaminants, PCBs, PAHs and PFAS.
Garages.	Metals and metalloids, PAHs, fuel and oil hydrocarbons, glycols, VOCs and SVOCs, asbestos, inorganic and organic contaminants.

Potential source	Associated contaminants
Electricity substation.	Asbestos, metals and metalloids, PAHs, fuel and oil hydrocarbons and PCBs.
Pumping station.	Lubricants and greases, PAHs and metals.

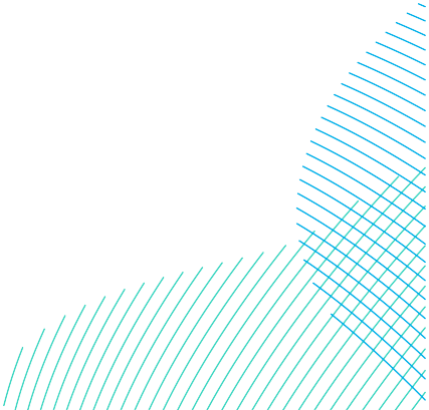
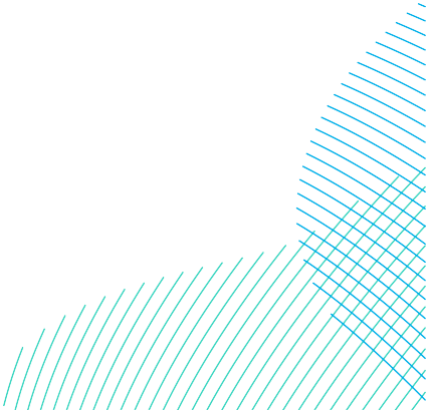


Table 19-55 Potential Receptors and Pathways

Receptors	Pathways	Landfall	Onshore export cable corridor	Onshore substation zones
Human health				
Future site users not involved with the project (e.g. farmers) during operation.	Direct exposure through dermal contact, ingestion or inhalation of soils / dusts and asbestos fibres.	✓	✓	✓
Neighbouring site users (commercial and residential) during construction.	Inhalation of ground gas and volatile contaminants.	✓	✓	✓
Construction / maintenance workers.	Direct exposure through dermal contact, ingestion or inhalation of soils and dusts during ground-breaking activities. Inhalation of asbestos containing soils and dusts. Inhalation of ground gas and volatile contaminants.	✓	✓	✓
Controlled Waters				
Alluvium and Glaciofluvial Deposits – Secondary A Aquifers.	Leaching, dissolution and migration of contaminants from existing unsaturated soils.	✓	✓	✓
Lacustrine Deposits – Secondary B Aquifer.	Vertical migration through the creation of preferential pathways.	✓	✓	X
Head and Glacial Till – Secondary Undifferentiated Aquifers.		✓	✓	✓
Rowe Chalk Formation and Flamborough Chalk Formation – Principal Aquifers.		✓	✓	✓
SPZ I.		X	✓	X
SPZ II.		X	✓	✓
SPZ III.		X	✓	X
Surface waters.	Lateral migration and discharge of groundwater and surface water runoff.	✓	✓	✓
Buildings and utilities				
Future buildings / utilities.	Direct contact with building foundations. Diffusion into services.	X	X	✓

Receptors	Pathways	Landfall	Onshore export cable corridor	Onshore substation zones
	Explosion due to ground gas accumulation.	X	X	✓
Other				
Environmentally sensitive areas – Withow Gap Skipsea SSSI, Greater Wash SPA, Holderness Inshore MCZ.	Migration of dissolved contaminants in groundwater and discharge to surface water.	✓	X	X



19.1.9.2. Preliminary Conceptual Site Model and Qualitative Risk Assessment

65. The CSM and Preliminary Risk Assessment are presented in **Table 19-56**. Definitions of probability and consequence have been based on guidance in CIRIA 552 and are summarised in **Annex C**.
66. A combination of probability and consequences produces a risk level based on the risk evaluation and likely action required. The land contamination risk, which is a function of the probability and the consequence, can be defined using the risk matrix.

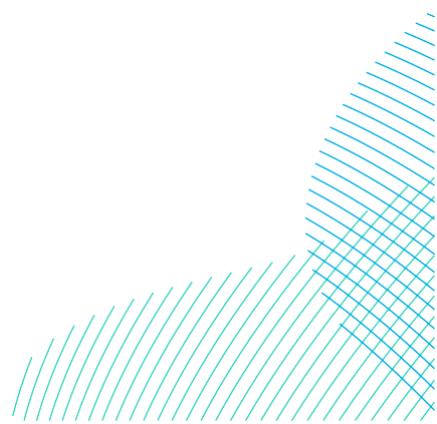


Table 19-56 Preliminary Conceptual Site Model

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
Onsite sources as discussed in Table 19-53.	Dermal contact, ingestion and inhalation of soils, dust and asbestos fibres. Inhalation of volatile contaminants.	Future site users not involved with the project (e.g. farmers) during operation.	Human health.	Medium	Low likelihood	Moderate to low	The Onshore Development Area is located within an area comprising predominantly of agricultural or undeveloped land. This represents the potential for contaminants associated with the usage of herbicides and pesticides to be present. Regulations associated with the chemical composition of herbicides and pesticides have evolved over time reducing their impacts to both the environment and human health. It is anticipated that the contaminants associated with past and current usage of herbicides and pesticides may have diluted over time and are considered unlikely to pose an unacceptable risk to human health. In localised areas where potential contamination has been identified there is the potential for buried contaminants to be disturbed and brought to the surface during the construction and operational phases. These activities have the potential to pose a risk to current neighbouring site users during the construction phase and future site users during the operational phase. The potential risks to neighbouring and future site users could be reduced to low through the implementation of appropriate mitigation measures. These measures may include, but are not limited to, targeted ground investigations in areas of potential concern, this would confirm the presence (or absence) of contamination. Should contamination be confirmed, appropriate mitigation measures would be implemented to either reduce or break the contaminant linkage.
		Neighbouring site users (commercial and residential) during construction.		Medium	Low likelihood	Moderate to low	

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
		Construction / maintenance workers.		Medium	Likely	Moderate	Without the implementation of appropriate mitigation measures there is the potential for construction and maintenance workers to encounter buried contaminants within the localised areas of concern. Where it is not possible to avoid a potential area of contamination, risks to construction and maintenance workers could be reduced to low with the use of appropriate working methods incorporated into a Code of Construction Practice (CoCP) and use of personal protective equipment (PPE). The CoCP would also include measures to be implemented should unforeseen contamination be encountered. Likewise, potential impacts to maintenance workers during the operational phase can be mitigated through the development, and adherence to, task specific method statements and risk assessments. Implementation of the above measures would reduce the likelihood of a contaminant linkage to unlikely.
	Leaching, dissolution and migration of contaminants from existing unsaturated soils.	Groundwater within superficial deposits: Alluvium and Glacio-fluvial Deposits – Secondary A Aquifers;	Controlled waters.	Medium	Low likelihood	Moderate to low	The potential sources of contamination identified within the Onshore Development Area have the potential to be disturbed and mobilised as a result of the intrusive nature of the construction phase. Mobilisation of pre-existing contamination has the potential to result in the migration of contaminants into groundwater bearing strata. The potential sources of contamination are in localised areas within the Onshore Development Area and not present throughout.

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
	Vertical migration through the creation of preferential pathways.	- Lacustrine Deposits – Secondary B Aquifer; and - Head and Glacial Till – Secondary Undifferentiated Aquifers.		Medium	Low likelihood	Moderate to low	Therefore, potential risks to groundwater associated with the Secondary A, B and Undifferentiated Aquifers from the disturbance of pre-existing contamination is limited. The creation of drill fluid storage pits poses a potential risk to the underlying groundwater bearing strata. Mitigation measures, however, will be incorporated into a CoCP which would reduce the likelihood of a contaminant linkage to unlikely. The creation of preferential pathways could occur during the construction of the onshore export cable corridor, however, any works are likely to be above the water table. If piling is required within the Onshore Development Area then there is the potential for preferential pathways to be created albeit the potential sources of contamination within these areas are minimal. In the absence of information in relation to private potable groundwater abstractions, the potential consequence of contaminant linkage has been conservatively determined as medium. Information in relation to the presence (or absence) of private potable abstractions will be gathered as part of the EIA process. Should it be identified that there are no private potable abstractions from within the superficial aquifers, the potential consequence could be lowered to mild resulting in a low risk classification.
	Leaching, dissolution and migration of contaminants from existing unsaturated soils.	Groundwater within bedrock: Rowe Chalk Formation and Flamborough Chalk Formation – Principal Aquifers. SPZs I, II and III.		Severe	Low likelihood	Moderate	The bedrock formations underlying the entirety of the Onshore Development Area are designated as Principal Aquifers. Areas of the onshore export cable corridor to the west of Whitecross Road through to Newbald Road is located within a SPZ 3 Total Catchment. The onshore export cable corridor to the south of Newbald Road, and the onshore substation zones (up to the area surrounding Park Lane) are located within a SPZ 2 Outer Catchment. The area of the onshore export cable corridor 200m

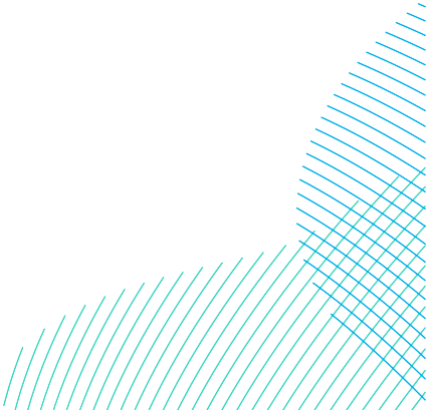
Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
	Vertical migration through the creation of preferential pathways.	Surface waters and Environmentally Sensitive Areas.		Severe	Low likelihood	Moderate	southwards of the intersection of Park Lane and the A1079 is designated as a SPZ 1 Inner Catchment. These zones are not considered to be at risk from the general cable construction works as excavations would generally be shallow in nature. Where trenchless crossing techniques (e.g. HDD) or pilling are to be undertaken these could present a risk to the Principal Aquifers and SPZs. There is the risk of creating preferential pathways albeit the sources of contamination are limited within the Onshore Development Area. The creation of drill fluid storage pits poses a potential risk to the underlying Principal Aquifers. Mitigation measures, however, will be incorporated into a CoCP which would reduce the likelihood of a contaminant linkage to unlikely.
	Lateral migration and discharge of groundwater and surface water runoff.			Medium	Low likelihood	Moderate to low	Potential sources of contamination have been identified in close proximity to surface water bodies. Contaminants present within soils have the potential to be disturbed as a result of construction and maintenance works. There is the potential for these contaminants to be mobilised as a result of disturbance and leach into the surrounding surface water bodies. Mobilisation of contaminated groundwater also has the potential to impact surface water bodies via direct discharge into the feature. Ecological receptors within and adjacent to landfall may be impacted both directly and indirectly by DBS East and DBS West. The sensitive sites are designated due to the unique habitats and species that are supported. Migration of contaminated groundwater into these areas may impact the functionality of the site and render it unsuitable for the species that inhabit it. The specific nature of the species associated with the designations determines how plausible the potential contaminant linkage is. Targeted pre-construction ground investigations would allow for the appropriate management of the risks posed to surface water bodies as a result of the construction and operation of DBS East and DBS West.
	Migration of dissolved contaminants in groundwater and discharge to surface water.			Medium	Low likelihood	Moderate to low	

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
	Direct contact and diffusion through drinking water pipes.	Future buildings / utilities.	Building and foundation corrosion and impact to potable water.	Medium	Low likelihood	Moderate to low	Potential contamination within the onshore substation zones has the potential to impact the integrity of concrete foundations through creating aggressive ground conditions. Potential organic contaminants could permeate potable water supplies (if proposed in the future) and have detrimental impacts on human health.
	Gas and vapour migration and accumulation in buildings.	Future onsite users working within confined spaces (assumed to be buildings associated with the onshore substation only).	Health risk (methane, carbon dioxide and volatiles).	Severe	Low likelihood	Moderate	There is the potential for ground gas and vapours to be produced from materials used in localised areas associated with landfills and potentially infilled pits / ponds within the onshore substation zones. In these areas, contaminants may be brought to the surface or mobilised during construction, which if not mitigated could present an unacceptable risk to human health.
			Explosion (methane).	Severe	Low likelihood	Moderate	The excavation of the onshore export cable corridor has the potential to create a preferential pathway for any gases or vapours to migrate and accumulate in enclosed spaces and present a risk of asphyxia and / or explosion. Re-instating material excavated as part of the construction of the onshore export cable corridor could lower the potential risks associated with creating a preferential pathway as these soils are likely to have a similar porosity to the surrounding soils not directly impacted by the works.
		Construction / ground workers.	Health risk (methane, carbon dioxide and volatiles).	Severe	Low likelihood	Moderate	The potential to create contaminant pathways during construction and maintenance activities exist through the excavation works required to create the onshore export cable corridor and the onshore substations. Potential ground gas and vapours could

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
		Maintenance workers during the operational phase.	Explosion (methane).	Severe	Low likelihood	Moderate	migrate and, without the implementation of mitigation measures, result in acute or chronic effects to workers. Within the onshore substations potential ground gas and vapours could accumulate within the buildings which would be accessed by maintenance workers during the operational phase of DBS East and DBS West. Targeted pre-construction ground investigations and / or a multiple lines of evidence approach could be adopted to determine the plausibility of potential ground gas or vapour sources identified at the specific locations the risks relate to. To mitigate the risks to construction workers during excavation activities (particularly if entry into confined spaces is required) the use of appropriate working methods incorporated into a CoCP and use of PPE would reduce the potential risk to low. The potential risks to maintenance workers could also be reduced to low through the use of appropriate working methods and PPE.
		Future buildings / utilities.	Explosion (methane).	Severe	Low likelihood	Moderate	There is the potential for ground gas and vapours to be produced from materials used in localised areas associated with landfills and potentially infilled pits / ponds within the onshore substation zones. Therefore, there is the potential for ground gases and vapours generated to accumulate within buildings during the operational phase of DBS East and DBS West which could lead to destruction of the building through explosion. Targeted pre-construction ground investigations and / or a multiple lines of evidence approach could be adopted to determine the plausibility of potential ground gas or vapour sources identified at the specific locations the risks relate to. The information gathered through targeted ground investigation / multiple lines of evidence will allow for appropriate mitigation measures to be identified, e.g. installation of ground gas protection measures. This would reduce the potential risks to buildings to low.

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
Offsite sources as discussed in Table 19-54	Lateral migration of dissolved phase contaminants in groundwater and migration from unsaturated contaminated soils.	Groundwater within superficial deposits (Secondary A, B and Undifferentiated Aquifers).	Controlled waters.	Medium	Low likelihood	Moderate to low	Areas of localised potential contamination lie adjacent to the Onshore Development Area (e.g. landfills and potentially infilled pits). There is the potential for contaminants within soils, leachates or groundwater to migrate into the Onshore Development Area and be encountered, exposed or mobilised during construction works. Pre-construction targeted ground investigations would help to establish whether areas of the Onshore Development Area have been impacted by offsite sources.
		Bedrock (Principal Aquifers), SPZs I, II and III.		Severe	Low likelihood	Moderate	
	Gas and vapour migration.	Construction / ground workers.	Health risk (methane, carbon dioxide and volatiles).	Severe	Low likelihood	Moderate	There is the potential for ground gas and vapours to migrate into the Onshore Development Area from offsite sources (e.g. where landfilling is adjacent to work areas) through permeable strata. Without mitigation, construction workers working in confined spaces may be exposed to the migrating ground gas and vapours during excavation works. Maintenance workers could also be exposed to migrating ground gas and vapours should they be required to enter confined spaces (e.g. onshore substations and joint bays along the onshore export cable corridor). The potential risks to construction and maintenance workers could be lowered through the implementation of appropriate working methods and correct usage of PPE.
		Maintenance workers during the operational phase.	Explosion (methane).	Severe	Low likelihood	Moderate	

Source	Pathway	Receptor	Associated Hazard	Potential Consequence of Contaminant Linkage	Likelihood of Contaminant Linkage	Risk Classification	Justification
		Future buildings / utilities	Explosion (methane)	Severe	Low likelihood	Moderate	Migrating ground gases from offsite sources have the potential to accumulate within the buildings associated with the onshore substations. Without mitigation, there is the potential for accumulated gases to result in destruction of the buildings through explosions. The potential risks to the onshore buildings could be lowered by developing an understanding of the ground gas regime through pre-construction ground investigations / adoption of a multiple lines of evidence approach to determine whether plausible pathways are present.



19.1.10. Conclusions and Recommendations

19.1.10.1. Conclusions

67. The key objectives of the desk study and PRA were to provide information on the current condition of the Onshore Development Area with respect to contamination, characterise the environmental setting and identify potential land quality risks and constraints associated with the proposed DBS East and DBS West.

19.1.10.2. Summary of Human Health Risk Assessment

68. Based on the findings of the PRA, the risk posed to future and neighbouring site users from localised potential onsite sources of contamination is considered to be **moderate to low**. Potential risks to future onsite users in relation to ground gas and vapours from onsite of is considered **moderate**. Potential risks to construction and maintenance workers from both onsite and offsite sources of contamination are considered to be **moderate**, inclusive of risks associated with ground gas.

19.1.10.3. Summary of Controlled Waters Risk Assessment

69. Based on the findings of the PRA, the potential risks posed to superficial Secondary A, B and Undifferentiated Aquifers from localised potential onsite and offsite sources of contamination are considered to be **moderate to low**. Potential risks to the Principal Aquifers associated with the bedrock of the Onshore Development Area and SPZs I, II and III are considered to be **moderate** in relation to potential onsite and offsite sources of contamination.
70. Potential risks to surface water bodies from potential onsite sources of contamination are considered to be **moderate to low**.

19.1.10.4. Summary of Other Receptors

71. The risks posed to environmentally sensitive areas from potential onsite sources of contamination are considered to be **moderate to low**.
72. The risks posed to future buildings and utilities from potential sources of contamination and ground gas accumulation are considered to be **moderate to low** in relation to potential onsite sources of contamination. Potential risks to future buildings in relation to ground gas and vapours is considered to be **moderate** from both potential onsite and offsite sources of contamination.

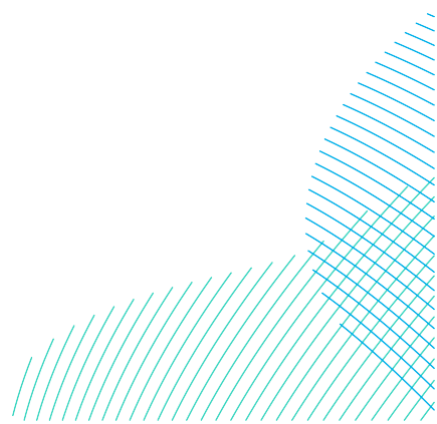
19.1.10.5. Other Identified Risks

73. The risk posed by UXO is considered to be **low**.

19.1.10.6. Recommendations and Next Steps

74. Based on the findings of the PRA the following recommendations are made:
- A post consent targeted intrusive ground investigation in potential source areas and generic quantitative risk assessment (GQRA) to help better determine the presence, magnitude and extent of contaminants within the study area and inform discussions on appropriate mitigation measures to lower the risk to the potential receptors identified within this PRA;
 - Engagement and consultation with the Regulators (e.g. Environment Agency) at an early stage (pre intrusive ground investigation) to agree a scope of works and gain agreement to the proposed approach;
 - Development of a CoCP for use during construction works to protect construction workers, neighbouring site users, groundwater and surface water. The report should be informed by the results of the targeted intrusive ground investigation;
 - To protect construction workers, the works should be undertaken in accordance with the requirements of the Health and Safety at Work Act 1974 and the Construction (Design and Management) (CDM) Regulation 2015;
 - Protocols for dealing with unexpected contamination should be set in place prior to construction to ensure that procedures are known and agreed with the Regulators should unexpected, contaminated materials be encountered;
 - Should contamination be identified and piling be required in a sensitive water environment receptor, such as Principal Aquifer, SPZ or potable groundwater abstractions a post consent hydrogeological piling risk assessment to be undertaken (potentially associated with the construction of the onshore substation) to protect the water environment;
 - The movement and reuse of materials on site should be undertaken in accordance with the CL:AIRE Code of Practice (CL:AIRE 2011) 'The definition of waste: Development Industry Code of Practice', where applicable; or an environmental permit that authorises the deposit of excavated material for recovery; and
 - The management of any waste material off-site must be at a site with an environmental permit and any waste activity must consider the waste hierarchy; hazardous waste must be managed in accordance with

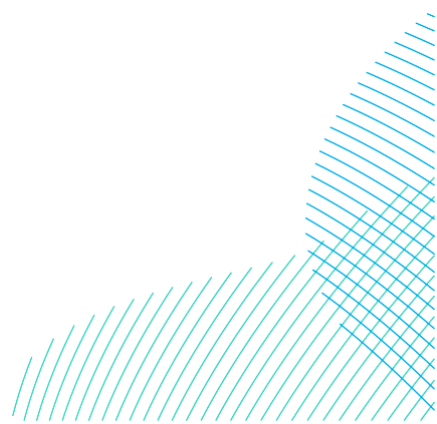
Hazardous Waste Regulations 2005; and any disposal of materials off-site to landfill should be undertaken in accordance with the Landfill Regulations 2002.



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Annex A



UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 500987,437567



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

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If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 501051,439880



LEGEND

-  **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
-  **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
-  **Low:** Areas indicated as having 15 bombs per 1000acre or less.

- | | | |
|--|--|--|
|  military |  industry |  UXO find |
|  transport |  dock |  Luftwaffe targets |
|  utilities |  Bombing decoy |  other |

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 501397,441401



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 501752,438309



LEGEND

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- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 502434,436981



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 502923,441955



LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

- | | | |
|------------------|----------------------|--------------------------|
| military | industry | UXO find |
| transport | dock | Luftwaffe targets |
| utilities | Bombing decoy | other |

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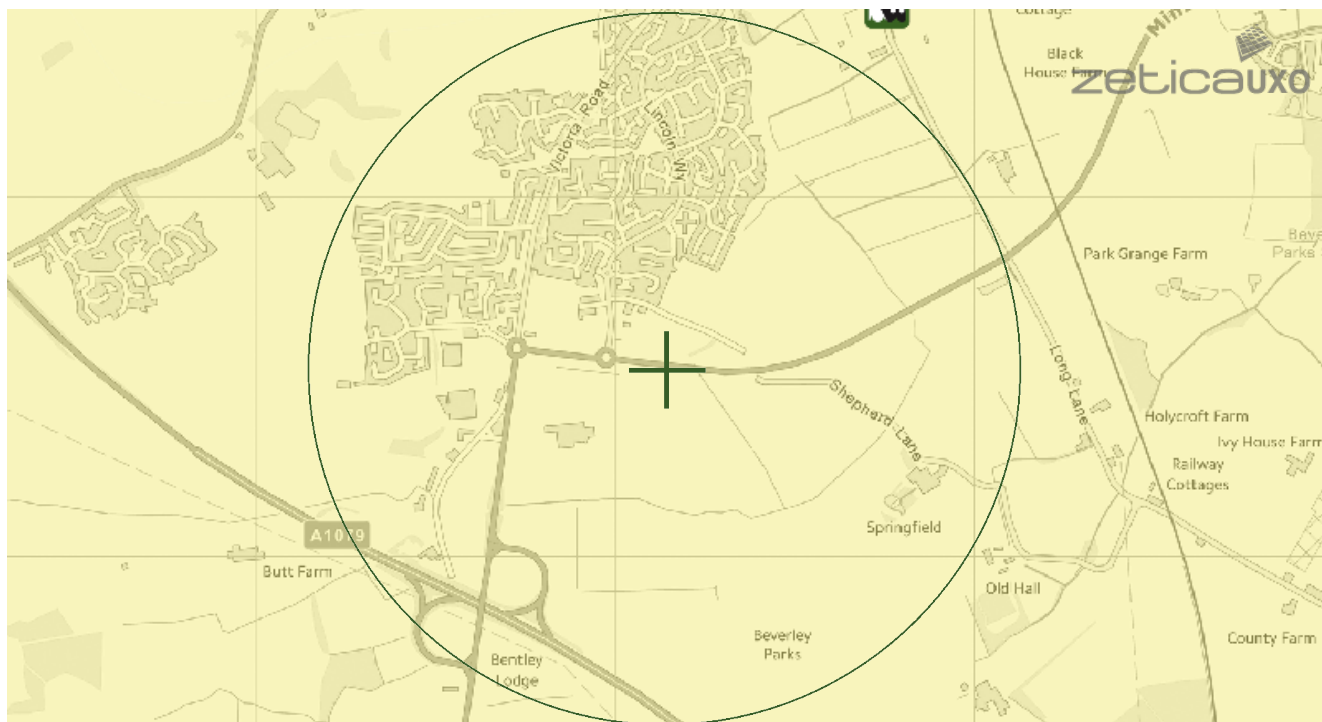
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 503150,437523



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 503412,436082



LEGEND

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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 504301,442860



LEGEND

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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 504508,441768



LEGEND

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-  **Low:** Areas indicated as having 15 bombs per 1000acre or less.

- | | | |
|--|--|--|
|  military |  industry |  UXO find |
|  transport |  dock |  Luftwaffe targets |
|  utilities |  Bombing decoy |  other |

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 505822,443118



LEGEND

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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 507566,442931



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

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What do I do if my site is in a moderate or high risk area?

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 509265,442229



LEGEND

-  **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
-  **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
-  **Low:** Areas indicated as having 15 bombs per 1000acre or less.

- | | | |
|--|--|--|
|  military |  industry |  UXO find |
|  transport |  dock |  Luftwaffe targets |
|  utilities |  Bombing decoy |  other |

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 511171,442387



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 512613,443473



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 513986,444392



LEGEND

-  **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
-  **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
-  **Low:** Areas indicated as having 15 bombs per 1000acre or less.

- | | | |
|--|--|--|
|  military |  industry |  UXO find |
|  transport |  dock |  Luftwaffe targets |
|  utilities |  Bombing decoy |  other |

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 514520,451308



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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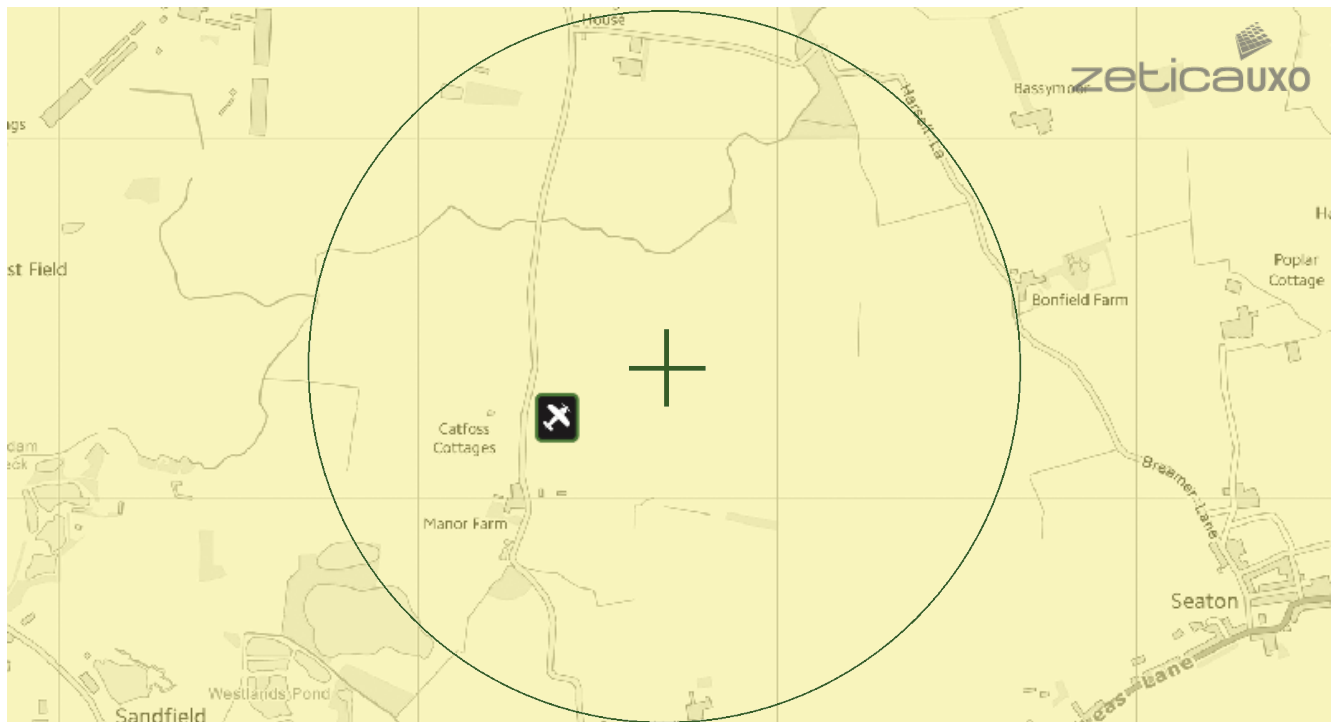
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 514697,447365



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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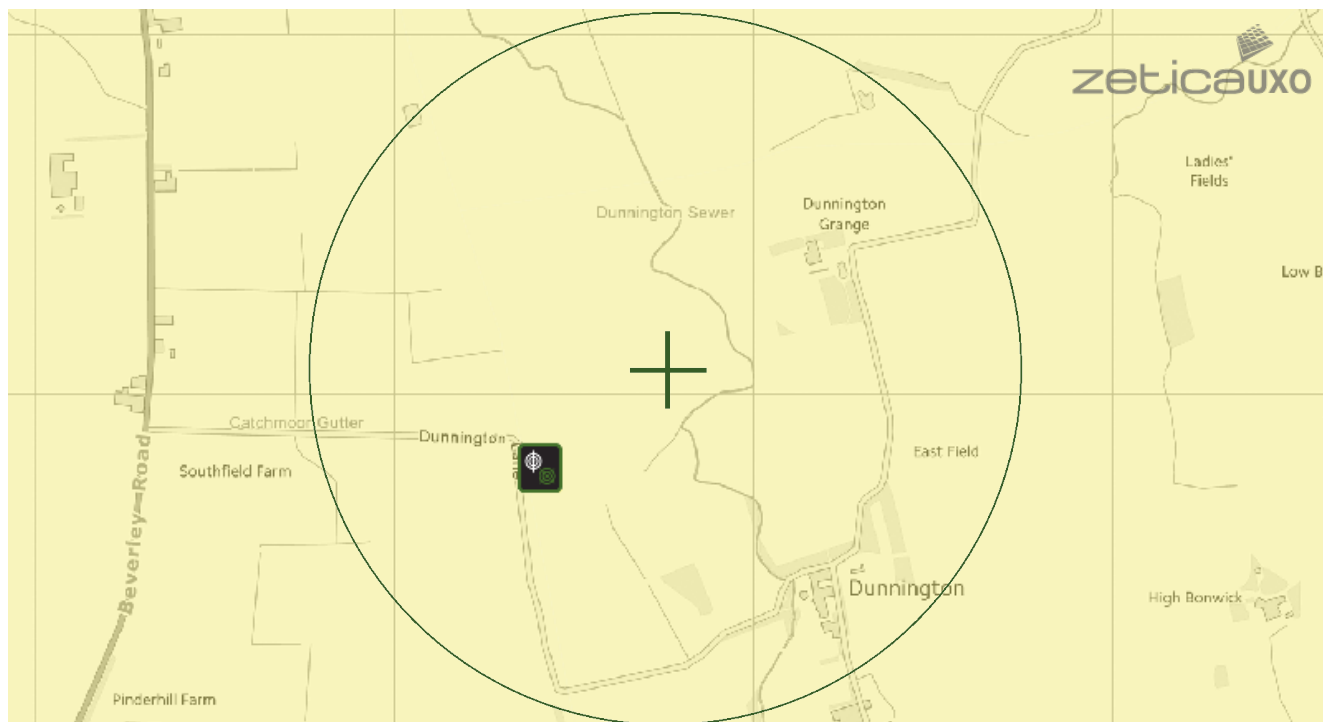
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 514766,453072



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 514771,449302



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 514895,445765



LEGEND

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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 515863,454228



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

How to use your Unexploded Bomb (UXB) risk map?

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What do I do if my site is in a moderate or high risk area?

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Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

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If my site is in a low risk area, do I need to do anything?

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If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 517048,455647



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- military**
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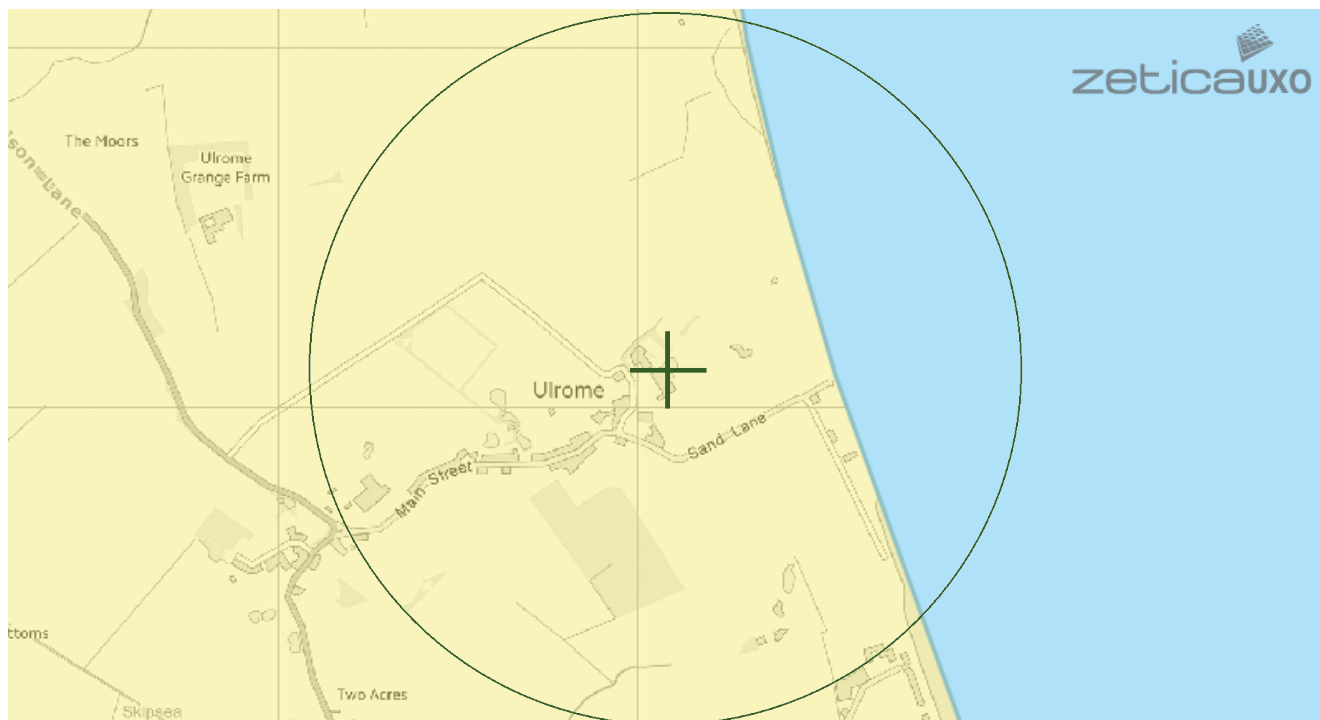
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 517088,457108



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
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- other**

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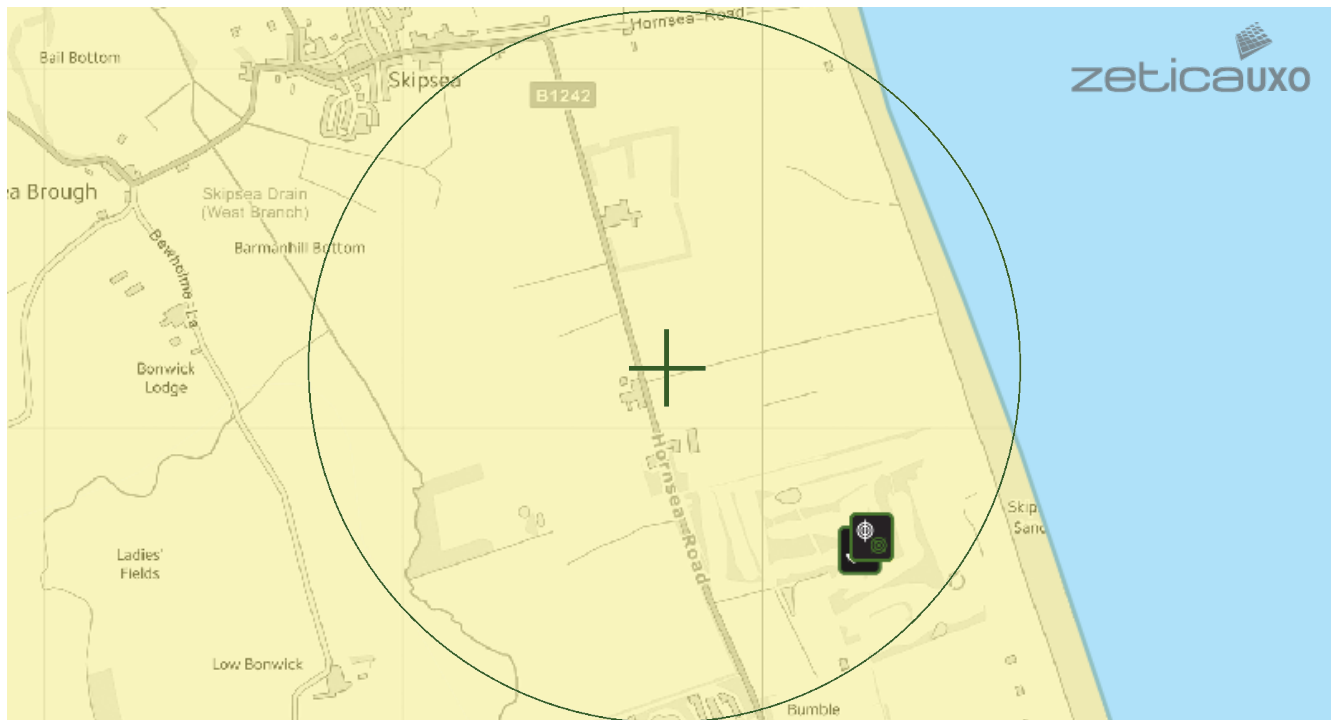
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 517740,454171



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
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- military**
- industry**
- UXO find**
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- dock**
- Luftwaffe targets**
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- other**

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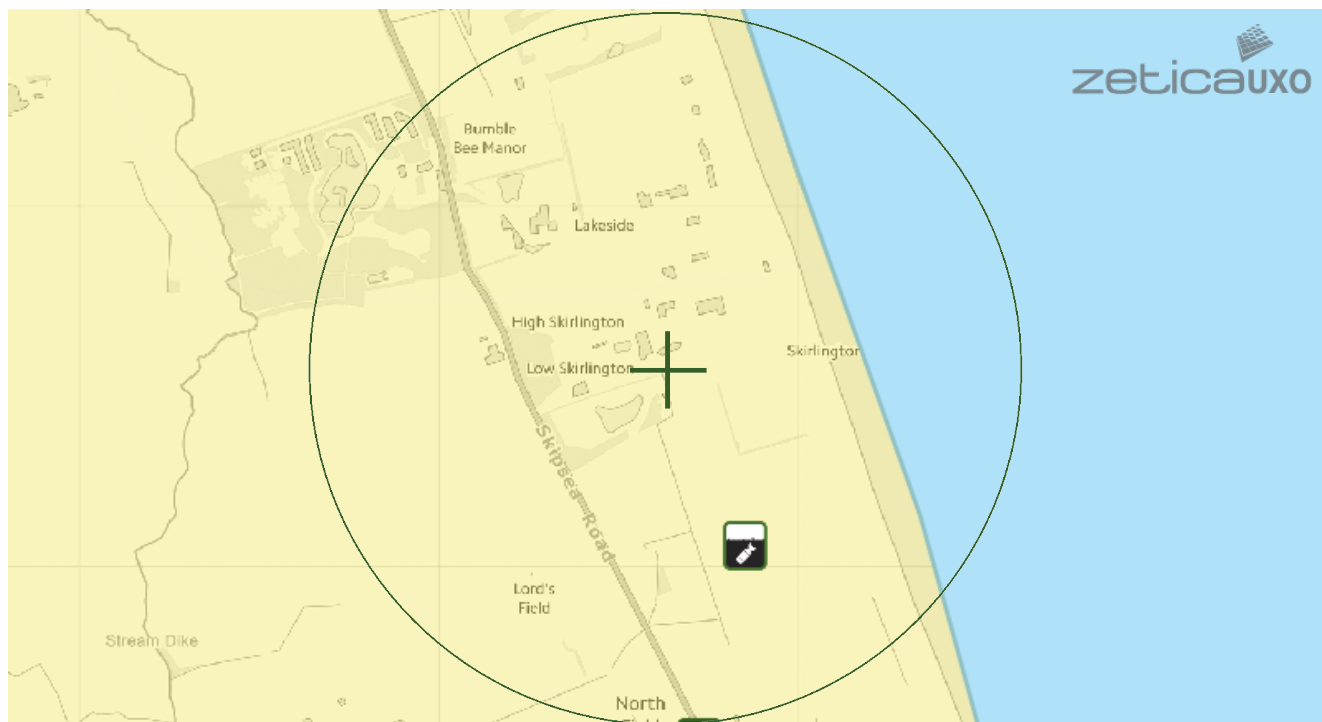
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UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 518643,452550



LEGEND

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- military**
- industry**
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- transport**
- dock**
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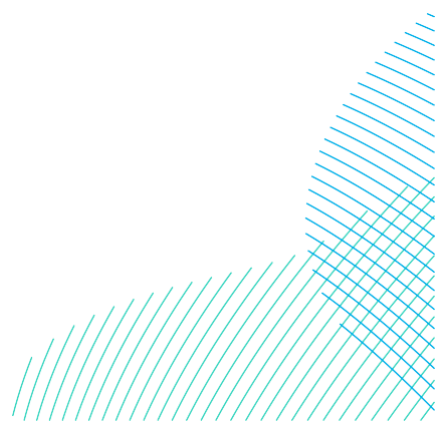
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Annex B



TAOL 2 FEB 1912

Field Map site: 05334264

10050421

BEVERLEY

37. South Bullock Pumping Station on the River Hull, 3 miles from Beverley.

6" Yanks 196 S.W.

Communicated by Mr. J. Villiers, 1903, June 23rd

		Thickness.		Depth.	
		Ft.	In.	Ft.	In.
DRAFT FLAMBOURGH CHALK	Soil and clay	15	36	0	6 0 183
	Very soft black warp	9	32	0	34 0 0 36
	Thin bed of stony gravel	0	5	0	34 6 11 52
	Very soft Chalk	12	30	1	0 75 6 23 01

10/2/02 Surface c. 7' O.D. 2" tube to 50' down.

Date "23 June, 1903." "50 ft 2" galvanisation pipe". Other details as printed above, in Villiers original second book. [N.A.T. 6/11/11]

The Pumping Station itself comes under the control of the River Hull Catchment Board. The Station is used for pumping flood water out of the main lowland drain into the River Hull. There are two cottages attached to the Pumping Station & these obtain their only supply of water from the above 75½' bore. The water is drawn by means of a small hand-pump, & I understand it is an excellent supply & very good for drinking purposes. There does not appear to be an analysis on record.

About ¼ mile N. of Hull Bridge Road, on W. side of River Hull.

(Fide, Assistant Engineer, River Hull Catchment Board, Beverley. 7/8/41.)

* Visited & noted on 6" old field slip 196 S.W. (W.) 7/8/41.

source of site

O.D. looks more like 2" from 6" " "

Published in
Water Supply & Sewerage
Engineering & Works.

11

British Geological Survey

265

British Geological Survey

taken for examination for each of these organisms; and Streptococci were not found in 20 ccs. These results give no indication of the water having recently been polluted with sewage or excremental matter, and there is no excess of ordinary bacteria.

8th May, 1908.

C. H. WELLS,
Secretary.

PARTICULARS OF TRIAL BORES AT PIGHILL LANE SITE.

Bore A made 8th January, 1908.

Top Soil.....	1 ft.
Sandy Clay.....	1 "
Red Clay.....	2 "
Sand and Water.....	2 "
Blue Clay.....	7 "
White Gravel.....	2 "
Marl and Gritty Chalk, bored to.....	2 "
Total depth of bore.....	18 ft.

72/305A

Bore B made 10th March, 1908.

Top Soil.....	2 ft. 6 in.
Sandy Clay.....	1 " 0 "
Brown to Blue Clay.....	11 " 0 "
White Gravel.....	4 " 0 "
Chalky Marl.....	1 " 6 "
Yellow Sand.....	5 " 0 "
Chalk bored to.....	27 " 0 "
Total depth of bore.....	50 " 0 "

72/305B

Bore C made 18th March, 1908.

Top Soil and Brown to Blue Clay.....	15 ft. 6 in.
White Gravel.....	1 " 6 "
Chalky Marl bored to.....	9 "
Total depth of bore.....	17 " 9 "

72/305C

72/305

British Geological Survey

266

Bore D made 19th March, 1908.

Top Soil.....	2 ft. 6 in.
Sandy Clay.....	2 " 0 "
Sand.....	1 " 0 "
Yellow Gravel.....	3 " 0 "
Blue Clay.....	5 " 6 "
Red Clay.....	6 "
White Gravel.....	1 " 0 "
Chalky Marl bored to.....	6 "
Total depth of bore.....	18 ft. 6 in.

72/305D

Bore E made 20th March, 1908.

Top Soil and Brown to Blue Clay.....	10 ft. 6 in.
White Gravel.....	6 "
Chalky Marl bored to.....	1 " 0 "
Total depth of bore.....	18 ft. 6 in.

72/305E

Bore F (John Watts' Field) made 20th March, 1908.

Top Soil.....	2 ft. 6 in.
Sandy Clay.....	2 " 6 "
Sand.....	2 " 0 "
Gravel.....	5 " 0 "
Red Clay.....	2 " 0 "
White Gravel.....	6 "
Chalky Marl bored to.....	3 " 6 "
Total depth of bore.....	18 ft. 0 in.

72/305F

N.B.—Bore "A" was the first bore put down by Mr. Villiers after his tender was accepted, and before any arrangements were made as to supervision.

Bore "B" is the DEEP bore from which samples of water have been taken.

Bore "C" is the SHALLOW bore, ditto.

72/305

Grid Ref **1446 4650**
TA46465

I.G.S. Ref

Licence No.
Y.W.A.
App. No.

CATWICK B.H.3.
Aquifer: **DART.**

AD=20.6m
FC=20.2m

Address of Site: **CATWICK (LANDFILL SITE)**

Owner: **CLARD ENVIRONMENTAL (P) LTD**

Borehole Depth: **20.6m**

Dia: **No 100mm**

Casings: **1 1/2 inch**

Details of Strata:

Depth
Tensm

Topsail (Boulders)	0.2	0.2
CLAY (fine medium coarse cherty gravel)	1.3	1.1
CLAY (fine medium coarse cherty gravel)	1.8	0.5
SAND (Fine Brown)	1.9	0.1
CLAY (fine medium coarse cherty gravel)	4.0	2.1
CLAY (fine medium coarse cherty gravel)	20.5	16.5

No Chalk Base

Grid Ref. 036356
TA 03

I.G.S. Ref. 92/459

W Licence No. 3
Y.W.A.
App. No.

Aquifer: Chalk

$M.D. = 10.82$
 $\Sigma C = 10.215$

Address of Site: Poplar Farm
Beverley Park
Beverley

Owner:

Details of Strata:

Top soil	2-0	
Yellow clay	20-0	22-0
Gravel	13-0	35-0
Chalk	75-0	110-0

Borehole Depth: 110'

Dia.: 4' top
4' bottom

Casings: 60' 4" tube
lined +

Jackson 1958

RECORD OF WELL (SHAFT OR BORE)

1-inch Map Registered No.

At Walsworth
 Town or Village Beverley
 County Yorks Six-inch quarter sheet
 For Mr. H. Tankyss, Engineer, Borough of Beverley
 Exact site of well In bottom of Hol. Existing Well

Attach a tracing from
 a map, or a sketch-
 map, if possible.

Level of ground surface above sea-level (O.D.) 190 ft. If well-top is not at ground level, state how far above; below; ft.
 WELL SHAFT 190 ft.; diameter ? ft. Details of headings —

BORE 43 1/2 below well ft.; diameter of bore: at top 2 1/2 ins.; at bottom 2 1/2 ins. Lengths, diameters, perforations, etc., of lining tubes 3'-0" x 2 1/2" dia. pipe at well bottom left in as a guide for drilling tools when boring in bottom.
 Water struck at depths below well top, of (feet) —

Rest-level of water ? ft. above well-top. Suction at — ft. Yield on — hours' pumping, — gal. per — with depression to — ft. below well-top. Capacity of pump — g.p.h. Recovery to rest level in — mins. Date of measurements Dec 46 Date of well ?
" " bore Dec 46

Quality of water (attach copy of analysis if available)

Bore Well made by J. Smith & Son (Eng) Ltd.

Information from do.

Additional notes in space overleaf.

(For Survey use only)
 GEOLOGICAL
 CLASSIFICATION

NATURE OF STRATA

THICKNESS

DEPTH

Feet Ins. Feet Ins.

DRIFT 6ft

FLAMBOURGH
 CHALK to 170 ft
 BURNHAM CHALK

If measurements start below ground surface, e.g., from bottom of an existing shaft, state how far

Depth of Existing well 57.91
 Chalk & flint beds 13.26

190 0 190 0
 43 6 233 6

9/2/52
 Normally 40,000 g.p.h. have been available but during bad drought this has fallen to 15,000 g.p.h.
 Pumping test in Aug. 1947 showed that 45,000 g.p.h. available with R.W.L. c. 150 t.g.l.

R.W.L.
 Feb. '49 143 t.g.l.
 Sept. '49 150 t.g.l.
 Dec. '49 140 1/2 t.g.l.
 Jan. '50 145 1/2 t.g.l.
 March '50 137 t.g.l.
 April '50 139 t.g.l.
 May '50 137 t.g.l.
 July '50 142 t.g.l.
 Aug. '50 140 t.g.l.
 Sept. '50 140 t.g.l.
 Oct. '50 143 t.g.l.
 Nov. '50 138 t.g.l.
 Dec. '50 135 t.g.l.
 Jan. '51 133 t.g.l.
 Feb. '51 130 t.g.l.
 Mar. '51 122 t.g.l.
 Apr. '51 122 t.g.l.

When rainfall is considerable then the water level rises in A.W.P. but it shows steady rise then no obvious rise.
 This borehole is in the bottom of Shaft "A"
 J. Smith & Son



North 210 SE

Continued over leaf

GEOLOGICAL SURVEY AND MUSEUM,
 SOUTH KENSINGTON,
 LONDON, S.W.7.

Date received

Correspondence File No.

1" N.S. Map No.

1" O.S. Map No.

Site marked (use symbol) on 1" Map on 6" Map

26.4.49

72.

British Geological Survey

[TA 0203 3799]

OO c. 13.1m
 ran p. 2 for 49.

NATURE OF STRATA

42

If measurements start below
ground surface, state how far... ..

THICKNESS

Feet Inches

... ..

DEPTH

Feet Inches

... ..

DRIFT

FLAMBOROUGH
CHALK

8

10/2/82

Soil

Clay

Sand

Clay

Sandy soil, bits of clay

Clay

Chalk rubble

Chalk

0.30

1.37

0.76

0.46

5.18

3.20

0.61

11.28

1

4

2

1

17

10

2

37

0

6

6

6

0

6

0

0

1

5

8

9

26

37

39

76

0

6

0

6

6

0

0

0

0.30

1.68

2.44

2.90

8.08

11.29

11.89

23.16

British Geological Survey

Mar. 29 1912

Revised Jan 1982

105441731

05404174

A

MADE GROUND

DRIFT

FLAMBOROUGH CHALK

British Geological Survey

HULL BRIDGE TRIALBORING No. 3.

From datum to where we started to bore in river.

Loose Rubble and Grit	229 7	6	229 7	6
Soft clay	046 1	6	274 9	
Dark Peaty warp	183 6		457 15	
Soft Warpy Clay	198 6	6	655 21	6
Chalk	335 11		991 32	6
	015	6	1006 33	

6" 2 1/4" (4.1)

British Geological Survey

Apr. 2

HULL BRIDGE TRIAL BORING

No. 1. = (1 ft. down)

B

MADE GROUND

DRIFT

FLAMBOROUGH CHALK

Ground level above datum mark	076 2	6	076 2	6
Top soil and made ground	229 7	6	305 10	
Dark Peat	091 3		396 13	
Soft warpy clay	549 18		945 31	
Chalk	274 9		1219 40	

HULL BRIDGE (CTD.) No. 1.

Water level from the chalk
6 feet below datum mark.

British Geological Survey

APRIL 1912. HULL BRIDGE TRIAL BORING No. 5.

British Geological Survey

From datum mark to river bottom	244 8		244 8	
Bricks stones and made ground	229 7	6	472 15	6
Soft warp	488 16		960 31	6
Chalk	015	6	975 32	

C

MADE GROUND

DRIFT

FLAMBOROUGH CHALK

HULL BRIDGE TRIAL BORING No. 2

April 1912

From datum mark to river bottom	244 8		244 8	
Stone and made ground	152 5		396 13	
Black Peat	046 1	6	442 14	6
Soft Warp clay	518 17		960 31	6
Chalk	091 3		1052 34	6

D

MADE GROUND

DRIFT

FLAMBOROUGH CHALK

Above record obtained from typescript copy
of Villiers's records. [8K B. 15/9/41.]
Checked from Villiers original record book [N.A.S. 7.11.41]

TRIAL ~~Proposed site for new~~ 36 Pophill Lane Ref. No. 8
 WELL BORINGS at ~~Beverly Works~~ County Yorks Site called Field No. 25
 Geol. map 72 1 in. map New Series 6 in. map 210NE
 Made by T. Villiers Date 1906
 Sunk feet. Bored feet.
 Communicated by Prof. P. F. Kendall
 Height above Ordnance Datum ~~AMERICAN~~ Rest level of water
 Yield
 Quality (with copy of analysis on separate sheet)

JVS
 13.

TA 04 SW H/6 4

GEOLOGICAL FORMATION.	NATURE OF STRATA.	THICKNESS.		
		Feet.	Inches.	
02734130 [02734135 London]	<u>Nº1 Grial Bore (A)</u>			
BRITISH DRIFT	Top Soil	2	—	2
	Red clay	6	—	8
	Sand + gravel	2	—	10
	Blue clay	4	6	14
	Yellow clay	10	6	25
FLAMBOROUGH CHALK	Chalk	31	—	56
02804136 [02804136 London]	<u>Nº2 Grial bore (B)</u>			
BRITISH DRIFT	Top soil	1	—	1
	Brown clay	2	—	3
	Blue clay	5	—	8
	Sand + gravel	2	—	10
	Blue clay	6	—	16
FLAMBOROUGH CHALK	Chalk	11	—	27
A. October 8th, 1906 : B. Oct. 9th, 1906. Villiers's records. [N.A.T. 11.2.1902]		From original copy		
From Site map A 0274 4135 c. 28' 5.5m 8m Grid Ref. in B 0281 4137 c. 28' 5.5m 8m		OD levels reduced - 11.2.1902		
[Baldwin Latham, Civil Engineer, reported on purchase of Beverly Works by Beverly Corporation, and on choice of site for new pumping station, in 1908.]				
see map attached to 72/305.				
sited on 6" 210 N.E. (E). emergency action:				

TA04SW 133. RECORD OF WELL (SHAFT OR BORE)

1" N.S. 72
1" O.S.
Grid
Ref.

At Motescott Cove
Town or Village 2.500 ft County 72582 12.R. Six-inch quarter sheet 2.11 N.W.
Exact site 1/4 m. N.W. of 11.5 mile from in parish of 11.5 mile from [For map see under 72/1211] (A or ma)
Level of ground surface above sea-level (O.D.) 23 ft. If well starts below ground surface, state how
Shaft 23 ft., diameter 23 ft. Bore 23 ft. Diameter of bore: at top 23 ins.; at bottom 23 ins.
Details of permanent lining tubes (internal diameters preferred)

145

Water struck at depths of (feet)
Rest-level of water below top of well 2.25 feet. Suction at 2.25 feet. Yield on 2.25 hours' test
gallons per 2.25 (with pump of capacity 2.25 g.p.h.); depressing water level to 2.25 feet
below top. Time of recovery 2.25 hrs. Amount normally pumped daily 2.25 g.p.h. for 2.25 hours.

Quality (attach copy of analysis if available)
Sunk by J. Villiers for Mr. [unclear] Date of well 1904
Information from 12.5 mile from

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS		DEPTH	
		Feet.	Inches.	Feet.	Inches.
DRIFT	Top soil (peaty)	6	—	—	—
	Gravel	—	4	12	—
	Gravelly clay	3	—	15	—
	Yellowish mudstone	5	8	21	—
FLAMBOROUGH CHALK	Chalk	2.12	—	23.2	—
Bore 25' dia. at 21' down. 1" led to 21' at 3". Little water found in gravel at 12 1/2' down. Clay a mud below gravel was clay. Surface of ground 4.09' O.D. The bore was made for test purposes in connection with the proposed scheme for new waterworks (Bull Bridge Road area). inf. from Mr. T. C. Twiss. R.P.O. 29.7.41 R.W.L. 24/1/1910 5.09' O.D. [from 6" map with 7/1905]					

DUNELM DRILLING CO.

BOREHOLE RECORD

Contract No. C 5142

Client SHELL UK LTD.

Ground Level

Location RIVERSIDE SER. STN. - HESSLE RD., HULL

Date OCT '91

BOREHOLE No. BH 2

Depth	Thick- ness	Legend	Description of Strata	Type of Sample	C kN/m ²	M %	Ø	Density Kg/m ³	N
1.30			SOFT LOOSE ASH, SOIL, STONE & CLAY FILL.	P 1.00					6
1.30			FIRM BROWN & GREY MOTTLED SANDY CLAY BECOMING SOFTER & MORE MOIST WITH DEPTH.	U 1.50	64.0	26.0	2°	1910	
2.70			SOFT BROWN MOIST LAMINATED SANDY CLAY	U 2.70	27.0	36.0	-	1690	
3.60			SOFT BROWN VERY SANDY SILTY CLAY	U 3.70	15.5	31.5	4°	1770	
6.00									

NO VISIBLE INGRESSSES

Water Struck at

Standing Water Level 2.70m

C. TEST PUMPING SUMMARY (Please supply fully details on Form WR - 39)

Test Pumping Datum (if different from borehole datum)	<u>AS BOREHOLE</u>	above m below borehole datum
Pump Suction Depth	<u>37</u>	mbd
Water Level (Start of Test)	<u>16 - 66</u>	mbd
Water Level (End of Test)	<u>18 - 90</u>	mbd
Pumping rate	<u>101 - 76</u>	m ³ /d : l/s
for	<u>1</u>	day/hours
Recovery to (from end of pumping)	<u>16.66 mbd</u> in <u>45</u>	mins : hrs : days
Date(s) of measurements	<u>9 3 98 To 10 3 98</u>	
Please Supply Chemical Analysis If Available		

D. STRATA LOG

Geological Classification	Description of Strata	Thickness	Depth
(BGS only)		m	m
	CONCRETE AND hardcore	0.40	0.40
	BOULDER CLAY	11.00	11.40
	BROWN CLAY	5.60	17.00
	SANDY BOULDER CLAY	10.00	27.00
	BROWN CLAY	5.10	32.10
	SOFT CHALK	15.40	47.50
	HARD CHALK	18.50	66.00
	[continue on separate page if necessary]		
	Other Comments (eg gas encountered, saline water intercepted, etc)		

FOR OFFICIAL USE ONLY

FILE CONSENT NO BGS REF NO
 LICENCE NO USE OF BH NGR.....

Grid Ref TA 1443 4924

I.G.S. Ref

Licence No. 4885

Y.W.A.

App. No.

Aquifer: Chalk

Address of Site: Acorn Hill Pig Unit, Brandesburton,
Beverley.Owner: Agricultural contract and Marketing Company
Ltd.

Borehole Depth: 66m

Dia: 150 mm

Casings: Plain steel casing grouted in to
a depth 52 m below ground level.

Details of Strata:

Thickness
mDepth
m

Concrete + Hardcore

0.4

0.4

Boulder clay

11.00

11.40

Brown clay

5.60

17.00

Sandy boulder clay

10.00

27.00

Brown clay

5.10

32.10

Soft chalk

15.40

47.50

Hard chalk

18.50

66.00

Grid Ref **1453 4607**
TQ454607

I.G.S. Ref

Licence No.

Y.W.A.

App. No.

CATWICK B.H.2.

Aquifer: **DRIET.**

Address of Site: **CATWICK (LANARUE SITE)**

Owner: **CARD ENVIRONMENTAL**

Borehole Depth: **20.0m**

Dia: **100/10**

Casings:

No logs.

210720.0m
= C 719.6m

Details of Strata:

Depth Interval

TOPSOIL	1.0	1.0
CLAY (sandy silty)	1.0	0.3
CLAY (sandy silty, calc.)	1.5	0.2
SILT (sandy, clayey)	1.6	0.1
Fine Sand (brown, clayey, sand)	1.8	0.2
CLAY (fine brown, silty, sand)	3.2	2.4
Fine Sand (brown)	3.3	0.1
CLAY (fine brown, silty, sand)	30.0	16.7

No logs.

D Strata log

Geological classification (BGS only)	Description of strata	Thickness m	Depth (to base of strata) m
	FILL	0-80	0-80
	SANDY CLAY	4-80	5-60
	CLAY	1-90	7-50
	SAND + GRAVEL	3-00	10-50
	CLAY	2-60	13-10
	CLAY, SAND BANDS	4-40	17-50
	CLAY	18-00	35-50
	CHALK, SOFT	24-50	60-00
(continue on separate page if necessary)			
Other comments (for example, gas encountered, saline water intercepted)			

E Completing this form

How long did it take you to fill in this form? _____

For Official use only

Date received (DD/MM/YYYY)

File

Consent number

BGS reference number

Accession number

Wellmaster number

SOBI number

NGR

LIC NO

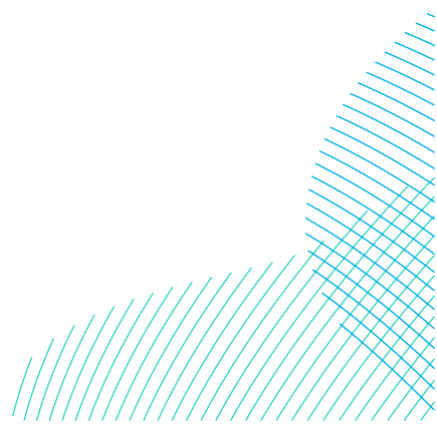
Purpose

EA reference number

Copy number

Entered by

Annex C



Qualitative Human Health and Environmental Risk Assessment Methodology

1. The risk assessment considers the sources and potential receptors identified, together with linking pathways. These linkages are summarised in the Preliminary Conceptual Site Model and Qualitative Risk Assessment within the report, where the associated environmental risk is assessed for a given source and the end-use of the site. This assessment also takes account of specific chemicals of concern or groups of similar chemicals of concern.
2. The column designated as 'Potential Consequence of Source- Pathway – Receptor-Linkage' in the Preliminary Conceptual Site Model and Qualitative Risk Assessment (**Table 19-56**) gives an indication of the sensitivity of a given receptor to a particular source/chemical of concern being considered. It is a worst-case classification and is based on full exposure via the particular linkage being examined. The derivation of the classes used to rank this particular aspect is as follows (**Table 19-57**) based on CIRIA 552 'Contaminated Land Risk Assessment, A Guide to Good Practice' 2001.

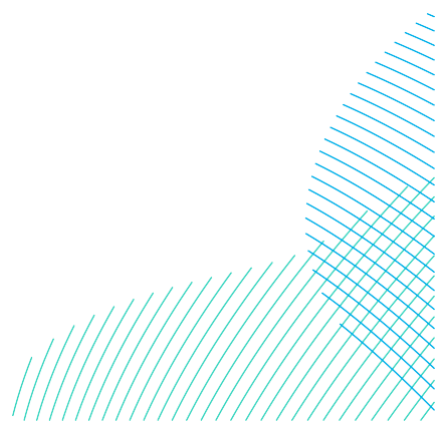


Table 19-57 Classifications for Consequences of Contaminant Linkage

Classification	Human Health	Controlled Water	Ecological	Built Environment
Severe	Acute risk to human health likely to result in 'significant harm' as defined by the Environmental Protection Act 1990, Part 2A	Substantial pollution of sensitive water resources	Significant change to the number of one or more species or ecosystems	Catastrophic damage to buildings, structures or the environment
Medium	Chronic damage to human health ('significant harm').	Pollution of sensitive water resources	Change to population densities of non-sensitive species	Damage to sensitive buildings, structures or the environment

Classification	Human Health	Controlled Water	Ecological	Built Environment
Mild	Harm but not necessarily significant harm to humans	Pollution to non-sensitive water resources	Some change to population densities but with no negative effects on the function of the ecosystem	Easily repairable effects of damage to buildings or structures
Minor	Harm but not necessarily significant harm to humans which can easily be prevented with the use of PPE.	Slight pollution to non-sensitive water resources	No significant changes to population densities in the environment or in any ecosystem	Very slight non-structural damage or cosmetic harm to buildings or structures

- Subsequently, in the column designated 'Likelihood of PC'L, an assessment is made of the probability of the selected source and receptor being linked by the identified pathway. This assessment is ranked based on-site specific conditions set out in **Table 19-58** below.

Table 19-58 Classification of Probability

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

4. The 'Risk Classification' column is an overall assessment of the actual risk, which considers the likely consequence of a given risk being realised and the likelihood of that risk being realised. The risk classifications are assigned using the consequence/likelihood matrix as shown in **Table 19-59**.

Table 19-59 Risk Classification Matrix

Matrix				
Severe	Moderate to low	Moderate	High	Very High
Medium	Low	Moderate to low	Moderate	High
Mild	Very low	Low	Moderate to low	Moderate
Minor	Very low	Very low	Low	Moderate to low
Likelihood	Unlikely	Low likelihood	Likely	High likelihood

5. Overall risks are described below in **Table 19-60**.

Table 19-60 Overall Risks

Overall risk	Definition
Very Low	The presence of the identified source does not give rise to the potential to cause unacceptable harm.
Low	It is possible that harm could arise to a designated receptor from an identified source, however, this is unlikely to be unacceptable.
Moderate	It is possible that harm could arise to a designated receptor from an identified source, but it is likely that such harm would be relatively localised or non-permanent - remedial action may be necessary.
High	A designated receptor is likely to experience unacceptable harm from an identified source without remedial action.
Very High	There is a high probability that severe unacceptable harm could arise to a designated receptor from an identified source without appropriate remedial action.

6. In cases of physical features, such as foundations and underground services, harm is defined as impact which would result in non-serviceability of the identified receptor or extra over build costs associated with redevelopment.

**RWE Renewables UK Dogger
Bank South (West) Limited**

**RWE Renewables UK Dogger
Bank South (East) Limited**

**Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire, SN5 6PB**

