Preliminary Environmental Information Report Volume 2

Appendix 9.1 Preliminary Contamination Risk Assessment

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Contents

1 Introduction

1.1 Overview

1.1.1 This preliminary contamination risk assessment has been produced to inform **Chapter 9 Geology and Contamination** of the Preliminary Environmental Information Report (PEIR). This appendix has been prepared to provide baseline information on potentially contaminated land within the study area for the Proposed Onshore Scheme. A Preliminary Contamination Risk Assessment (PCRA) for baseline conditions and during construction, operation and decommissioning of the Proposed Onshore Scheme is provided.

1.1.2 As described in **Chapter 9 Geology and Contamination** of the PEIR, the study area for land contamination comprises the Draft Order Limits (DOL) plus a buffer of 250m. For sensitive groundwater receptors the study area comprises the DOL plus a buffer of 500m.

1.2 Structure of the appendix

1.2.1 The structure of this appendix is as follows:

a. **Section 1 Introduction** (this section) – provides an introduction of the assessment and sources of information consulted;
b. **Section 2 Methodology** – which presents information on the methodology followed in this appendix and the accompanying classification table; and
c. **Section 3: Preliminary Contamination Assessment** – which presents a desk-based review of information from public data sets and engagement with East Suffolk Council, Suffolk County Council and the Environment Agency have also been reviewed in order to identify potential sources of contamination.

1.2.2 The chapter includes a qualitative preliminary contamination risk assessment using a Conceptual Site Model (CSM) to identify 'source-pathway-receptor' linkages to assess the potential risk and hazards, if any, associated with existing contamination in the ground.

1.3 Sources of information

1.3.1 The sources of data listed in **Table 1.1** have been utilised to inform the preliminary contamination risk assessment.

Table 1.1: Data sources used to inform the preliminary contamination risk assessment

Source of data	Baseline data
Groundsure Map Insight Geographic Information System (GIS) data package (Ref 1)	Historical Ordnance Survey (OS) maps in digital form (obtained February 2025)
Groundsure Enviro+Geo Insight GIS data package (Ref 2)	Key datasets (obtained February 2025): • past land use; • waste and landfill sites; • current and recent industrial activity; • hydrogeology/hydrology; • flood risk data sets; • designations (environmental, visual, cultural, agricultural and habitats); • geology; • Water Framework Directive water quality data; • waste exemptions; • recent and historical aerial imagery; and • pollution inventory data.
British Geological Survey (BGS) (Ref 3)	Published geology (1:50,000 scale digital geology map) (accessed February 2025)
Environment Agency (EA) (Ref 4)	Historical landfill data including location and licence details (accessed February 2025)
Environment Agency (EA) (Ref 5)	Authorised landfill and permitted waste site data including location and licence details (accessed February 2025)
BGS (Ref 6)	Historical borehole records (accessed March 2025)
BGS Memoir (Ref 7)	Geology of the country around Lowestoft and Saxmundham: Memoir for 1:50 000 Geological Sheets 176 and 191 (England and Wales) (accessed February 2025)
Department for Environment, Food and Rural Affairs (Defra) Multi-Agency Geographic Information for the Countryside (MAGIC) (Ref 8)	Geological Sites of Special Scientific Interest (SSSI) (obtained March 2025)

2 Methodology

2.1 Introduction

2.1.1 The assessment of land contamination within the study area has been undertaken in accordance with Land Contamination Risk Management (LCRM) (Ref 9).

2.1.2 This presents a three-stage process to the management of contaminated land:

a. Stage 1 – risk assessment;
b. Stage 2 – options appraisal; and
c. Stage 3 – remediation.

2.1.3 The Stage 1 risk assessment is undertaken in a tiered manner as follows:

a. Tier 1 – PCRA – a qualitative assessment of historical and published information in order to develop a preliminary conceptual site model to inform a preliminary contamination risk assessment;
b. Tier 2 – Generic Risk Assessment – a quantitative assessment using published criteria to screen site specific ground condition data; and
c. Tier 3 – Detailed Risk Assessment – a quantitative assessment involving the generation of site-specific assessment criteria.

2.1.4 This appendix provides a PCRA (Tier 1) of ground conditions within the study area and identifies locations where there is the potential for significant sources of contamination to be present.

2.1.5 The results of the PCRA form the basis for the baseline conditions and assessment within **Chapter 9 Geology and Contamination** of this PEIR.

2.2 Preliminary Contamination Risk Assessment methodology

2.2.1 A two-stage screening process has been carried out for the identified potential contamination sources. The assessment has considered soil contamination, groundwater contamination and ground gas sources.

2.2.2 The first stage involved considering the potential for each source to feasibly be disturbed or mobilised by the Proposed Onshore Scheme. This has taken into account:

a. The location of the source in relation to the DOL, with sources within the DOL being most likely to be impacted.
b. The nature of the Proposed Onshore Scheme in the vicinity of the source, with contaminants more likely being disturbed in areas where cables are buried using trenched methods rather than trenchless. In addition, sources outside the DOL are only likely to be impacted in areas where groundwater flow may be affected. This may include areas of groundwater control during construction.

c. The likely type and form of contaminants present, with less mobile contaminants being less likely to be impacted by any changes to groundwater flow as a result of the Proposed Onshore Scheme.

2.2.3 The first stage of assessment involved scoring the impact potential for each potential contamination source based on proximity to the Proposed Onshore Scheme and risk of potential contamination. For ease of assessment, the impact has been given a score as shown in the matrix below:

Table 2.1: Impact potential matrix

Impact potential matrix	Zone 1 (within DOL)	Zone 2 (within 50m of the DOL)	Zone 3 (>50m from DOL)
Low risk of potential contamination (e.g. BGS artificial ground, commercial or retail, infilled ponds, smithy, rifle range, electrical substations)	2	1	1
Moderate risk of potential contamination (e.g. tanks, railways and railway land, brick works, sewage works, former pits and quarries, depots, graveyards)	3	2	1
High risk of potential contamination (e.g. airfield, landfill sites, petrol filling stations, large engineering or manufacturing works, gasworks, chemical works)	4	3	2

2.2.4 This initial screening of potential sources was carried out irrespective of nearby receptor sensitivity.

2.2.5 Contamination sources that were not screened out in this first stage will move on to the second stage of the screening process, which identifies the potential impacts that disturbance or mobilisation of contamination could have. This will be based upon the source-pathway-receptor principle, as set out in the Land Contamination: Risk Management (LCRM) guidance (Ref 9). The assessment considers:

a. The likely type, form and levels of contaminants present.
b. The location, proximity and type of sensitive receptors in the vicinity of the contamination source.
c. The potential pathways for exposure that could arise from, or be exacerbated by, the Proposed Onshore Scheme.

2.2.6 More detailed assessment has been undertaken on sources that score 3 or 4 in the initial screening. The detailed assessment considered whether the potentially contaminative land use is within 50m of a sensitive receptor. This excludes water abstraction licences which will have a larger screening radius of 250m.

2.2.7 The likely contaminants arising from the contamination sources were identified using the Department of Environment (DoE) Industry Profiles (Ref 10) series of documents.

2.2.8 CSMs were developed for each of the baseline, construction, operation and decommissioning phases, with the risks arising from the identified pollutant linkages assessed qualitatively. These risks were compared to identify any impacts arising from the construction, operation or decommissioning of the Proposed Onshore Scheme.

2.2.9 To determine the risk to the identified receptor, both the probability (**Table 2.2**) and the degree of harm to a receptor, referred to as 'consequence' (**Table 2.3**), are used. The risk was estimated for each pollutant linkage using the matrix in **Table 2.4**, which is based on standard industry guidance provided within the Construction Industry Research and Information Association (CIRIA) report C552, Contaminated Land Risk Assessment (Ref 11).

Table 2.2: Classification of probability

Classification	Definition
High likelihood	There is a pollution linkage and an event either appears very likely in the short-term and almost inevitable over the long-term, or there is already evidence at the receptor of harm/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 event 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 even in the very long-term

Table 2.3: Classification of consequence

Classification	Definition
Severe	Human health effect – exposure likely to result in 'significant harm' as defined in the Environmental Protection Act 1990: Part 2A Statutory Guidance. Controlled water effect – short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource. Equivalent to Environment Agency Category 1 incident (persistent and/or extensive effects on water quality leading to closure of potable abstraction points or loss of amenity, agriculture or commercial value. Major fish kill.
Medium	Human health effect – exposure could result in 'significant harm'.

Classification	Definition
	Controlled water effect – equivalent to Environment Agency Category 2 incident requiring notification of abstractor.
Mild	Human health effect – exposure may result in 'significant harm'. Controlled water effect – equivalent to Environment Agency Category 3 incident (short lived and/or minimal effects on water quality). Ecological effect – unlikely to result in a substantial adverse effect.
Minor	No measurable effect on humans. Protective equipment is not required during site works. Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems.

Table 2.4: Risk matrix - comparison of consequence against probability

		Consequences			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**High likelihood**	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

3 Preliminary Contamination Risk Assessment

3.1 Stage 1 screening

3.1.1 Potential sources of contamination identified within the study area during initial screening are outlined in **Table 3.1**. A total of 251 potential sources of contamination were identified (CL-01 to CL-251). It should be noted that CL-158 has been affected by changes to the shoreline as a result of coastal erosion and is no longer present.

3.1.2 The impact potential for each of the 251 identified potential sources of contamination was determined based on proximity to the Proposed Onshore Scheme and risk of potential contamination. Sources which were assigned an impact score of 3 or 4 are highlighted in **Table 3.1**. As described in **Section 2**, only sources which scored 3 or 4 were taken forward to further assessment (Stage 2).

3.1.3 Following Stage 1 screening, the number of potential sources of contamination that progressed onto Stage 2 for detailed assessment was reduced from 251 to 14.

Table 3.1: Stage 1 screening results

Source	Name	Zone	Risk	Impact score
CL-01	Railway	3	Moderate	1
CL-02	Gravel pit	2	Moderate	2
CL-03	Infilled pond	3	Low	1
CL-04	Gravel pit	2	Moderate	2
CL-05	Gravel pit	1	Moderate	3
CL-06	Infilled pond	3	Low	1
CL-07	Infilled pond	3	Low	1
CL-08	Gravel pit	3	Moderate	1
CL-09	Infilled pond	2	Low	1
CL-10	Infilled pond	3	Low	1
CL-11	Infilled pond	3	Low	1
CL-12	Unspecified pit	3	Moderate	1
CL-13	Infilled pond	3	Low	1
CL-14	Infilled pond	3	Low	1
CL-15	Infilled pond	2	Low	1
CL-16	Infilled pond	3	Low	1
CL-17	Infilled pond	1	Low	2
CL-18	Infilled pond	3	Low	1
CL-19	Infilled pond	3	Low	1
CL-20	Infilled pond	2	Low	1
CL-21	Infilled pond	3	Low	1
CL-22	Unspecified pit	2	Moderate	2
CL-23	Infilled pond	3	Low	1
CL-24	Infilled pond	3	Low	1
CL-25	Infilled pond	2	Low	1
CL-26	Infilled pond	3	Low	1
CL-27	Infilled pond	1	Low	2
CL-28	Infilled pond	2	Low	1
CL-29	Infilled pond	1	Low	2
CL-30	Infilled pond	3	Low	1

Source	Name	Zone	Risk	Impact score
CL-31	Infilled pond	3	Low	1
CL-32	Infilled pond	3	Low	1
CL-33	Infilled pond	2	Low	1
CL-34	Infilled pond	3	Low	1
CL-35	Infilled pond	3	Low	1
CL-36	Infilled pond	3	Low	1
CL-37	Infilled pond	3	Low	1
CL-38	Infilled pond	2	Low	1
CL-39	Unspecified pit	2	Moderate	2
CL-40	Infilled pond	3	Low	1
CL-41	Infilled pond	2	Low	1
CL-42	Infilled pond	3	Low	1
CL-43	Infilled pond	3	Low	1
CL-44	Infilled pond	2	Low	1
CL-45	Infilled pond	3	Low	1
CL-46	Infilled pond	3	Low	1
CL-47	Infilled pond	3	Low	1
CL-48	Infilled pond	3	Low	1
CL-49	Infilled pond	3	Low	1
CL-50	Infilled pond	2	Low	1
CL-51	Infilled pond	2	Low	1
CL-52	Infilled pond	3	Low	1
CL-53	Infilled pond	3	Low	1
CL-54	Infilled pond	3	Low	1
CL-55	Infilled pond	1	Low	2
CL-56	Infilled pond	2	Low	1
CL-57	Infilled pond	3	Low	1
CL-58	Infilled pond	3	Low	1
CL-59	Infilled pond	3	Low	1
CL-60	Infilled pond	3	Low	1
CL-61	Infilled pond	3	Low	1

Source	Name	Zone	Risk	Impact score
CL-62	Infilled pond	3	Low	1
CL-63	Infilled pond	2	Low	1
CL-64	Infilled pond	1	Low	2
CL-65	Unspecified pit	1	Moderate	3
CL-66	Infilled pond	2	Low	1
CL-67	Infilled pond	3	Low	1
CL-68	Infilled pond	3	Low	1
CL-69	Infilled pond	1	Low	2
CL-70	Infilled pond	1	Low	2
CL-71	Infilled pond	3	Low	1
CL-72	Infilled pond	1	Low	1
CL-73	Infilled pond	3	Low	1
CL-74	Infilled pond	3	Low	1
CL-75	Infilled pond	3	Low	1
CL-76	Infilled pond	3	Low	1
CL-77	Clay pit	1	Moderate	3
CL-78	Infilled pond	3	Low	1
CL-79	Infilled pond	3	Low	1
CL-80	Railway	1	Moderate	3
CL-81	Infilled pond	3	Low	1
CL-82	Infilled pond	1	Low	2
CL-83	Infilled pond	3	Low	1
CL-84	Infilled pond	2	Low	1
CL-85	Infilled pond	1	Low	2
CL-86	Infilled pond	1	Low	2
CL-87	Infilled pond	1	Low	2
CL-88	Sand pit	2	Moderate	2
CL-89	Infilled pond	1	Low	1
CL-90	Infilled pond	1	Low	2
CL-91	Infilled pond	1	Low	2
CL-92	Infilled pond	1	Low	2

Source	Name	Zone	Risk	Impact score
CL-93	Infilled pond	1	Low	2
CL-94	Infilled pond	2	Low	1
CL-95	Infilled pond	2	Low	1
CL-96	Infilled pond	3	Low	1
CL-97	Infilled pond	3	Low	1
CL-98	Infilled pond	3	Low	1
CL-99	Infilled pond	2	Low	1
CL-100	Infilled pond	1	Low	2
CL-101	Infilled pond	1	Low	2
CL-102	Infilled pond	1	Low	2
CL-103	Infilled pond	3	Low	1
CL-104	Rifle range	1	Low	2
CL-105	Infilled pond	3	Low	1
CL-106	Infilled pond	1	Low	2
CL-107	Infilled pond	1	Low	2
CL-108	Infilled pond	1	Low	2
CL-109	Sand pit	2	Moderate	2
CL-110	Infilled pond	2	Low	1
CL-111	Infilled pond	2	Low	1
CL-112	Infilled pond	2	Low	1
CL-113	Infilled pond	3	Low	1
CL-114	Unspecified pit	3	Moderate	1
CL-115	Unspecified pit	3	Moderate	1
CL-116	Unspecified pit	2	Moderate	2
CL-117	Clay pit	2	Moderate	2
CL-118	Infilled pond	3	Low	1
CL-119	Infilled pond	3	Low	1
CL-120	Infilled pond	3	Low	1
CL-121	Infilled pond	1	Low	2
CL-122	Infilled pond	2	Low	1
CL-123	Sand pit	1	Moderate	3

Source	Name	Zone	Risk	Impact score
CL-124	Infilled pond	3	Low	1
CL-125	Infilled pond	3	Low	1
CL-126	Infilled pond	2	Low	1
CL-127	Infilled pond	3	Low	1
CL-128	Infilled pond	1	Low	2
CL-129	Infilled pond	3	Low	1
CL-130	Clay pit	1	Moderate	3
CL-131	Sand pit	3	Moderate	1
CL-132	Infilled pond	3	Low	1
CL-133	Crag pit	3	Moderate	1
CL-134	Infilled pond	1	Low	2
CL-135	Infilled pond	3	Low	1
CL-136	Infilled pond	3	Low	1
CL-137	Infilled pond	3	Low	1
CL-138	Infilled pond	3	Low	1
CL-139	Infilled pond	3	Low	1
CL-140	Infilled pond	3	Low	1
CL-141	Infilled pond	1	Low	2
CL-142	Infilled pond	1	Low	2
CL-143	Sand pit	3	Moderate	1
CL-144	Infilled pond	3	Low	1
CL-145	Infilled pond	3	Low	1
CL-146	Unspecified pit	3	Moderate	1
CL-147	Unspecified pit	1	Low	1
CL-148	Unspecified pit	2	Moderate	2
CL-149	Unspecified pit	3	Moderate	1
CL-150	Unspecified pit	3	Moderate	1
CL-151	Unspecified pit	3	Moderate	1
CL-152	Unspecified pit	1	Moderate	3
CL-153	Unspecified pit	3	Moderate	1
CL-154	Unspecified pit	3	Moderate	1

Source	Name	Zone	Risk	Impact score
CL-155	Unspecified pit	3	Moderate	1
CL-156	Unspecified pit	1	Moderate	3
CL-157	Unspecified pit	1	Moderate	3
CL-158	Infilled pond	3	Low	1
CL-159	Unspecified pit	2	Moderate	2
CL-160	Graveyard	2	Moderate	2
CL-161	Infilled pond	2	Low	1
CL-162	Graveyard	3	Moderate	1
CL-163	Unspecified tank	3	Moderate	1
CL-164	Unspecified tank	2	Moderate	2
CL-165	Unspecified pit	3	Moderate	1
CL-166	Unspecified pit	3	Moderate	1
CL-167	Unspecified pit	2	Moderate	2
CL-168	Infilled pond	3	Low	1
CL-169	Infilled pond	3	Low	1
CL-170	Infilled pond	3	Low	1
CL-171	Infilled pond	3	Low	1
CL-172	Infilled pond	3	Low	1
CL-173	Infilled pond	2	Low	1
CL-174	Infilled pond	3	Low	1
CL-175	Unspecified pit	3	Moderate	1
CL-176	Sand pit	2	Moderate	2
CL-177	Unspecified tank	3	Moderate	1
CL-178	Unspecified pit	3	Moderate	1
CL-179	Unspecified pit	3	Moderate	1
CL-180	Unspecified pit	1	Moderate	3
CL-181	Unspecified pit	3	Moderate	1
CL-182	Infilled pond	3	Low	1
CL-183	Unspecified pit	2	Moderate	2
CL-184	Septic tank	3	Moderate	1

Source	Name	Zone	Risk	Impact score
CL-185	Unspecified tank	3	Moderate	1
CL-186	Unspecified pit	2	Moderate	2
CL-187	Infilled pond	3	Low	1
CL-188	Infilled pond	2	Low	1
CL-189	Unspecified pit	2	Moderate	2
CL-190	Infilled pond	2	Low	1
CL-191	Clay pit	3	Moderate	1
CL-192	Infilled pond	3	Low	1
CL-193	Infilled pond	1	Low	2
CL-194	Infilled pond	3	Low	1
CL-195	Unspecified pit	3	Moderate	1
CL-196	Unspecified pit	3	Moderate	1
CL-197	Unspecified pit	3	Moderate	1
CL-198	Sand pit	2	Moderate	2
CL-199	Unspecified tank	3	Moderate	1
CL-200	Electrical substation	3	Low	1
CL-201	Infilled pond	2	Low	1
CL-202	Infilled pond	2	Low	1
CL-203	Unspecified pit	3	Moderate	1
CL-204	Infilled pond	1	Low	2
CL-205	Infilled pond	3	Low	1
CL-206	Infilled pond	3	Low	1
CL-207	Unspecified tank	3	Moderate	1
CL-208	Sewage works	3	Moderate	1
CL-209	Unspecified tank	3	Moderate	1
CL-210	Infilled pond	1	Low	2
CL-211	Unspecified depot	3	Moderate	1

Source	Name	Zone	Risk	Impact score
CL-212	Unspecified tank	3	Moderate	1
CL-213	Garage	2	Moderate	2
CL-214	Unspecified tank	3	Moderate	1
CL-215	Garage	3	Moderate	1
CL-216	Electrical substation	1	Low	2
CL-217	Electrical substation	3	Low	1
CL-218	Electrical substation	3	Low	1
CL-219	Unspecified tank	3	Moderate	1
CL-220	Unspecified tank	3	Moderate	1
CL-221	Infilled pond	3	Low	1
CL-222	Unspecified tank	2	Moderate	2
CL-223	Unspecified tank	2	Moderate	2
CL-224	Infilled pond	1	Low	2
CL-225	Smithy	2	Low	1
CL-226	Unspecified tank	3	Moderate	1
CL-227	Unspecified tank	3	Moderate	1
CL-228	Unspecified tank	3	Moderate	1
CL-229	Unspecified tank	3	Moderate	1
CL-230	Unspecified tank	3	Moderate	1
CL-231	Unspecified tank	3	Moderate	1
CL-232	Unspecified pit	3	Moderate	1
CL-233	Unspecified tank	2	Moderate	2

Source	Name	Zone	Risk	Impact score
CL-234	Unspecified tank	2	Moderate	2
CL-235	Airfield	1	High	4
CL-236	Historical landfill	3	High	2
CL-237	Historical landfill	1	High	4
CL-238	Historical waste site	3	High	2
CL-239	Historical waste site	2	High	3
CL-240	BGS made ground	3	Low	1
CL-241	BGS made ground	3	Low	1
CL-242	BGS made ground	3	Low	1
CL-243	BGS made ground	3	Low	1
CL-244	BGS made ground	1	Low	2
CL-245	BGS made ground	1	Low	2
CL-246	BGS made ground	1	Low	2
CL-247	BGS made ground	3	Low	1
CL-248	BGS made ground	3	Low	1
CL-249	Clay pit	2	Moderate	2
CL-250	Clay pit	1	Moderate	3
CL-251	BGS made ground	3	Low	1

Table 3.2 Stage 1 screening results key

Key	
Impact Score	3
	4

3.2 Stage 2 assessment

3.2.1 The potential impacts that disturbance or mobilisation of contamination could have at baseline and during construction, operation and decommissioning has been assessed using the source-pathway-receptor principle and is presented in the form of a conceptual model.

3.2.2 Assumptions made as part of the assessment are detailed as footnotes within conceptual model tables.

Baseline

3.2.3 A conceptual model detailing the potential impacts that disturbance or mobilisation of contamination could have at baseline is presented in **Table 3.3**.

Table 3.3: Conceptual model for baseline

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
CL-235 (Airfield) Hydrocarbons Acids/alkalis Asbestos Solvents Herbicides PCBs (Polychlorinated Biphenyls) De-icing agents, fire-fighting chemicals	Human health: • residential development • commercial • highway or railway land • unused land and with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Medium	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
	Controlled waters: • Hundred River • Minsmere Old River • ponds	Lateral migration through groundwater and direct run-off from the study area.	Low likelihood	Medium	Moderate/Low risk
	Controlled water: • principal aquifer • potable abstraction - Moat Farm, Moat Road, Theberton, Suffolk • groundwater abstraction utilized for sPCRAy irrigation	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-235 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risks to human health are low likelihood due to the potential for (1) soil disturbance and small-scale crop growing in private gardens of residential properties and (2) large-scale disturbance of soil in farmland for agricultural purposes.					
CL-05 **(Infilled gravel pit)** PAHs (Polycyclic aromatic hydrocarbons) Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from	Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
		contaminated soils and waters			
CL-05 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are likely due to the absence of superficial deposits mapped within the area of the source. • Risks to human health are unlikely due to low sensitivity receptors.					
CL-65 **(Infilled unspecified pit)** PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • residential • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Mild	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • superficial aquifer		Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
	Controlled waters: • ponds	Lateral migration through groundwater and direct run-off from the study area.	Low likelihood	Mild	Low risk
CL-65 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risks to human health are low likelihood due to: ▪ the potential for soil disturbance and small-scale crop growing in private gardens of residential properties ▪ Proximity of residential properties to source with respect to ground gas					
CL-77 **(Infilled clay pit)** PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
	Controlled waters: • Hundred River	Lateral migration through groundwater and direct run-off from the study area.	Low likelihood	Medium	Moderate/low risk
CL-77 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-80 **(Railway line)** PCBs PAHs Ethylene glycol Creosote Herbicides	Human health: • highways or railway land • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
Ferrous residues Metal fines Ash Sulphate Hydrocarbons		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer		Unlikely	Medium	Low risk
	Controlled waters: • Hundred River • small ponds	Lateral migration through groundwater and direct run-off from the study area.	Low likelihood	Medium	Moderate/low risk
CL-80 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-152 **(Infilled unspecified pit)** PAHs Inorganics	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
Hydrocarbons Phenols Cyanides Asbestos Ground gas		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer • groundwater abstraction utilized for sPCRAy irrigation	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk
CL-152 Notes/Assumptions: • Risk to the Secondary aquifer is likely as the Lowestoft sand and gravels are permeable. Lowestoft diamicton (clay) is not mapped within the area of the source. • Risks to Principal aquifer from contamination in the overlying ground are low likelihood to likely due to the absence of the Lowestoft diamicton (clay) above the aquifer. Where permeable Lowestoft sand and gravels are located above the Principal aquifer, the risk to the principal aquifer is low likelihood to likely. Where no superficial deposits are mapped above the Principal aquifer, the risk to the Principal aquifer is likely. • Risk to human health is unlikely due to low sensitivity receptors.					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
CL-156 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas/vapours	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-156 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-157 (Infilled unspecified pit)	Human health:	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of	Unlikely	Mild	Very low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	• undeveloped land or land with no sensitive uses	vapours from contaminated soils.			
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-157 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-180 **(Infilled unspecified pit)** PAHs Inorganics	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
Hydrocarbons Phenols Cyanides Asbestos Ground gas	• highway or railway land	Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled water: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-180 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-237 **(Hinton Lodge Pit - Landfill)** Potential for a range of contaminants including but not limited to: Heavy metals Acids	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Medium	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC (Volatile Organic Compounds) SVOC (Semi Volatile Organic Compounds) Solvents lubricants Fuel oils Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide)		vapours from contaminated waters.			
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk
CL-237 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are unlikely due to the presence of the Lowestoft diamicton (clay) above the aquifer, which will limit the vertical migration of contamination. • Risks to Secondary aquifer from contamination in the overlying ground are likely as it is assumed the landfill is not lined. There may therefore be a direct pathway between the landfill and underlying Secondary aquifer. • Risk to human health is unlikely due to low sensitivity receptors.					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
CL-239 (waste site/refuse heap) Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants Fuel oils Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide	Human health: • residential development • commercial or industrial land uses • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Medium	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
		Inhalation of ground gas	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk
CL-239 Notes/Assumptions: • Risks to Secondary aquifer from contamination in the overlying ground are likely as it is assumed the waste site/refuse heap was not lined. There may therefore be a direct pathway between the refuse heap/waste site and underlying Secondary aquifer. Note: refuse heap located in historical pit. • Risks to Principal aquifer from contamination in the overlying ground are low likelihood to likely due to the absence of the Lowestoft diamicton (clay) above the aquifer. Lowestoft sand and gravels are permeable and are located above the Principal aquifer.					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
• Risks to human health are low likelihood due to: ▪ the potential for soil disturbance and small-scale crop growing in private gardens of residential properties ▪ Proximity of residential properties to source with respect to ground gas					
CL-123 (Infilled sand pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed • highway or railway land	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk
	Controlled waters: • pond	Lateral migration through groundwater	Low likelihood	Mild	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
		and direct run-off from the site.			
CL-123 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are low likelihood to likely due to the absence of the Lowestoft diamicton (clay) above the aquifer. Lowestoft sand and gravels are permeable. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-130 **(Infilled clay pit)** PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer • potable abstraction licence - Friston House, Saxmundham Road, Friston	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Mild	Low risk
CL-130 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are low likelihood to likely due to the absence of the Lowestoft diamicton (clay) above the aquifer. Lowestoft sand and gravels are permeable. • Risk to human health is unlikely due to low sensitivity receptors.					
CL-250 **(Infilled clay pit)** PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from	Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk at baseline
	Controlled waters: • principal aquifer	contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low risk
CL-250 Notes/Assumptions: • Risks to Principal aquifer from contamination in the overlying ground are low likelihood to likely due to the absence of the Lowestoft diamicton (clay) above the aquifer across half of the source area. The highest probability of risk has been taken for the purposes of this assessment. Lowestoft sand and gravels are permeable. • Risk to human health is unlikely due to low sensitivity receptors.					
General Notes/Assumptions • Risk is assessed without the Proposed Onshore Scheme • Where Lowestoft diamicton (clay) overlies bedrock, the pathway for contamination to the underlying Principal aquifer will be restricted as clay has a low permeability. • Lowestoft sand and gravels are permeable and therefore the potential for leaching, vertical and lateral migration. • The probably of risk for surface waters receptors is assumed to be low likelihood as all of the identified surface water receptors are within 50m of the source. • Where ground investigation data is not available in the vicinity of the source, BGS 1:50,000 maps have been used to determine the geology. It is assumed BGS 1:50,000 map is accurate. • It is assumed that landfills and waste sites are unlined and accepted all types of waste. • It is assumed that all private abstraction licences are potable and abstracted from principal aquifer. • No remediation has been undertaken in the footprint of the historical airfield.					

Construction

3.2.4 A conceptual model detailing the potential impacts that disturbance or mobilisation of contamination could have during construction of the Proposed Onshore Scheme is presented in .

Table 3.4: Conceptual model for construction of the Proposed Onshore Scheme

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
CL-235 (Airfield) Hydrocarbons Acids/alkalis Asbestos Solvents Herbicides PCBs De-icing agents, fire-fighting chemicals	Human health: • residential development • commercial • highway or railway land • unused land and with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Medium	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
	Controlled waters: • Hundred River • Minsmere Old River • ponds	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Medium	Moderate/Low risk
	Controlled water: • principal aquifer • potable abstraction - Moat Farm, Moat Road, Theberton, Suffolk • groundwater abstraction utilized	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	for sPCRAy irrigation				
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-235 (Airfield) Notes/Assumptions • Three trenches crossing (utilizing Horizontal Directional Drilling (HDD) methods) are proposed within the area of the airfield. HDD may allow movement of existing contamination or mixing of aquifers. Risk is low likelihood as this pathway is possible but is considered unlikely as shallow groundwater is not anticipated within the study area. • Three entry/receptor pits are anticipated to be present within the area of the airfield. Shallow ground disturbance will occur within these areas but risks are expected to be managed in accordance with the CoCP. • Part of the airfield is located within a proposed construction compound. It is assumed that ground may be disturbed during construction of the compound. However, dewatering is not anticipated to be required for construction and risks are expected to be managed in accordance with the CoCP.					
CL-05 (Infilled gravel pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Likely	Medium	Moderate risk
CL-05 (Infilled gravel pit) Notes/Assumptions • Source located along an existing road. No groundworks are expected to occur within the source area during construction. Construction is therefore not expected to increase the probability of risk above baseline level for any contaminant pathway.					
CL-65 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: Residential Undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Mild	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • superficial aquifer		Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled waters: • ponds	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Mild	Low risk
CL-65 (Infilled unspecified pit) Notes/Assumptions • A trenchless crossing (utilizing HDD methods) is proposed within the area of the infilled pit. HDD may allow movement of existing contamination or mixing of aquifers. Risk to groundwater is considered to have a low likelihood as this pathway is possible but is considered unlikely as shallow groundwater is not anticipated within the study area. • HDD is not expected to create new ground gas pathways.					
CL-77 (Clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
	Controlled waters: • Hundred River	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Medium	Moderate/low risk
CL-77 (Infilled clay pit) Notes/Assumptions: • A trenchless crossing (utilizing HDD methods) is proposed within the area of the infilled pit. HDD may allow movement of existing contamination or mixing of aquifers. Risk to groundwater is considered to have a low likelihood as this pathway is possible but is considered unlikely as shallow groundwater is not anticipated within the study area. • An entry/receptor pit is likely to be located within the area of the source. Shallow ground disturbance will occur within these areas but risks are expected to be managed in accordance with the CoCP.					
CL-80 (Railway line) PCBs PAHs Ethylene glycol Creosote Herbicides Ferrous residues Metal fines Ash Sulphate Hydrocarbons	Human health: • highways or railway land • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Medium	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
	• controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk
	• controlled waters: • principal aquifer		Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled waters: • Hundred River • small ponds	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Medium	Moderate/low risk
CL-80 (Railway line) Notes/Assumptions • A trenchless crossing (utilizing HDD methods) is proposed within the area of the infilled pit. HDD may allow movement of existing contamination or mixing of aquifers. Risk to groundwater is considered to have a low likelihood as this pathway is possible but is considered unlikely as shallow groundwater is not anticipated within the study area.					
CL-152 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer • groundwater abstraction utilized for sPCRAy irrigation	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate
CL-152 (Infilled unspecified pit) Notes and Assumptions:					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
• The source is located within a proposed construction compound. It is assumed that ground may be disturbed during construction of the compound. However, dewatering is not anticipated to be required for construction. Construction is not expected to raise risk above baseline level.					
CL-156 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas/vapours	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-156 (Infilled unspecified pit) Notes/Assumptions: • Constructional activities related to cable trenching are not anticipated to increase the probability of risk above the baseline level for any contaminant pathway. It is assumed that dewatering will not be required for the trenching of underground cables.					
CL-157 (Infilled unspecified pit)	Human health: • undeveloped land or land with no	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-157 (Infilled unspecified pit) Notes/Assumptions: • Constructional activities related to cable trenching are not anticipated to increase the probability of risk above the baseline level for any contaminant pathway. It is assumed that dewatering will not be required for the trenching of underground cables.					
CL-180 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed • highway or railway land	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled water: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-180 (Infilled unspecified pit) Notes/Assumptions: • A trenchless crossing (utilizing HDD methods) is proposed within the area of the infilled pit. HDD may allow movement of existing contamination or mixing of aquifers. Risk to groundwater is considered to have a low likelihood as this pathway is possible but is considered unlikely as shallow groundwater is not anticipated within the study area.					
CL-237 (Hinton Lodge Pit - Landfill) Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants Fuel oils	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Medium	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
		Inhalation of ground gas	Unlikely	Medium	Low
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide)					
CL-237 (Hinton Lodge Pit – Landfill) Notes/Assumptions: • Constructional activities related to cable trenching are not anticipated to increase the probability of risk above the baseline level for any contaminant pathway. It is assumed that dewatering will not be required for the trenching of underground cables.					
CL-239 (Waste site) Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants	Human health: • residential development • commercial or industrial land uses • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Medium	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
		Inhalation of ground gas	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
Fuel oils Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide					
CL-239 (Waste site) Notes/Assumptions: • Located outside of the DOL. Constructional activities occurring within the DOL are not anticipated to increase the probability of risk above the baseline level for any contaminant pathway. It is assumed that dewatering will not be required for the trenching of underground cables.					
CL-123 (Infilled sand pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Mild	Low risk
CL-123 (Infilled sand pit) Notes/Assumptions: • Located within the DOL for the overhead lines. The source is located over 15m away from the proposed pylon modification works and no new pylons are proposed within the area of the source. Constructional activities occurring within the DOL for the overhead lines are not anticipated to increase the probability of risk above the baseline level for any contaminant pathway.					
CL-130 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer • potable abstraction licence - Friston House, Saxmundham Road, Friston	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Mild	Low risk
CL-130 (Infilled clay pit) Notes/Assumptions: • The source is located within the proposed preferred access route. Construction of the access route is not anticipated to increase the probability of risk above the baseline level for any contaminant pathway. It is assumed that dewatering will not be required for construction of the access route.					
CL-250 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Likely	Medium	Moderate risk
	Controlled waters: • principal aquifer		Low likelihood to likely	Medium	Moderate/low to moderate risk
CL-250 (Infilled clay pit) Notes/Assumptions: • The source is located within the DOL in the area of proposed preferred access route. Construction of the access route is not anticipated to increase the probability of risk above the baseline level for any contaminant pathway. It is assumed that dewatering will not be required for construction of the access route.					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during construction

General Notes/Assumptions

- Site investigation will be required prior to construction of the Proposed Onshore Scheme and will include groundwater monitoring and soil sampling.
- During construction, standard mitigation procedures are assumed to be implemented in accordance with the CoCP.
- Construction workers have been excluded from the assessment due to the use of PPE/risk management protocols and in accordance with CIRIA C811, 2023
- While a CoCP will make it unlikely that there will be adverse consequences resulting from construction there may still be temporary minor adverse effects from ground disturbance in these areas. The adoption of a CoCP generally results in a low to unlikely probability of a consequence, but in some cases the actual consequence may temporarily increase from that defined at baseline.
- It is assumed that dewatering is unlikely to be required for the construction of the Proposed Onshore Scheme and therefore there is a very low risk of mobilising any existing contamination in groundwater or soil during open cut trenching.
- Open cut trenching may provide a preferential a pathway for ground gas to the surface and therefore increasing the probability of risk to human receptors.
- HDD (utilized for trenchless crossings) may allow movement of existing contamination or mixing of aquifers. Risk to groundwater is considered to have a low likelihood as this pathway is possible but is considered unlikely as shallow groundwater is not anticipated within the study area.
- It is assumed that groundwork will be required for the construction of construction compounds.
- It is assumed that entry/receptor pit may be dug anywhere within the 'proposed trenchless installation compound zone'. It is also assumed that there would be shallow ground disturbance within entry/receptor pits.

Operation and decommissioning

3.2.5 A conceptual model detailing the potential impacts that disturbance or mobilisation of contamination could have during operation and decommissioning of the Proposed Onshore Scheme is presented in .

3.2.6 The decommissioning impacts and effects are considered to be similar to the operation phase because:

a. Any contamination encountered during construction would have been remediated in line with LCRM guidance.
b. It is assumed that during decommissioning, all cables will be left in situ and buildings will be demolished to ground level with their foundations left in situ.

3.2.7 For these reasons, minimal ground disturbance is anticipated during the decommissioning phase. Any ground disturbance which may occur during decommissioning would unlikely have significant potential effects as it is any contamination sources within the footprint of the Proposed Onshore Scheme are assumed to have been remediated. In addition, all decommissioning activities would be expected to take place in accordance with UK environmental legislation, good practice control and management measures and the relevant environmental permitting regime (if appropriate) current at the time.

Table 3.5: Conceptual model for operation and decommissioning of the Proposed Onshore Scheme

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
CL-235 (Airfield) Hydrocarbons Acids/alkalis Asbestos Solvents Herbicides PCBs De-icing agents, fire-fighting chemicals	Human health: • residential development • commercial • highway or railway land • unused land and with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Medium	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
	Controlled waters: • Hundred River • Minsmere Old River • ponds	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Medium	Moderate/low risk
	Controlled water: • Principal aquifer • Potable abstraction - Moat Farm, Moat Road, Theberton, Suffolk • groundwater abstraction utilized	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
	for sPCRAy irrigation				
	Controlled waters: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-235 (Airfield) Notes/Assumptions While it is assumed that any contamination encountered during construction will be remediated, the airfield covers a significant area and only a portion of this area is expected to be remediated during construction. Any contamination not remediated during construction may still present a risk. It is assumed that any new pathways for contamination created by HDD drilling would be temporary as the pits created by HDD will be filled.					
CL-05 (Infilled gravel pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Likely	Medium	Moderate risk
CL-05 (Infilled gravel pit) Notes/Assumptions Source located along an existing road. No groundworks are expected to occur within the source area during construction and therefore the source is unlikely to be remediated.					
CL-65 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides	Human health: • residential • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Mild	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
Asbestos Ground gas		Inhalation of ground gas	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled Waters: • superficial aquifer		Low likelihood	Medium	Moderate/low risk
	Controlled waters: • ponds	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Mild	Low risk
CL-65 (Infilled unspecified pit) Notes/Assumptions • Based on the current design, HDD methods will be used to drill beneath the pit. Minimal ground disturbance and excavation of soil is anticipated within the source area and therefore it is considered unlikely that the source would be remediated during construction. • It is assumed that any new pathways for contamination created by HDD drilling would be temporary as the pits created by HDD will be filled.					
CL-77 (Clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Unlikely to low likelihood	Medium	Low to moderate/low risk
	Controlled waters: • Hundred River	Lateral migration through groundwater and direct run-off from the site.	Unlikely to low likelihood	Medium	Low to moderate/low risk
CL-77 (Infilled clay pit) Notes/Assumptions: • The entire source area is located within the DOL. The process of using an HDD consists of drilling a pilot hole from an entry pit to a receptor pit under an obstacle along the services route. It is assumed that any contamination encountered within entry and receptor pits would be remediated during construction. Based on the current design, it is likely that the source will be located within an entry or receptor pit and therefore would be remediated. • It is assumed that any new pathways for contamination created by HDD drilling would be temporary as the pits created by HDD will be filled.					
CL-80 (Railway line) PCBs PAHs Ethylene glycol Creosote Herbicides	Human health: • highways or railway land • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Medium	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
Ferrous residues Metal fines Ash Sulphate Hydrocarbons	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer		Unlikely	Medium	Low risk
	Controlled waters: • Hundred River • small ponds	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Medium	Moderate/low risk
CL-80 (Railway line) Notes/Assumptions • Based on the current design, HDD methods will be used to drill beneath the railway line. Minimal ground disturbance and excavation of soil is anticipated within the source area and therefore it is considered unlikely that the source would be remediated during construction. • It is assumed that any new pathways for contamination created by HDD drilling would be temporary as the pits created by HDD will be filled.					
CL-152 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
Ground gas	Controlled waters: • principal aquifer • groundwater abstraction utilized for sPCRAy irrigation	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely to low likelihood	Medium	Low to moderate/low risk
	Controlled waters: • secondary aquifer		Unlikely to low likelihood	Medium	Low to moderate/low risk
CL-152 (Infilled unspecified pit) Notes and Assumptions: • Entire source area located within the DOL. It is assumed that any contamination encountered during construction of the compound would be remediated therefore risk is reduced below baseline level.					
CL-156 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas/vapours	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
	Controlled waters: • secondary aquifer	contaminated soils and waters	Unlikely to low likelihood	Medium	Moderate/low risk
CL-156 (Infilled unspecified pit) Notes/Assumptions: • Majority of the source area located within the DOL. It is assumed that any contamination encountered during construction (open trenching of cable) would be remediated.					
CL-157 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Unlikely to low likelihood	Medium	Low to moderate/low risk
CL-157 (Infilled unspecified pit) Notes/Assumptions: • Entire source area located within the DOL. It is assumed that any contamination encountered during construction (open trenching of cable) would be remediated.					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
CL-180 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed • highway or railway land	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled water: • secondary aquifer		Low likelihood	Medium	Moderate/low risk
CL-180 (Infilled unspecified pit) Notes/Assumptions: • Based on the current design, it is expected that HDD will drill beneath the infilled pit. Minimal ground disturbance and excavation of soil is anticipated within the source area and therefore it is considered unlikely that the source will be remediated during construction. • It is assumed that any new pathways for contamination created by HDD drilling would be temporary as the pits created by HDD will be filled.					
CL-237 (Hinton Lodge Pit - Landfill)	Human health: • undeveloped land or land with no	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Medium	Low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants Fuel oils Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide)	sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
		Inhalation of ground gas	Unlikely	Medium	Low
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
CL-237 (Hinton Lodge Pit – Landfill) Notes/-Assumptions: • It is assumed that any contamination encountered during construction will be remediated. However, only a small portion of the source area is located within the DOL. • Any contamination not remediated during construction may still present a risk.					
CL-239 (Waste site)[i] Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants Fuel oils Alkalis PCBs Ground gas (methane,	Human health: • residential development • commercial or industrial land uses • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low likelihood	Medium	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Medium	Low risk
		Inhalation of ground gas	Low likelihood	Medium	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
hydrogen sulphide and carbon monoxide					
CL-239 (Waste site) Notes/Assumptions: • Located outside of the DOL and therefore will not be remediated during construction.					
CL-123 (Infilled sand pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low likelihood to likely	Medium	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Likely	Medium	Moderate risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Low likelihood	Mild	Low risk
CL-123 (Infilled sand pit) Notes/Assumptions: • Located within the DOL for the overhead lines. The source is located over 15m away from the proposed pylon modification works and no new pylons are proposed within the area of the source. It is considered unlikely that the source would be encountered during construction and therefore it is assumed that the source will not be remediated.					
CL-130 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • principal aquifer • potable abstraction licence - Friston House, Saxmundham Road, Friston	Leaching, vertical and lateral migration from contaminated soils and waters	Unlikely to low likelihood	Medium	Low to moderate/low risk
	Controlled waters: • secondary aquifer		Unlikely to low likelihood	Medium	Low to moderate/low risk

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Unlikely to low likelihood	Mild	Very low to low risk
CL-130 (Infilled clay pit) Notes/Assumptions: • The source is located within the proposed preferred access route. It is assumed that any contamination encountered during construction of the access route would be remediated.					
CL-250 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Unlikely	Mild	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Unlikely	Mild	Very low risk
		Inhalation of ground gas	Unlikely	Medium	Low risk
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Likely	Medium	Moderate risk
	Controlled waters: • principal aquifer		Low likelihood to likely	Medium	Moderate/low to moderate risk
CL-250 (Infilled clay pit) Notes/Assumptions: • The source is located within the DOL for the proposed preferred access route. It is assumed that any contamination encountered during construction will be remediated. However, only a small portion of the source area is located within the DOL.					

Source	Receptor	Pathway	Probability of risk	Consequence	Risk during operation and decommissioning
• Any contamination not remediated during construction may still present a risk.					
General Notes/Assumptions • Any area of the source located outside the DOL would not be remediated. HDD: • HDD pits will be infilled and therefore pathways for contamination are not present post construction. • It is assumed that sources of contamination which are likely to be located in/near entry and receptors pits, would be remediated during construction. • It is assumed that sources of contamination which are unlikely to be located within entry or receptors pits, would not be remediated during construction.					

3.3 Summary of contamination assessment

3.3.1 A summary of the risk posed by contamination at baseline and during the construction, operation and demolition of the Proposed Onshore Scheme is provided in .

3.3.2 Generally, the assessment indicates that risk to human health is not increased above baseline level during the construction, operation or decommissioning of the Proposed Onshore Scheme. In some cases, risk to human health is reduced below baseline level during operation and decommissioning of the Proposed Onshore Scheme.

3.3.3 With respect to controlled waters, the preliminary contamination risk assessment indicates that risk posed by contamination will be slightly increased during construction of the Proposed Onshore Scheme. The risk to controlled waters then either reverts to, or is reduced below, baseline level during the operation and decommissioning of the Proposed Onshore Scheme.

3.3.4 The method for determining magnitude and significance of effect is detailed within **Chapter 9 Geology and Contamination** of the PEIR. With respect to Geology and Contamination, significant effects are deemed to occur when the risk of contamination, as defined within , has increased by two or more levels within , for example, from very low risk to moderate risk.

3.3.5 The preliminary contamination risk assessment has not identified any sources of contamination whereby the risk posed by contamination would increase by two or more levels. For this reason, no sources of contamination are deemed to cause significant effects as a result of the Proposed Onshore Scheme.

Table 3.6: Summary of the preliminary contamination risk assessment

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
CL-235 (Airfield) Hydrocarbons Acids/alkalis Asbestos Solvents Herbicides PCBs De-icing agents, fire-fighting chemicals	Human health: • residential development • commercial • highway or railway land • unused land and with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Moderate/low risk	Moderate/low risk	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Low risk	Low risk	Low risk
	Controlled waters: • Hundred River • Minsmere Old River • ponds	Lateral migration through groundwater and direct run-off from the study area.	Moderate/Low risk	Moderate/Low risk	Moderate/low risk
	Controlled water: • principal aquifer • potable abstraction - Moat Farm, Moat Road, Theberton, Suffolk • groundwater abstraction utilized for sPCRAy irrigation	Leaching, vertical and lateral migration from contaminated soils and waters	Low	Moderate/low risk	Low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
	Controlled waters: • secondary aquifer		Moderate/low risk	Moderate/low risk	Moderate/low risk
CL-05 (Infilled gravel pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate risk	Moderate risk	Moderate risk
CL-65 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols	Human health: • residential • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low risk	Low risk	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters.	Very low risk	Very low risk	Very low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
Cyanides Asbestos Ground gas		Inhalation of vapours from contaminated waters.			
		Inhalation of ground gas	Moderate/low risk	Moderate/low risk	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low risk	Moderate/low risk	Low risk
	Controlled Waters: • superficial aquifer		Moderate/low risk	Moderate/low risk	Moderate/low risk
	Controlled waters: • ponds	Lateral migration through groundwater and direct run-off from the study area.	Low risk	Low risk	Low risk
CL-77 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer		Low risk	Moderate/low risk	Low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate/low risk	Moderate/low risk	Low to moderate/low risk
	Controlled waters: • Hundred River	Lateral migration through groundwater and direct run-off from the study area.	Moderate/low risk	Moderate/low risk	Low to moderate/low risk
CL-80 (Railway line) PCBs PAHs Ethylene glycol Creosote Herbicides Ferrous residues Metal fines Ash Sulphate Hydrocarbons	Human health: • highways or railway land • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low risk	Low risk	Low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Low risk	Low risk	Low risk
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate/low risk	Moderate/low risk	Moderate/low risk
	Controlled waters: • principal aquifer		Low risk	Moderate/low risk	Low risk
	Controlled waters: • Hundred River • small ponds	Lateral migration through groundwater and direct run-off from the study area.	Moderate/low risk	Moderate/low risk	Moderate/low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
CL-152 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer • groundwater abstraction utilized for sPCRAy irrigation	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate/low to moderate risk	Moderate/low to moderate risk	Low to moderate/low risk
	Controlled waters: • secondary aquifer		Moderate risk	Moderate	Low to moderate/low risk
CL-156 (Infilled unspecified pit) PAHs	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas/vapours	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low risk	Low risk	Low risk
	Controlled waters: • secondary aquifer		Moderate/low risk	Moderate/low risk	Moderate/low risk
CL-157 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low risk	Low risk	Low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
	Controlled waters: • Secondary aquifer		Moderate/low risk	Moderate/low risk	Low to moderate/low risk
CL-180 (Infilled unspecified pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses • highway or railway land	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low risk	Moderate/low risk	Low risk
	Controlled water: • secondary aquifer		Moderate/low risk	Moderate/low risk	Moderate/low risk
CL-237 (Hinton Lodge Pit - Landfill)	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Low risk	Low risk	Low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants Fuel oils Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide)		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Low risk	Low risk	Low risk
		Inhalation of ground gas	Low risk	Low	Low
	Controlled waters: • Principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Low risk	Low risk	Low risk
	Controlled waters: • secondary aquifer		Moderate risk	Moderate risk	Moderate risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
CL-239 (waste site/refuse heap) Potential for a range of contaminants including but not limited to: Heavy metals Acids Organic compounds Inorganic compounds Asbestos Hydrocarbons PAHs VOC SVOC Solvents lubricants Fuel oils Alkalis PCBs Ground gas (methane, hydrogen sulphide and carbon monoxide	Human health: • residential development • commercial or industrial land uses • undeveloped land or land with no sensitive uses proposed	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Moderate/low risk	Moderate/low risk	Moderate/low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Low risk	Low risk	Low risk
		Inhalation of ground gas	Moderate/low risk	Moderate/low risk	Moderate/low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate/low to moderate risk	Moderate/low to moderate risk	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Moderate risk	Moderate risk	Moderate risk
CL-123 (Infilled sand pit)	Human health:	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation	Very low risk	Very low risk	Very low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	• undeveloped land or land with no sensitive uses proposed • highway or railway land	of vapours from contaminated soils.			
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate/low to moderate risk	Moderate/low to moderate risk	Moderate/low to moderate risk
	Controlled waters: • secondary aquifer		Moderate risk	Moderate risk	Moderate risk
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Low risk	Low risk	Low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
CL-130 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • principal aquifer • potable abstraction licence - Friston House, Saxmundham Road, Friston	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate/low risk	Moderate/low risk	Low to moderate/low risk
	Controlled waters: • secondary aquifer		Moderate/low risk	Moderate/low risk	Low to moderate/low risk

Source	Receptor	Pathway	Risk at baseline	Risk during construction	Risk during operation and decommissioning
	Controlled waters: • pond	Lateral migration through groundwater and direct run-off from the site.	Low risk	Low risk	Very low to low risk
CL-250 (Infilled clay pit) PAHs Inorganics Hydrocarbons Phenols Cyanides Asbestos Ground gas	Human health: • undeveloped land or land with no sensitive uses	Direct contact or ingestion, inhalation of dusts or contaminated soils. Inhalation of vapours from contaminated soils.	Very low risk	Very low risk	Very low risk
		Direct contact or ingestion, inhalation of dusts or contaminated waters. Inhalation of vapours from contaminated waters.	Very low risk	Very low risk	Very low risk
		Inhalation of ground gas	Low risk	Low risk	Low risk
	Controlled waters: • secondary aquifer	Leaching, vertical and lateral migration from contaminated soils and waters	Moderate risk	Moderate risk	Moderate risk
	Controlled waters: • principal aquifer		Moderate/low risk	Moderate/low to moderate risk	Moderate/low to moderate risk

Topic Glossary

Acronym/phrase/abbreviation	Definition
Source	A substance in, on, or under land that has the potential to cause significant harm to humans, property, or the environment, or to pollute controlled waters.
Pathway	The route or means by which a contaminant can expose a receptor to a pollutant, or could do so.
Receptor	Something that could be adversely affected by a contaminant, for example a person, an organism, an ecosystem, property, or controlled waters.
Principal aquifer	Provide significant quantities of drinking water, and water for business needs. They may also support rivers, lakes and wetlands
Secondary A aquifer	Permeable layers that can support local water supplies, and may form an important source of base flow to rivers
Secondary B aquifer	mainly lower permeability layers that may store and yield limited amounts of groundwater through characteristics like thin cracks (called fissures) and openings or eroded layers
DoE	Department of Energy
PCBs	Polychlorinated Biphenyls
BGS	British Geological Survey
CIRIA	Construction Industry Research and Information Association
CSM	Conceptual Site Model
DOL	Draft Order Limits
EA	Environment Agency
GIS	Geographic Information System
HDD	Horizontal Directional Drilling
MAGIC	Multi-Agency Geographic Information for the Countryside
PAH	Polycyclic aromatic hydrocarbons
PEIR	Preliminary Environmental Information Report
PCRA	Preliminary Contamination Risk Assessment
SSSI	Sites of Special Scientific Interest
SVOC	Semi Volatile Organic Compounds
VOC	Volatile Organic Compounds

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