

The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 2

Part 3 Kent Onshore Scheme

Appendix 3.6.A Preliminary Contamination Risk
Assessment

Version A

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Contents

3.6.A.1	Introduction	1
3.6.A.2	Methodology	2
3.6.A.3	Preliminary Contamination Assessment	7
3.6.A.4	References	18

Table of Tables

Table 3.6.A.1 Criteria for classifying the potential for generating contamination	3
Table 3.6.A.2 Classification of probability(based on C552 (Ref. 3.6.10))	4
Table 3.6.A.3 Classification of consequence (based on C552 (Ref. 3.6.10))	4
Table 3.6.A.4 Classification of risk (based on C552 (Ref. 3.6.10))	6
Table 3.6.A.5 Risk rating definitions (based on C552 (Ref. 3.6.10))	6
Table 3.6.A.6 Potential sources of contamination	7

Sea Link

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3.6.A.1 Introduction

Overview

- 3.6.A.1.1 This preliminary contamination risk assessment has been produced to accompany 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 Kent Onshore Scheme (the 'Proposed Project') and provide a preliminary risk assessment.
- 3.6.A.1.2 As described in **Volume 1, Part 3 Chapter 6: Geology and Hydrogeology** of the PEIR, the study area for land contamination within the Kent Onshore Scheme comprises the physical extents of the draft Order Limits plus a buffer zone of 250m.

Structure of the Appendix

- 3.6.A.1.3 The structure of this assessment is as follows:
- **Chapter 2 Methodology** – which presents information on the methodology followed in this chapter and the accompanying classification table; and
 - **Chapter 3 Preliminary Contamination Assessment** – which presents a desk-based review of readily available historical Ordnance Survey (OS) maps supplemented by reference to earlier maps where available and historical aerial photography. The chapter includes a qualitative Tier 1 preliminary contamination risk assessment using a Conceptual Site Model to identify 'source-pathway-receptor' linkages to assess the potential risk and hazards, if any, associated with existing contamination in the ground.

Sources of Information

- 3.6.A.1.4 The following primary sources of information were used in the compilation of this assessment:
- British Geological Survey (BGS) 1:50,000 scale geological mapping (Ref. 3.6.1);
 - BGS GeoIndex Viewer (Ref. 3.6.2);
 - Defra mapped information, via Magic.gov.uk (Ref. 3.6.3) for groundwater Source Protection Zones (SPZ), aquifer designations, hydrological features, groundwater vulnerability, drinking water safeguard zones and statutory designated sites;
 - Historical mapping from the National Library of Scotland (Ref. 3.6.4);
 - Google Earth Historical Aerial Photography;
 - Historical Aerial Photography from Britain from Above (Ref. 3.6.5); and
 - The Environment Agency dataset for the locations of historical landfills (Ref. 3.6.6) and permitted landfill sites and waste sites (Ref. 3.6.7) and category 1 and 2 pollution incidents (Ref. 3.6.8).

3.6.A.2 Methodology

Introduction

3.6.A.2.1 The assessment of land contamination within the study area has been undertaken following a staged approach as recommended by the guidance provided in Land Contamination Risk Management (LCRM) (Ref. 3.6.9). This presents a three-stage process to the management of contaminated land:

- Stage 1 – risk assessment;
- Stage 2 – options appraisal; and
- Stage 3 – remediation.

3.6.A.2.2 The Stage 1 risk assessment is undertaken in a phased manner comprising three tiers, as follows:

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

3.6.A.2.3 This appendix provides a PRA (Tier 1) of ground conditions within the Kent Onshore Scheme and identifies locations where there is potential for existing contamination. The results of the PRA form the basis for the baseline conditions and assessment within the Environmental Impact Assessment PEIR.

Initial Assessment

3.6.A.2.4 The first stage of the PRA was to undertake an initial assessment to determine potential locations/sites for existing sources of contamination within the study area. These were identified based on the historical and current land use information determined from a variety of information sources including historical ordnance survey mapping and aerial imagery.

3.6.A.2.5 The sites were then given a classification score representing their potential for generating contamination that could impact on identified receptors. The criteria used in this assessment for classifying hazards/potential for generating contamination is presented in Table 3.6.A.1, which has been developed using the guidance within LCRM (Ref. 3.6.9).

Table 3.6.A.1 Criteria for classifying the potential for generating contamination

Classification	Potential for Generating Contamination
Very Low	Land Use Examples: Residential, retail or office use, agricultural.
Low	Land Use Examples: Recent small scale industrial and light industry
Moderate	Land Use Examples: Railway yards, collieries, scrap yards, inert landfills
High	Land Use Examples: Heavy industry, non-hazardous landfills, hazardous landfills
Very High	Land Use Examples: Hazardous landfills, large gas works, chemical works

3.6.A.2.6 Sites/areas that are classified as having a very low or low potential for generating contamination are scoped out of further assessment on the basis that there is no source of significant contamination and therefore no source-pathway-receptor pollutant linkage which could result in significant effects.

3.6.A.2.7 Sites/areas that are identified as having a moderate or above potential for generating contamination have been taken forward for further assessment.

3.6.A.2.8 This approach has been undertaken as it is considered to be proportionate for the scale and nature of the project and the activities that will be undertaken and allows a targeted approach as required by Environmental Impact Assessment (EIA) Regulations.

Further Assessment

3.6.A.2.9 The sites taken forward for further assessment have been assessed as having a moderate or above potential for generating contamination which could result in a (source-pathway-receptor) pollutant linkage and therefore potential significant effects. The sites were taken forward to assess the potential pollutant linkage in order to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences.

3.6.A.2.10 A pollutant linkage consists of the following three elements:

- A source of contamination or hazard that has the potential to cause harm or pollution;
- A pathway for the hazard to move along / generate exposure; and,
- A receptor which is vulnerable to the potential adverse effects of the hazard.

3.6.A.2.11 Whilst the contamination may be a hazard it would not constitute a risk unless a pathway and receptor are also present and a pollutant linkage can be determined. Therefore, in assessing the potential for contamination to cause a significant effect: the extent and nature of the potential source or sources of contamination must be assessed; any pathways present must be identified; and sensitive receptors or resources identified and appraised to determine their value and sensitivity to contamination related impacts.

3.6.A.2.12 Each tier of the Stage 1 risk assessment comprises the following four stages:

- Hazard Identification – which involves identifying potential contaminant sources within the study area;
- Hazard Assessment – assessing the potential for unacceptable risks by identifying what pathways and receptors could be present, and what pollutant linkages could result (forming the Conceptual Site Model);
- Risk Estimation – predict what degree of harm or pollution might result and how likely); and
- Risk Evaluation – evaluating whether the risk is acceptable or whether further assessment, remediation or mitigation is required.

3.6.A.2.13 To determine the risk to the identified receptor, both the probability (Table 3.6.A.2) and the potential degree of harm to a receptor (consequence – Table 3.6.A.3) are used and the risk estimated for each pollutant linkage using the matrix in Table 3.6.A.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. 3.6.10). The risk classifications are defined in Table 3.6.A.5. Definitions of receptor sensitivity are provided in **Table 3.6.9 of Part 3 Chapter 6 Geology and Hydrogeology** of the PEIR.

Table 3.6.A.2 Classification of probability(based on C552 (Ref. 3.6.10))

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 3.6.A.3 Classification of consequence (based on C552 (Ref. 3.6.10))

Classification	Examples
Severe	Human health effect - exposure likely to result in 'significant harm' as defined in the Defra (2012) Part 2A Statutory Guidance.

	<p>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 point or loss of amenity, agriculture or commercial value.</p> <p>Ecological effect - short-term exposure likely to result in a substantial adverse effect.</p> <p>Catastrophic damage to crops, buildings or property.</p>
Medium	<p>Human health effect - exposure could result in 'significant harm'.</p> <p>Controlled water effect - equivalent to Environment Agency Category 2 incident requiring notification of abstractor.</p> <p>Ecological effect - short-term exposure may result in a substantial adverse effect.</p> <p>Damage to crops, buildings or property.</p>
Mild	<p>Human health effect - exposure may result in 'significant harm'.</p> <p>Controlled water effect - equivalent to Environment Agency Category 3 incident (short lived and/or minimal effects on water quality).</p> <p>Ecological effect - unlikely to result in a substantial adverse effect.</p> <p>Minor damage to crops, buildings or property. Damage to building rendering it unsafe to occupy (for example foundation damage resulting in instability).</p>
Minor	<p>No measurable effect on humans. Protective equipment is not required during site works.</p> <p>Equivalent to insubstantial pollution incident with no observed effect on water quality or ecosystems.</p> <p>Repairable effects to crops, buildings or property. The loss of plants in a landscaping scheme. Discolouration of concrete.</p>

Table 3.6.A.4 Classification of risk (based on C552 (Ref. 3.6.10))

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High	High	Moderate	Low
	Likely	High	Moderate	Moderate	Low
	Low Likelihood	Moderate	Moderate	Low	Very low
	Unlikely	Low	Low	Very low	Very low

Note: This risk matrix applies to qualitative risk assessment only.

Table 3.6.A.5 Risk rating definitions (based on C552 (Ref. 3.6.10))

Risk Classification	Description
Very high	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

3.6.A.3 Preliminary Contamination Assessment

Initial Assessment

- 3.6.A.3.1 Much of the draft Order Limits and study area appears to have remained as undeveloped agricultural land since the earliest available historical mapping from the National Library of Scotland, dated 1885 (Ref. 3.6.4). In these areas it is considered that there is a very low risk of potential sources of significant existing contamination and therefore they are not taken forward for further assessment on the basis that significant effects are not likely. The locations of these areas are identified on Figure 3.6.4 as any areas outside of those identified below.
- 3.6.A.3.2 There are six sites/areas within the study area where historical or current land uses may have resulted in existing contamination. Where identified, readily available information relating to these sites and their associated Potential Sources of Contamination (PSC) has been gathered and is presented in the table below with a corresponding Classification Score for their potential for generating contamination. The locations of these are presented on **Volume 3, Part 3, Figure 3.6.4, Potential Sources of Contamination**.

Table 3.6.A.6 Potential sources of contamination

PSC Number	Name	Location	Description	Potential for generating contamination
PSC within draft Order Limits				
1	Railway Lines (Minster and Deal branch and Ashford and Ramsgate branch)	The draft Order Limits is crossed by a north-west south-east trending railway line (Minster and Deal branch) and a further east-west trending railway line (Ashford and Ramsgate branch) forms the draft Order Limits	The railway branch lines are recorded on the 1888 – 1913 historical map as the Deal Branch and the Ashford, Canterbury and Ramsgate Branch of the Southeast Railway. On the basis of the Ordnance Survey mapping and LIDAR data (Ref. 3.6.11), these lines appear to have been constructed approximately 'at grade' with small embankments constructed for bridged crossings over waterways.	Low

PSC Number	Name	Location	Description	Potential for generating contamination
		northern boundary.		
PSCs within wider study area				
2	Cliffsend landfill (ref: EAHLD19457, WRC ref: 2200/7253)	Located to the south of the draft Order Limits at Pegwell Bay, to the south-east of St. Augustine's Golf Course, between Sandwich Road and the coastal path.	This landfill is indicated to have received household and inert waste between 1960 and 1972. Historical mapping and historical aerial imagery indicate that the waste appears to have been deposited directly onto an area of marshy coastal land.	High
3	Weatherlees Hill Wastewater Treatment Works (WTW)	Located to the south of the draft Order Limits at NGR 633035 E, 162770 N.	Historical aerial imagery indicates that the Weatherlees Hill WTW was constructed in the early 1990s on an area of previously undeveloped land. A review of the North East Kent Drainage strategy (Ref. 3.6.12) states the site was constructed in 1996 with the site extended in 2006. The Weatherlees Hill WTW does not appear (based on historical mapping snapshot) to have utilised sludge beds / lagoons or sludge drying slabs.	Moderate
4	Car breakers	Between Ebbsfleet Lane and east of A256, to the southeast of the draft Order Limits.	The mapping dated 1885-1900, indicates a property is at the location. From historical aerial photography it can be seen the site is used for the storage of vehicles from approximately 2003 until the present day. A permit is available for the site as a sole trader for a lower tier – carrier, broker, dealer.	Low
5	Minster Wastewater Treatment Works	Located within the northwest of the draft Order Limits to the south of Marsh Farm	The historical mapping dated 1885-1900 indicates the site was undeveloped land. The earliest available aerial imagery, dated 1940, shows the Minster WTW present in the northwest corner of	Moderate

PSC Number	Name	Location	Description	Potential for generating contamination
		Road to the north of Western Monkton Stream (drain) and the River Stour.	<p>the site. The imagery shows the expansion of the site over a number of years.</p> <p>A review of the North East Kent Drainage Strategy (Ref. 3.6.12) shows that the site treats waste water which is then released into the River Stour. It is assumed that the site is regulated under an Environmental Permit which would include controls on testing before discharge.</p>	
6	Ebbsfleet Ovenden landfill (ref: EAHLD34024, WRC ref: 2200/7278).	<p>Located to the southeast of the draft Order Limits, at the southwestern end of St. Augustine's Golf Course. The polygon provided by the Environment Agency for this landfill is a small circle centred at approximate NGR 633500 E, 162995 N.</p>	<p>This landfill is indicated to have been operated by Ovenden Earthmoving Company Ltd. and received inert waste between 1976 and 1991. The licence is indicated to have been surrendered in 1992.</p> <p>Note: Such polygons are typically provided when the Environment Agency is unsure of the extent of a landfill and should not be taken as an accurate description of the licenced area.</p>	Moderate

3.6.A.3.3 The initial assessment has identified two sites with a low potential for generating contamination and these have been scoped out of further assessment on the basis that significant effects in relation to contamination are unlikely.

3.6.A.3.4 Four sites have been identified with a moderate or above potential for generating contamination and these have been taken forward for further assessment.

Further Assessment

Site Name/ Ref	PSC 2 - Cliffsend Landfill
Site Location and Description	<p>Cliffsend Landfill (the site) at Pegwell Bay Country Park. The site is located directly to the south of the draft Order Limits.</p> <p>The site is located to the east of Sandwich Road and forms Pegwell Bay Country Park. Based on Aerial Photography the site is fully grassed over with several footpaths crossing the site. A building, carparking and a playground are present in the northeast part of the site.</p>
Site History	<p>Historical mapping dated 1885-1900 indicates the site as marshy coastal land which is undeveloped. Historical Google Aerial Imagery dated 1940 shows the site as undeveloped land, with the coastline being further inland than the current day. By the historical aerial imagery dated 1960 there is evidence of working on the site, with the south eastern part of the site appearing to have been reclaimed land from the sea/marshland. By the historical Google Aerial Imagery dated 1990 the site has been restored and the carpark and building to the north of the site have been constructed.</p> <p>Information provided by Kent County Council indicates that that the area to the northwest of the site was designated as a refuse tip on the ordnance survey mapping dates 1964. By 1967 the site was indicated to have been grassed over and by 1972 was undergoing land raising. The central eastern area is indicated to have been infilled from 1972 to 1985, with the southern part of the site undergoing land raising between 1964 to 1972.</p>
Other Pertinent Information	<p>This landfill is indicated to have been operated by Kent County Council and received household and inert waste between 1960 and 1972 (ref: EAHLD19457, WRC ref: 2200/7253).</p> <p>Information received from Kent County Council includes information from a borehole which is located along the northern boundary of the site and closest to the draft Order Limits of the Project. The borehole log shows that waste material was not encountered at this location and the geology comprised topsoil, to a depth of 0.5m below ground level (bgl), overlying made ground, comprising black asphalt and flint fragments in a black asphalt matrix to a depth of 1.2m bgl with alluvial gravels and alluvium underlying the made ground to a depth of 7m bgl. Ground gas monitoring data from this location has also been supplied by Kent County Council which indicates that methane was not recorded in the data presented which is dated from 2018 to 2023. Concentrations of carbon dioxide were recorded between approximately 1%-2% from 2018 to 2023.</p>
Geology	<p>The BGS Geindex (Ref. 3.6.2) indicates the superficial deposits comprise Beach and Tidal Flat Deposits (Undifferentiated), with the bedrock indicated to comprise the Thanet Formation. Borehole information obtained from Kent County Council is discussed in the Other Pertinent Information section of this table.</p>

Site Name/ Ref	PSC 2 - Cliffsend Landfill				
Hydrogeology	The Thanet Formation, which forms the bedrock at the site is classified as a Secondary A Aquifer. The superficial Beach and Tidal Flat Deposits (Undifferentiated) are classified in part as a Secondary A Aquifer and in parts as a Secondary Undifferentiated aquifer.				
Hydrology	The North Sea is located directly to the east of the site. The River Stour is located approximately 250m to 300m to the south-east of the site. Some smaller drains are located directly adjacent to the southern boundary of the site which drain into the River Stour. The River Stour (Water body ID GB520704004700) is identified as having a 'moderate' ecological status and a 'fail' chemical status in 2019.				
Environmental Setting	The site is located directly adjacent to the Sandwich Bay and Hacklinge Marshes Site of Special Scientific Interest.				
Potential for Generating Contamination	High – as the site accepted both inert and household waste.				
Potential Contaminants	Heavy metals, ash, clinker, sulphates, hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), inorganic compounds, volatile organic compounds (VOCs) and semi-volatile organic compounds (sVOC), landfill gas.				
Potential Receptors	Human Health – Construction Workers Groundwater Surface Water Ecological Receptors				
Potential Source	Potential Pathway	Potential Receptors and Sensitivity	Classification of Consequence	Classification of Probability	Risk Rating
Waste materials	Inhalation	Construction/maintenance Workers (high sensitivity)	Medium	Unlikely. The fill material is not indicated to be present at the northern most part of the site and the draft Order Limits do not cross the landfill. High levels of ground gas have not been encountered, based on the information received from Kent County Council. The landfill is also not going to be directly affected by the	Low.

Site Name/ Ref	PSC 2 - Cliffsend Landfill			
				Proposed Project, with trenchless crossing techniques being used in the sections closest to the site, and therefore it is not anticipated that materials containing significant contamination will be encountered.
Leaching Migration Deposition	Groundwater (medium sensitivity)	Medium	Unlikely as the site is outside of the draft Order Limits and therefore there is not anticipated to be any interaction between the Proposed Project and the site.	Low
	Surface Water (very high sensitivity)	Severe		Low
	Ecological Receptors (very high sensitivity)	Severe		Low

Site Name/ Ref	PSC 3 – Wetherlees Hill Waste Water Treatment Works (WTW)			
Site Location and Description	Wetherlees Hill WTW is located to the west of the A256 Richborough Way and Jutes Lane. The site is located approximately 100m to the south of the draft Order Limits. Based on Aerial Photography the site comprises hardstanding and some grassed areas with a number of processing tanks and buildings.			
Site History	The North East Kent Drainage strategy (Ref. 3.6.12) states the site was constructed in 1996, known as site 'A', with the site extended in 2006, to create site 'B'. Historical aerial imagery and mapping indicates that previous to the development of the WTW the area was undeveloped agricultural land. The WTW does not appear (based on historical mapping and aerial photography) to have utilised sludge beds / lagoons or sludge drying slabs.			
Other Pertinent Information	Based on the North East Kent Drainage strategy (Ref. 3.6.12) site A discharges to the River Stour, with site B utilising a long outfall into the sea. It is assumed that the site is regulated under an Environmental Permit which would include controls on the discharges.			

Site Name/ Ref	PSC 3 – Wetherlees Hill Waste Water Treatment Works (WTW)
Geology	<p>The BGS Geoindex (Ref. 3.6.2) indicates the superficial deposits comprise Tidal Flat Deposits with the bedrock indicated to comprise the Thanet Formation. The mapping indicates that superficial deposits are absent in a small area in the centre of the site and directly to the east of the site.</p> <p>Borehole information obtained from the BGS archives (Ref. 3.6.2) generally confirms the geology described above, with soft to firm clays with varying amounts of organic material to a depth of approximately 6m bgl overlying stiff clay with occasional weakly cemented siltstones to a depth of between approximately 26m and 31m bgl. The clay was found overlying structureless chalk to the base of the boreholes.</p>
Hydrogeology	<p>The Thanet Formation, which forms the bedrock at the site is classified as a Secondary A Aquifer. The Tidal Flat Deposits are classified as unproductive strata.</p>
Hydrology	<p>The site is bound by the Minster Stream to the north and east of the site, with unnamed drains to the south and west. The Monkton and Minster Marshes water body, which the Minster Stream is part of, is identified as having a ‘moderate’ ecological status and a ‘fail’ chemical status. The River Stour is located approximately 200m to the south west of the site. The River Stour is identified as having a ‘moderate’ ecological status and a ‘fail’ chemical status.</p>
Environmental Setting	<p>The site is located directly adjacent to the Sandwich Bay and Hacklinge Marshes Site of Special Scientific Interest which is located between the WTW and the River Stour.</p>
Potential for Generating Contamination	<p>Moderate</p>
Potential Contaminants	<p>Metals and metalloids including molybdenum, petroleum hydrocarbons, polychlorinated biphenyls (PCBs), VOCs, SVOCs, PAHs, per and polyfluoroalkyl substances (PFAS), other inorganic compounds (i.e., cyanides, sulphates).</p>
Potential Receptors	<p>Groundwater Surface Water Ecological Receptors</p>

Potential Source	Potential Pathway	Potential Receptors and Sensitivity	Classification of Consequence	Classification of Probability	Risk Rating
Made ground	Leaching Migration Deposition	Groundwater (medium sensitivity)	Mild	Unlikely as the site is outside of the draft Order Limits and therefore there is not anticipated to be any interaction between the Project and the site.	Very low
		Surface Water (very high sensitivity)	Mild		Very low
		Ecological Receptors (very high sensitivity)	Mild		Very low

Site Name/ Ref PSC 5 – Minster Waste Water Treatment Works (WTW)

Site Location and Description	<p>Minster WTW is located to the south of Marsh Farm Road on the north side of Western Monkton Stream (drain) and the River Stour. The site is directly adjacent to the draft Order Limits, however the area closest to the site included within the draft Order Limits is for site access, which is already present, and for above ground works restricting the current pylons to allow the connection into the Minster Converter station.</p> <p>Based on Aerial Photography the site comprises some hardstanding and some grassed areas with some waste water processing tanks.</p>
Site History	<p>The historical mapping dated 1885-1900 indicates that the site was undeveloped land at that time. The earliest available aerial imagery, dated 1940, shows the water treatment works present in the northwest corner of the site. The imagery shows the expansion of the site over a number of years. There is the potential, based on the historical aerial photography that sledge beds were present along the eastern part of the site.</p>
Other Pertinent Information	<p>A review of the North East Kent Drainage Strategy (Ref. 3.6.12) shows that the site treats waste water which is then released into the River Stour. It is assumed that the site is regulated under an Environmental Permit which would include controls on the discharge.</p>
Geology	<p>The BGS Geoindex (Ref. 3.6.2) indicates the superficial deposits are absent at the site, however the site is surrounded by Tidal Flat Deposits. The bedrock indicated to comprise the Thanet Formation.</p>
Hydrogeology	<p>The Thanet Formation, which forms the bedrock at the site is classified as a Secondary A Aquifer.</p>

Site Name/ Ref	PSC 5 – Minster Waste Water Treatment Works (WTW)
Hydrology	The site is bound by the West Monkton Stream to the south of the site, with unnamed drains to the east and west. The Minster Stream is located directly north of the site. The Monkton and Minster Marshes water body, which the Minster Stream and West Monkton Stream are part of, is identified as having a ‘moderate’ ecological status and a ‘fail’ chemical status in 2019. The River Stour is located approximately 150m to the south of the site and is identified as having a ‘moderate’ ecological status and a ‘fail’ chemical status in 2019.
Environmental Setting	None
Potential for Generating Contamination	Moderate
Potential Contaminants	Metals and metalloids including molybdenum, petroleum hydrocarbons, polychlorinated biphenyls (PCBs), VOCs, SVOCs, PAHs, per and polyfluoroalkyl substances (PFAS), other inorganic compounds (i.e., cyanides, sulphates). Pathogens and ground gas (Based on the potential presence of sludge beds).
Potential Receptors	Human Health – Construction Workers Groundwater Surface Water Ecological Receptors

Potential Source	Potential Pathway	Potential Receptors and Sensitivity	Classification of Consequence	Classification of Probability	Risk Rating
Made ground	Inhalation	Human Health- construction workers (high sensitivity)	Mild	Unlikely as the site is outside of the draft Order Limits and therefore there is not anticipated to be any interaction between the Proposed Project and the site. In addition, the works expected	Very low
	Leaching	Groundwater (medium sensitivity)	Mild		Very low

Potential Source	Potential Pathway	Potential Receptors and Sensitivity	Classification of Consequence	Classification of Probability	Risk Rating
	Migration Deposition	Surface Water (very high sensitivity)	Mild	nearest the site are unlikely to require ground disturbance.	Very low
		Ecological Receptors (very high sensitivity)	Mild		Very low

Site Name/ Ref	PSC 6 – Ebbsfleet Ovenden Landfill
Site Location and Description	Ebbsfleet Ovenden, east of Ebbsfleet Lane NGR 633500 E, 162995 N. Located to the southeast of the draft Order Limits, at the southwestern end of Stonelees Golf Course, the polygon provided by the Environment Agency for this landfill is a small circle to the northeast of Stonelees Golf Centre.
Site History	The mapping dated 1885-1900 indicates the site to be open fields. Historical Google Aerial Photography dated 1940, continues to show the site as undeveloped. Ebbsfleet Lane is shown in a different alignment to the current day. By the Aerial Photography dated 2003 the Stonelees Golf Centre and the golf course has been built and Ebbsfleet Lane in it the same alignment as today.
Other Pertinent Information	This landfill is indicated to have been operated by Ovenden Earthmoving Company Ltd, from the information obtained from the corresponding permit (Ref. 3.6.6), and received inert waste between 1976 and 1991. The licence is indicated to have been surrendered in 1992.
Geology	The BGS Geindex (Ref. 3.6.2) indicates that the superficial deposits comprise Tidal Flat Deposits with the bedrock indicated to comprise the Thanet Formation.
Hydrogeology	The Thanet Formation, which forms the bedrock at the site is classified as a Secondary A Aquifer, and the superficial Tidal Flat Deposits are classified as a unproductive strata.
Potential for Generating Contamination	Moderate – as the site only accepted inert waste.
Potential Contaminants	Heavy metals, ash, clinker, sulphates, hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and semi-volatile organic compounds (sVOC), landfill gas.

Potential Receptors Human Health – Construction Workers
Groundwater

Potential Source	Potential Pathway	Potential Receptors and Sensitivity	Classification of Consequence	Classification of Probability	Risk Rating
Waste materials	Inhalation	Construction/maintenance Workers (high sensitivity)	Mild	Unlikely. The landfill is not anticipated to contain significantly contaminative materials based on it being an inert landfill and landfill gas generation is not anticipated due to the nature of the fill. The site is also outside of the draft Order Limits and therefore there will be no interaction between the Proposed Project and the site.	Very low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Mild	Unlikely. The landfill is not anticipated to contain significantly contaminative materials based on it having received only inert waste. The site is also outside of the draft Order Limits and therefore there is not anticipated to be any interaction between the Proposed Project and the site.	Very low

3.6.A.4 References

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- Ref. 3.6.4 National Library of Scotland – map images, 2023, [online]. Available at: <https://maps.nls.uk/geo/explore/side-by-side/#zoom=5&lat=56.00000&lon=-4.00000&layers=1&right=ESRIWorld> [Access March 2023]
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- Ref. 3.6.7 Environment Agency Permitted Waste Sites-Authorised Landfill Site Boundaries, 2023 [online]. Available at: <https://www.data.gov.uk/dataset/ad695596-d71d-4cbb-8e32-99108371c0ee/permitted-waste-sites-authorised-landfill-site-boundaries> [Accessed June 2023]
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- Ref. 3.6.9 Land Contamination Risk Management (LCRM), 2021 [online]. Available at: <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> [Accessed March 2023]
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- Ref. 3.6.11 Defra, 2023, Survey Data Download [online]. Available at: <https://environment.data.gov.uk/DefraDataDownload/?Mode=survey> (Accessed June 2023)
- Ref. 3.6.12 Drainage Strategy – North East Kent, 2016 [online]. Available at: <https://www.southernwater.co.uk/media/3271/drainagestrategyreport-nekent.pdf> [Accessed 16 June 2022]

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