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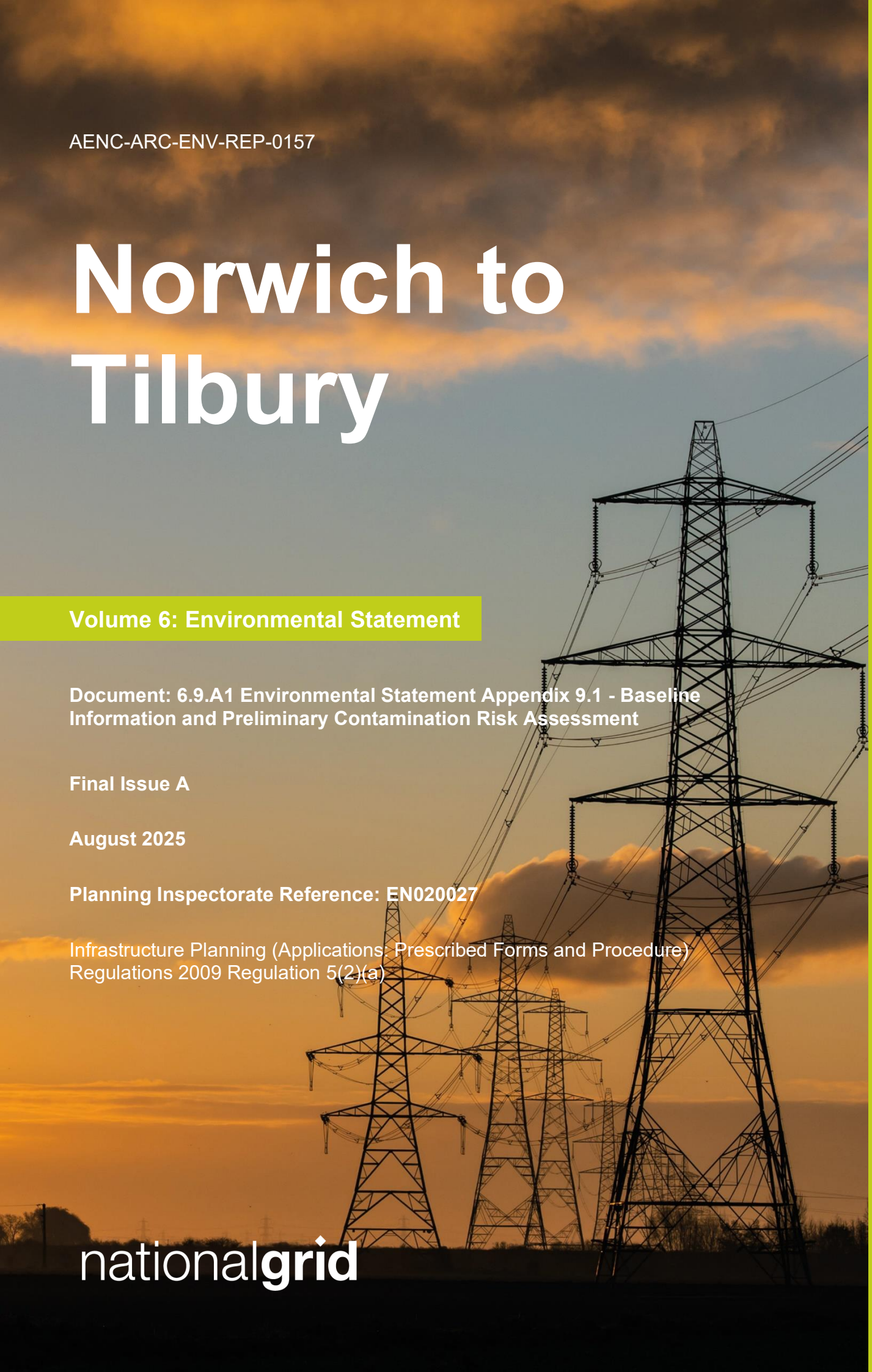

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9. Baseline Information and Preliminary Contamination Risk Assessment

9.1 Introduction

Overview

9.1.1 This appendix presents the baseline information and preliminary contamination risk assessment which has been produced to inform Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.9). This appendix has been prepared to provide baseline information on geology, hydrogeology, and potentially contaminated land within the Study Area.

9.1.2 As described in Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.9), the Study Area for geology and land contamination comprises the physical extents of the Order Limits plus a buffer of 250 m, and a buffer of 500 m for hydrogeology.

9.1.3 The Project has also been sub-divided into eight geographical sections for reader accessibility, based largely on Local Planning Authority boundaries and comprise

- Section A - South Norfolk Council
- Section B - Mid-Suffolk District Council
- Section C - Babergh District Council, Colchester City Council and Tendring District Council
- Section D - Colchester City Council
- Section E - Braintree District Council
- Section F - Chelmsford City Council and Brentwood Borough Council
- Section G - Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council)
- Section H - Thurrock Council.

9.1.4 Receptors reported within this document are reported with reference to the Project Section in which they are located

Structure of the Appendix

9.1.5 The structure of this assessment is as follows:

- Section 9.2: Geology and Ground Conditions – which presents information on the geology encountered within the Study Area
- Section 9.3: Methodology - which presents information on the methodology followed in this chapter and the accompanying classification table

- Section 9.4: Preliminary Contamination Risk 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. This 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

9.1.6 The following primary sources of information were used in the compilation of this assessment:

- British Geological Survey (BGS) 1:50,000 scale geological mapping (British Geological Survey, 2025a)
- BGS GeoIndex Viewer (British Geological Survey, 2025b)
- Defra mapped information, via the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Department for Environmental, Food and Rural Affairs (Defra), 2025) for Source Protection Zones (SPZ), aquifer designations, hydrological features, groundwater vulnerability, drinking water safeguard zones and statutory designated sites
- The Environment Agency datasets for the locations of historical landfills and permitted landfill and waste sites, and category 1 and 2 pollution incidents (Environment Agency, 2025)
- Georeferenced historical Ordnance Survey maps for the United Kingdom (National Library of Scotland, 2025)
- Historical Ordnance Survey maps from Envirocheck reports (Landmark Information Group 2022) (Landmark Information Group, 2023) for parts of the route.
- Google Earth historical aerial imagery
- Historical Aerial Photography
- Information on potentially contaminated land provided by South Norfolk Council, Mid-Suffolk District Council, Babergh District Council, Tendring District Council, Colchester City Council, Chelmsford City Council, Basildon Borough Council, Braintree District Council, Brentwood Borough Council and Thurrock Council.

9.2 Geology and Ground Conditions

Introduction

9.2.1 The published geology within the Order Limits and Study Area is shown on the Geological Survey of Great Britain (England and Wales), 1:50,000 scale geological maps, Sheet numbers, 161 Norwich (BGS, 1975), 175 Diss (BGS, 1989), 190 Eye (BGS, 1995), 270 Ipswich (BGS, 2006), 224 and 242 Colchester and Brightlingsea (BGS, 2010), 223 Braintree (BGS, 1982), 241 Chelmsford (BGS, 1975), 240 Epping (BGS, 1981), 257 Romford (BGS, 1996), and 271 Dartford (BGS, 1998).

9.2.2 The 1:50,000 series mapping comprising the superficial and bedrock geology within the Order Limits is shown on Figure 9.1: Superficial Geology (document reference 6.9.F1) and Figure 9.2: Bedrock Geology (document reference 6.9.F2) and summarised below. The summary below is supplemented by review of the BGS online mapping for superficial and bedrock geology (BGS, 2025a).

Published Geology – Superficial Deposits

Section A: South Norfolk Council

9.2.3 Superficial deposits are shown to be present beneath the whole of the Study Area in Section A and predominantly comprise the Lowestoft Formation, described by the BGS as 'chalky till, together with outwash sands and gravels, silts and clays'. The BGS term this deposit 'Diamicton', which is commonly referred to as glacial till/boulder clay.

9.2.4 Other superficial geological strata indicated to be present includes:

- Alluvium – indicated locally within valleys associated with watercourses, comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'
- Head deposits – indicated locally within valleys, comprising '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'
- Within the northern part of Section A, localised exposures of the Sheringham Cliffs Formation are indicated, comprising interbedded layers of sand and gravel, laminated silt, and clay, and diamicton
- Within the most northern part of Section A, localised exposures of the Leet Hill Sand and Gravel Member are indicated, comprising glaciofluvial outwash deposits of sands and gravels
- Within the northern part of Section A also, occasional isolated pockets of undifferentiated deposits of the Happisburgh Glacigenic Formation and Lowestoft Formation are indicated, comprising diamicton, sand and gravels, sands, laminated silts, and clays
- In localised areas within valleys in the central and southern parts of Section A, granular deposits of the Lowestoft Formation are indicated, comprising sand and gravel
- In localised areas in the south of Section A, deposits of Peat are indicated to be present, associated with the floodplains of the River Tas and the River Waveney and their tributaries
- River Terrace Deposits comprising '*sand and gravel, locally with lenses of silt, clay or peat'* are indicated to be present at the southern end of Section A, associated with the River Waveney.

Section B: Mid Suffolk District Council

9.2.5 Superficial deposits are shown to be present beneath the whole of the Study Area in Section B and predominantly comprise the Lowestoft Formation, described by the BGS as '*chalky till, together with outwash sands and gravels, silts and clays*'. The BGS term this deposit '*Diamicton'*, which is commonly referred to as glacial till/boulder clay.

Superficial deposits are indicated to be absent within small discrete parts of the section, predominantly associated with The Channel watercourse.

9.2.6 The other superficial strata indicated to be present throughout Section B of the Study Area are described below:

- Alluvium – indicated locally within valleys associated with watercourses, comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'
- River Terrace Deposits comprising '*sand and gravel, locally with lenses of silt, clay or peat*' are indicated to be present at the northern end of Section B, associated with the River Waveney and in the vicinity of Needham Market associated with the River Gipping and at Offton associated with The Channel
- Head deposits – indicated locally within valleys throughout the whole of Section B, comprising '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'
- In localised areas in Section B, deposits of Peat are indicated to be present, associated with the floodplains of the River Waveney and tributaries
- In two very localised areas in the north of Section B, approximately 1 km and 1.2 km south of the Section A / Section B Boundary, deposits of the Ingham Sand and Gravel Formation, comprising '*sands and gravels with occasional clay and silt bed'* are indicated to be present
- Within the northern part of the Study Area in Section B, localised areas are underlain by sand and gravel deposits of the Croxton Sand and Gravel Member
- Granular deposits of the Lowestoft Formation – indicated locally, typically within valleys, comprising sand and gravel
- Glaciofluvial Deposits are indicated locally within the area of the River Gipping and comprise sands and gravels
- The Kesgrave Catchment Subgroup is indicated to be present locally within the area of The Channel and comprise '*cross-bedded and massive, moderately sorted sand and gravel*'.

Section C: Babergh District Council, Colchester City Council and Tendring District Council

9.2.7 Superficial deposits are shown to be present beneath most of the Study Area in Section C. Superficial deposits are indicated to be absent within small discrete parts of the section, predominantly associated with the river valleys. The superficial strata are described below:

- The Lowestoft Formation, comprising '*chalky till, together with outwash sands and gravels, silts and clays*'. The BGS term this deposit '*Diamicton*', which is commonly referred to as glacial till/boulder clay
- Granular deposits of the Lowestoft Formation, comprising '*sand and gravel*'. These sand and gravel outwash deposits differ from the predominantly cohesive diamicton

- Alluvium comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'. This is typically encountered within valleys associated with watercourses
- Head deposits are indicated locally within valleys and found to comprise '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'
- The Kesgrave Catchment Subgroup, described by the BGS as '*cross-bedded and massive, moderately sorted sand and gravel*'
- River Terrace Deposits, comprising '*sand and gravel, locally with lenses of silt, clay or peat*'. These are encountered predominantly in the vicinity of the River Stour at the Babergh / Colchester boundary
- Cover Sand, described by the BGS as a wind-blown deposit comprising clay, silt and sand including '*fine to very fine-grained sand, usually horizontally bedded … with large-scale crossbedding*'.

Section D: Colchester City Council

9.2.8 Superficial deposits are shown to be present beneath most of the Study Area in Section D. Superficial deposits are indicated to be absent within small discrete parts of the section, associated predominantly with the river valley sides. The superficial geology is highly variable and are described below:

- The Lowestoft Formation, comprising '*chalky till, together with outwash sands and gravels, silts and clays*'. The BGS term this deposit '*Diamicton*', which is commonly referred to as glacial till/boulder clay
- Cover Sand, described by the BGS as a wind-blown deposit comprising clay, silt and sand including '*fine to very fine-grained sand, usually horizontally bedded … with large-scale crossbedding*'
- The Kesgrave Catchment Subgroup, described by the BGS as '*cross-bedded and massive, moderately sorted sand and gravel*'
- Granular deposits of the Lowestoft Formation, comprising '*sand and gravel*'. These sand and gravel outwash deposits differ from the predominantly cohesive diamicton
- Head deposits are indicated locally within valleys and found to comprise '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'
- Alluvium comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'. This is typically encountered within valleys associated with watercourses
- River Terrace Deposits, comprising '*sand and gravel, locally with lenses of silt, clay or peat*'. These are encountered predominantly in the vicinity of the River Colne and Roman River
- Interglacial Lacustrine Deposits, comprising '*organic-rich, interbedded sand, silt and clay*' encountered predominately in the vicinity of Roman River.

Section E: Braintree District Council

9.2.9 Superficial deposits are shown to be present beneath the whole of the Study Area in Section E. The superficial strata include:

- The Lowestoft Formation, comprising '*chalky till, together with outwash sands and gravels, silts and clays*'. The BGS term this deposit '*Diamicton*', which is commonly referred to as glacial till/boulder clay
- The Kesgrave Catchment Subgroup, described by the BGS as '*cross-bedded and massive, moderately sorted sand and gravel*'
- Head deposits comprising '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'
- Alluvium comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'. This is typically encountered within valleys associated with watercourses
- River Terrace Deposits, comprising '*sand and gravel, locally with lenses of silt, clay or peat*'.
- Glaciofluvial deposits described by the BGS as '*mostly coarse-grained sediments (i.e., sand and gravel) with some finer-grained layers (i.e., clay and silt). Sand and gravel, locally with lenses of silt, clay, or organic material*'. These are encountered only in the far west of the Braintree section, associated with valleys and the River Ter.

Section F: Chelmsford City Council and Brentwood District Council

9.2.10 Superficial deposits are shown to be present beneath the whole of the Study Area in the northern part of Section F. In the southern part of the section there are localised areas within the Study Area where superficial deposits are indicated to be absent.

9.2.11 The superficial strata indicated to be present are described below:

- The Lowestoft Formation, comprising '*chalky till, together with outwash sands and gravels, silts and clays*'. The BGS term this deposit '*Diamicton*', which is commonly referred to as glacial till/boulder clay
- Glaciofluvial deposits described by the BGS as '*mostly coarse-grained sediments (i.e., sand and gravel) with some finer-grained layers (i.e., clay and silt). Sand and gravel, locally with lenses of silt, clay, or organic material*'. These are encountered only to the north-east of Chelmsford, associated with the River Ter and the River Chelmer
- Alluvium comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'. This is typically encountered within valleys associated with watercourses
- Head deposits comprising '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'. This is typically encountered within valleys
- The Kesgrave Catchment Subgroup, described by the BGS as '*cross-bedded and massive, moderately sorted sand and gravel*' and is generally encountered at the edge of the valleys
- The Stanmore Gravel Formation, comprising '*Gravel and sand, clayey near base. Matrix of … clay and sandy clay, with pockets of coarse sand. Locally with layers of silt, clay, or peat*', at one location where it outcrops in the southern part of the section.

Section G: Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council)

9.2.12 Superficial deposits are indicated beneath approximately half of the Study Area in Section G. The coverage of superficial deposits decreases moving southwards through this section.

9.2.13 The superficial strata indicated to be present are described below:

- Head Deposits comprising '*gravel, sand and clay … locally with lenses of silt, clay or peat and organic material*'
- River Terrace Deposits comprising '*sand and gravel, locally with lenses of silt, clay or peat*' are indicated to be present in two localised areas, to the south-east of Ingatestone
- Alluvium comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'. This is typically encountered within the existing and historical floodplains of watercourses
- The Lowestoft Formation, comprising '*chalky till, together with outwash sands and gravels, silts and clays'*. The BGS term this deposit '*Diamicton*', which is commonly referred to as glacial till/boulder clay
- Glaciofluvial deposits described by the BGS as '*mostly coarse-grained sediments (i.e., sand and gravel) with some finer-grained layers (i.e., clay and silt). Sand and gravel, locally with lenses of silt, clay, or organic material*'. These are encountered only in localised areas, typically at the fringes of areas of the Lowestoft Formation
- The Stanmore Gravel Formation, comprising '*Gravel and sand, clayey near base. Matrix of … clay and sandy clay, with pockets of coarse sand. Locally with layers of silt, clay, or peat*' which outcrops in one location to the east of Ingatestone Bypass.

Section H: Thurrock Council

9.2.14 Superficial deposits are indicated to be present beneath most of the Study Area in Section H and predominantly comprises Head Deposits which are described by the BGS as 'gravel, sand and clay … locally with lenses of silt, clay or peat and organic material'.

9.2.15 The other superficial strata indicated to be present throughout the Thurrock section of the Study Area includes:

- Alluvium comprising '*normally soft to firm consolidated, compressible silty clay, but can contain layers of silt, sand, peat and basal gravel*'. This is encountered in localised areas within the north of this area, associated with the existing / historical floodplains of watercourses. Alluvium is present in the southern part of the Study Area in this section, associated with the River Thames
- Terrace Gravel deposits of the Maidenhead Formation (Black Park Gravel Member, Boyn Hill Gravel Member and Taplow Gravel Member), comprising '*gravel with thin cross-bedded sand channels*'. These deposits are encountered to the south-east of Orsett and to the south-west of Standford-le-Hope. Parts of the Black Park Gravel Member appear to have been removed by quarrying.

Published Geology – Bedrock

Section A: South Norfolk Council

9.2.16 The bedrock geology beneath the whole of the Study Area in Section A comprises undifferentiated deposits of the Lewes Nodular Chalk Formation, the Newhaven Chalk Formation, the Culver Chalk Formation, and the Portsdown Chalk Formation, together referred to as the White Chalk Subgroup. The White Chalk Subgroup is described by the BGS as '*Chalk with flints. With discrete marl seams, nodular chalk, sponge-rich and flint seams throughout*'.

Section B: Mid Suffolk District Council

9.2.17 The bedrock strata crossed by the Study Area within Section B includes:

- Undifferentiated deposits of the Lewes Nodular Chalk Formation, the Newhaven Chalk Formation, the Culver Chalk Formation, and the Portsdown Chalk Formation, together referred to as the White Chalk Subgroup. The White Chalk Subgroup is described by the BGS as '*Chalk with flints. With discrete marl seams, nodular chalk, sponge-rich and flint seams throughout*'
- The Crag Group, comprising '*Sands, gravels, silts, and clays. The sands are characteristically dark green from glauconite but weather bright orange ... The gravels in the lower part of the group are almost entirely composed of flint*'
- The Newhaven Chalk Formation, described as '*soft to medium hard, smooth white chalks with numerous marl seams and flint bands*'
- The Red Crag Formation, comprising '*Coarse-grained, poorly sorted, cross-bedded, abundantly shelly sands*'
- The Chillesford Church Sand Member, described as '*well sorted, fine-to medium-grained sand*'
- Undifferentiated deposits of the Thanet Formation and the Lambeth Group, comprising '*interbedded clays, silts and sands*'
- The Thames Group (comprising the London Clay Formation and the Harwich Formation), described as '*silty clays and clays, some sandy or gravelly, with some silts, sands, gravels and calcareous mudstones*'.

Section C: Babergh District Council, Colchester City Council and Tendring District Council

9.2.18 A large proportion of Section C is underlain by bedrock geology of the Thames Group (comprising the London Clay Formation and the Harwich Formation), which is described by the BGS as 'silty clays and clays, some sandy or gravelly, with some silts, sands, gravels and calcareous mudstones'

9.2.19 The other bedrock strata indicated to be present within this section includes:

- The Red Crag Formation, comprising '*Coarse-grained, poorly sorted, cross-bedded, abundantly shelly sands*'. This is encountered predominantly within Babergh in the central part of the section, with small pockets located to the south of the River Stour, immediately south of the Babergh boundary

- Undifferentiated deposits of the Thanet Formation and the Lambeth Group, comprising '*interbedded clays, silts and sands*'. This stratum is identified only in the floodplain of the River Stour in the vicinity of Stratford St. Mary.

Section D: Colchester City Council

9.2.20 A large proportion of Section D is underlain by bedrock geology of the London Clay Formation, described by the BGS as 'laminated, blue-grey or grey, brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay'. The exception to this is very small outcrops of the Crag Group located to the north of Marks Tey, which is described by the BGS as comprising 'Sands, gravels, silts, and clays. The sands are characteristically dark green from glauconite but weather bright orange ... The gravels in the lower part of the group are almost entirely composed of flint'.

Section E: Braintree District Council

9.2.21 The bedrock geology beneath the whole of the Study Area in Section E comprises the London Clay Formation, described by the BGS as '*laminated, blue-grey or grey, brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay*'.

Section F: Chelmsford City Council and Brentwood District Council

9.2.22 The majority of Section F is underlain by bedrock geology comprising the London Clay Formation, described by the BGS as 'laminated, blue-grey or grey, brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay'.

9.2.23 The other bedrock strata indicated to be present within this section includes:

- The Bagshot Formation, comprising '*fine to coarse-grained sand that is … locally clayey, with sparse glauconite and sparse seams of gravel*' which is located directly north of the Brentwood/Chelmsford boundary
- The Claygate Member, comprising '*dark grey clays with sand laminae, passing up into thin alternations of clays, silts and fine-grained sand*' which is located directly north of the Brentwood/Chelmsford boundary.

Section G: Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council)

9.2.24 The majority of Section G is directly underlain by bedrock geology comprising the London Clay Formation, described by the BGS as *'laminated, blue-grey or grey, brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay*', however in some areas the London Clay is overlain by the following:

- The Bagshot Formation, comprising '*fine to coarse-grained sand that is … locally clayey, with sparse glauconite and sparse seams of gravel*'
- The Claygate Member, comprising '*dark grey clays with sand laminae, passing up into thin alternations of clays, silts and fine-grained sand*'.

Section H: Thurrock Council

9.2.25 The northern half of Section H is underlain by bedrock geology comprising the London Clay Formation, described by the BGS as 'laminated, blue-grey or grey, brown, slightly calcareous, silty to very silty clay, clayey silt and sometimes silt, with some layers of sandy clay'. The bedrock geology then transitions through the following strata:

- The Harwich Formation, which is present in small discrete parts of the section underlying the London Clay Formation. This formation is described by the BGS as '*silty or sandy clays, silts and fine to coarse-grained …sands, some gravelly, varying to flint gravel beds*'
- The Lambeth Group comprising '*variable sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate*'
- The Thanet Formation, described as '*silty fine-grained sand, with sandy silt, silt or sandy, silty clay*'
- Undifferentiated deposits of the Lewes Nodular Chalk Formation, the Newhaven Chalk Formation, the Seaford Chalk Formation, together referred to as the White Chalk Subgroup. The White Chalk Subgroup is described by the BGS as '*Chalk with flints. With discrete marl seams, nodular chalk, sponge-rich and flint seams throughout'* only present at the most southern tip of the Study Area.

9.3 Methodology

Introduction

9.3.1 The assessment of land contamination within the Order Limits has been undertaken following a staged approach as recommended by the guidance provided in Land Contamination Risk Management (LCRM) (Environment Agency, 2023). This presents a three-stage process to the management of contaminated land.

- Stage 1 – Risk Assessment
- Stage 2 – Options Appraisal
- Stage 3 – Remediation.

9.3.2 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 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
- Tier 3 – Detailed Risk Assessment – a quantitative assessment involving the generation of site-specific assessment criteria.

9.3.3 This appendix provides a PRA (Tier 1) of ground conditions for the Project and identifies locations where there is potential for significant sources of contamination. The results of the PRA forms the basis for the baseline conditions and assessment within Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.9).

Initial Assessment

9.3.4 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, aerial imagery, and regulatory enquiries.

9.3.5 At the time of writing, regulatory enquiry responses had been received from all councils as follows:

- South Norfolk Council (Section A)
- Mid-Suffolk District Council (Section B)
- Babergh District Council (part of Section C)
- Tendring District Council (part of Section C)
- Colchester City Council (part of Section C and Section D)
- Braintree District Council (Section E)
- Chelmsford City Council (Section F and part of Section G)
- Basildon Borough Council (part of Section G)
- Thurrock Council (Section H).

9.3.6 South Norfolk Council (Section A), Colchester City Council (part of Section C and Section D) and Brentwood Borough Council (part of Section F and Section G) have confirmed that they have not determined any contaminated land sites.

9.3.7 The sites were then given a classification score representing their potential for generating contamination. The criteria used in this assessment for classifying hazards/potential for generating contamination is presented in Table A9.1.1, which has been developed using the guidance within LCRM (Environment Agency, 2023).

Table A9.1.1Criteria for classifying the potential for generating contamination

Classification score	Potential for generating contamination
Very Low	Limited potential for generating contamination Land use examples: residential, retail or office use, agricultural.
Low	Some potential for generating contamination Land use examples: recent small scale industrial and light industry
Moderate	Some potential for generating contamination with possible widespread slightly elevated contamination levels and/or locally elevated concentrations Land use examples: railway yards, collieries, scrap yards, inert landfills
High	Potential for widespread elevated contamination Land use examples: heavy industry, non-hazardous landfills
Very High	Highest risk of elevated contamination being present, likely widespread elevated concentrations Land use examples: hazardous landfills, large gas works, chemical works

9.3.8 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 significant contamination source likely to result in significant risks and impacts.

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

9.3.10 This approach has been undertaken as it is proportionate for the scale of the Project and the activities that will be undertaken and allows a targeted approach.

9.3.11 The built environment as a receptor in relation to contaminated land (e.g. aggressive ground conditions and ground gas) is not considered further in this assessment on the basis of the commitments included within Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.9) and the Outline Code of Construction Practice (document reference 7.2).

Further Assessment

9.3.12 The sites taken forward for further assessment have been assessed as having a moderate or above potential for generating contamination which could potentially result in a (source-pathway-receptor) pollutant linkage, presenting potential risks and therefore potential impacts and significant effects on sensitive receptors.

9.3.13 The sites were taken forward to assess the potential pollutant linkage to evaluate whether the presence of a source of contamination could potentially lead to harmful consequences.

9.3.14 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
- A receptor which is vulnerable to the potential adverse effects of the hazard.

9.3.15 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.

9.3.16 Each tier of the Stage 1 risk assessment comprises the following four stages:

- Hazard Identification – 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)
- Risk Evaluation – evaluating whether the risk is acceptable or whether further assessment, remediation or mitigation is required.

9.3.17 To determine the risk to the identified receptor, both the probability (Table A9.1.2) and the degree of harm to a potential receptor (consequence – Table A9.1.3 and **Error! Reference source not found.**) are used and the risk estimated for each pollutant linkage using the matrix in Table A9.1.5, which is based on standard industry guidance provided within the Construction Industry Research and Information Association (CIRIA) report C552, Contaminated Land Risk Assessment (CIRIA, 2001). The risk classifications are defined in Table A9.1.12. Definitions of receptor sensitivity are provided in Table 9.2 of Chapter 9: Contaminated Land, Geology and Hydrogeology (document reference 6.9).

Table A9.1.2 Classification of probability (based on C552)

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 A9.1.3 Classification of consequence (combination of receptor sensitivity and potential for generating contamination)

Potential for Generating Contamination	Receptor Sensitivity				
	Very High	**High**	**Medium**	**Low**	**Negligible**
Very High	Severe	Severe	Medium	Medium	Mild
High	Severe	Medium	Medium	Mild	Minor
Moderate	Medium	Medium	Mild	Mild	Minor
Low	Medium	Mild	Mild	Minor	Minor
Very Low	Mild	Minor	Minor	Minor	Minor

Table A9.1.4 Classification of consequence definitions (based on C552)

Classification	Examples
Severe	Human health effect – exposure likely to result in 'significant harm'[1] as defined in the Defra (2012) Part 2A Statutory Guidance (H.M Government, 1990). Controlled water effect – short-term risk of pollution (note: Water Resources Act (H.M Government, 1991) 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. Major fish kill. Ecological effect – short-term exposure likely to result in a substantial adverse effect. Catastrophic damage to crops, buildings or property.
Medium	Human health effect – exposure could result in 'significant harm'[1] (H.M Government, 1990). Controlled water effect – equivalent to Environment Agency Category 2 incident requiring notification of abstractor. Ecological effect – short-term exposure may result in a substantial adverse effect. Damage to crops, buildings, or property.
Mild	Human health effect – exposure may result in 'significant harm'[1] (H.M Government, 1990).' 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 damage to crops, buildings or property. Damage to building rendering it unsafe to occupy (for example foundation damage resulting in instability).
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. Repairable effects to crops, buildings or property. The loss of plants in a landscaping scheme. Discolouration of concrete.

[1] Significant harm includes death, life threatening disease (e.g. cancers); other diseases likely to have serious impacts on health; serious injury; birth defects; and impairment of reproductive functions. The Local Planning Authority may also consider other health effects to constitute significant harm such as physical injury; gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; effects on organs such as the liver or kidneys; or a wide range of other health impacts. Whether or not these would constitute significant harm would depend on the seriousness of harm including impact on health, quality of life and scale of impact.

Table A9.1.5 Classification of risk (based on C552)

		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 A9.1.6 Risk classification definitions (based on C552)

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.

9.4 Preliminary Contamination Risk Assessment

Initial Assessment

9.4.1 The majority of the Order Limits and Study Area are indicated to have remained as ‘undeveloped’ agricultural land and farm buildings since the earliest historical mapping reviewed, dating from the 1880’s. 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 considered further in this assessment.

9.4.2 There are 43 sites/areas within the Order Limits, and a further 47 within the Study Area, where historical potentially significantly contaminative land uses have been identified or where the current land use is potentially significantly contaminative. Readily available information relating to these sites and their associated Potential Sources of Contamination (PSC), together with a corresponding Classification Score for their potential for generating contamination, has been gathered and is presented in the Tables Table A9.1.7 to A9.1.14 below. The tables are split into the sections discussed in Section 9.1.

Table A9.1.7 Potential sources of contamination in Section A: South Norfolk Council

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within Order Limits				
A1	Norwich Substation	Ipswich Road, Stoke Holy Cross, South Norfolk. (621847E, 302391N)	The site comprises a National Grid substation comprising substation infrastructure on hardstanding. The site is identified on the 1999 historical Google Aerial imagery and is indicated to have expanded over time to the north-east and west.	Low
A2	Numerous small historical pits that are not classified as landfill– including Sprow's pit	Various locations across the Study Area within the majority of sections	Present since the earliest mapping reviewed dated 1885. Former pits (likely sand and gravel and chalk), typically limited in size. Most are first recorded in the late 1800s/early 1900s and typically not recorded after 1950 and potentially infilled.	Low
A3	The Vale Hospital	Church Road, Swainsthorpe, Norfolk, NR14 8PS (620861E, 301140N)	The site originally comprised a Workhouse as indicated on the historical map dated 1885 to 1900. An internet search indicates that the workhouse was built in 1836. In 1948 the site became the Vale Hospital and closed in 1984 when the site was converted to residential use.	Low
A4	Dismantled railway	Running approximately north-west to south-east through the Order Limits (616898E, 297022N)	The railway is identified on the earliest reviewed historical map dated 1885-1900, and the track appears to go from cutting in the north, onto embankment and bridge over the road in the south. By the earliest available historical Google Aerial imagery dated 1999 the railway has been dismantled, however a review of Google Street view indicates the cutting and embankment remain.	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
A5	Forncett End Sewage Treatment Works	Tabernacle Lane, Forncett End, NR16 1LJ (614376E, 293058N)	The treatment works is first identified on the earliest historical Google Aerial imagery dated 1999. The site has remained largely unchanged since the 1999 imagery. Potential sludge beds are identified on the southern boundary of the site.	Low
A6	Former Brickworks and pits	Brick Kiln Lane, Bunwell, South Norfolk (612959E, 291691N)	The brickworks and brick pits are identified on the earliest reviewed historical map dated 1885 to 1900). The brickworks and pits are no longer labelled on the map dated 1919 to 1930, although the pits still appear on the maps. The earliest historical Google Aerial imagery dated 1999 indicates the site comprises a mixture of mature trees and open fields indicating the pits may have been infilled.	Low
A7	Near Shelfanger Road – historical landfill	Shelfanger Road, Diss, IP22 4XY (611086E, 282410N),	Identified from the Environment Agency data set as a historical landfill that was licenced to take inert waste from 1974 to 1975. The current land use, based on the most recent Google Aerial imagery dated 2023, is identified partly as open fields (south-west) and partly as industrial units and materials storage of what appears to be aggregates and demolition materials (north-east).	Moderate
PSC within 250 m of the Order Limits				
A8	Mangreen Quarry – active sand and gravel quarry operations	Located to the south and north of Mangreen Lane and to the east of Ipswich Road. (621883E, 302924N)	The site is currently an active sand and gravel extraction site which is first identified on the 2011 historical Google Aerial imagery. The site has expanded over time to the west and south with some sections being restored with inert restoration materials to agricultural use (based on information from the planning portal). The site currently has planning permission for the import and recycling of waste and for use as a highway depot.	Moderate

PSC No	Name	Location	Description	Potential for Generating Contamination
A9	Great Eastern Railway Line – Norwich Line	Runs approximately north-east to south-west	The railways line is identified on the earliest reviewed mapping dated 1885 to 1900 and is indicated to be present through to the current day based on the Google Aerial imagery.	Low
A10	Sewage treatment works	Brick Kiln Lane, Bunwell, South Norfolk (612776E, 291623N)	Small scale sewage treatment works. The treatment works is first identified on the earliest historical Google Aerial imagery dated 1999. The site has remained largely unchanged since the 1999 imagery.	Low
A11	Waste management and recycling business	Boundary Farm, Shelfanger Road, Diss IP22 4XU. (611139E, 281258N)	The historical mapping reviewed indicates the site was open fields from the 1880s through to the early 1940's. By the mapping dated 1949 to 1972 small buildings are present towards the centre of the site. The earliest available historical Google Earth imagery dated 1999 shows the site with large buildings in the centre and surrounded by waste materials associated with the waste management business at the property. The site remains largely unchanged through the Google Earth aerial images.	Low
A12	Roydon Fen – Historical landfill	Roydon, Norfolk (610200E, 279500N)	Identified as a historical landfill from the Environment Agency data set, and it is indicated that liquid sewage sludge was deposited at the location in the 1970s. The current land use, based on the most recent Google Aerial imagery dated 2023, indicates the site to comprise open fields with mature hedges.	Moderate

Table A9.1.8 Potential sources of contamination in Section B: Mid Suffolk District Council

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within Order Limits				
B1	Rookery Farm, Lion Road – Historical landfill	Lion Road, Wortham (610480E, 277961N)	The earliest reviewed historical mapping dated 1880s indicates the presence of a pit feature. The Environment Agency data set identifies the site as a historical landfill which received inert and commercial waste between 1991 and 1994. The current land use based on the aerial imagery indicates the site as an open field.	High
B2	Industrial estate	Rookery Farm, Diss, IP22 1RB. (609334E, 277106N)	The earliest reviewed historical mapping dated 1885-1900 indicates a farm at the site. The site remains largely unchanged with some expansion and renovation of the buildings noted from the historical Google Aerial imagery. Google Maps indicates the site is currently still a farm and that a fabrication of metal equipment and welding business operates from the site.	Low
B3	Eastern Union railway line	Runs approximately north-east/ south-west across the Order Limits to the south-east of Gislingham. The Order Limits then cross the line again to the north-west of Needham Market.	The railways line is indicated on the earliest reviewed mapping dated 1885-1900 and is indicated to be present through to the current day based on the historical Google Aerial imagery.	Low
B4	Former Mid Suffolk light railway line	Runs through the Order Limits approximately east to west.	The railways line is first indicated on the historical mapping dated 1888 to 1913 as being under construction. The line opened in 1904 for goods traffic and was later closed in 1952 and subsequently decommissioned and dismantled.	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
B5	Bramford Substation	Bullen Lane, Bramford (609860E, 246042N)	The site comprises a National Grid substation comprising substation infrastructure on hardstanding. The earliest reviewed historical mapping, dated 1884, shows the area labelled as Bullen Wood with no evidence of the substation. Aerial photography held by Historic England, dated 1962, indicates that tree clearance has taken place within Bullen Wood likely to facilitate the construction of the substation. By the mapping dated 1964 to 1970 the electrical substation is labelled with numerous overhead lines connecting into the substation. By the mapping dated 1996 the substation has expanded to the north, east and west. Google Earth aerial imagery from 2012 to 2021 shows the gradual expansion of the substation. Mid Suffolk District Council also identified the site as Potentially Contaminated Land.	Moderate
PSC within 250 m of the Order Limits				
B6	Rookery Farm, Old Bury Road – Historical landfill	Rookery Farm, Old Bury Road Wortham (609600E, 277200N)	Identified as a historical landfill from the Environment Agency data set - licenced to take inert waste from 1981 to 1991. The current land use, based on the most recent Google Aerial imagery dated 2023, indicates open scrub land. Mid Suffolk District Council also identified the site as Potentially Contaminated Land.	Moderate
B7	Former Swattesfield Brick Works	Major Lane, Gislingham (608595E, 271988N)	The earliest reviewed historical mapping dated 1880s indicates the presence of Swattesfield Brick Works with associated pits to the south of the site. The workings are still visible on the historical aerial imagery dated 1945. By the imagery dated 1999 the workings are no longer shown Mid Suffolk District Council also identified the site as Potentially Contaminated Land.	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
B8	Gislingham sewage treatment works	Thorham Road, Gislingham (607965E, 271977N)	Sewage treatment works. The treatment works is first identified on the earliest historical Google Aerial imagery dated 1999. The site has remained largely unchanged since the 1999 imagery. Mid Suffolk District Council also identified the site as Potentially Contaminated Land.	Low
B9	Concrete products supplier	(608452E, 256735N)	The current land use comprises of a concrete products manufacturer. The earliest reviewed historical mapping dated 1885 to 1900 identifies the site as Grove Farm. The historical Google Aerial imagery shows the development of the concrete supplier site in 2003 to the north-west, the site has continued to expand to the north-west over time. Mid Suffolk District Council also identified the site as Potentially Contaminated Land.	Low
B10	Historical Chalk Pit	Ipswich Road, Willisham IP8 4SIF (607316E, 249396N)	The earliest reviewed historical mapping dated 1880s indicates the site as a Chalk Pit, with a kiln also identified on the southern half of the site. By the mapping dated 1892 to 1914 the southern half of the site is labelled as a Lime Works. By the mapping dated 1949 to 1973 the site is labelled as an Old Chalk Pit. The earliest available Google Aerial imagery dated 2000 shows the site covered with trees. Mid Suffolk District Council also identified the site as Potentially Contaminated Land.	Low
B11	Low Water Lane, light industrial area – Mid Suffolk District Council Potentially Contaminated Land data set	Low Water Lane, Diss (609538E, 278796N)	The current land use comprises office buildings and storage areas The earliest reviewed historical mapping, dated 1880's, indicates the site as open fields. Historical aerial imagery dated 1945 indicates small buildings along the southern boundary of the site. By the imagery dated 1999 the site is occupied with the buildings in the same configuration as the most recent imagery dated 2024.	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
B12	Field to the north of Millway Lane - Mid Suffolk District Council Potentially Contaminated Land data set	Midway Lane, Diss (610081E, 278899N)	The current land use comprises open fields. The earliest reviewed historical mapping dated 1880's, indicates the site as open fields and has remained as such through to the most recent aerial imagery dated 2024.	Very low
B13	Land north of Mellis Road - Mid Suffolk District Council Potentially Contaminated Land data set	Mellis Road, Mellis, Eye (609776E, 274689N)	The site is currently occupied by houses. The earliest reviewed historical mapping dated 1880's indicates the site as buildings associated with Ashtree Farm. The site remains largely unchanged through to the most recent aerial imagery dated 2024. A review of the Local Council planning portal suggests the area is the site of an old forge.	Low
B14	Vehicle dealer and Garage, - Mid Suffolk District Council Potentially Contaminated Land data set	Lower Farm Road, Ringshall, Stowmarket IP14 2JB (605260E, 2514478N)	The site is currently occupied by a vehicle dealer and a garage. The earliest reviewed historical mapping dated 1880's indicates the site as open fields. The site remains largely unchanged through the map editions, with the site still comprising open fields on the 1945 historical aerial imagery. By the historical mapping dated 1970 a garage is labelled on the site and appears to remain largely unchanged through to the most recent aerial imagery dated 2024.	Low
B15	Sewage treatment works - Mid Suffolk District Council Potentially Contaminated Land data set	Castle Lane, Offton (606296E, 249532N),	The site is currently occupied by a small sewage treatment works containing one tank. The earliest reviewed historical mapping dated 1880's indicates the site as open fields with a stream running along the northern boundary of the site. The site remains largely unchanged through the map editions, with the site still comprising open fields on the 1945 historical aerial imagery. By the historical mapping dated 1970 a filter bed is labelled on the site. By the historical aerial imagery dated 2000 the site is occupied by a treatment tank and trees in the north. The site remains largely unchanged through to the imagery dated 2024.	Low

Table A9.1.9 Potential sources of contamination in Section C: Babergh District Council, Colchester City Council and Tendring District Council

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within Order Limits				
C1	Scrap yard, Hadleigh Road	Poplar Lane, Hadleigh Road, Sproughton (611625E, 243155N)	The earliest reviewed historical mapping dated 1880s indicates the site as open fields which remains unchanged until the mapping dated 1949 to 1972 when a pit is indicated on the site. The scrap yard is first identified on the historical Google Aerial imagery dated 2000, and subsequently the site remains largely unchanged through the imagery editions.	Moderate
C2	Former Great Eastern Railway – Hadleigh Branch	(607981E, 239730N)	The earliest reviewed historical mapping dated 1885 to 1900 shows the Great Eastern Railway (Hadleigh Branch) which appears to be constructed predominantly at grade where the Order Limits cross the line. The maps indicates that during the early 1970's the Hadleigh Railway Branch was dismantled. Google Earth aerial imagery of the area is available from 2000 and shows the railway tracks have been removed. Babergh District Council also identified the site as Potentially Contaminated Land.	Low
C3	Former RAF Raydon	Raydon (605758E, 239206N)	Royal Air Force (RAF) Raydon is a former Royal Air Force station which was built in 1942 including a main runway area, accommodation and office facilities located to the south-east of the airfield. Historical aerial imagery dated 1942 to 1946 from Historic England indicates runways, turning circles and hangers present on the site. In addition, firing butts are shown in the north-east corner and a bomb disposal area and ammunition dump in the north-west wooded area. The airfield is first shown on the 1958 map edition where it is labelled as disused. The airfield officially closed	Very high

PSC No	Name	Location	Description	Potential for Generating Contamination
			in 1958 with much of the airfield now in agricultural use and some of the hangers/buildings used for industrial units forming Notley Industrial Estate. Babergh District Council also identified the site as Potentially Contaminated Land.	
C4	Former gravel pit	Ipswich Road, Dedham (603715E, 233170N)	The earliest reviewed historical mapping, dated 1887, indicates the site as open fields. A gravel pit is identified on the site on the mapping dated 1904. The pit is indicated to have expanded by 1923 and by the mapping dated 1937 to 1961 the pit is labelled as an old gravel pit. Historical aerial imagery dated 1948 shows the gravel pit present within part of the field. By the mapping dated 1975 and the mapping dated 1944 to 1973 the pit is no longer shown.	Low
C5	Former gravel pit	Ipswich Road, Dedham (603549E, 232798N)	The earliest reviewed historical mapping dated 1887 and 1888 to 1913 indicates the presence of a gravel pit, with slopes along the southern and eastern boundary. However, by the mapping dated 1949 to 1973 the gravel pit is no longer shown. A review of the historical aerial imagery dated 1948 indicates the presence of the gravel pit. A review of the more recent historical Ordnance Survey maps indicates slopes still being present along the eastern boundary (potentially indicating the site has not been infilled).	Low
C6	Highways depot	A137, Ardleigh (605877E, 229532N)	Current land use is identified as a highways depot which appears to be used for parking with a large tank indicated on the southern half of the site. The earliest reviewed historical mapping dated 1875 indicates the site as open fields with a railway line forming the south eastern boundary of the site. The site remains	Moderate

PSC No	Name	Location	Description	Potential for Generating Contamination
			undeveloped until the mapping dated 1961 to 1988 when a council yard is labelled on the northern part of the site. The earliest available historical Google Earth Aerial imagery, dated 1999, indicates a large mound of soil in the centre and potential earthworks, by the imagery dated 2006 the large tank is shown on the southern half of the site, and by the 2011 imagery the site is in use as a depot.	
C7	Great Eastern Railway – Colchester Line	Crosses the Order Limits at Ardleigh approximately north-east-south-west	The railway is first identified on the earliest reviewed historical mapping dated 1880s and has remained largely unchanged. The line appears to be within a cutting, based on the historical maps, in the section that crosses the Order Limits.	Low
C8	Crown Quarry	Wick Lane, Ardleigh (602841E, 229442N)	Historical mapping dated 1880s indicates the site as open fields and the site remains largely unchanged until sand and gravel extraction appears to have commenced on the site around 2009, based on the Google Aerial imagery. Information from the planning portal of Essex County Council indicates that the current restoration plan for the site is to leave a public water storage reservoir.	Low
C9	Old Ipswich Road Storage Yard	Old Ipswich Road, Ardleigh (602704E, 230042N)	The current land use is indicated to be a small industrial estate comprising, storage yards, parking and buildings. Historical mapping dated 1944 to 1973 first indicates a building on the northern part of the site labelled as a garage. The site remains largely unchanged until some expansion is shown in the southern part of the site on the historical imagery dated 2005. Further development on this part of the site is indicated on the historical aerial imagery dated 2020.	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within 250 m of the Order Limits				
C10	Thornbush Hall – Historical landfill	Bramford Ipswich (611500E, 245300N)	Identified as a historical landfill from the Environment Agency data set - licenced to take inert and commercial waste. A first input date is not shown; however, the licence was surrendered in Oct 1991. The current land use, based on the most recent Google Aerial imagery dated 2023, indicates the site to comprise mature trees. Babergh District Council also identified the site as Potentially Contaminated Land.	High
C11	Hintlesham Carriage Company and Marine and Auto Electrics	Hadleigh Road, Burstall, Ipswich (610699E, 243683N)	The site is currently in use as a workshop garage and car sales company. Historical mapping dated 1880s indicates the site as Fen Farm with several buildings associated with the farm shown. The site remains largely unchanged through the map editions. Historical Google Aerial imagery dated 2000 indicates farm style buildings present with a pond in the northern part of the site. By the imagery dated 2012 the pond has been infilled and the area covered with hardstanding and several cars are present. By the imagery dated 2017 the site has expanded to the south-east and more cars are present around the site.	Low
C12	Valley Farm Landfills	Poplar Lane, Spoughton (611300E, 243300N)	Identified as a historical landfill from the Environment Agency data set, named Valley Farm with several different licences/permits, The landfill took a variety of waste types from 1967, with the last licence surrendered in 1990. A review of the Google Aerial imagery dated 2023 indicates the area generally as open fields, however a farmhouse is indicated on part of the site closest to the Order Limits. Babergh District Council also identified the site as Potentially Contaminated Land.	High

PSC No	Name	Location	Description	Potential for Generating Contamination
C13	Scrap yard and former gravel pits, Ipswich Road	Ipswich Road, Dedham (603839E, 232846N)	The site is currently in use as a scrap yard. Historical mapping dated 1887 identifies a gravel pit within the site, that is subsequently extended to the south in later map editions. By the mapping dated 1962 a building has been constructed along the western edge of the site and by the mapping dated 1968 to 1972 the A12 has been constructed to the east of the site and most of the workings are no longer shown. The building along the western edge of the site is labelled as a fuel filling station. It is anticipated that the gravel pit was infilled at some point as it appears to be at the same level as the surrounding land based on Google Street view.	Moderate
C14	Gun Hill Trading Estate	(603544E, 232520N)	A review of the readily available historical mapping dated 1875-1887 indicates the site as open fields. A works is first labelled on the mapping dated 1962. By the 1968 mapping the site is labelled as a builders yard and remains largely unchanged through the later map editions. A small-scale industrial estate is indicated on the historical Google Aerial imagery dated 2000 and remains largely unchanged at the current time. The site includes a variety of uses including Heath and Safety training providers, office supplies shop, car sealer, vehicle repair garage, car body shop etc.	Low
C15	Steel Fabricator	Rookery Farm, Rookery Chase, Ardleigh (605364E, 230595N)	Historical mapping dated 1880s indicates the site as Rookery Farm. The site remains largely unchanged until the present day when a steel fabricator company is indicated on the site.	Low
C16	Ardleigh Industrial Estate	Home Farm Lane, Ardleigh (606155E, 230013N)	On the earliest reviewed mapping dated 1875 the site is indicated as open fields. Development on the site is first identified on the mapping dated 1961 to 1962comprising a	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
			number of large buildings with a tank marked along the southern boundary of the site. The 1983 dated mapping indicates further development at the site with the addition of a number of buildings. The aerial imagery dated 2000 shows the site to include a number of large warehouse style buildings and this remains largely unchanged to the present day.	
C17	Wick Lane Quarry	(603888E, 229408N)	Historical mapping dated 1880s indicates the site as open fields and the site remains largely unchanged until the extraction of sands and gravels commenced around 2022 based on the Google Aerial imagery.	Low
C18	Business Park	Old Ipswich Road, Ardleigh (602809E, 230104N)	The current land use is indicated to be a business park containing a number of large buildings. Historical mapping identifies a farm on the site in the late 1800's. Later mapping and aerial imagery indicate little significant change on the site until the most recent aerial imagery when a number of industrial style buildings are identified on the site.	Low
C19	Ardleigh Depot	Old Ipswich Road, Ardleigh (602455E, 229529N)	The current land use is indicated to be a highways depot which appears to be used for vehicle parking and storage of materials with a number of buildings present. The site appears to comprise hardstanding. Historical aerial imagery dated 2005 first shows the site being used for the storage of vehicles and materials, prior to this imagery the site was an open field.	Low

Table A9.1.10 Potential sources of contamination in Section D: Colchester City Council

PSC No	Name	Location	Description	Potential for generating contamination
PSC within Order Limits				
D1	Former RAF Boxted	(601577E, 230567N)	RAF Boxted is a former Royal Air Force station which was opened in 1943. Historical aerial imagery (Historic England, dated 1942 to 1946) indicates runways, turning circles and hangers present on the site. An 'ammunition store' and a 'bomb dump' is located to the east of the site. The airfield officially closed in 1947 with much of the airfield returning to agricultural use and some of the former hangers/buildings used for industrial uses and a museum. The 1958 mapping first shows the airfield labelled as disused.	Very high
D2	Great Eastern Railway – Marks Tey, Sudbury and Bury branch	Cuts through Order Limits north-west to south-east	The railway is first indicated on the earliest reviewed historical mapping dated 1880s and has remained largely unchanged. The line appears to be constructed predominantly within a cutting, based on the historical maps, in the section that crosses the Order Limits.	Low
D3	Harwich Town Microbrewery	Salmon's Lane, Colchester (588460E, 223825N)	Historical mapping dated 1880s indicates the southern part of the site is part of Up Hall farm and remains largely unchanged until barn like structures are indicated on the Google Aerial imagery dated 2000. The imagery dated 2005 indicates the site has expanded to the north-east and then remains largely unchanged through the map editions.	Low
PSC within 250 m of the Order Limits				
D4	Sewage treatment works	Fiddlers Hill, Colchester (593181E, 226916N)	Historical mapping dated 1880s indicates the site as open fields, which remain largely unchanged until a small sewage treatment works managed by Anglian Water is indicated on the Google Aerial imagery dated 2000. The site discharges treated water to the River Colne.	Low

PSC No	Name	Location	Description	Potential for generating contamination
D5	Food storage and delivery depot	Boxted Road, Great Horkesley CO6 4AP (598121E, 231230N)	Historical mapping dated 1876 indicates the site is occupied by Lodge Farm. The site remains largely unchanged until the mapping dated 1949 to 1973 where the site is indicated to have expanded to the north-west with the buildings labelled as Poultry Houses. Google Aerial imagery dated 2000 shows the site has expanded to the south of Boxted Road, and by the imagery dated 2005 the site has continued to expand to the north with a number of industrial buildings. By the 2009 dated imagery the site has continued to expand to the east, with the addition of further buildings and an access road. By the 2020 dated imagery the site has further expanded to the east with another industrial unit present.	Low
D6	Former Mark Tey Brick and Tile Works, brick pit and historical landfill	Church Lane, Marks Tey, Colchester (591000E, 224300N)	The earliest reviewed mapping dated 1880s indicates the site as open fields. By the mapping dated 1888-1915 the site is labelled as 'Marks Tey Brick and Tile Works' with workings apparent in the north and buildings in the south of the site. The 1937 to 1961 mapping shows large expansion of the worked areas to the north. The 1944 to 1974 mapping shows further expansion in the workings to the north and east and a railway line through the centre of the site. Part of the site (towards the centre) is identified from the Environment Agency data set as a historical landfill. The records indicate the first input was in 1979 and the last input in 1988. The site received industrial and commercial waste.	High

Table A9.1.11 Potential sources of contamination in Section E: Braintree District Council

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within Order Limits				
E1	Great Eastern Railway – Whitham and Braintree branch	Cuts through Order Limits north-west to south-east	The railway is first indicated on the earliest reviewed historical mapping dated 1880s and has remained largely unchanged. The line appears to be constructed within a cutting, based on the historical maps, in the section that crosses the Order Limits.	Low
PSC within 250 m of the Order Limits				
E2	Sewage treatment works	Coggeshall Road, Braintree (585903E, 221206N)	Historical mapping dated 1880s indicates the site as open fields and the site remains largely unchanged. A sewage treatment works managed by Anglian Water is first indicated on the Google Aerial imagery dated 2000. The 2022 dated historical Google Aerial imagery indicates the potential stockpiling of material on the western part of the site.	Low
E3	Historical gravel pit	Between Park Road and Park Gate Road (582461E, 219041N)	Historical mapping dated 1880s indicates an old gravel pit surrounded by open fields which remains largely unchanged through the available map editions. Historical aerial imagery dated 2000 indicates the site comprises trees and scrub land.	Low
E4	Disused sewage treatment works	Park Gate Road, Braintree (582814E, 219110N)	Historical mapping dated 1880s indicates the site as open fields and the site remains largely unchanged. The historical Google Aerial imagery dated 2000 and later indicates the site and treatment works to be disused based on the apparent overgrown nature of the vegetation.	Low
E5	Historical gravel pit	West of Western Lane, Silver End (581090E, 218878N)	Historical mapping dated 1880s indicates the site as open fields and remains largely unchanged until the mapping dated 1937 to 1961 when an 'Old Gravel Pit' is labelled. Lidar imagery available on the NLS indicates the site has not been infilled or has only been partially infilled.	Low

Table A9.1.12 Potential sources of contamination in Section F: Chelmsford City Council and Brentwood District Council

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within Order Limits				
F1	Brittons Hall Farm – Roxwell landfill and quarry	Brittons Hall Farm, Chignall St James, Chelmsford (567210E, 209160N)	The site is identified from the Environment Agency data set as a current landfill. The site has a current environmental permit for the disposal of non-hazardous waste. A review of the Essex County Council planning portal indicates that planning permission for minerals extraction was granted in 1993. A review of the Google Aerial imagery suggests that landfilling has finished, and the site has been restored based on the 2017 dated imagery.	High
F2	Roxwell Quarry – Historical Landfill	Boyton Cross, Roxwell, Chelmsford (565600E, 208400N)	Identified from the Environment Agency data set as a historical landfill with two permits. The records indicate the first input was in 1952 and the last input in 1969. The site received inert, industrial, commercial, and household waste. The information also indicates the site has gas control measures. The 2023 Google aerial imagery indicates a pond feature along the northern boundary, with the remainder of the site open fields or scrub land.	High
F3	Boyton Cross – Historical landfill	Roxwell, Chelmsford (566300E, 208100N)	Identified from the Environment Agency data set as a historical landfill. The records indicate the first input was in 1961 and the last input in 1972. The site received industrial, commercial, and household waste. The 2000 dated Google Aerial imagery indicates a track and vehicles on the southern part of the site, with the remainder of the site open fields. Through the imagery dates the parking area to the south continues to develop, with some earthworks taking place between the 2009 and 2017 imagery where it is then indicated as a car park with hard standing.	High

PSC No	Name	Location	Description	Potential for Generating Contamination
F4	Newney Green East – Historical Landfill	(565600E, 206400N)	Identified from the Environment Agency data set as a historical landfill. The sites operation dates are not shown in the data set; however, it is indicated the site received inert waste. The Google Aerial imagery dated 2023 indicates a pond/lake in the north-west of the site with the remainder of the site open fields.	Moderate
PSC within 250 m of the Order Limits				
F5	Old clay pit	Boreham Road, Great Leighs (573912E, 216630N)	Historical mapping dated, 1880s indicates the site as an unlabelled pit/working. The site remains largely unchanged until the mapping dated 1960's which labels the site as an old clay pit. The aerial imagery for the site indicates trees and scrub land and that a pit still remains suggesting the site hasn't been infilled or has only been partially infilled.	Low
F6	Sheepcotes Minerals extraction site	Braintree Road, Little Waltham (571923E, 213907N)	Historical mapping dated 1880s indicates the site as open fields and the site remains largely unchanged until the Google Aerial imagery dated 2022 which indicates mineral extraction has commenced at the site.	Low
F7	Boyton Hall Farm – Authorised landfill	Roxwell, Chignall St James, Chelmsford (565657E, 208842N)	Identified from the Environment Agency data set as a current landfill indicated to be in closure. The permit for the site was issued in 1992 for the input of household, commercial and industrial waste. A review of the Google Aerial imagery dated 2000 indicates the site has been fully restored.	High
F8	Chelmsford Compressor Station	Roxwell Road, Boyton Cross, Chelmsford (566056E, 208553N)	Historical mapping dated 1880s indicates the site as open fields and remains largely unchanged until 2000. The National Grid gas station infrastructure is first indicated on the Google Aerial imagery dated 2000 and subsequently remains largely unchanged.	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
F9	Industrial Estate	Highwood Road, Chelmsford (565947E, 205049N)	Historical mapping dated 1880s indicates the site as open fields. By the mapping dated 1940s the site is indicated to contain two small buildings. The site remains largely unchanged through to the present day.	Low

Table A9.1.13 Potential sources of contamination in Section G: Basildon Borough Council and Brentwood Borough Council (and part of Chelmsford City Council)

PSC No	Name	Location	Description	Potential for generating contamination
PSC within Order Limits				
G1	Great Eastern Railway – Colchester Line	Cuts through Order Limits north-east to south-west at Ingatestone	The railway is first indicated on the earliest reviewed historical mapping dated 1880s and has remained largely unchanged. The line appears to be constructed within a cutting, based on the historical maps, in the section that crosses the Order Limits.	Low
G2	Great Eastern Railway – Southend line	Cuts approximately east to west to the west of Billericay.	The railway is first indicated on the historical mapping dated 1885-1900 and has remained largely unchanged. The line appears to have been constructed predominantly at grade, based on the historical maps, in the section that crosses the Order Limits.	Low
G3	London, Tilbury, and Southend Railway	Cuts through the Order Limits approximately east to west to the west of Basildon	The railway is first indicated on the historical mapping dated 1885-1900 and has remained largely unchanged. The line appears to have been constructed predominantly on an embankment, based on the historical maps, in the section that crosses the Order Limits.	Low
PSC within 250 m of the Order Limits				
G4	Sewage treatment works	Stock Lane, Ingatestone (566155E, 199087N)	Historical mapping dated 1880s indicates the site as open fields, which remains largely unchanged until a sewage treatment works managed by	Low

PSC No	Name	Location	Description	Potential for generating contamination
			Anglian Water, is indicated on the Google Aerial imagery dated 2000.	
G5	Sewage treatment works	Old Church Lane, Mountnessing (565019E, 195931N)	Historical mapping dated 1880s indicates the site as open fields, which remains largely unchanged until a sewage treatment works managed by Anglian Water, is indicated on the earliest Google Aerial imagery dated 2000.	Low
G6	Car dealer	Southend Arterial Road (564997E, 189616N)	Historical mapping dated 1880s indicates the site as open fields. The site remains largely unchanged until the mapping dated 1956 to 1961 where a building is shown along the northern boundary. A car dealer, vehicle washing facility and garage is indicated on the Google Aerial imagery dated 1999 and remains largely unchanged.	Low
G7	Car dealer	West Mayne, Basildon (565950E, 189577N)	Historical mapping dated 1880s indicates the site as open fields and remains largely unchanged until the car dealership that first appears on the historical Google Aerial imagery dated 2008.	Low

Table A9.1.14 Potential sources of contamination in Section H: Thurrock Council

PSC No	Name	Location	Description	Potential for Generating Contamination
PSC within Order Limits				
H1	Basildon Substation	Horndon on the Hill, Basildon (565831E, 187895N)	Historical mapping dated 1880s indicates the site as open fields, which remains largely unchanged until the substation is indicated on the Google Aerial imagery dated 1999.Over time the site has expanded to the west.	Low
H2	Langdon Golf Course – Thurrock Council potentially	Lower Dunton Road, Horndon on the Hill (566206E, 185641N)	Historical mapping dated 1880s identifies the site as open fields with a road running along the eastern boundary of the site. The site remains largely unchanged	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
	contaminated land		until the mapping dated 1944 to 1972 when a circular feature is indicated along the western boundary of the site. A review of the Thurrock Planning Portal indicates the site remained as open fields until the development of the golf course in 2002. The site has recently received planning permission for the redevelopment of the clubhouse and facilities and the construction of a care home. Therefore, it is assumed that the new development would have been through the planning system and any historical contamination at the site dealt with through the planning regime	
H3	Ongar Hall Farm – Palmer Klien – Thurrock Council potentially contaminated land	Brentwood Road, Orsett (565088E, 184593N)	The site has been identified by Thurrock Council as potentially contaminated land called Palmer and Klien. An online review and a review of the planning portal indicates that Palmer and Klien deals with meat waste processing and the manufacture of oils and fats, and the site is used for the collecting, processing and blending of animal fats and vegetable oils.	Moderate
H4	Former brickyard – Thurrock Council potentially contaminated land	Brentwood Road, Orsett (565339E, 183683N)	Historical mapping dated 1880s indicates the site as open fields and remains largely unchanged until the mapping dated 1945 to 1965 where a brickworks is indicated. The Google Aerial imagery dated 2000 indicates the site as agricultural fields and remains largely unchanged through to the present day.	Low
H5	Buckingham Hill Historical Landfill and recycling centre	Buckingham Hill Road, Linford (566900E, 181100N)	Historical mapping dated 1873 indicates the site as open fields. By the mapping dated 1960 to 1961 and 1937 to 1961 sand and gravel pits are indicated on the site. The majority of the site is indicated as a	High

PSC No	Name	Location	Description	Potential for Generating Contamination
			pit on the mapping dated 1973 to 1975. The site is identified from the Environment Agency data set as a historical landfill and the location of a civic amenity waste centre. Waste was first input into the site in 1977 with the last input in 1991. The site was licenced to take industrial, commercial, household waste and liquid sludge. By 1999 the mapping no longer shows a pit on the site. Historical Google Aerial imagery dated 1999 indicates the site had already been fully restored at that time.	
H6	Tarmac Orsett Quarry	Buckingham Hill Road, Linford (567123E, 180992N)	Historical mapping dated 1960 to 1961 and 1937 to 1961 indicates the northern section of the site as a pit. By the mapping dated 1973 to 1975 the pits have expanded to the north and south and by the mapping dated 1988 the majority of the site is labelled as a gravel pit. Historical Google Aerial imagery dated from 1999 onwards indicates the extraction progress of the site from the north to the south of the site. A review of the Thurrock Council planning portal indicates the site has been partially restored with inert fill.	Moderate
H7	Collingwood Farm – Historical landfill	Brentwood Road, Orsett (566600E, 181010N)	The site is first identified on the mapping dated 1988 as a gravel pit. The site is identified in the Environment Agency data set as a historical landfill. Waste was first input into the site in 1986 with the last input in 1994. The site was licenced to take inert, industrial, commercial, and household waste. Historical Google Aerial imagery dated 1999 indicates the site is in the process of being restored, with the site indicated to be fully restored by the 2011 dated aerial imagery.	High

PSC No	Name	Location	Description	Potential for Generating Contamination
H8	Clearserve Quarry and landfill	Hoford Road, Linford (566683E, 180134N)	Historical mapping dated 1873 indicates the site is open fields. By the mapping dated 1888 to 1913 a gravel pit on the north-east part of the site. By the 1949 to 1972 mapping the gravel pit has expanded. Historical Google Aerial imagery dated 1999 indicates the site in operation, and by 2004 imagery the site has expanded to the south-west. The site is identified from the Environment Agency data set as a current landfill. The licence for the site was issued in 2006 for the input of inert waste.	Moderate
H9	Gravel pits – not marked as landfills	Buckingham Hill Road, Linford (566819E, 179845N)	Historical mapping dated 1873 indicates the site is open fields. By the mapping dated 1937 to 1961 the site is occupied by sand and gravel pits. Historical aerial imagery held by Historic England dated 1946 shows a very small area of the site along the eastern boundary being extracted. By the aerial photography dated 1953 the extraction has vastly expanded to the south. By the historical Google Aerial imagery dated 1999 the site is occupied by industrial plant which is discussed in PSC H16.	Low
H10	Linford Quarry – Current and historical landfill	Buckingham Hill Road, Linford (566400E, 179800N)	Historical mapping dated 1873 indicates the site as open fields. The quarry is first indicated on the historical aerial imagery dated 1947. By the mapping dated 1960 to 1961 the quarry boundary is the same as the boundary of PSC H16. The site is identified from the Environment Agency data set as a current and historical landfill. Waste was first input into the historical landfill part of the site in 1984 with the last input in 1993. The site was licenced to take inert waste. The	Moderate

PSC No	Name	Location	Description	Potential for Generating Contamination
			current licence was issued in 2006 for the input of inert waste.	
H11	Historical gravel pit	Stanford Road, Orsett (563566E, 179970N)	The gravel pit is first indicated on the historical mapping dated 1888 to 1915 and remains largely unchanged through the map editions. Historical Google aerial imagery dated 1999 shows the outline of the pit, however it appears to be grassed over, and a depression is still visible on Google street (potentially indicating the pit was not infilled or only partially infilled).	Low
PSC within 250 m of the Order Limits				
H12	Gas valve compound – Thurrock Council potentially contaminated land	Horndon on the Hill, Orsett (566111E, 183866N)	Historical mapping dated 1880s indicates the site as open fields and remains largely unchanged. The gas valve compound is first indicated on the Google Aerial imagery dated 2000 and remains largely unchanged. The site is identified by Thurrock Council as potentially contaminated land; however, the site has been developed and been through the planning system and any historical contamination at the site is anticipated to have been dealt with through the planning regime.	Low
H13	Industrial units – Thurrock Council potentially contaminated land	Lower Dunton Road, Basildon (565799E, 187307N)	Historical mapping dated 1880s indicates the site as open fields. The 1999 dated Google Aerial imagery indicates the site is occupied by several long industrial style buildings. Information from Thurrock Council suggests the site is potentially contaminated land based on the site being previously used as a poultry farm.	Moderate
H14	Balgowrie – Thurrock Council potentially	Lower Dunton Road, Basildon (566093E, 187137N)	Historical mapping dated 1920s to 1940s indicates buildings on the site. The earliest available historical Google Aerial imagery dated 1999 shows the site in use as vehicle	Very low

PSC No	Name	Location	Description	Potential for Generating Contamination
	contaminated land		storage and farm buildings. By the 2004 dated imagery the site has extended to the north and further buildings have been built. By the 2018 imagery the site has been predominantly cleared and the buildings demolished and by 2022 the site has been developed into a small housing estate. It is assumed that the new housing would have been through the planning system and therefore any historical contamination at the site dealt with through the planning regime. The site is identified by Thurrock Council as potentially contaminated land.	
H15	Service stations along Stanford Le Hope By Pass – Thurrock Council potentially contaminated land	(566446E, 181707N)	Historical mapping dated 1880's indicates the site as open fields and remains largely unchanged until the mapping dated 1988 where the Stanford-Le-Hope bypass has been constructed, and the service stations are indicted. Google Aerial imagery dated 1999 indicates service stations are present to the north and south of the Stanford Le Hope by-pass. The 2004 imagery indicates the fuel station part of the southern service station has been redeveloped. The 2011 imagery indicates the fuel station part of the northern service station is being developed and by the 2017 imagery the car parking within the northern service station has been extended.	Low
H16	Orsett Industrial Park	Stamford Road, Orsett (566521E, 181555N)	Historical mapping dated 1873 indicates the site as open fields. By the mapping dated from the 1920s to 1940s buildings (unspecified) are indicated on the site. By the mapping dated 1944 to 1972 the buildings are labelled as a garage. Historical Google Aerial imagery from 1999 to the present day indicates the site remains largely unchanged. The site is identified by Thurrock Council as potentially contaminated land. The site is identified as a small industrial estate that	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
			comprises the storage of vehicles to the south and office/industrial buildings to the north of the site.	
H17	Tarmac Bagging Plant	Buckingham Hill Road, Linford (566819E, 179845N)	Historical mapping dated 1873 indicates the site is open fields. By the mapping dated 1898 and 1888 to 1913 several roads are shown to cross the area. By the mapping dated 1960 to 1961 the site is occupied by sand and gravel pits and the roads are no longer shown. By the mapping dated 1973 to 1975 a works is shown in the centre of the site. By the 1991 mapping the buildings have expanded. Historical Google Earth Aerial imagery dated 1999 shows the site layout to be similar to the current day, however a few further buildings are added through the imagery editions. The site is currently owned by Tarmac and comprises a bagging plant facility.	Moderate
H18	Storage yard	Brentwood Road, Upminster (564450E, 185346N)	The site is identified on the current aerial photography as a storage yard used for a waste transfer station. The site is first shown on the 1999 historical aerial imagery with a pit filled with water in the west and storage areas to the north and east. Based on the historical aerial imagery the water filled pit has been slowly filled in over time.	Moderate
H19	Thurrock Airfield Runways	Brentwood Road, Upminster (564311E, 184747N)	The site comprises the runways of Thurrock airfield which is a private airfield which is located inside the Study Area. The buildings/ hangers associated with the airfield are approximately 700 m west of the Project and therefore outside of the Study Area. A review of online information indicates the site opened in the 1980s and comprised a grass runway. A review of the Thurrock planning portal indicates planning permission for a tarmac	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
			runway was granted in 2007 and the Google Aerial imagery indicates this was implemented between 2011 and 2013.	
H20	Former Orsett Camp – Thurrock Council potentially contaminated land	Southfields, Orsett (566050E, 181207N)	Historical mapping dated 1873 identifies the site as open fields. By the mapping dated 1937 to 1961 the site is indicated as Old Kennels Farm with several large buildings across the site. Historical aerial photography dated 1947 indicates buildings and roadways within the area of the camp. By the mapping dated 1960-1961 the site is labelled as Orsett Camp. An online review indicates that the camp was originally opened in 1916 until its removal in the 1960s. The online review suggests the site was quarried, with evidence of this indicated on the mapping dated 1973 to 1975. By the mapping dated 1988 the pits are labelled as disused with houses apparent on the northern part of the site. The site remains largely unchanged through to the present day. The site is identified by Thurrock Council as potentially contaminated land. However, as the site has been redeveloped for residential use, it is assumed that the development would have been through the planning system and any historical contamination at the site dealt with through the planning regime	Low
H21	Mill Farm Quarry	Muckingford Road, West Tilbury (565822E, 178972N)	Historical mapping dated 1880s indicates the site as open fields, with High House labelled in the north-west corner of the site and Tilbury mills labelled in the southern part of the site. The site remains largely unchanged until the historical aerial imagery dated 2013 when the sand and gravel workings appear. The extraction has continued through the aerial	Low

PSC No	Name	Location	Description	Potential for Generating Contamination
			imagery dates and by 2018 the southern quarry is shown to be filled with water.	
H22	Rio Recycling centre	Dansand Quarries, Stanford Road, Orsett, RM16 3BB (565194E, 1800997N)	Historical mapping dated 1880s indicates the site as open fields. From a review of the planning portal the site commenced extraction of sand in the 1960's and is due to cease extraction in 2025. The site will then be restored to a mixed grassland/woodland habitat over a period of five to seven years utilising recycled soils. The site is also currently being used for the storage and recycling of aggregates and soils.	Low

9.4.3 The initial assessment has identified 62 sites with a low or very low potential for generating contamination and these have been scoped out of further assessment on the basis that they present a low risk in relation to the Project and significant effects in relation to contamination are unlikely.

9.4.4 The initial assessment identified 28 sites with a moderate or above potential for generating contamination and these have been taken forward for further assessment. Sites identified as a moderate and above risk classification following the further assessment are shown on Figure 9.6: Sites with Moderate or Above Risk Classification (document reference 6.9.F6).

Further Assessment

Section A: South Norfolk Council

Site name/ref	PSC A7 – Near Shelfanger Road – historical landfill (Within the Order Limits)
Site location and description	Located to the east of Shelfanger Road and to the east of Ipswich Road. (611086E, 282410N) The site is located approximately 2.2 km north of Roydon and currently comprises a storage and removals company in the north-east part of the site and a field in the southern part of the site. It also appears the central part of the site is currently utilised for material storage comprising aggregates/demolition rubble. The site is surrounded by open fields.
Site history	Historical mapping dated 1880s indicates the site as open fields. The Environment Agency data identifies that a landfill on the site operated between 1974 and 1975. The more recent Google Aerial imagery dated 1999 indicates the presence of industrial type buildings to the north of the site and the southern part remaining undeveloped.
Other pertinent information	Identified from the Environment Agency data set as a historical landfill that was licenced to take inert waste from 1974 to 1975.
Geology	The BGS Geoindex indicates that the site is underlain by superficial deposits predominantly comprising the Lowestoft Formation (Diamicton), with Head deposits indicated to be present along the northern part of the site. The bedrock underlying the superficial deposits is indicated to comprise the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated) of the White Chalk Subgroup.
Hydrogeology	The White Chalk Formation which forms the bedrock at the site, is classified as a Principal Aquifer. The Lowestoft Formation (Diamicton) and Head deposits are classified to be a Secondary Undifferentiated Aquifer. The site is not located within a SPZ or drinking water safeguarded area.
Hydrology	A tributary of the River Waveney is located approximately 100 m north-east of the site.
Potential for generating contamination	Moderate – as the site received inert waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.

Site name/ref	PSC A7 – Near Shelfanger Road – historical landfill (Within the Order Limits)
Potential receptors	Human health – construction/maintenance workers Groundwater Surface Water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Inert fill/ Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only being licenced to accept inert waste. The site is only partially located within the Order Limits. At this location the Project proposals are for diverting third-party infrastructure that includes undergrounding; however, the undergrounding works follow the field boundary of the adjacent field to the landfill boundary and therefore ground disturbance within the landfill boundary is unlikely.	Medium	Low
	Leaching Migration Deposition	Groundwater (high sensitivity)	Unlikely. The site is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only being licenced to accept inert waste. The site is only partially located within the Order Limits. At this location the Project proposals are for diverting third-party infrastructure that includes undergrounding; however, the	Medium	Low
		Surface water (medium sensitivity)		Mild	Very Low

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
			undergrounding works follow the field boundary of the adjacent field to the landfill boundary and therefore ground disturbance within the landfill boundary is unlikely.		

Site name/ref	PSC A8 – Mangreen Quarry (directly adjacent to the Order Limits)
Site location and description	Mangreen Quarry is a sand and gravel quarry located either side (to the south and north) of Mangreen Lane and to the east of Ipswich Road. (621883E, 302924N) The site is located approximately 5 km south of Norwich. The site comprises an active sand and gravel extraction site which is predominantly surrounded by open fields and areas of woodland.
Site history	The earliest reviewed historical mapping dated 1880s indicates the site as open fields which remained largely unchanged until the gravel extraction site first identified on the 2011 historical Google Aerial imagery. Excavation commenced in the central and northern section of the site to the north of Mangreen Lane. The site has expanded over time to the west and south and east, with some sections in the west also being restored.
Other pertinent information	A review of Norfolk County Councils planning portal indicates that the site has been restored with inert waste and returned to agricultural use. Restoration with inert waste is ongoing within the areas where extraction is still underway. The site currently has planning permission for the import and recycling of waste and for use as a highway depot.
Geology	The site is indicated to be underlain by superficial deposits predominantly comprising the Lowestoft Formation (Diamicton), with the Leet Hill sand and gravel member underlying the Lowestoft Formation and indicated to outcrop in the north-eastern corner of the site. The bedrock is indicated to comprise the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated) of the White Chalk Subgroup.
Hydrogeology	The White Chalk Formation which forms the bedrock at the site, is classified as a Principal Aquifer. The Lowestoft Formation (Diamicton) is indicated to be a Secondary Undifferentiated Aquifer and the Leet Hill sands and gravel member as a Secondary A Aquifer. The site is located within a groundwater Source Protection Zone (SPZ)3, with the far north-

Site name/ref	PSC A8 – Mangreen Quarry (directly adjacent to the Order Limits)
	eastern corner just within a SPZ2, and the northern part of the site is located within a Drinking Water Safeguarded Zone for groundwater.
Hydrology	No surface water statutory main rivers are located within 500 m of the site. The north-eastern corner of the site is located within a Nitrate Vulnerable Zone.
Potential for generating contamination	Moderate – as it is understood the site is being restored with inert material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates asbestos and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Inert fill/ Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. In addition, the site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated	Medium	Low
	Leaching Migration Deposition	Groundwater (high sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials based on it only accepting inert waste. In addition, the site is located	Medium	Low

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
			outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated		

Site name/ref	PSC A12 – Roydon Fen -Historical Landfill (approximately 235 m east of the Order Limits)
Site location and description	Located along Potash Fen (a small lane which leads to Tottington Lane) and is approximately 1 km south-east of Roydon (610200E, 279500N) and directly south of Roydon Fen Local Nature Reserve. The site currently comprises the northern part of an open field located to the north and south of Potash Fen. The site contains mature hedgerows and trees along the field boundaries.
Site history	The earliest reviewed historical mapping dated 1880s identifies the site comprises part of a larger field to the south of Roydon Fen. The River Waveney is indicated approximately 150 m to the south of the site. The Environment Agency data indicates the site was utilised for the deposition of liquid sludge waste in the 1970s. Google Aerial imagery dated 1999 indicates the site as open fields and appears to have remained largely unchanged through to the present day.
Other pertinent information	Identified as a historical landfill from the Environment Agency data set, and it is indicated that liquid sewage sludge was deposited at the location in the 1970s.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the River Terrace Deposits. The bedrock is indicated to comprise the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated) of the White Chalk Subgroup.
Hydrogeology	The White Chalk Formation, which forms the bedrock at the site, is classified as a Principal Aquifer. The River Terrace Deposits are classified as Secondary A Aquifer. The site is not located within a groundwater SPZ and is not within a drinking water safeguarded area for groundwater.
Hydrology	The River Waveney is located approximately 150 m south of the site with the site bounded by field drains that appear to flow into the River Waveney.

Site name/ref	PSC A12 – Roydon Fen -Historical Landfill (approximately 235 m east of the Order Limits)
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, organic and inorganic compounds, polychlorinated biphenyls (PCBs), micro-organisms, hydrocarbons and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. In addition, the site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated	Medium	Low
	Leaching Migration Deposition	Groundwater (high sensitivity)	Unlikely. The site is not anticipated to contain significantly contaminative materials. In addition, the site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated.	Medium	Low
		Surface Water (high sensitivity)		Medium	Low

Site name/ref	PSC B1 – Rookery Farm – historical landfill (Within the Order Limits)
Site location and description	Located north of Lion Road (610480E, 277961N) The site is located approximately 2 km south of Diss. The site currently comprises open fields to the north of Lion Road and is surrounded by open fields.
Site history	The earliest reviewed historical mapping dated 1880s indicates the presence of a pit feature. The pit feature is no longer shown on the mapping dated 1930. The current land use based on the aerial imagery indicates the site as an open field.
Other pertinent information	Identified from the Environment Agency data set as a historical landfill which was licenced to received inert and commercial waste between 1991 and 1994.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Croxton Sand and Gravel Member. The bedrock is indicated to comprise the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated) of the White Chalk Subgroup.
Hydrogeology	The White Chalk Formation, which forms the bedrock at the site, is classified as a Principal Aquifer. The Croxton Sand and Gravel Member is classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a drinking water safeguarded area for groundwater.
Hydrology	Field drains are located approximately 200 m north-west of the site.
Potential for generating contamination	High – as the site received inert and commercial waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Likely. The site is located inside of the Order Limits within an area of proposed undergrounding of third-party infrastructure therefore there is the potential for construction workers to come into contact with potentially contaminated material and there is the potential for ground gases to be present.	Medium	Moderate
	Leaching Migration Deposition	Groundwater (high sensitivity)	Likely. The site is located inside of the Order Limits within an area of proposed undergrounding of third-party infrastructure therefore there is the potential for construction of the Project to mobilise potential contamination.	Medium	Moderate

Site name/ref	PSC B5 – Bramford Substation (within the Order Limits)
Site location and description	Bullen Lane, Bramford. The site comprises an electrical substation which covers approximately 0.12 km^2. The site is located off Bullens Lane, approximately 2 km west of Bramford and is located inside the Order Limits. Based on aerial imagery dated 2021, the substation is covered in hardstanding – particularly where the equipment is located. There are some areas around the edges of the site where the hardstanding appears to be absent and there are some storage compounds. The site is surrounded by a mixture of woodland and open fields.
Site history	The earliest reviewed historical mapping dated 1884, shows the area labelled as Bullen Wood with no evidence of the substation. Aerial photography held by Historic England, dated 1962, indicates that tree clearance has taken place within Bullen Wood likely to facilitate the construction of the substation. By the mapping dated 1964 to 1970 the electrical substation is labelled with numerous overhead lines going into the substation. By the mapping dated 1996 the substation has expanded to the north, east and west. Google Earth aerial imagery from 2012 to 2021 shows the gradual expansion of the substation.
Geology	The BGS Geoindex indicates that the superficial geology at the site comprises the Lowestoft Formation (diamicton) described as chalky till. The superficial deposits are underlain by bedrock of the Thames Group comprising clay, silt and sand.
Hydrogeology	The Thames Group, which forms the bedrock at the site, is classified as unproductive strata, whilst the superficial deposits of the Lowestoft Formation are classified as a Secondary Undifferentiated aquifer. The site is also located within a groundwater SPZ3.
Hydrology	A stream is located approximately 450 m to the southwest of the site.
Potential for generating contamination	Moderate
Potential contaminants	Polychlorinated biphenyl (PCB), heavy metals, hydrocarbons, solvents, oils
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Inert fill/ Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Low. Intrusive works that disturb the ground are to be undertaken at the edges of the site in areas that have been previously undeveloped. In addition, the contaminants of concern (e.g. PCB's) are relatively immobile and the underlying geology is generally cohesive (low permeability).	Medium	Moderate
	Leaching Migration Deposition	Groundwater (high sensitivity)		Medium	Moderate
		Surface Water (low sensitivity)		Mild	Low

Site name/ref	PSC B6 – Rookery Farm – historical landfill (directly adjacent to the Order Limits)
Site location and description	Located to the south of Old Bury Road, west of Wortham (609600E, 277200N) The site is located approximately 3 km south of Roydon. The site currently comprises a partially wooded area with Old Bury Road to the north and agricultural fields to the west, south and east.
Site history	The earliest reviewed historical mapping dated 1880s identifies the site as an area of woodland, with the area surrounding the site comprising open fields. The Environment Agency data indicates a landfill was operated at the site between 1981 and 1991 which was licenced to receive inert waste. Google Aerial imagery dated 1999 indicates the area as restored to farmland, and it appears the site remains largely unchanged through to the present day.
Other pertinent information	Identified from the Environment Agency data set as a historical landfill that was licenced to take inert waste from 1981 to 1991.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Lowestoft Formation (Diamicton), with the Croxton Sand and Gravel Member outcropping in the southern part of the site. The bedrock is indicated to comprise the Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation and Portsdown Chalk Formation (Undifferentiated) of the White Chalk Subgroup.
Hydrogeology	The White Chalk Formation, which forms the bedrock at the site, is classified as a Principal Aquifer. The Lowestoft Formation (Diamicton) is classified as a Secondary Undifferentiated Aquifer with the Croxton Sand and Gravel Member classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a drinking water safeguarded area for groundwater.
Hydrology	A small stream is located approximately 110 m north of the site.
Potential for generating contamination	Moderate – as the site received inert waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Inert fill/ Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only being licenced to accept inert waste. In addition, the site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (high sensitivity)	Unlikely. The site is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only being licenced to accept inert waste. In addition, the site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated.	Medium	Low
		Surface Water (low sensitivity)		Mild	Very Low

Site name/ref	PSC C1 – Scrap Yard, Hadleigh Road (Within the Order Limits)
Site location and description	Located to the south-east of Poplar Lane off Hadleigh Road approximately 4.3 km west of Ipswich (611625E, 243155N) The site currently comprises a scrap yard.
Site history	The earliest reviewed historical mapping dated 1880s indicates the site as open fields until the 1949 to 1972 mapping that indicates a pit on the site. The scrap yard can be identified on the historical Google Earth aerial imagery dated 2000, although there is no evidence of the pit previously indicated.
Geology	The BGS Geoindex indicates that the superficial deposits at the site are absent and within parts of the surrounding area due to the proximity to Belstead Brook and from minerals extraction. Artificial ground is also indicated to be present across the site, which suggests the pit identified on the historical mapping may have been infilled. The bedrock is indicated to comprise the Thames group, with the Red Crag Formation outcropping in the south-westerly corner of the site.
Hydrogeology	The bedrock of the Thames Group is classified as Unproductive Strata and the Red Crag Formation as a Principal Aquifer. The site is located within a groundwater SPZ3 but is not within a drinking water safeguarded area for groundwater.
Hydrology	The Belstead Brook is located approximately 170 m south-west of the site.
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, ash, clinker, sulphates, hydrocarbons, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is located inside the Order Limits, however, it is within an area where overhead line is being removed and the existing pylon bases to be removed are outside of the site, therefore ground disturbance within the site is not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. The site is located inside the Order Limits, however, it is within an area where overhead line is being removed and the existing pylon bases to be removed are outside of the site, therefore ground disturbance within the site is not anticipated.	Mild	Very low
		Surface water (medium sensitivity)		Mild	Very low

Site name/ref	PSC C3 – Former RAF Raydon (Within the Order Limits)
Site location and description	Located to the north-east of Raydon (605758E, 239206N) The site currently comprises agricultural land and a small industrial park (Notley) uses former hangars/buildings and hardstanding areas associated with a previous use as an RAF station.
Site history	Historically, the site was RAF Raydon, a former Royal Air Force Station. Historical mapping dated 1885 to 1886 indicates the site as open fields, which remain largely unchanged until RAF Raydon was built in 1942 with the main runway area present, orientated approximately east west through the northern part of the site, and further runways crossing the main runway at different orientations. Accommodation and office facilities were indicated to be present to the south-east of the airfield, and further buildings for the 'admin site', 'technical site' and 'mess site' located to the east of the airfield. Evidence from historical aerial imagery (Historic England, dated 1942 to 1946) shows the runways, turning circles and the hangers present on the site. Firing butts are shown in the north-east corner and a bomb disposal area and ammunition dump in the north-west wooded area. The airfield officially closed in 1958 with much of the airfield now in agricultural use. A plan obtained of the former RAF Raydon indicates that the areas crossed by the Order Limits comprised the eastern part of the main runway and the firing butts in the north-east of the site. A section of the Order Limits does also cross the area marked as a fuel store, however, this part of the Order Limits currently proposes only to use existing road infrastructure.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Lowestoft Formation (Diamicton). The bedrock is indicated to comprise the Red Crag Formation.
Hydrogeology	The Lowestoft Formation (Diamicton) is classified as a Secondary Undifferentiated Aquifer. The bedrock of the Red Crag Formation is classified as a Principal Aquifer. The site is located within a groundwater SPZ3 but is not within a drinking water safeguarded area for groundwater.
Potential for generating contamination	Very high
Potential contaminants	Heavy metals, fuels, hydrocarbons and additives, organic solvents, asbestos, radium, coal tar, per- and polyfluorinated substances (PFAS), unexploded ordnance and bombs
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Likely. The Project proposals include undergrounding through the site and therefore it is likely that any contaminated fill material could be disturbed during construction and construction workers could encounter such material and/or landfill/ground gases. This may include UXO/UXB.	Severe	High
	Leaching Migration Deposition	Groundwater (high sensitivity)	Likely. The Project proposals include undergrounding through the site and therefore it is likely that any contaminated fill materials could be disturbed/mobilised during construction.	Severe	High

Site name/ref	PSC C6 – Highways Depot (Within the Order Limits)
Site location and description	Located to the north of Little Bromley Road and to the south-west of Harwich Road (605877E, 229532N), the Great Eastern Railway line to Colchester runs along the south-east boundary of the site. The site currently comprises a highways depot, which, from a review of the most recent Google Aerial imagery dated 2022, indicates the site is largely used for parking, with a large circular tank on the southern part of the site and an industrial building in the north-west corner of the site. The northern part of the site is located within the Order Limits.
Site history	Historical mapping dated 1875 indicates the site as open fields with the Great Eastern railway – Colchester line running along the south-east boundary of the site. The site remains undeveloped until the mapping dated 1961 to 1988 when a council yard is labelled on the northern part of the site. Google Aerial imagery dated 1999 indicates a large mound of earth in the centre of the site, and by the imagery dated 2005 the material appears to be being moved with a number of lorries present on the site. By the 2006 imagery the tank is located on the southern half of the site. The site remains largely unchanged until the 2017 imagery which indicates a layout similar to that described above.

Site name/ref	PSC C6 – Highways Depot (Within the Order Limits)
Geology	The BGS Geoindex indicates that the superficial deposits at the site generally comprise Cover Sands. The bedrock is indicated to comprise the Thames Group.
Hydrogeology	The Cover Sands are classified as a Secondary B Aquifer. The bedrock of the Thames Group is classified as Unproductive Strata. The site is located within a groundwater SPZ3 but is not within a drinking water safeguarded area for groundwater.
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, hydrocarbons, hydrocarbon additives, solvents.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The proposals are anticipated to comprise removal of the existing overhead line through the northern part of the site and therefore significant ground disturbance within the site is not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. The proposals are anticipated to comprise removal of the existing overhead line through the northern part of the site and therefore significant disturbance of existing contamination that could be disturbed/mobilised during construction is not anticipated.	Mild	Very low

Site name/ref	PSC C10 – Thornbush Hall – historical landfill (Located directly to the south of the Order Limits)
Site location and description	Located to the west of The Grindle, Bramford (609600E, 277200N) The site is located approximately 0.8 km north-west of Sproughton. The site currently comprises a predominantly wooded area surrounded by fields. Buildings are noted on the east and west boundary of the site and a stream is noted to flow along the southern boundary of the site.
Site history	The earliest reviewed historical mapping dated 1880s identified the site as an open field, with a stream shown flowing along the southern boundary of the site. Historical Google Aerial imagery dated 1945 shows the site as open fields. The Environment Agency data indicates a landfill was operated at the site up until 1991 when the licence was surrendered. The historical Google Aerial imagery dated 2000 shows an area of scrub land, and by the imagery dated 2015 the entire site has become woodland.
Other pertinent information	Identified from the Environment Agency data set as a historical landfill that was licenced to take inert and commercial waste. A first input date is not shown within the data set; however, the licence was surrendered in October 1991.
Geology	The BGS Geoindex indicates that the superficial deposits at the site are absent. The bedrock is indicated to comprise the Thames Group.
Hydrogeology	The Thames Group which forms the bedrock at the site, is classified as unproductive strata. The site is not located within a groundwater SPZ and is not within a drinking water safeguarded area for groundwater.
Hydrology	A stream is noted to flow along the southern boundary of the site, towards the River Gipping which is located approximately 600 m to the east of the site.
Potential for generating contamination	High – as the site received inert and commercial waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance worker Groundwater Surface Water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is located outside of the Order Limits and therefore ground disturbance inside the landfill boundary is not anticipated. In addition, the works closest to the site involve the removal of existing overhead line, therefore there is unlikely to be a risk from migration of any landfill gases.	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. The site is located outside of the Order Limits and therefore ground disturbance inside the landfill boundary is not anticipated.	Mild	Very low
		Surface water (low sensitivity)		Mild	Very low

Site name/ref	PSC C12 – Valley Farm Landfill (Located directly adjacent to the Order Limits)
Site location and description	Located to the north of Poplar Lane off Hadleigh Road, approximately 4.3 km west of Ipswich (611300E, 243300N). The site currently comprises open fields predominantly, with the part of the site that is closest to the Order Limits comprising a farmhouse and the surrounding gardens.
Site history	The earliest reviewed historical mapping dated 1880s indicates that the site is occupied by Villa Farm and associated buildings, fish ponds and open fields. The 1913 dated mapping shows that the site is now named as Valley Farm and the buildings at the site have expanded to the south and west. The mapping dated 1949 to 1972 indicates that some areas of the site, mainly to the south-east of Valley Farm, have been worked/excavated (assumed for mineral resource). The Environment Agency data identified the site as a landfill which was operated from 1967 to 1990. The Google Aerial imagery dated 2000 indicates that the site is mostly open fields with a farmhouse located on the southern part of the site.

Site name/ref	PSC C12 – Valley Farm Landfill (Located directly adjacent to the Order Limits)
Other pertinent information	Identified as a group of historical landfills around Valley Farm, from the Environment Agency data set. All the landfills are named Valley Farm and accepted a variety of waste types from 1967 to 1990, with the last licence surrendered in 1990.The landfill closest to the Order Limits is indicated to have received industrial and household waste.
Geology	The BGS Geoindex indicates that the superficial deposits at the site are predominantly absent, likely due to the previous extraction of the mineral (sand and gravel). Where the superficial deposits are present, the superficial deposits comprise the Kesgrave Catchment Subgroup and Lowestoft Formation (sand and gravel). Artificial ground is also indicated to be present on the north-eastern part of the site. The bedrock is indicated to comprise the Thames Group.
Hydrogeology	The Kesgrave Catchment Subgroup and Lowestoft Formation (sand and gravel) are classified as a Secondary A Aquifer. The bedrock of the Thames Group is classified as Unproductive Strata. The site is located within a groundwater SPZ3 but is not within a drinking water safeguarded area for groundwater.
Hydrology	Several water filled pits are located to the south-west of the site which appear to drain into a stream, which drains into the Belstead Brook.
Potential for generating contamination	High – as the site received a variety of materials including inert, commercial, and industrial waste material.
Potential contaminants	Heavy metals, ash, clinker, sulphates, hydrocarbons, ground gas, asbestos, and leachate.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground/ fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the landfills have accepted a variety of waste types, the site is outside of the Order Limits. Therefore, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill. In addition, the works closest to the site involve the removal of existing overhead line, therefore there is unlikely to be a risk from migration of any landfill gases (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. Whilst the landfills have accepted a variety of waste types, the site is outside of the Order Limits. Therefore, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill	Medium	Low
		Surface water (medium sensitivity)		Medium	Low

Site name/ref	PSC C14 – Scrap Yard and former gravel pits, Ipswich Road (Directly adjacent to the Order Limits)
Site location and description	Located to the east of Ipswich Road, approximately 2 km south of Stratford St Mary (603839E, 232846N). The site currently comprises a scrap yard.
Site history	Historical mapping dated 1887 identifies the site as a gravel pit. By the mapping dated 1937 to 1961 the pits appear to have expanded to the south. By the mapping dated 1962 a building has been constructed along the western edge of the site and by the mapping dated 1968 to 1972 the A12 has been constructed to the east of the site and most of the workings are no longer shown. The building along the western edge of the site is labelled as a fuel filling station. The scrap yard can be identified on the historical Google Earth aerial imagery dated from 2000.
Other pertinent information	A review of lidar data for the area indicates the site may have been infilled following the gravel extraction. The site also appears to be at the same ground level as surrounding land based on Google Street View.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Kesgrave Sand and Gravel Formation and the Lowestoft Formation (sand and gravel). The bedrock is indicated to comprise the Red Crag Formation.
Hydrogeology	The bedrock of the Red Crag Formation is classified as a Principal Aquifer. The Kesgrave Catchment Subgroup and Lowestoft Formation (sand and gravel) are classified as a Secondary A Aquifer The site is located within a groundwater SPZ3 but is not within a drinking water safeguarded area for groundwater.
Hydrology	The Black Brook is located approximately 135 m south of the site.
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, ash, clinker, sulphates, hydrocarbons, and asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is outside of the Order Limits, therefore, intrusive works within this area are not required and ground disturbance is not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. The site is outside of the Order Limits, therefore, intrusive works within this area are not required and ground disturbance is not anticipated.	Mild	Very Low
		Surface water (low sensitivity)		Mild	Very low

Site name/ref	PSC D1 – Former RAF Boxted (Within the Order Limits)
Site location and description	Located to the north and west of the A12, approximately 5.5 km north of Colchester (601577E, 230567N). The site currently comprises agricultural fields with an area towards the east of the site in use as a solar farm.
Site history	The earliest reviewed historical mapping dated 1880 indicates the site as open fields which remain largely unchanged until RAF Boxted, a Royal Air Force station, was opened in 1943. Evidence from historical aerial imagery (Historic England, dated from 1942 to 1946) shows the runways, turning circles and the hangers present on the site. An ammunition store and bomb dump are shown to the east of the site. The airfield officially closed in 1947 with much of the airfield now in agricultural use. The 1958 mapping first shows the airfield which is labelled as disused. The section of the former RAF Boxted that crosses the Order Limits predominantly comprises the former runways to the south of the site.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of Cover Sands and the Lowestoft Formation (sand and gravel) in the west of the site. The bedrock is indicated to comprise the Thames Group.
Hydrogeology	The bedrock of the Thames Group is classified as unproductive strata. The Cover Sands and Lowestoft Formation (sand and gravel) are classified as a Secondary A Aquifer The site is located within a groundwater SPZ3 but is not within a drinking water safeguarded area for groundwater.
Hydrology	A small stream and ponds are located on the eastern part of the site, adjacent to the solar farm.
Potential for generating contamination	Very high
Potential contaminants	Heavy metals, fuels, hydrocarbons and additives, organic solvents, asbestos, radium, coal tar, per- and polyfluorinated substances (PFAS), UXO/UXB.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Likely. The Project proposals include pylons located within the site and therefore it is likely that any contaminated fill material could be disturbed during construction and construction workers could encounter such material and/or landfill/ground gases. This may include UXO/UXB.	Severe	High
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Likely. The Project Proposals include pylons located within the site and therefore it likely that any contaminated fill material could be disturbed/mobilised during construction	Medium	Moderate
		Surface Water (low sensitivity)		Medium	Moderate

Site name/ref	PSC D6 – Former Mark Tey Brick and Tile Works, brick pit and historical landfill (approximately 30m south-east of the Order Limits)
Site location and description	Located to the north of Church Lane and to the west the Great Eastern Railway line. The site is approximately 0.8 km north-east of the village of Marks Tey and 8 km west of Colchester (591000E, 224300N). The site currently comprises fields and areas of woodland with a small brick manufacturer still present in the south of the site with clay also extracted from the site. The site is generally surrounded by open fields, with the village of Marks Tey to the south.
Site history	The earliest reviewed mapping dated 1880s indicates the site as open fields. By the mapping dated 1888-1915 the site is labelled as ‘Marks Tey Brick and Tile Works’ with workings in the north and buildings in the south of the site. The 1937 to 1961 mapping shows large expansion of the worked areas to the north. The 1944 to 1974 mapping shows further expansion in the workings to the north and east and a railway line through the centre of the site. Part of the site (towards the centre) is identified from the Environment Agency data set as a historical landfill that received waste from 1979 to 1988.

Site name/ref	PSC D6 – Former Mark Tey Brick and Tile Works, brick pit and historical landfill (approximately 30m south-east of the Order Limits)
Other pertinent information	A review of online sources indicates the brickworks was established in 1863. Identified from the Environment Agency data set as a historical landfill that received industrial and commercial waste from 1979 to 1988.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Interglacial Lacustrine Deposits, which comprise clays and silt, however as the site has been worked for its mineral, superficial deposits are unlikely to be present at the site. The bedrock is indicated to comprise the London Clay Formation.
Hydrogeology	The bedrock of the London Clay Formation is classified as unproductive strata. The Interglacial Lacustrine Deposit is classified as Unproductive Strata The site is not located within a groundwater SPZ or a Drinking Water Safeguarded Zone for groundwater.
Hydrology	Roman River runs along the northern boundary of the site
Environmental Designation	The site is located within a SSSI which is designated for its geological importance
Potential for generating contamination	High – due to the non-hazardous waste material likely received
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water Environmental Receptors

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the landfills have accepted a variety of waste types, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill as the site is outside of the Order Limits. Intrusive works are likely to be over 250 m from the landfill site boundary; therefore, it is unlikely migrating landfill gases would be a significant risk (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (Medium sensitivity)	Unlikely. Whilst the landfills have accepted a variety of waste types, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill as the site is outside of the Order Limits.	Medium	Low
		Surface water (Medium sensitivity)		Medium	Low
		Environmental receptor (very high)		Severe	Low

Site name/ref	PSC F1 – Brittons Hall Farm – landfill (Within the Order Limits)
Site location and description	Located to the south of Mashbury Road and to the east of the River Can, approximately 0.5 km south-west of Chignall St James and 4.5 km north-west of Chelmsford (567210E, 209160N). The site currently comprises open fields and is surrounded by open fields. It has an active licence for a non-hazardous landfill, however based on the most recent Google Aerial imagery dated 2023, it appears to have been fully restored.
Site history	The earliest reviewed historical mapping dated 1880s identifies the site as open fields. A review of the Essex County Council planning portal indicates that planning permission was first granted to the site for minerals extraction in 1993 with the restoration of the landfill completed in 2019.However, by the Google Aerial imagery dated 2017 most of the site already appeared to have been restored.
Other pertinent information	Identified from the Environment Agency data set as a current landfill. The site has a current permit for the disposal of non-hazardous waste. The site is also designated as a minerals site for the extraction of sand and gravel, Roxwell Quarry, by Essex County Council. A review of the Essex County Council planning portal indicates that planning permission was first granted for mineral extraction and subsequent landfilling at the site in 1993. The restoration of the landfill restoration works was completed by 31 December 2019.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Lowestoft Formation (Diamicton), however as the site has been worked for its mineral, superficial deposits are unlikely to be present at the site. The bedrock is indicated to comprise the Thames Group.
Hydrogeology	The bedrock of the Thames Group is classified as unproductive strata. The Lowestoft Formation (Diamincton) is classified as a Secondary Undifferentiated Aquifer The site is not located within a groundwater SPZ or a Drinking Water Safeguarded Zone for groundwater.
Hydrology	The River Can is indicated approximately 60 m (at its closest distance) to the north-west and south-west of the site. The River Can is included within the Anglian River Basin Management Plan based on the assessment presented within ES Chapter 12: Hydrology, Land Drainage and Flood Risk (document reference 6.12).
Potential for generating contamination	High – due to the non-hazardous waste material likely received
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground/ fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst, the site is located within the Order Limits, ground disturbance is not anticipated as pylons are currently proposed to be located outside of the landfill boundary. In addition, the works closest to the site involve installation of overhead line, therefore there is unlikely to be a risk from any migration of landfill gases (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. Whilst, the site is located within the Order Limits, ground disturbance is not anticipated as pylons are currently proposed to be located outside of the landfill boundary.	Mild	Very Low
		Surface water (high sensitivity)		Medium	Low

Site name/ref	PSC F2 – Roxwell Quarry – historical landfill (Within the Order Limits)
Site location and description	Located to the south of Boyton Cross, approximately 2 km south-west of Chignall St James and 5 km north-west of Chelmsford (565600E, 208400N). The site currently comprises open fields and is surrounded by open fields and a few isolated residential properties.
Site history	The earliest reviewed historical mapping dated 1880s identified the site as open fields. The mapping dated 1888 to 1913 indicates a gravel pit on the western end of the site. By the mapping dated 1937 to 1961 the gravel pit has expanded and is indicated to be filled with water. The Environment Agency data identifies the site received waste material between 1952 and 1969. The historical Google Aerial imagery dated 2000 indicates the site has been fully restored, however a pond feature is present along the northern boundary. The site then remains largely unchanged through to the present day.

Site name/ref	PSC F2 – Roxwell Quarry – historical landfill (Within the Order Limits)
Other pertinent information	Identified from the Environment Agency data set as a historical landfill with two permits. The records indicate that the site first accepted waste in 1952 and the last input was in 1969. The site received inert, industrial, commercial, and household waste. The information also indicates the site has gas control measures.
Geology	The BGS Geoindex indicates that the superficial deposits of the Lowestoft Formation (Diamicton) are absent, likely from the mineral's extraction of the underlying Kesgrave Catchment Subgroup, unlike the surrounding area Head Deposits are indicated to be outcropping along the southern boundary. The bedrock is indicated to comprise the Thames Group. The site is also indicated as artificial ground on the mapping.
Hydrogeology	The bedrock of the Thames Group is classified as unproductive strata. The Kesgrave Catchment Subgroup is indicated as a Secondary A Aquifer. The site is not located within a groundwater SPZ or Drinking Water Safeguarded Zone for groundwater.
Hydrology	The Roxwell Brook is indicated along the southern boundary of the site on the opposite side of the A1060.
Potential for generating contamination	High – due to the waste the site likely received and the indication of gas control measures.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface Water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the landfills have accepted a variety of waste types, and the Order Limits cross the site, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill as the works within the landfill boundary are for construction access on pre-existing access tracks. Intrusive works are likely to be over 250 m from the site boundary; therefore, it is unlikely migrating landfill gases would be a significant risk (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (Medium sensitivity)	Unlikely. Whilst the landfills have accepted a variety of waste types, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill as the works within the landfill boundary are for the use of existing access tracks during construction of the Project.	Medium	Low
		Surface water (Medium sensitivity)		Medium	Low

Site name/ref	PSC F3 – Boyton Cross – historical landfill (Within the Order Limits)
Site location and description	Located to the south of Boyton Cross, approximately 2 km south-west of Chignall St James and 5 km north-west of Chelmsford (566300E, 208100N). The site currently comprises open fields, with the southern part of the site used as a car park. The site is predominantly surrounded by open fields and a few isolated residential properties.
Site history	The earliest review historical mapping dated 1880s identifies the site as open fields. The Environment Agency data indicates a landfill was operated at the site between 1961 and 1972. The historical Google Aerial imagery dated 2000 indicates the site has been fully restored, with the area a small area of vehicle storage in the location of the car park. By the imagery dated 2009 the car park area appears to show evidence of being worked with bunds present around the perimeter and machinery present. By the 2017 imagery this has been developed into the car park.
Other pertinent information	Identified from the Environment Agency data set as a historical landfill. The records indicate the sites first was accepted waste in 1961 and the last input was in 1972. The site received industrial, commercial, and household waste.
Geology	The BGS Geoindex indicates that the superficial deposits of the Lowestoft Formation (Diamicton) are generally absent across the central section of the site, likely from the mineral extraction of the underlying Kesgrave Catchment Subgroup, Head Deposits are indicated to be outcropping along the southern boundary. The bedrock is indicated to comprise the Thames Group. The site is also indicated as artificial ground on the mapping.
Hydrogeology	The bedrock of the Thames Group is classified as unproductive strata. The Kesgrave Catchment Subgroup is indicated as a Secondary A Aquifer and the Lowestoft Formation (Diamicton), and the Head Deposits are classified as Secondary Undifferentiated Aquifer. The site is not located within a groundwater SPZ or Drinking Water Safeguarded Zone for groundwater.
Hydrology	The Roxwell Brook is indicated along the southern boundary of the site on the opposite side of the A1060.
Potential for generating contamination	High – as the site received industrial, commercial, and household waste.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst, the site is located within the Order Limits, ground disturbance is not anticipated within the landfill boundary as pylons are currently proposed to be located outside of the landfill boundary. In addition, the works closest to the site involve installation of overhead line, therefore there is unlikely to be a risk from migration of landfill gases (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. Whilst, the site is located within the Order Limits, ground disturbance is not anticipated within the landfill as pylons are currently proposed to be located outside of the landfill boundary.	Medium	Low
		Surface water (medium sensitivity)		Medium	Low

Site name/ref	PSC F4 – Newney Green East – historical landfill (Within the Order Limits)
Site location and description	Located to the west of Victoria Road, approximately 0.4 km south-east of Newney Green and 4.5 km west of Chelmsford (565600E, 206400N). The site currently comprises open fields with a fishing lake located in the central section of the site. The site is surrounded by open fields and a few isolated residential properties and farm buildings.
Site history	The earliest reviewed historical mapping dated 1880s identified the site as open fields. The Environment Agency data identified a landfill was operated at the site however exact dates of this are unknown. The historical Google Aerial imagery dated 2000 indicates the site as open fields with the fishing pond already evident. A small section in the south of the site appears to contain an industrial building, and by the imagery dated 2005 this area has expanded to include the storage of potential faming materials. This storage area has continued to be used through to the present day.

Site name/ref	PSC F4 – Newney Green East – historical landfill (Within the Order Limits)
Other pertinent information	Identified from the Environment Agency data set as a historical landfill. The sites operation dates are not shown; however, it is indicated the site received inert waste.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Lowestoft Formation (Diamicton) on the southern half of the site, and Head Deposits on the northern part of the site. The bedrock is indicated to comprise the Thames Group.
Hydrogeology	The bedrock of the Thames Group is classified as unproductive strata. The Lowestoft Formation (Diamicton) and the Head Deposits are classified as Secondary Undifferentiated Aquifer. The site is not located within a groundwater SPZ or Drinking Water Safeguarded Zone for groundwater.
Hydrology	A large pond is noted towards the centre of the site, with a stream running along the northern part of the site in a north-east/south-west direction.
Potential for generating contamination	Moderate – as the site received inert waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. Whilst, the site is located within the Order Limits, ground disturbance is not anticipated within the landfill as pylons are currently proposed to be located outside of the landfill boundary.	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. Whilst, the site is located within the Order Limits, ground disturbance is not anticipated within the landfill as pylons are currently located outside of the landfill boundary.	Mild	Very Low
		Surface water (low sensitivity)		Mild	Very Low

Site name/ref	PSC F7 – Boyton Hall Farm – landfill (Directly adjacent to the Order Limits)
Site location and description	Located to the north of Roxwell Road and to the east of Boyton Cross, approximately 0.5 km southwest of Chignal St James and 5 km northwest of Chelmsford (565657E, 208842N). The site currently comprises open fields and is surrounded by open fields.
Site history	The earliest reviewed historical mapping dated 1880s identified the site as open fields and the site remains largely unchanged. The Environment Agency data set identified the landfill licence was issued in 1992, and the data indicates the site is currently in closure. The historical Google Aerial imagery dated 2000, shows the site has been fully restored.
Other pertinent information	Identified as a current landfill from the Environment Agency data set. The Environment Agency data set indicates the landfill licence is still active but that the site is in closure. The site was licenced to take the industrial, commercial, and household waste.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial deposits of the Lowestoft Formation (Diamicton), The bedrock is indicated to comprise the London Clay Formation.
Hydrogeology	The bedrock of the London Clay Formation is classified as unproductive strata. The Lowestoft Formation (Diamicton) is classified as a Secondary Undifferentiated Aquifer. The site is not located within a groundwater SPZ or Drinking Water Safeguarded Zone for groundwater.
Hydrology	The Roxwell Brook is located approximately 200 m south of the site.
Potential for generating contamination	High – as the site received industrial, commercial, and household waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk rating
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the landfill accepted a variety of waste types, the site is outside of the Order Limits. Therefore, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill. In addition, the works closest to the site involve the use of existing access tracks therefore there is unlikely to be a risk from migration of any landfill gases (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. Whilst the landfill accepted a variety of waste types, the site is outside of the Order Limits. Therefore, intrusive works within this area are not required and ground disturbance is not anticipated within the landfill	Medium	Low
		Surface water (high sensitivity)		Medium	Low

Site name/ref	PSC H3 – Ongar Hall Farm (Within Order Limits)
Site location and description	Located to the east of Brentwood Road, Orsett (565088E, 184593N) approximately 2.5 km north-west of Horndon on the Hill. The site currently comprises Ongar Hall Farm which contains a number of industrial style buildings and vehicle parking/storage. The site is currently occupied by Palmer and Klein (further details given below), a bed shop and an office furniture shop.
Site history	The earliest reviewed historical mapping dated 1880s indicates the site is occupied by a number of buildings labelled as Ongar Hall. A pond is located on the southern part of the site and the entire site is surrounded by open fields. The site remains largely unchanged through the available map editions. The Google Aerial imagery dated 1999 indicated the site is occupied by farm/industrial style buildings. The Google Aerial imagery dated 2004 indicates the site has expanded to the east with further parking/storage and an industrial style building added. By the 2010 imagery the site has expanded further to the east, with a larger building added and further storage/parking.
Other pertinent information	The site has been identified by Thurrock Council as potentially contaminated land called Palmer and Klien. An online search and a review of the Thurrock planning portal indicates that Palmer and Klien deals with meat waste processing and the manufacture of oils and fats, and the site is used for the collecting, processing and blending of animal fats and vegetable oils for the animal feed manufacturers and biodiesel production industry. A general internet search suggests the site has also been used for meat processing.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial Head Deposits. The bedrock is indicated to comprise the London Clay Formation.
Hydrogeology	The bedrock of the London Clay Formation is classified as unproductive strata. The Head Deposits are indicated as a Secondary Undifferentiated Aquifer. The site is located within a groundwater SPZ3 but is not located within a Drinking Water Safeguarded Zone for groundwater.
Hydrology	A small unnamed stream runs along the southern boundary of the site.
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, hydrocarbons, organic and inorganic compounds, pathogens, solvents, detergents and bleaches.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface Water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the site is crossed by the Order Limits the proposals only utilise the existing road through the site to access the Project infrastructure. Therefore, intrusive works within the site are not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. Whilst the site is crossed by the Order Limits the proposals only utilise the existing road through the site to access the Project infrastructure. Therefore, intrusive works within the site are not anticipated.	Mild	Very Low
		Surface water (low sensitivity)		Mild	Very Low

Site name/ref	PSC H5 – Buckingham Hill – Historical landfill (Within the Order Limits)
Site location and description	Located directly to the west of Buckingham Hill Road, approximately 1.5 km west of Stanford-le-Hope (566900E, 181100N). The site currently comprises open scrub land with a recycling centre directly adjacent to Buckingham Hill Road towards the north of the site. The site is surrounded predominantly by open fields.
Site history	The earlies reviewed historical mapping dated 1873 identifies the site as open fields. By the mapping dated 1960 to 1961 and 1937 to 1961 the site is indicated to contain several sand and gravel pits. By the mapping dated 1949 to 1972 and 1973 to 1975 the majority of the site is indicated to be one large pit. The Environment Agency data set identified landfilling at the site from 1977 to 1991. A review of the Thurrock Council planning portal indicates the recycling centre was constructed in the early 2000s.
Other pertinent information	Identified from the Environment Agency data set as a historical landfill. Waste was first accepted at the site in 1977 with the last input was in 1991. The site was licenced to take industrial, commercial, household waste and liquid sludge.

Site name/ref	PSC H5 – Buckingham Hill – Historical landfill (Within the Order Limits)
Geology	The BGS Geoindex indicates that the superficial deposits are predominantly absent across the site, likely due to the historical mineral extraction of the Black Park Gravel Member undertaken at the site. The bedrock is indicated to comprise the London Clay Formation to the north-east of the site and Lambeth Group across the rest of the site. Artificial ground is also indicated to be present across most of the site.
Hydrogeology	The bedrock of the London Clay Formation is classified as unproductive strata and the Lambeth Group is classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a Drinking Water Safeguarded Zone for groundwater.
Hydrology	A stream/ditch is located approximately 50 m east of the site associated with another quarry. This is likely to form part of the drainage system around the quarry and the discharge location (if any) is unknown.
Potential for generating contamination	High – due to the types of waste likely received by the landfill
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the site is located within the Order Limits, ground disturbance is not anticipated within the landfill as pylons are currently proposed to be located outside of the landfill boundary. Infrastructure that is located within the landfill boundary comprises temporary scaffolding, and temporary access using existing infrastructure. In addition, the works closest to the site involve installation of overhead line, therefore there is unlikely to be a risk from migration of landfill (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. Whilst the site is located within the Order Limits, ground disturbance is not anticipated within the landfill as pylons are currently proposed to be located outside of the landfill boundary. Infrastructure that is located within the landfill boundary comprises scaffolding, and temporary access using existing infrastructure.	Medium	Low

Site name/ref	PSC H6 – Tarmac Orsett Quarry (Within the Order Limits)
Site location and description	Located directly to the east of Buckingham Hill Road, approximately 1.2 km south-west of Stanford-le-Hope (567123E, 180992N). The site is currently a mixture of restored scrub land, active quarry, and open fields.
Site history	The earliest reviewed historical mapping dated 1873 identifies the site as open fields. The mapping dated 1960 to 1961 identifies a pit on the northern part of the site. By the mapping dated 1973 to 1975 the pits have expanded to the north and south and by the mapping dated 1988 the majority of the site is labelled as a gravel pit. A review of the Thurrock Council planning portal indicates the site was active from the 1950s until the early 2000s with most of the working being restored to agricultural use, and the south-west part of the site being restored as an ecological park. There appears to be a remaining void located towards the centre of the site which currently has not been restored.
Other pertinent information	A review of the Thurrock Council planning portal indicates the continued extraction of sand and gravel at the site and restoration using inert waste. The site also has a pending planning application for the continued extraction to the east of the site; however, this currently is awaiting a decision. The documentation in the planning application indicates that the extraction of material at Orsett Quarry was undertaken from the 1950s through until the early 2000s
Geology	The BGS Geoindex indicates that the superficial deposits are generally absent at the site, likely due to the mineral extraction of the sand and gravel material. The bedrock is indicated to predominantly comprise the Lambeth Group across most of the site with the Thanet Formation outcropping in the centre of the site. The site is also indicated as artificial ground according to the BGS mapping.
Hydrogeology	The bedrock of the Lambeth Group and Thanet Formation is classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a Drinking Water Safeguarded Zone for groundwater.
Hydrology	Stream/ditches cross through much of the site, likely associated with the drainage from the quarry operations however, their connection to any main rivers is unknown.
Potential for generating contamination	Moderate – as the site is likely to have received inert waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground /fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. Whilst the site is within the Order Limits ground disturbance is not currently anticipated within the infilled quarry as pylons are currently proposed to be located outside of the site boundary.	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. Whilst the site is within the Order Limits ground disturbance is not currently anticipated within the infilled quarry as pylons are currently proposed to be located outside of the site boundary.	Mild	Very Low

Site name/ref	PSC H7 – Collingwood Farm - Historical landfill (Within the Order Limits)
Site location and description	Located to the east of Brentford Road, approximately 2.8 km north-east of Chadwell St Mary (566600E, 181010N). The site is currently comprising fields of scrub land and agricultural land.
Site history	The earliest reviewed historical mapping dated 1873 identifies the site as open fields. The mapping dated 1988 indicates the site as a gravel pit. A review of the Thurrock Planning Portal information suggests the site was used for minerals extraction with permission granted in 1971. The site is identified by the Environment Agency data set to have received waste from 1986 until 1994. Historical Google Aerial imagery dated 1999 indicates the site is in the process of being restored, with the site fully restored by the 2011 aerial imagery
Other pertinent information	Identified from the Environment Agency data set as a historical landfill. Waste was first input into the site in 1986 with the last input in 1994. The site was licenced to take inert, industrial, commercial, and household waste. Based on the information presented above, it is considered that the Environment Agency polygon identifying the historical landfill is currently misaligned and showing the site to far to the north-east.
Geology	The BGS Geoindex indicates that the superficial deposits are generally absent at the site, likely due to potential mineral extraction of the Black Park Gravel Member undertaken at the site, with superficial Head Deposits and the Black Park Gravel Member present on the eastern boundary of the site. The bedrock is indicated to comprise the Lambeth Group with some small, limited outcrops of the Thanet Formation. The site is also indicated as artificial ground on the mapping.
Hydrogeology	The bedrock of the Lambeth Group and Thanet Formation are classified as a Secondary A Aquifer. The superficial Head Deposits are classified as a Secondary Undifferentiated Aquifer and the Black Park Gravel Member as a Secondary A Aquifer The site is located within a groundwater SPZ3 but not within a Drinking Water Safeguarded Zone for groundwater.
Potential for generating contamination	High – due to the types of waste likely received by the landfill
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, ground gas, leachate, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. Whilst the site is located within the Order Limits ground disturbance is not anticipated within the landfill as pylons are currently proposed to be located outside of the site boundary and ground disturbance is not anticipated. In addition, the works closest to the site involve installation of overhead line, therefore there is unlikely to be a risk of migration of landfill gases (if present).	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. Whilst the site is located within the Order Limits ground disturbance is not anticipated within the landfill as pylons are currently proposed to be located outside of the site boundary and ground disturbance is not anticipated.	Medium	Low

Site name/ref	PSC H8 – Clearserve Quarry and landfill (Within the Order Limits)
Site location and description	Located directly to the north-west of Hoford Hill, approximately 2km north-east of Chadwell St Mary (566683E, 180134N). The site is currently in use as an active quarry and landfill. The site is surrounded predominantly by open fields and a Tarmac Bagging Plant to the south-east.
Site history	The earliest reviewed historical mapping dated 1873 identifies the site as open fields. By the mapping dated 1888 to 1913 a gravel pit is indicated on the north-east part of the site. By the mapping dated 1949 to 1972 the gravel pit has expanded slightly. The Environment Agency data set identifies the site as a landfill with input of waste commencing in 2006.
Other pertinent information	Identified from the Environment Agency data set as a current landfill. The licence for the site was issued in 2006 for the input of inert waste material.
Geology	The BGS Geoindex indicates that the superficial deposits are generally absent at the site, likely due to the mineral extraction undertaken from the Black Park Gravel Member. The bedrock is indicated to comprise the Lambeth Group around the edges of the site and in the northern part and the Thanet Formation outcropping in the centre of the site. The site is also indicated as artificial ground according to the BGS mapping.
Hydrogeology	The bedrock of the Lambeth Group and Thanet Formation is classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a Drinking Water Safeguarded Zone for groundwater.
Potential for generating contamination	Moderate – as the site has received inert waste material.
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground / fill	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. Whilst the site is within the Order Limits ground disturbance is not currently anticipated within the quarry/landfill as pylons are currently proposed to be located outside of the site boundary.	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. The quarry is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. the site is within the Order Limits ground disturbance is not currently anticipated within the quarry/landfill as pylons are currently proposed to be located outside of the site boundary.	Medium	Low

Site name/ref	PSC H10 – Linford Quarry – Current and Historical landfill (Within the Order Limits)
Site location and description	Located to the south of Hoford Road, approximately 2 km north-east of Chadwell St Mary (566400E, 179800N). The site currently comprises an area of woodland to the northeast and along the north-west boundary of the site with a stockpile of material present to the south of the site, associated with the Tarmac Bagging Plant.
Site history	The earliest reviewed historical mapping dated 1873 indicates the site as open fields. The quarry is first indicated on the historical aerial imagery dated 1947. The Environment Agency data set identified landfilling at the site from 1984 until 1993. Historical Google Earth Aerial imagery dated 1999 indicates the site is being used for the stockpiling of material with an open water filled pit in the east. The site remains largely unchanged through to the present day.
Other pertinent information	Indicated as a current and historical landfill from the Environment Agency data set. Waste was first accepted into the historical landfill part of the site in 1984 with the last input in 1993. The site was licenced to take inert waste. The current licence was issued in 2006 for inert waste.
Geology	The BGS Geoindex indicates that the superficial deposits are generally absent across the site, likely due to the mineral extraction of the Black Park Gravel Member undertaken at the site. The bedrock is indicated to comprise the Lambeth Group and the Thanet Formation. The site is also indicated as artificial ground on the mapping.
Hydrogeology	The bedrock of the Lambeth Group and Thanet Formation are classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a Drinking Water Safeguarded Zone for groundwater.
Potential for generating contamination	Moderate – due to only accepting inert waste material
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, and ground gas.
Potential receptors	Human health – construction/maintenance workers Groundwater

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The landfill is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. In addition, ground disturbance at the site is not anticipated as the Project is proposing only to use existing road infrastructure.	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. The landfill is not anticipated to contain significantly contaminative materials or generate significant landfill gas based on it only accepting inert waste. In addition, ground disturbance at the site is not anticipated as the Project is proposing only to use existing road infrastructure.	Mild	Very Low

Site name/ref	PSC H13 – Industrial Units (Approximately 50 m East and directly adjacent to the Order Limits)
Site location and description	Lower Dunton Road, Basildon (565799E, 187307N) the site is located approximately 4.5 km west of the centre of Basildon. The site is split into two areas on either side of Lower Dunton Road. The site is currently occupied by industrial buildings with associated parking. A review of Google Earth suggests the sites are small industrial estates for a number of different businesses including a storage facility, flooring company, and office furniture suppliers.
Site history	The earliest reviewed historical mapping dated 1880s indicates the site as open fields and remains largely unchanged until the 1949 to 1973 dated mapping when a building is shown on the sites with one labelled as Red House. The 1999 dated Google Aerial imagery indicates the site occupied by several long industrial style buildings which remain largely unchanged with only some minor changes to buildings noted.
Other pertinent information	The site is identified by Thurrock Council as potentially contaminated land based on the site being used as a poultry farm. A review of the planning portal suggests the sites were used for egg laying and packing.
Geology	The BGS Geoindex indicates that the site is predominantly underlain by superficial Head Deposits. The bedrock is indicated to comprise the London Clay Formation.
Hydrogeology	The bedrock of the London Clay Formation is classified as unproductive strata. The Head Deposits are indicated as a Secondary Undifferentiated Aquifer. The site is located within a groundwater SPZ3 but is not located within a Drinking Water Safeguarded Zone for groundwater.
Hydrology	A small stream runs to the west of the site.
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, hydrocarbons
Potential receptors	Human health – construction/maintenance workers Groundwater Surface water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is outside of the Order Limits and therefore intrusive works within the site are not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (low sensitivity)	Unlikely. The site is outside of the Order Limits and therefore intrusive works within the site are not anticipated.	Mild	Very low
		Surface water (low sensitivity)		Mild	Very low

Site name/ref	PSC H17 – Tarmac Bagging Plant (Approximately 80 m South-East of the Order Limits)
Site location and description	Located to the east of Buckingham Hill Road, approximately 2.5 km north-east of Chadwell St Mary (566819E, 179845N). The site currently comprises Tarmac owned bagging plant.
Site history	The earliest reviewed historical mapping dated 1873 indicates the site as open fields. By the mapping dated 1898 and 1888 to 1913 the site is indicated to be crossed by several roads. By the mapping dated 1960 to 1961 the site is occupied by sand and gravel pits and the roads are no longer shown. A review of historical aerial imagery (Historic England, dated 1953) shows the site being actively worked. By the mapping dated 1973 to 1975 a works is shown in the centre of the site. By the 1991 mapping the buildings have expanded. Historical Google Earth Aerial imagery indicates a few further buildings are added through the imagery editions.
Geology	The BGS Geoindex indicates that the superficial deposits are generally absent across the site, likely due to the mineral extraction undertaken at the site. The bedrock is indicated to comprise the Lambeth Group. The site is also indicated as artificial ground on the mapping.
Hydrogeology	The bedrock of the Lambeth Group is classified as a Secondary A Aquifer. The site is located within a groundwater SPZ3 but not within a Drinking Water Safeguarded Zone for groundwater.
Hydrology	A stream is located approximately 400m south of the site.

Site name/ref	PSC H17 – Tarmac Bagging Plant (Approximately 80 m South-East of the Order Limits)
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos.
Potential receptors	Human health – construction/maintenance workers Groundwater Surface Water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated.	Medium	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. The site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated.	Mild	Very Low
		Surface water (low sensitivity)		Mild	Very low

Site name/ref	PSC H18 – Storage Yard, Brentwood Road (Approximately 10 m West of the Order Limits)
Site location and description	Located to the west of Brentwood Road, Upminster. The site is located approximately 800 m south-east of the village of Bulphan and 6.5 km south-west of the centre of Basildon. (564450E, 185346N). The northern part of the site is occupied by industrial units with associated parking. The eastern part of the site is occupied by a waste transfer station. The south-west portion of the site is occupied by a water body.
Site history	The earliest reviewed historical mapping dated 1880s indicates the site as open fields with a pond indicated in the centre of the site. Historical aerial imagery from Historic England dated 1946 indicates the site to be largely unchanged from the 1880s mapping. The site is shown on the 1999 historical aerial imagery with a pit filled with water in the west and industrial units with associated parking to the north and east. Based on the historical aerial imagery the pond has been slowly filled in over time.
Geology	The BGS Geoindex indicates that the superficial deposits comprise mostly Head Deposits, with Alluvial deposits outcropping on the southern part of the site. The bedrock is indicated to comprise the London Clay Formation. The eastern half of the site is also indicated to contain Artificial ground.
Hydrogeology	The bedrock of the London Clay Formation is classified as Unproductive Strata. The superficial deposits of Head Deposits are classified as a Secondary Undifferentiated Aquifer and the Alluvium as a Secondary A Aquifer. The site is not located within a groundwater SPZ or a Drinking Water Safeguarded Zone for groundwater.
Hydrology	The nearest surface water feature comprises an unnamed field drain running along the southern boundary of the site.
Potential for generating contamination	Moderate
Potential contaminants	Heavy metals, hydrocarbons, ash, clinker, sulphates, asbestos, ground gas
Potential receptors	Human health – construction/maintenance workers Groundwater Surface Water

Potential source	Potential pathway	Potential receptors and sensitivity	Classification of probability	Classification of consequence	Risk Classification
Contaminated ground	Ingestion Inhalation Direct dermal contact	Construction/maintenance workers (high sensitivity)	Unlikely. The site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated. In addition, the works closest to the site involve utilising the existing road network, therefore there is unlikely to be a risk from the migration of landfill gases (if present).	Medium,	Low
	Leaching Migration Deposition	Groundwater (medium sensitivity)	Unlikely. The site is located outside of the Order Limits and therefore ground disturbance at the site by the Project is not anticipated.	Medium	Low
		Surface water (low sensitivity)		Mild	Very low

Conclusion

9.4.5 The majority of the Order Limits and the 250 m Study Area appears to have remained as undeveloped/agricultural land since the late 1800's based on the earliest reviewed historical mapping and supported by the other data sources reviewed and described above. In these areas, it is considered that there is a very low risk of significant sources of potential contamination.

9.4.6 However, there are discrete areas within the Study Area that have a history of potentially contaminative land use or where the current land use is potentially contaminative. Where these areas are identified, readily available information relating to the Potential Sources of Contamination (PSC) has been gathered and a preliminary contamination risk assessment has been carried for each potential contamination source, in accordance with the methodology set out in LCRM (Environment Agency, 2023) and presented within the sections above.

9.4.7 Based on the assessment, the following sites are assessed as presenting a potential moderate or above risk to sensitive receptors from existing contamination. The location of these sites are shown on Figure 9.6: Sites with a Moderate or Above Risk Classification (document reference 6.9.F6):

- PSC B1 – Rookery Farm, Lion Road – Historical landfill (Section B)
- PSC B5 – Bramford Substation (Section B)
- PSC C23 – Former RAF Raydon (Section C)
- PSC D1 – Former RAF Boxted (Section D).

Abbreviations

Abbreviation	Full Reference
BGS	British Geological Survey
CIRIA	Construction Industry Research and Information
Defra	Department for Environment, Food and Rural Affairs
LCRM	Land Contamination Risk Management
MAGIC	Multi-Agency Geographic Information for the Countryside
NLS	National Library of Scotland
OS	Ordnance Survey
PRA	Preliminary Risk Assessment
PSC	Potential Sources of Contamination
RAF	Royal Air Force
SPZ	Source Protection Zone

Glossary

Term	Definition
Aquifer	A subsurface layer or layers of rock or other geological strata of sufficient porosity and permeability to allow either a significant flow of groundwater or the abstraction of significant quantities of groundwater
Bedrock geology	Solid rock formations underlying superficial deposits
British Geological Survey	A public sector organisation who are responsible for advising the UK government on all aspects of geoscience as well as proving impartial geological advice to industry, academia and the public
Drinking water safeguarded zone	Area established to around public water supplies where additional pollution control measures are needed to reduce and prevent pollution of water abstracted for drinking water supplies
Groundwater	Water that is in the ground, this is usually referring to water in the saturated zone below the water table
Historical Landfill	Locations where there are records of waste being received to be buried but are now closed. This information held is collated from data held by Local Planning Authorities, the former Department of the Environment, British Geological Survey and the Environment Agency suspended authorised landfill licences
Hydrogeology	The properties of groundwater in superficial and bedrock geology
Order Limits	The maximum extent of land within which the authorised development may take place
Principal Aquifer	Rock layers the provide significant quantities of drinking water, and water for business needs. They also support rivers lakes and wetland
Receptor	The physical resource or user group that would respond to an effect e.g. somebody or something adversely affected by a pollutant
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 and openings or eroded layers
Secondary Undifferentiated Aquifer	Where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value
Source Protection Zone	A zone placed around a groundwater source, such as a well, borehole or spring, by the Environment Agency to protect a drinking water supply from pollution
Source Protection Zone 1	The inner zone which is a 50-day travel time of a pollutant to the abstraction point

Term	Definition
Source Protection Zone 2	A 400-day travel time of a pollutant to the abstraction point
Source Protection Zone 3	The total catchment, which is the area around an abstraction point within which all the groundwater ends up at the abstraction
Superficial geology	Uncemented sediments, such as alluvium, immediately beneath the soil and above the bedrock
Unproductive Strata	Largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them

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