

Northfleet Central 1 Ltd

Ecological Services

Shadow Habitat Regulations Assessment

Northfleet, Gravesham.



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Executive Summary

Designated Sites	Qualifying Features	Pathways of Impact Screened	Impacts requiring Appropriate Assessment
Thames Estuary and Marshes SPA and Ramsar site (5.7 km east of the Proposed Development Site): a wetland of European importance comprising a mosaic of intertidal habitats, saltmarsh, coastal grazing marshes, saline lagoons and chalk pits.	Wintering populations of the Annex 1 species: - Avocet, - Hen harrier, Wintering populations of non-annex 1 species: - Black-tailed godwit, - Dunlin, - Grey plover, - Knot, - Redshank, - Common ringed plover. - Waterbird assemblage (>20,000 birds). - Supports endangered and nationally scarce plants of wetland habitats and 20+ British Red Data Book invertebrates. - Supports the endangered least lettuce (<i>Lactuca saligna</i>), at least 14 nationally scarce plants of wetland habitats, and more than 20 British Red Data Book invertebrates. - Supports internationally important numbers of ringed plover, black-tailed godwit, grey plover, knot, dunlin and redshank.	- Recreational pressure and disturbance, - Reduced air quality, - Reduced water quality, - Air pollution, - Loss of supporting habitat.	Recreational Pressure and Disturbance.

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1 Introduction

1.1 Background Information

- 1.1.1 Assystem was appointed by Northfleet Central 1 Ltd (the client) to carry out ecological assessment for a Proposed Development on land at Northfleet, Kent. Part of this ecological assessment includes a shadow Habitat Regulations Assessment (HRA) in relation to potential adverse effects on European designated sites within the zone of influence of the Proposed Development. The Proposed Development is within the 6 km zone of influence of the Thames Estuary and Marshes SPA and Ramsar only.
- 1.1.2 Swanscombe Peninsula Site of Special Scientific Interest (SSSI) is situated adjacent to the Proposed Development site and is considered to support areas of functionally linked habitat to the Thames Estuary SPA and Ramsar site. Assystem have been involved in discussions with Natural England (including attendance at a Discretionary Advice Service (DAS) meeting), in relation to the scope of the wintering bird surveys that have been completed to inform this assessment. The scope, including the Zone of Influence and Methodology was agreed with Natural England. The purpose of the surveys was to understand whether internationally important numbers of wintering birds, as defined by the designation, were using habitats within the Zone of Influence.
- 1.1.3 Assystem wintering bird surveys have covered the 2022-2024 winter periods and assessed if any qualifying features such as Annex 1 bird species, and non-Annex 1 bird species as listed under the designation, are present within the Zone of Influence of the redevelopment in internationally important numbers. The surveys did not identify internationally important numbers of these bird species; therefore, this report has not been amended except to include a summary of the data in Appendix B to evidence the results of the bird surveys. It should be noted that nationally important assemblages of wintering wildfowl were recorded within the SSSI, and mitigation is proposed in the relevant planning documents.
- 1.1.4 This Shadow HRA is intended to provide the information necessary for Gravesham Borough Council to make their assessment of the Proposed Development as the Competent Authority. It should be noted that the responsibility of undertaking an Appropriate Assessment (AA), if required, lies with Gravesham Borough Council – the Competent Authority - who is responsible for granting consent for the scheme. However, it is the Applicant's obligation to provide information to the Competent Authority to enable them to undertake the assessment.

1.2 Legislative Context

- 1.2.1 The need for an assessment of impacts on European sites is set out within the Conservation of Habitats and Species Regulations 2017 (as amended)¹. The Regulations apply the precautionary principle to European Sites, in line with the findings of a legal judgement in the European Court of Justice (Waddenzee case C-127/02) and where any uncertainty or doubt over an impact or effect an adverse impact should be assumed.
- 1.2.2 Consent should only be granted for plans and projects once the relevant competent authority has ascertained that there will either be no likelihood of significant effects, or no adverse effect on the integrity of the European Site(s) in question. Where an Appropriate Assessment has been carried out and results in a negative impact, or if uncertainty remains over the significant effect, consent will only be granted if there are no alternative solutions and there are Imperative Reasons of Over-riding Public

¹ The Conservation of Habitats and Species Regulations 2017 (as amended). His Majesty's Stationery Office (HMSO).

Interest (IROPI) for the development and compensatory measures have been secured. To ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question. The competent authority is entitled to request the applicant to produce such information as the competent authority may reasonably require for the purposes of the assessment, or to enable it to determine whether an appropriate assessment is required.

- 1.2.3 Over the years, 'Habitats Regulations Assessment' (HRA) has come into wide currency to describe the overall process set out in the Habitats Regulations, from screening through to identification of IROPI. This has arisen in order to distinguish the overall process from the individual stage of "Appropriate Assessment". Throughout this Report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name.
- 1.2.4 It should be noted that as the Competent Authority, the Gravesham Borough Council (the Local Planning Authority (LPA)) must determine whether the Proposed Development will have a significant effect on a European Site (whether alone or in combination with other Plans or Projects), in view of that Site's conservation objectives. This requirement is set down in Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations').

1.3 Site Description

- 1.3.1 The site is located adjacent to the River Thames in Northfleet, in the borough of Gravesham in Kent. Swanscombe Peninsula Site of Special Scientific Interest (SSSI) is adjacent to the north-west of the site and Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site, is located 5.7 km to the east of the site.

- 1.3.2 Due to the scale of the site the was split into three areas referred to as:

- RLB South;
- RLB North-East; and
- RLB North-West.

- 1.3.3 The extent of this has been illustrated in Figure 1-1.

RLB South

- 1.3.4 The RLB South area of the site is approximately 6 hectares (ha) and is currently mainly occupied by industrial and commercial activities with Ebbsfleet FC stadium taking up a large amount of the area.

RLB North-East

- 1.3.5 The RLB North-East area of the site is approximately 6 hectares (ha) and is currently mainly occupied by industrial and commercial activities with a large active sand and gravel works and other industrial buildings such as car and truck mechanic's buildings.

RLB North-West

- 1.3.6 The RLB North-West area of the site is approximately 6.3 hectares (ha) and is dominated by industrial units, hardstanding mixed with ephemeral vegetation. Also on site are scattered trees, ornamental planting as well as sparse species-poor hedgerow with trees. Directly adjacent north of the site is Swanscombe Peninsula SSSI, which directly includes a dense treeline adjacent to the site boundary.

Figure 1-1: Red-Line Boundary (Maps data: Google 2022)

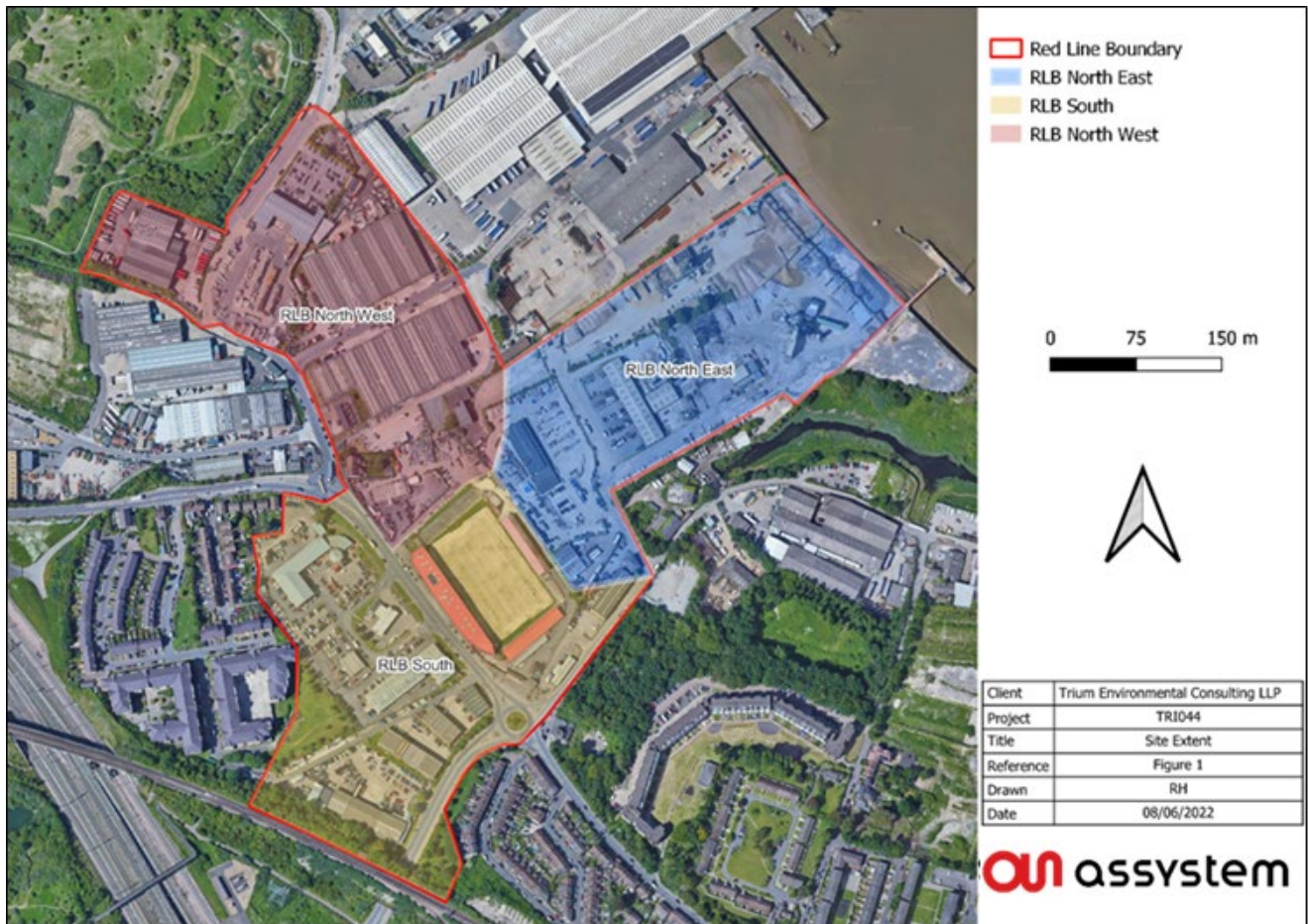
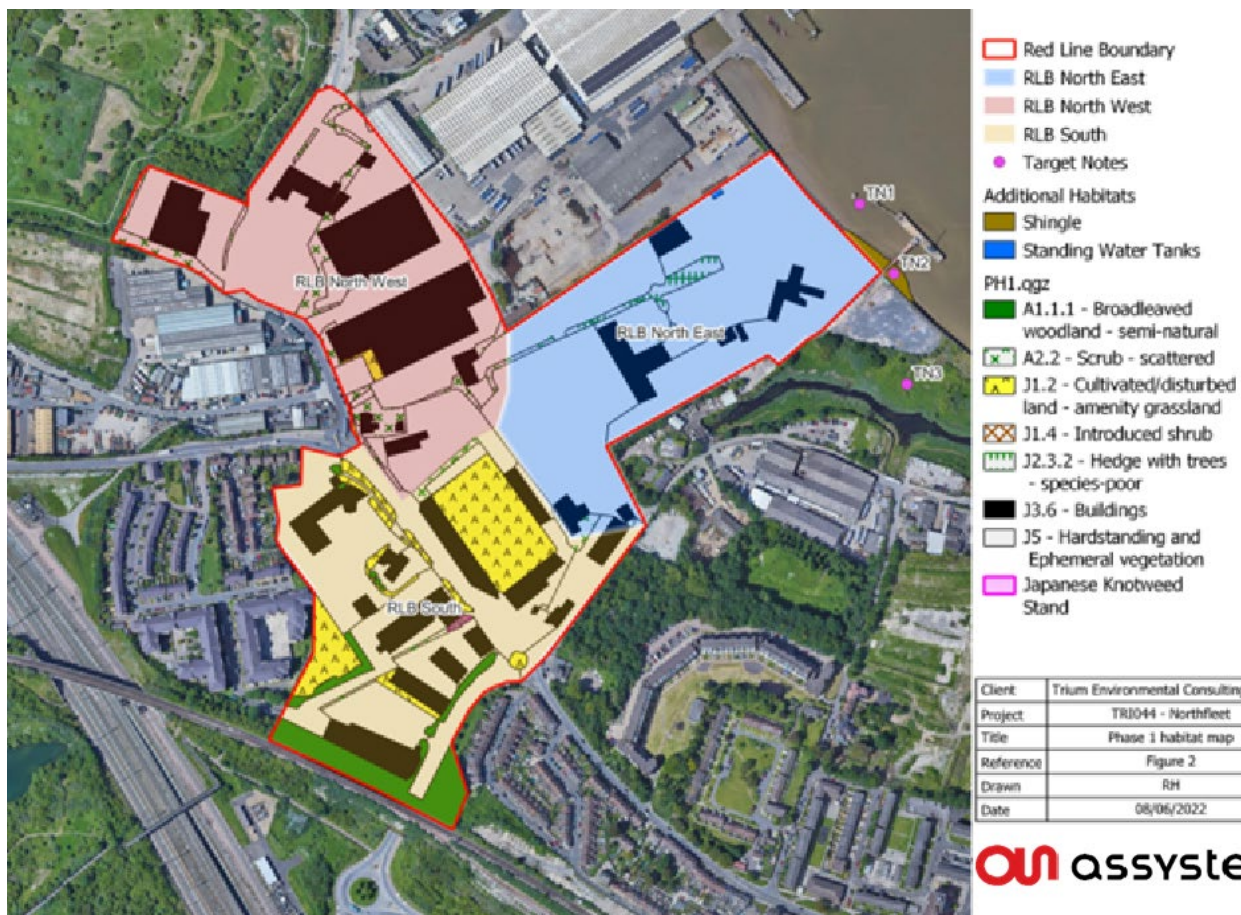


Figure 1-2: Phase 1 Habitat Survey Map (Maps data: Google 2022)



1.4 Proposed Works

- 1.4.1 The Applicant is seeking outline planning consent for a mixed-use development comprising the redevelopment of the EUFC stadium, along with 180,000 sqft of office employment space, a maximum of 3,000 new residential units and extensive public realm and landscaping improvements. Given the Applicant is seeking outline permission, should the application be granted, Reserved Matters Applications will be submitted in due course, which will provide more detail.

1.5 Quality Assurance

- 1.5.1 All lead Assystem ecologists are members of (at the appropriate level) the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct when undertaking ecological work.
- 1.5.2 All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2015, 14001:2015 and 45001:2018.
- 1.5.3 Assystem are a CIEEM Registered Practice, and as such champion high professional standards whilst delivering the best outcomes for biodiversity and supporting a thriving economy.

2 Methodology

2.1 The Habitat Regulations Assessment Process

- 2.1.1 The Conservation of Habitats and Species Regulations 2017 (as amended) transpose the European Union Birds Directive 1979/2009 and Habitats Directive 1992 into UK law. Under these regulations, competent authorities are required to consider whether plans or projects will have a likely significant effect on the integrity of a European protected site, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). In addition to these, national planning policy² places an expectation for additional sites to be considered through the HRA process, comprising those sites under consideration, i.e., potential SPAs (pSPAs) and candidate SACs (cSACs), Ramsar sites and areas identified to provide compensatory sites.
- 2.1.2 The HRA process enables the competent authority to establish if the integrity of protected European sites is likely to be significantly impacted by a proposed plan or project by following a four-stage process as follows:
- **Stage 1: Screening.** Applicable if the proposals qualify as a ‘plan’ or ‘project’ within the scope of the Habitats Directive 1992, where the project or plan is not directly connected with or necessary to the management of the European site, and the plan or project is of a type that could possibly have an effect on a European site;
 - **Stage 2: Appropriate Assessment and the Integrity Test.** Applicable when it is confirmed by Stage 1 Screening that the plan or project is likely to have a significant effect on a European site either on its own or in combination with other plans or projects;
 - **Stage 3: Alternative Solutions.** If likely significant effects are unavoidable, Stage 3 considers if alternative solutions to the proposed plan are available, which would be of lesser impact on the European sites; and
 - **Stage 4: Imperative reasons of overriding public interest and compensatory measures.** If no alternative solutions are available, it must be determined if there are imperative reasons of overriding public interest which would enable the plan or project to proceed on the basis that compensation measures are secured with regard to the likely significant effects.

2.2 Purpose

- 2.2.1 The objective of this report is to provide information for Stage 1 Screening in order to ascertain whether Stage 2 Appropriate Assessment is required in relation to potential impacts of the proposed project on relevant European designated sites, and then to apply Stage 2 Appropriate Assessment if necessary.

² Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework.

2.3 The Assessment Methodology

- 2.3.1 Stage 1 Screening aims to ascertain what factors should ‘trigger’ Stage 2 Appropriate Assessment. In order to determine if the proposed plan or project may have a ‘likely significant effect’ (LSE) on the integrity of each relevant designated site, each qualifying feature (or group of qualifying features, where appropriate) is compared against each potential significant effect from the plan or project. Only those effects which are likely to be significant are then advised for progression through to Stage 2 Appropriate Assessment.
- 2.3.2 Case law provides important direction in defining and determining the meaning of the words ‘likely’ and ‘significant’ in the context of HRA (Boggis v Natural England [2009] EWCA Civ 1061, 20th October 2009, paras 36 & 37; Advocate-General Sharpston’s opinion in Sweetman v An Bord Pleanála [2011] CJEU C-258/11, 11th April 2013, para 48), as well as providing key information that confirms that mitigation measures must not be included in the Stage 1 Screening Assessment (People Over Wind & Sweetman v Coillte [2018] CJEU C-323/17, 12th April 2018).
- 2.3.3 For those effects that are unlikely to be significant with the plan or project considered in isolation, these are then considered as part of a cumulative assessment in relation to other plans or projects which may impose the same or interlinked effects on the same designated sites. If such effects are likely to be considered significant in respect of in-combination impacts, these are then recommended for further consideration at Stage 2 Appropriate Assessment.
- 2.3.4 Where it is considered not possible to ‘screen out’ likely significant effects without detailed appraisal, or where mitigation is required that would not be implemented were it not for the need to protect the designated site, it is necessary to progress to the later ‘Appropriate Assessment’ stage to explore the adverse effects and devise mitigation. This stage may in some instances involve detailed data collection and analysis, and development of mitigation approaches, however, in other cases, where mitigation is already available, it may simply be a case of identifying the need to implement such mitigation. In short, the assessment detail should be ‘appropriate’ to the situation at hand.

3 Screening Assessment

3.1 Project Determination

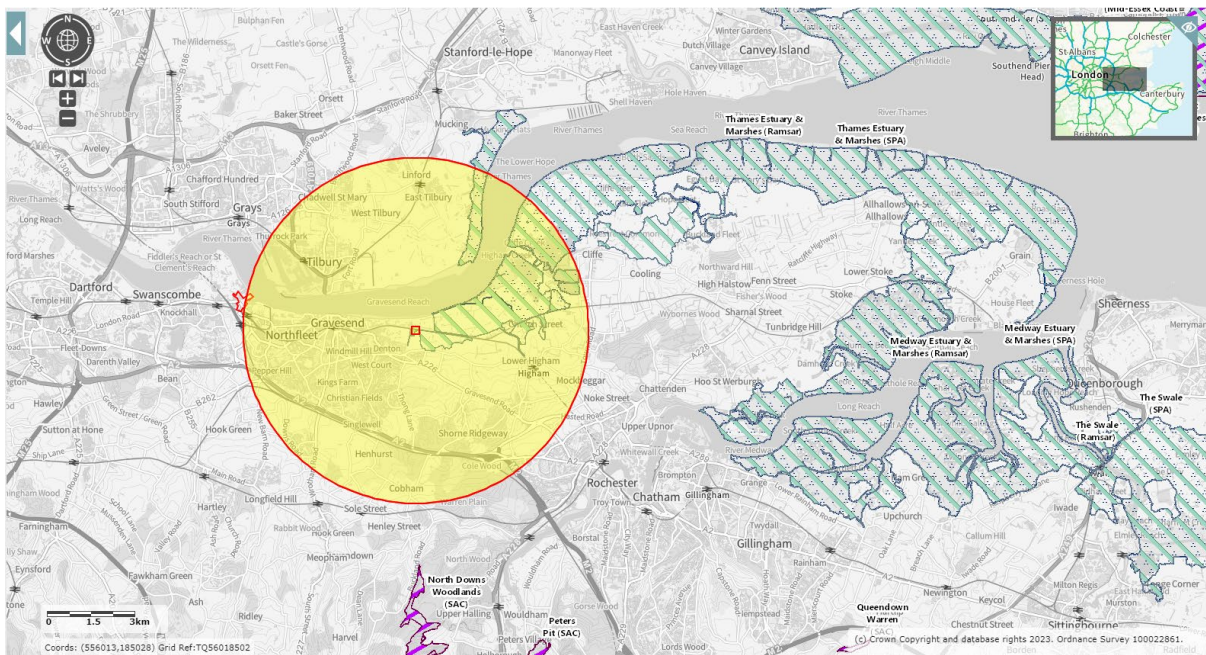
- 3.1.1 As neither the Habitats Directive or the Conservation of Habitats and Species Regulations 2017 (as amended) provide a definition of what constitutes a project, consideration has been given to European Commission guidance³. This identifies that a project should be considered as *‘the execution of construction works or of other installations of schemes – other interventions in the natural surroundings and landscape including those involving the extraction of mineral resources’*.
- 3.1.2 The guidance also identifies that for a project or plan to be *‘directly connected with or necessary to the management of the site’*, the *‘management’* aspect requires measures to be for conservation purposes and the *‘directly’* aspect requires measures to be solely formulated for the conservation management of a site and not the direct or indirect consequence of another activity.
- 3.1.3 As a result, the development of land at Northfleet, Kent is considered to comprise a project and is not directly connected with or necessary to the management of a European Site.

³ European Commission (2000) Managing Natura 2000 Sites. The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC.

3.2 Determination of Sites for Consideration

- 3.2.1 Adverse effects resulting from development proposals will often extend beyond a project boundary, and as a result the consideration of sites potentially impacted by the development has been extended to include the Zone of Influence⁴ (Zoi) of the Thames Estuary and Marshes SPA and Ramsar site (6 km). As identified in Figure 3-1, consideration is given to Thames Estuary and Marshes SPA and Ramsar site which is c. 5.7 km east of the site.

Figure 3-1: Thames Estuary and Marshes SPA and Ramsar Site Zone of Influence (Maps data: DEFRA, 2023)



- 3.2.2 The Thames Estuary and Marshes is located in the outer Thames Estuary on the south-east coast of England which separates Kent and Essex and is a wetland of European importance comprising a mosaic of intertidal habitats, saltmarsh, coastal grazing marshes, saline lagoons and chalk pits. The majority of the site is located on the south bank of the estuary, which stretches from the western side of Cliffe Pools to Grain Tower. The site also covers a small part of the northern bank of the outer estuary between Coalhouse Point in East Tilbury, to the most western part of the reclaimed land at Mucking Flats (Essex).
- 3.2.3 The site is predominantly characterised by extensive intertidal mudflats that are visible at low tide. There is saltmarsh, complex channel systems, and a series of disused quarry pits have been transformed to create an extensive series of ponds and lakes at Cliffe Pools. The intertidal areas are mostly bound by levees and seawalls, occasionally featuring small beaches. Important habitats lie above the highest tide, such as the grazing marsh and flooded mineral works. Additionally, habitat creation schemes as part of the London Gateway port development are providing new habitat.
- 3.2.4 The SPA has a variety of habitat types, which provide wintering and breeding habitats for internationally important assemblages of waterbirds, as well as supporting migratory birds on passage. The saltmarsh and grazing marsh are of international importance for their diverse assemblages of wetland plants and invertebrates.
- 3.2.5 The site qualifies under article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the GB populations of the Annex I species avocet (*Recurvirostra avosetta*) and hen harrier (*Circus*

⁴ Bird Wise (2018) Bird Wise North Kent Mitigation Strategy.

cyaneus), in any season. The site also qualifies under article 4.2 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the biogeographical populations, in any season, of the regularly occurring migratory species listed in Table 3-1.

Table 3-1: Thames Estuary SPA Bird Populations

Common Name	Scientific Name	Breeding/Wintering	Numbers
Annex 1 Species			
Avocet	<i>Recurvirostra avosetta</i>	Wintering	283 individuals (28.3% of GB population)
Hen harrier	<i>Circus cyaneus</i>	Wintering	7 individuals (1% of GB population)
Non-Annex 1 Species			
Common ringed plover	<i>Charadrius hiaticula</i>	Concentration/Passage	1,324 peak mean (2.6% Europe/Northern Africa population)
Grey plover	<i>Pluvialis squatarola</i>	Wintering	2,593 peak mean (1.7% Eastern Atlantic population)
Dunlin	<i>Calidris alpina</i>	Wintering	29,646 peak mean (2.1% North Siberia/Europe/ W Africa population)
Knot	<i>Calidris canutus islandica</i>	Wintering	4,848 peak mean (1.4% NE Can/Grl/Iceland/NW Europe population)
Black-tailed godwit	<i>Limosa limosa islandica</i>	Wintering	1,699 peak mean (2.4% Iceland (breeding) population)
Redshank	<i>Tringa totanus totanus</i>	Wintering	3,251 peak mean (2.2% Eastern Atlantic (wintering) population)

3.2.6 The site also qualifies under article 4.2 of the Directive (79/409/EEC) as it is used regularly by over 20,000 waterfowl in any season.

3.2.7 Other Annex 1 species which regularly occur on the site in non-qualifying numbers are breeding common tern (*Sterna hirundo*), and passage and wintering Bewick's swan (*Cygnus columbianus bewickii*), golden plover (*Pluvialis apricaria*), ruff (*Philomachus pugnax*), short-eared owl (*Asio flammeus*) and kingfisher (*Alcedo atthis*). Although not included in the qualifying features of the site, the site also supports nationally important populations of shelduck (*Tadorna tadorna*), teal (*Anas crecca*), pintail (*Anas acuta*), gadwall (*Anas strepera*), shoveler (*Anas clypeata*), tufted duck (*Aythya fuligula*) and pochard (*Aythya farina*).

3.2.8 The European Site Conservation Objectives⁵ for Thames Estuary and Marshes Special Protection Area are to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

- The extent and distribution of the habitats of the qualifying features;
- The structure and function of the habitats of the qualifying features;
- The supporting processes on which the habitats of the qualifying features rely;
- The population of each of the qualifying features; and,
- The distribution of the qualifying features within the site.

3.2.9 The Gravesham Local Plan Core Strategy⁶ was adopted in 2014 and is the main planning document that sets out the long-term vision, spatial strategy and core policies that are used for shaping future development in the Borough up to March 2028.

⁵ Natural England (2019) European Site Conservation Objectives for Thames Estuary and Marshes Special Protection Area Site Code: UK9012021.

⁶ Gravesham Borough Council (2014) Gravesham Local Plan Core Strategy.

- 3.2.10 The Strategy includes a specific policy SO16 intended to safeguard and enhance the biodiversity of the Borough.
- 3.2.11 The Thames, Medway and Swale Estuaries Strategic Access Management and Monitoring Strategy⁷ sets out a strategy to resolve disturbance issues to wintering birds on the North Kent Marshes, focussing on the European Protected Sites (Thames Estuary and Marshes SPA/Ramsar Site, Medway Estuary and Marshes SPA/Ramsar Site, and The Swale SPA/Ramsar Site) and their internationally important bird interest features. The Strategy has been produced by the North Kent Strategic Access Management and Monitoring Scheme (SAMMS) Board, a partnership of the following organisations: Kent Wildlife Trust, The Kent Developers Group, Natural England, Royal Society for the Protection of Birds (RSPB), Canterbury City Council, Ebbsfleet Development Corporation, Kent County Council, Gravesham Borough Council, Medway Council and Swale Borough Council.
- 3.2.12 The Proposed Development is only within the zone of influence of the Thames Estuary and Marshes SPA/Ramsar Site, therefore the Medway Estuary and Marshes SPA/Ramsar Site, and the Swale SPA/Ramsar Site are not considered within this assessment but are mentioned here as they form the wider SAMMS.

3.3 Impact Pathways Considered

- 3.3.1 There are numerous pathways of impact that may connect a plan or project to potential likely adverse effects on a European protected site. Table 3-2 details current threats and pressures to Blackwater Estuary.

Table 3-2: Summary of Thames Estuary and Marshes Estuary SPA/Ramsar and Features

Designated Site	Proximity	Size of SPA	Qualifying Features ^{8,9}	Conservation Objectives ^{10,11}	Current Pressures/Threats ^{12,9} to the SPA
Thames Estuary and Marshes SPA	5.7 km east	4,838.94 ha	Wintering populations of: - Avocet, - Black-tailed godwit, - Dunlin, - Grey plover, - Hen harrier, - Knot, - Redshank, - Ringed plover. Waterbird assemblage.	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring: - The extent and distribution of the habitats of the qualifying features; - The structure and function of the habitats of the qualifying features; - The supporting processes on which the habitats of the qualifying features rely;	1. Coastal squeeze, 2. Public access/Disturbance, 3. Invasive species, 4. Changes in species distributions, 5. Fisheries: Commercial marine and estuarine, 6. Vehicles: illicit, 7. Air Pollution: risk of atmospheric nitrogen deposition.

⁷ Liley, D. & Underhill-Day, J. (2013). Thames, Medway and Swale Estuaries – Strategic Access Management and Monitoring Strategy. Unpublished report by Footprint Ecology.

⁸ JNCC, DEFRA (2015). Natura 2000 Standard Data Form, Site UK9012021 Thames Estuary and Marshes.

⁹ JNCC, DEFRA (2008). Ramsar Information Sheet: UK11069.

¹⁰ Natural England (2019) European Site Conservation Objectives for Thames Estuary and Marshes Special Protection Area Site Code: UK9012021

¹¹ Port of London Authority. Thames Estuary and Marshes Conservation Objectives.

¹² Natural England (2015). Site Improvement Plan Greater Thames Complex.

				-The population of each of the qualifying features; and - The distribution of the qualifying features within the site.	
Thames Estuary and Marshes Ramsar site	5.7 km east	5,588.59 ha	- Criterion 2: site supports the endangered least lettuce (<i>Lactuca saligna</i>) and at least 14 nationally scarce plants of wetland habitats. The site also supports more than 20 British Red Data Book invertebrates. - Criterion 5: supports internationally important assemblages (>20,000 birds) of waterfowl. - Criterion 6: for internationally important numbers of ringed plover, black-tailed godwit, grey plover, knot, dunlin and redshank.	Subject to natural change, maintain in favourable condition the habitats for the internationally important population of the regularly occurring Annex 1 bird species, under the Birds Directive, in particular: • Saltmarsh; • Intertidal Mudflats; and • Intertidal shingle. Subject to natural change, maintain in favourable condition the habitats for the internationally important assemblage of waterfowl, under the Birds Directive, in particular: • Saltmarsh; • Intertidal Mudflats; and • Intertidal shingle.	1. Erosion of intertidal habitat, 2. Dredging, 3. Public access/Disturbance, 4. Eutrophication.

- 3.3.2 Table 3-2 shows details of the Thames Estuary and Marshes SPA/Ramsar, and potential pathways of impact. Threats currently known to be impacting the SPA have been determined via its Natura 2000 form⁷ and are cited as being:
- Invasive non-native species,
 - Outdoor sports and leisure activities, recreational activities,
 - Changes in abiotic conditions,
 - Changes in biotic conditions.
- 3.3.3 Natural England's Site Improvement Plan includes priority issues, identified in Table 3-2, that are being addressed.
- 3.3.4 At the outline planning stage, plots 10, 11, 12 and 13 of the Proposed Development are within the 6 km ZOI for the Thames Estuary and Marshes SPA/Ramsar site. The Proposed Development is adjacent to the River Thames, providing connectivity with the SPA. Potential pathways of impact that require consideration in relation to the Proposed Development of the site are:
- Recreational pressure causing disturbance of birds on the SPA,
 - Atmospheric nitrogen deposition,
 - Reduced water quality,
 - Air pollution,
 - Loss of supporting habitat.

3.4 HRA Screening

Recreational Pressure and Disturbance

- 3.4.1 The Proposed Development will be located c. 5.7 km west of the Thames Estuary and Marshes SPA/Ramsar site which is within the 6 km Zone of Influence identified by the Bird Wise North Kent Mitigation Strategy to represent the distance over which impacts to the SPA is likely without mitigation. Recreational activities can result in significant effects on protected sites because of erosion, trampling and disturbance, plus associated impacts such as fire and vandalism.
- 3.4.2 There is growing concern about the cumulative impacts of recreation on key nature conservation sites in the UK, as most sites must fulfil conservation objectives while also providing recreational opportunity.
- 3.4.3 Evidence in the literature suggests that the magnitude of disturbance clearly differs between different types of recreational activities. For example, dog walking leads to a significantly higher reduction in bird diversity and abundance than hiking¹³. Scientific evidence also suggests that key disturbance parameters, such as areas of influence and flush distance, are significantly greater for dog walkers than hikers¹⁴. Data from visitor surveys suggest that important spatial (e.g., the area of a site potentially influenced) and temporal (e.g., how often or long an activity is carried out) parameters differ between recreational activities, suggesting that these are factors that should ideally be considered in ecological assessments. In addition, displacement of birds from one feeding site to others can increase the feeding pressure on available resources, which have to sustain greater numbers of birds¹⁵. Recreation disturbance in winter can be more adverse because birds are more vulnerable at this time of year due to food shortages. Disturbance can also represent a much more direct threat to survival, such as in the case of predation by dogs and cats. Dogs are often exercised off-lead and roam out of sight of their owners and have been documented to kill ground-nesting birds.

¹³ Banks P.B., Bryant J.Y. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. *Biology Letters* 3: 14pp

¹⁴ Miller S.G., Knight R.L., Miller C.K. 2001. Wildlife responses to pedestrians and dogs. 29: 124-132

¹⁵ Gill, J.A., Sutherland, W.J. & Norris, K. 1998. The consequences of human disturbance for estuarine birds. *RSPB Conservation Review* 12: 67-72.

- 3.4.4 The Kent coast habitats are already subject to recreational pressure, however the increase in population resulting from the Proposed Development will likely lead to an increase in visitor numbers to the SPA. Unless adequately managed, this creates a potential for conflict between recreational activities and the conservation of internationally important assemblages of birds and habitats.
- 3.4.5 Breeding and overwintering waterbirds are susceptible to human disturbance from a range of land- and water-based activities (e.g., boating, water sports, walking, bait-digging, fishing and wildfowling). The types, levels and locations of potentially disturbing activities are constantly changing.
- 3.4.6 A bird disturbance study¹⁶ was undertaken in 2012 to assess the impacts of recreational activities on the North Kent SPA and Ramsar sites. The key findings are:
- There have been marked declines in the numbers of birds using the SPAs, in particular on the Medway at locations with the highest levels of access.
 - Disturbance is a potential cause of the declines; the busiest locations have seen the most marked bird declines and support particularly low numbers of birds.
 - Access levels are linked to local housing, with much of the access involving frequent use by local residents. It is not possible to rule out any likely significant effects on the integrity of the European sites as a result of increased housing. A suite of mitigation measures is therefore necessary to avoid potential adverse effects caused by future development.
 - The current main cause of disturbance is dog walking, and when dogs are walked off the lead. Other activities that cause disturbance include cycling, jogging and those that involve people on the mudflats or the water.
 - Development within 6 km of access points to the SPAs is particularly likely to lead to increase in recreational use of the SPAs. Local greenspace use such as dog walking, cycling, jogging, walking, and to some extent family outings, will originate from people living within this radius.
 - Beyond 6 km from access points onto the SPA, large developments, such as the Northfleet Proposed Development, or large-scale changes to housing levels will also result in increased recreational use. Visitors to the North Kent coast mostly originate from a zone north of the M2/A2 between Gravesend and Herne. People living within this

¹⁶ Liley, D., Lake, S. & Fearnley, H. (2012). Phase I – Bird Disturbance Report. Footprint Ecology/GGKM/NE.

broad coastal strip (i.e., beyond 6 km from SPA access points and north of the M2/A2) are likely to visit for more coastal specific activities.

- Development beyond 6 km, with the exception of large development schemes, could be screened out of assessments as it is assumed they are unlikely to have a significant effect on the protected sites.
- Mitigation measures such as awareness raising, on-site wardening, provision of signage and access infrastructure, provision/enhancement of green space away from the SPAs and direct contact with users are suggested.
- Areas currently undisturbed, and in particular the main roost sites should, in particular, be protected from additional recreational pressure.

3.4.7 The effects of increased recreational disturbance on a range of species include:

- A reduction in the time spent feeding, due to repeated flushing and increased vigilance.
- Increased energetic costs.
- Avoidance of areas of otherwise suitable habitat, potentially with birds feeding at poorer quality locations.
- Increased stress.
- Depending on the nature, frequency and level of the disturbance, some birds may take flight temporarily, but return after the disturbance ends. Other birds may modify their feeding habits, whilst more sensitive species may suffer reduced breeding success or, ultimately, desert the site.

3.4.8 In summary, birds are expending energy avoiding visitors to the SPA, which is time that is not spent feeding¹⁷. Overall, disturbance is likely to increase energetic output while reducing energetic input, which can adversely affect the 'condition' and ultimately survival of the birds. Birds may be forced in to fewer, larger colonies which increases the rate of predation by mammals such as red fox (*Vulpes vulpes*) who prey upon eggs and chicks.

3.4.9 Where disturbance causes a bird to leave a particular site, the availability of suitable alternative sites is critical for the bird's survival. The site in which it settles may already be populated or may be of lower quality resulting in lower rates of energy intake. This is especially critical in cases of major flight, when a bird flies further than 500 meters, as the energy spent in flight can be catastrophic for the bird⁴.

3.4.10 Recreational disturbance can affect breeding success. Breeding birds are subject to the stress of defending a territory, laying eggs and rearing chicks. Recreational disturbance can result in nest desertion, trampling of eggs and an increase in predation rates¹⁸.

3.4.11 The SPA and Ramsar site are separated from the Proposed Development by Gravesend, however, the Thames provides good connectivity between the site and the designated areas. Whilst there is no evidence that the terrestrial elements of the Proposed Development support significant numbers of roosting or wintering birds, recorded in the desk study (TRIO44 Northfleet Preliminary Ecological Appraisal) are numerous species for which the SPA is designated:

¹⁷ Riddington, R. et al. 1996. The impact of disturbance on the behaviour and energy budgets of Brent geese. *Bird Study* 43:269-279

¹⁸ LILEY, D. and SUTHERLAND, W.J. (2007). Predicting the population consequences of human disturbance for Ringed Plovers *Charadrius hiaticula*: a game theory approach. *Ibis*, 149, pp.82–94. doi:<https://doi.org/10.1111/j.1474-919x.2007.00664.x>.

- 20 records of avocet,
- Two records of hen harriers,
- 60 records of ringed plover,
- 43 records of grey plover,
- 120 records of dunlin,
- Three records of knots,
- 73 records of black-tailed godwit.

3.4.12 The Proposed Development will lead to an increase in population; therefore, it is not possible to screen out the pathway of recreational pressure and disturbance as without mitigation, the Proposed Development will add to a known pressure on the SPA and Ramsar site.

Atmospheric Nitrogen Deposition

- 3.4.13 The Proposed Development has the potential to generate pollutant emissions through construction related combustion, which may indirectly impact upon Thames Estuary and Marshes SPA and Ramsar site. Climate change is predicted to increase winter rainfall, which may cause higher levels of nitrogen deposition.
- 3.4.14 Nitrogen deposition exceeds site-relevant critical loads and hence there is a risk of harmful effects. However, declines in the numbers of breeding birds in the Essex Estuaries appear to be due to loss of habitat and disturbance rather than over-vegetation of breeding areas caused by nitrogen deposition¹⁹, it is likely that the same is true for the Thames Estuary and Marshes SPA.
- 3.4.15 Intertidal habitats are considered to be among the most productive natural ecosystems due to regular flushing with nutrient rich waters. Nitrogen deposition is likely to be of low importance for these systems as the inputs are probably significantly below the large nutrient loadings from river and tidal inputs. The closed upper marsh communities may be more susceptible to nitrogen deposition²⁰.
- 3.4.16 The pollution from the construction phase of the Proposed Development would be temporary and the routing of construction vehicles will be controlled through a Construction Environmental Management Plan (to be secured via an appropriately worded planning condition) to protect the SPA and Ramsar site.
- 3.4.17 In terms of vehicle traffic, nitrogen oxides (NO_x, i.e., NO and NO₂) are considered to be the key pollutants. Deposition of nitrogen compounds may lead to both soil and freshwater acidification, and NO_x can cause eutrophication of soils and water. The Highways Agency²¹ state that the contribution of vehicle emissions from the roadside to local pollution levels is not significant beyond 200 metres from a road. The Proposed Development main car parking area is more than 400 m from the River Thames (drawing NFH-UNS-MAST-DR-1006), and the Proposed Development is c. 5.7 km from the SPA.
- 3.4.18 It has been assumed that only those roads forming part of the primary road network (motorways and 'A' roads) are likely to experience any significant increases in vehicle traffic as a result of the development. Although the SPA is adjacent to Lower Highham Road, it is c. 460 m from the A226/Rochester Road. Resultingly, no significant effect from traffic-related air pollution is considered likely.
- 3.4.19 It is therefore concluded that no likely significant effects will occur as a result of the Proposed Development, either alone or in combination with other plans and projects, on the Thames Estuary and Marshes SPA and Ramsar site due to nitrogen deposition.

Reduced Water Quality

¹⁹ Natural England (2015). Site Improvement Plan Essex Estuaries.

²⁰ Air Pollution Information System (2016) Nitrogen Deposition: Coastal Saltmarsh.

²¹ Highways Agency ((2007) Design Manual for Roads and Bridges, HA 207/07, Vol. 11, Section 3, Part 1 Air Quality.

- 3.4.20 The River Thames is adjacent to the site on the north-eastern boundary and links the site to the SPA. There is the potential for pollution to enter the watercourse during the construction phase and run-off to enter the watercourse during the operational phase, which could indirectly impact the SPA.
- 3.4.21 The pollution from the construction phase of the Proposed Development would be temporary and the proposals include pocket parks and other greenspaces, rain gardens, meadow planting, green roofs and woodland which will help to filter and slow down run-off.
- 3.4.22 London's Victorian sewage system discharges storm-sewage pollution into the river when capacity is reached²²; the biodiversity supported by the Thames is generally well adapted to changes in conditions due to this and the tidal nature of the estuary.
- 3.4.23 The construction phase of the Proposed Development has the potential to generate air-borne dust through dispersal during material movement, wind-blown particles from stored material and mud on roads disturbed by traffic movement, especially during periods of dry and windy weather. This will be controlled through a Construction Environmental Management Plan (to be secured via an appropriately worded planning condition) to protect the SPA and Ramsar site. Mitigation measures include, but are not limited to:
- Ensuring stockpiles are stored away from the site boundary, in particular the north-eastern boundary adjacent to the Thames;
 - Speed limits put in place for all vehicles on site;
 - Use of dust suppression and wheel-wash facilities as required; ensure any run-off water from dust suppression activities is disposed of in accordance with legal requirements;
 - Vehicles delivering loose soil are covered or sheeted.
- 3.4.24 It is therefore concluded that no likely significant effects will occur as a result of the Proposed Development, either alone or in combination with other plans and projects, on the Thames Estuary and Marshes SPA and Ramsar site due to water quality.

Air Pollution

- 3.4.25 Emissions from road and construction traffic has the potential to disperse towards the SPA, however the prevailing wind is from the south-west²³, i.e., away from the SPA.
- 3.4.26 It is therefore considered that the distance separating the Proposed Development and the SPA, in combination with the south-westerly prevailing wind, is sufficient to conclude that no likely significant effects will occur as a result of the Proposed Development, either alone or in combination with other plans and projects on the SPA.

Loss of Supporting Habitat

- 3.4.27 The habitats on-site comprise buildings, hardstanding, ephemeral vegetation, amenity grassland (football pitch), introduced shrub, species-poor hedge, seawall, standing water in two troughs, and scattered trees. The River Thames is adjacent to the site, however, these habitats are unlikely to support the bird species for which the SPA is designated (as confirmed by wintering and breeding bird surveys, Schofield Lothian 2022).
- 3.4.28 It is therefore concluded that no likely significant effects will occur as a result of the Proposed Development, either alone or in combination with other plans and projects, on the Thames Estuary and Marshes SPA and Ramsar site due to loss of supporting habitat.

²² Thames 21. Water quality Results.

²³ Met Office (2016) Southern England: climate.

3.5 Summary of Screening

- 3.5.1 The screening exercise undertaken to inform this HRA has concluded that likely significant effects remain as a result of the development in combination with other plans and projects through:
- Recreational pressure and disturbance due to the presence of residential properties within the 6 km Zol for the SPA/Ramsar site.
- 3.5.2 Therefore, further Appropriate Assessment is required, and this is considered in Section 4.
- 3.5.3 The screening exercise undertaken to inform this HRA has concluded that no likely significant effects will occur as a result of the development alone or in combination with other plans and projects through:
- Atmospheric nitrogen deposition,
 - Reduced water quality,
 - Air pollution,
 - Loss of supporting habitats.

4 Appropriate Assessment

4.1 Recreational Pressure and Disturbance

- 4.1.1 In the absence of appropriate avoidance/mitigation, a likely significant effect on Thames Estuary and Marshes SPA and Ramsar site could occur during the operational phase of the Proposed Development due to increased recreational pressure from new residents in combination with new residents associated with other schemes within the Zol. Although this has not been quantified through a detailed in combination assessment, employing the precautionary principle it is assumed as a reasonable worst-case scenario.
- 4.1.2 The potential for recreational pressure and disturbance to occur on the Thames Estuary and Marshes SPA and Ramsar site as a result of the Proposed Development requires mitigation.
- 4.1.3 The North Kent Strategic Access Management and Monitoring Scheme²⁴ provides guidance on suitable mitigation measures. There are currently two main mechanisms that provide funding for measures to avoid, and mitigate for, impacts on European sites: the Community Infrastructure Levy (CIL), or an individual planning obligation referred to as a Section 106. Large developments may be able to provide mitigation measures as part of the development, such as dedicated areas for dog walking.
- 4.1.4 The CIL places a levy on new development that then provides funding to meet local infrastructure requirements, enabling growth to proceed with adequate and maintained infrastructure in place. Section 106 agreements can be bespoke and specific to individual proposals.
- 4.1.5 Bird Wise, the recipients of the tariff, is a partnership of local authorities, developers and environmental organisations, and is the brand name for SAMMS. The Bird Wise Mitigation Strategy identifies mitigation measures that the Section 106 agreement payment will support, with the aim of reducing the adverse effects of the SPA/Ramsar from the Northfleet project to a level that is non-significant.
- 4.1.6 Gravesham Borough Council²⁵ state that “Developers are requested to pay the full tariff of £314.05 for every new dwelling or non-C3 residential use, provided within 6 km of the Ramsar site and SPA and for

²⁴ Liley, D. & Underhill-Day, J. (2013). Thames, Medway and Swale Estuaries – Strategic Access Management and Monitoring Strategy. Unpublished report by Footprint Ecology.

²⁵ Gravesham Borough Council. SAMMS tariffs.

larger housing developments beyond 6 km from them.” The fee is subject to inflation and will increase annually.

4.1.7 The Proposed Development will include the provision of significant planting and landscaping on-site to encourage residents to use on-site greenspaces and reduce pressure on the SPA/Ramsar site. As detailed in ES Volume 1, Chapter 14: Ecology and Biodiversity, in order to help manage operational footfall, and therefore reduce impacts on, nearby designated sites the following mitigation measures have been embedded within the design:

- The provision of adequate minimum on-site open space for operational amenity.
- The provision of an information centre/cafe within the Power Park, next to the play areas, to encourage walks around the site as opposed to within designated sites, and to provide information regarding notable species and habitats including relevant protection measures within the local area.

4.1.8 The following mitigation measures will be provided as part of the Proposed Development:

- Mixed woodland,
- Modified grassland,
- Pocket parks,
- Pedestrian priority public realm.

4.2 Calculating SAMM

4.2.1 The cost of implementing the mitigation measures will increase with inflation; the per dwelling tariffs will be updated each year. The cost per dwelling currently stands at £314.05. The final cost will need to be calculated at Reserved Matters stage as it is currently unknown how many properties would be within the 6 km Zone of Influence.

4.2.2 The Bird Wise Mitigation Strategy states *“Mitigation in relation to student accommodation, Houses in Multiple Occupation (HMOs), residential care homes, residential nursing homes, hotels, boarding and guest houses, hostels, holiday parks and all other residential institutions, will be considered on a case-by-case basis. Factors to consider will be proximity to the coastal areas, size of development and the likelihood of residents using the SPA for recreational activities. This is in keeping with advice received from Natural England in 2015.”*

4.2.3 With contributions to SAMMS provided in line with the above tariffs it would be possible to conclude that the Proposed Development will not lead to Likely Significant Effects on the Thames Estuary and Marshes SPA and Ramsar site.

4.2.4 The scheme will need to provide detailed dwelling numbers during Reserved Matters Application during the detailed design process and base payments off the specific number of dwellings.

5 Conclusion

5.1.1 The Proposed Development comprises a mixed-use development c. 5.7 km west of the Thames Estuary and Marshes SPA and Ramsar site. This increase in population is likely to cause an increase in recreational pressure on the SPA.

5.1.2 Plots 10, 11, 12 and 13 of the Proposed Development are within the 6 km ZoI for the Thames Estuary and Marshes SPA and Ramsar site. A financial contribution for the dwellings in these plots will be required.

5.1.3 This report to inform a shadow HRA has been able to determine that as a result of the Proposed Development of the land adjacent to the River Thames in Northfleet, in the borough of Gravesham in Kent, in relation to recreational pressure and disturbance, atmospheric nitrogen deposition, reduced

water quality, air pollution, and loss of supporting habitat there will be no likely significant effect on the Thames Estuary and Marshes SPA and Ramsar site, either as a result of the project alone, or in combination with any other plans or projects.

- 5.1.4 This conclusion is reached based on the payment of a financial contribution to Bird Wise and the inclusion of accessible greenspace within the Proposed Development to mitigate for the likely significant effect of recreational pressure and disturbance to the SPA that would otherwise result from the Proposed Development.

Appendix A Relevant Legislation

A.1 The Conservation of Habitats and Species Regulations 2017 (as amended)

- A.1.1 The Conservation of Habitats and Species Regulations 2017 (as amended) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.
- A.1.2 Under the Regulations, competent authorities, *i.e.* government departments and public bodies, have a general duty to have regard to the EC Habitats Directive and Wild Birds Directive. The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I and II of the Habitats Directive respectively) to the European Commission. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs) classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites form a network termed Natura 2000. The Regulations enable the country agencies to enter into management agreements on land within or adjacent to a European site, in order to secure its conservation. The Regulations also provide for the control of potentially damaging operations, whereby consent from the country agency may only be granted once it has been shown through appropriate assessment that the proposed operation will not adversely affect the integrity of the site. When considering potentially damaging operations, the precautionary principle applies, *i.e.* consent cannot be given unless it is ascertained that there will be no adverse effect on the integrity of the site.
- A.1.3 The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a few purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

Appendix B Wintering Bird Survey Summary 2022-2024

- B.1.1 There is no suitable overwintering habitat present on the Proposed Development site due to the urban nature and infrastructure present, however, there is potential overwintering habitat neighbouring the site in the form of foraging habitat on the mudflats, and foraging and roosting habitat in Robin's Creek. The mudflat and Robin's Creek habitats are linked by the River Thames to the Swanscombe Peninsula SSSI and the Thames Estuary and Marshes SPA. Therefore, in order to establish if these habitats are functionally linked to either the SPA or SSSI winter bird surveys were undertaken in the winters of 2022-2024.
- B.1.2 Foraging and roosting habitat is present in the neighbouring Swanscombe Peninsula SSSI with the Botany Marshes and Black Duck Marsh areas of the SSSI being assessed in 2020 as functionally linked habitat to the Thames Estuary and Marshes SPA. Due to this, updated surveys were undertaken in the winter of 2023-2024 in a zone of influence agreed with Natural England, to confirm whether the area is still functionally linked and to inform mitigation, if required.
- B.1.3 In order to establish usage by waterfowl and waders, within the zone of influence of the development, surveys were undertaken based on the BTO's Wetland Bird Surveys (WeBS) methodology. Core counts of wetland birds were taken, and intertidal (low tide with one high tide) surveys were undertaken (tidal areas only). These surveys were extended to include the noting of potential disturbance events and any reactions shown by the birds in order to establish a basic baseline of what disturbance levels the birds on the mudflats may already be habituated to due to the neighbouring gravel works.
- B.1.4 During the surveys no Annex 1 species that use the Thames Estuary and Marshes SPA in internationally important populations were found to be using the mudflats or Robin's Creek or the surveyed area of Swanscombe Peninsula SSSI.
- B.1.5 One of the species the Thames Estuary and Marshes SPA supports in internationally important numbers of regularly occurring migratory species was found to be using land adjacent to the site: redshank (*Tringa tetanus*) (within the mudflats) and two nationally important migratory species the SPA supports: teal (*Anas crecca*) (found to be using Robin's Creek and Swanscombe Peninsula) and shelduck (*Tadorna tadorna*) (found using the mudflats and Swanscombe Peninsula). One other species which contributes to the internationally important waterfowl assemblage within the Thames Estuary and Marshes SPA was found on the mudflats, shoveler (*Anas clypeata*).
- B.1.6 Whilst these species were found in the surveyed areas these were all in low numbers with a peak count of 2no. redshank foraging on the mudflats in November 2023.
- B.1.7 Peak counts of 30no. teal were observed roosting and foraging in Robin's Creek in November 2023, an increase on the peak count found during the previous year's survey data of 14no. using the mudflats briefly whilst travelling from east to west up the Thames, and 6no. in Robin's Creek in January 2023.
- B.1.8 Peak counts of 3no. shelduck were seen in Swanscombe Peninsula in March 2024. Peak counts of 2no. shoveler were seen on the mudflats in January 2023. Thirteen other wading and waterfowl species were recorded.
- B.1.9 Peak numbers of waterfowl and waders using Robin's Creek was 34no. in November 2023 and in the zone of influence of the development within Swanscombe Peninsula was 177no. In February 2024.
- B.1.10 Peak counts on the mudflats were lower with only 19no. records in December 2023, however higher counts of other waterfowl were noted flying up from east to west up the Thames without stopping at the site.

- B.1.11 The overall number and species counted during the survey of the mudflats and Robin's Creek do not make up numbers of national or international importance and when compared to the 5-year peak mean population of species at the Thames Estuary Marshes. For example, for redshank the peak mean population is 3251 birds, this suggests that the relative importance of this area of mudflats and Robin's Creek is of limited importance to overwintering bird species and is not functionally linked to the SPA. Due to the low numbers of overwintering waterfowl using the mudflats and Robin's Creek habitat it is thought these neighbouring habitats do not provide functionally linked overwintering habitats to the SSSI or SPA of any significant value. Therefore, it is thought that any disturbance generated by the construction will not be significant on overall overwintering populations so will not have an effect on the favourable conservation status of Interest features of the SPA.
- B.1.12 The overall number and species counted during the survey within the zone of influence follows data collected in 2019/2020 and 2012/2013 London Resort Wintering Bird Baseline (reference: edp5988_r003e) and remains of a species assemblages that would not be regarded as important at the International or National level in their own right. Due to numbers recorded some of the area in the zone of influence in Swanscombe Peninsula acts a locally important area for roosting and resting. It is likely that the waders and waterfowl populations are part of a wider meta-populations that may at some time use any of all designated sites along the wider Thames system and therefore this habitat in the Botany Marsh area of the site is functional linked to the Thames Estuary SPA.
- B.1.13 Given their status as functionally linked land this area must be considered at the International level for nature conservation value. Despite this due to distance, species present and visual barriers of vegetation in between these roosting sites and the proposed development, impacts are expected to be low and best practice guidelines will be followed during the development to mitigate any impacts on waterfowl waders using the foraging and roosting habitats in the zone of influence of the development. These will be fully detailed in the CEMP and wintering bird report but will include methods such as visual and noise barriers between the site and these habitats and specific methodologies to noisy works such as slow starts for piling to limit disturbance and a wildlife friendly lighting plan. Therefore, it is thought that any disturbance generated by the construction will not be significant on overall overwintering populations so will not have an effect on the favourable conservation status of Interest features of the SPA.

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