# 8. BIODIVERSITY

## Introduction

8.1 This chapter of the ES assesses the likely significant effects of the Development on the environment in respect of biodiversity and ecology.

8.2 This Chapter has been prepared by Poppy McVail of Aspect Ecology. Poppy is an Associate with 15 years' experience in ecological consultancy and is a Full member of the Chartered Institute for Ecology and Environmental Management (MCIEEM), a Chartered Ecologist (CEcol) and a Chartered Environmentalist (CEnv).

## Policy Context

### National Planning Policy

#### *National Planning Policy Framework*[i]

8.3 Guidance on national planning policy for biodiversity and geological conservation is provided within the National Planning Policy Framework (NPPF), published by the Ministry of Housing, Communities and Local Government in March 2012 and revised in February 2019. The NPPF confirms the Government's commitment to conserving and enhancing the natural and local environment through the planning system, including specific reference to maintenance and enhancement of biodiversity. The NPPF takes forwards the Government's strategic objective to halt overall biodiversity loss as set out in paragraph 170, which states that *'Planning policies and decisions should contribute to and enhance the natural and local environment by:*

> *a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
>
> *b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland.'*

8.4 Paragraph 170 of the NPPF also states that:

> *'d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.'*

8.5 With regard to planning applications and biodiversity, Paragraph 175 of the NPPF states that:

> *'When determining planning applications, local planning authorities should apply the following principles:*
>
> *a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
>
> *b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
>
> *c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
>
> *d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'*

8.6 In Paragraph 180, the NPPF advises that *'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should: c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'*

8.7 Further guidance on national planning policy is set out within the OPDM Circular 06/2005 entitled 'Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System'[ii], which is referenced in the NPPF. The Circular provides guidance on the application of law relating to planning and nature conservation, including statutory designations, protected species, and other ecological features such as Priority Habitats.

8.8 National planning policy therefore implicitly recognises the importance of biodiversity and that with sensitive planning and design, development and conservation of natural heritage can co-exist and benefits can, in certain circumstances, be obtained.

### *Planning Practice Guidance*[iii]

8.9 The national Planning Practice Guidance 2019 (PPG) provides further guidance to local authorities on planning for the natural environment including biodiversity, geodiversity and ecosystems. This contains information on the requirement for ecological surveys to inform planning applications, how developments should be encouraged to protect and enhance biodiversity, and guidance on the use of the 'mitigation hierarchy' to avoid, mitigate, or compensate for significant harm to biodiversity.

8.10 The PPG therefore explains the need to protect biodiversity through the planning system, but equally to consider the opportunities for development to enhance biodiversity, which should be led by a local understanding of ecological networks.

## Local Planning Policy

### *Adopted Medway Local Plan*[iv]

8.11 The adopted Medway Local Plan (2003) includes policies in relation to biodiversity of relevance to the Development comprising:

- Policy BNE35: *'International and national nature conservation sites. Development that would materially harm, directly or indirectly, the scientific or wildlife interest of these sites will not be permitted unless the development is connected with, or necessary to, the management of the site's wildlife interest. Development for which there is an overriding need will exceptionally be permitted if no reasonable alternative site is (or is likely to be) available. The overriding need will be judged against the national and/or international ecological importance of the affected nature conservation designation'*.
- Policy BNE37: *'Wildlife Habitats. Development that would cause a loss, directly or indirectly, of important wildlife habitats or features not protected by policies BNE35 and BNE36 will not be permitted, unless: (i) there is an overriding need for the development that outweighs the importance of these wildlife resources; and (ii) no reasonable alternative site is (or is likely to be) available if ancient woodland, inter-tidal habitats and calcareous (chalk) grassland would be lost; and (iii) the development is designed to minimise the loss involved; and (iv) appropriate compensatory measures are provided'*.
- Policy BNE38: Wildlife Corridors and Stepping-Stones: *'Development should, wherever practical, make provision for wildlife habitats, as part of a network of wildlife corridors or stepping-stones'*.
- Policy BNE39: Protected Species: *'Development will not be permitted if statutorily*

*protected species and/or their habitat will be harmed. Conditions will be attached, and/or obligations sought, to ensure that protected species and/or their habitats are safeguarded and maintained'*.

*Emerging Medway Local Plan*[v]

8.12 A new Local Plan is currently being prepared by Medway Council for the period of 2019 to 2037 which will replace the 2003 Local Plan and set out a vision for future development in Medway. The new Local Plan is likely to be adopted in 2022, and the emerging plan contains a number of draft policies in relation to biodiversity which are relevant to the Development, comprising:

- Draft Policy NE 1: Sites of international importance for nature conservation: *'The estuaries and marshes of the Thames, Medway and Swale are designated Special Protection Areas (SPAs) and Ramsar sites in recognition of their international importance as wetland habitats…These sites require the highest level of protection from development that could damage the features of the designated areas. No development will be permitted which may have an adverse effect on the integrity of an SAC, SPA or Ramsar site, alone or in combination with other plans or projects, as it would not be in accordance with the Habitats Regulations 2010 (as amended) and the aims and objectives of this emerging Local Plan'*.
- Draft Policy NE2: Conservation and Enhancement of the Natural Environment: `*The council recognises the hierarchy of sites designated for their importance for nature conservation. In addition to the sites of international importance set out in Policy NE1, Medway includes Sites of Special Scientific Interest, Local Nature Reserves, Local Wildlife Sites and a Marine Conservation Zone. The council will promote the conservation and enhancement of biodiversity in Medway, by restricting development that could result in damage to designated wildlife areas, and pursuing opportunities to strengthen biodiversity networks'*.
- Draft Policy NE5: Securing strong Green Infrastructure: *'The council will protect the network of green infrastructure across rural and urban Medway. The highest protection will be given to securing the ecological and landscape interests of sites designated of international importance as a Special Protection Area, Ramsar site and/or Special Area of Conservation…Wider components of the green infrastructure network will be protected in line with the analysis and strategy set out in the emerging Green Infrastructure Framework. This will include open space assets, landscape buffers and green infrastructure zones. New development should provide for green infrastructure that supports the successful integration of development into the landscape, and contributes to improved connectivity and public access, biodiversity, landscape conservation, design, management of heritage features, recreation and seeks opportunities to strengthen the*

*resilience of the natural environment. The council will expect development proposals to demonstrate that they are designed to be resilient to, and can adapt to the future impacts of climate change, in strengthening ecological networks'*.

### National and Local Biodiversity Action Plans

8.13 The UK Biodiversity Action Plan, published in 1994[vi], was the UK Government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. This has now been replaced by the UK post-2010 Biodiversity Framework which focuses on the four individual countries of the United Kingdom.

8.14 Within England, the latest biodiversity strategy is entitled 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services', published by Defra on 19th August 2011 with a progress update provided in July 2013[vii]. This provides a comprehensive picture of how England is implementing its international and EU commitments and sets out the strategic direction for biodiversity policy for the next decade.

8.15 The approach is informed by the list of species and habitats of 'Principal Importance' under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006[viii] which largely reflects those species and habitats previously listed under the UK Biodiversity Action Plan (BAP) that occur in England.

8.16 A number of local BAPs have also been produced, identifying priorities and targets for action at a local level. This includes the emerging Kent Biodiversity Strategy[ix], produced by the Kent Nature Partnership.

8.17 Reference to habitats and species listed as Priority Habitats and Species under Section 41 of the NERC Act and local BAPs is made where relevant in the following sections of this chapter.

### Legislative Context

8.18 The applicable legislative framework for ecology and nature conservation is summarised as follows:

- The Conservation of Habitats and Species Regulations, 2017 (as amended)[x];
- Wildlife and Countryside Act, 1981 (as amended)[xi];
- The Natural Environment and Rural Communities Act, 2006;
- The Countryside and Rights of Way Act, 2000[xii];
- Town and Country Planning (Environmental Impact Assessment) Regulations, 2017 (as

amended)[xiii];

- The Hedgerows Regulations, 1997[xiv];
- The Protection of Badgers Act, 1992[xv]; and
- The Wild Mammals (Protection) Act, 1996[xvi].

## Assessment Methodology

### Consultation

#### *Natural England*

8.19 Pre-application consultation was carried out with Natural England through their Discretionary Advice Service (DAS) in September 2019 (refer to Appendix 8.1), with their views sought on an Initial Concept Plan for the Development. At that time, the Initial Concept Plan included areas to the east and west of the Site which now do not lie within the Site boundary. Natural England did not raise any "In Principle" objection to redevelopment of the Site, subject to the appropriate environmental assessments being carried out. The response noted the requirement for noise and air quality modelling, and the presence of the Medway Estuary Marine Conservation Zone (MCZ) within a portion of the Site. The response also stated that the Appropriate Assessment would need to consider air quality, surface water and foul discharges during construction and operation, loss of functionally linked land and recreational disturbance to birds and habitats. Natural England also noted that land adjacent to the western boundary of the Site is proposed as a managed realignment site within the Medway Estuary and Swale Strategy (MEASS) shoreline management strategy.

8.20 Natural England also provided a response to Medway Council on the EIA Scoping consultation in August 2020 and provided general standing advice (refer to Appendix 8.2).

#### *Environment Agency*

8.21 The Environment Agency (EA) provided a response to the EIA Scoping consultation in September 2020 (refer to Appendix 2.2 of the ES). The EA did not object to the proposals and offered comments in relation to the Development, some of which are relevant to biodiversity. The EA response notes there are records of European Eel *Anguilla anguilla* in Damhead Creek and Parcel 3 and therefore recommends the potential impacts on migration routes and how Eels may use the habitats is either scoped into the ES, or assessed for whether a suitable justification can be found to scope it out through an avoidance measure in principle through design. The desktop study (which obtained records from the local Biological Records

Centre) did not return any records of Eel from within the Site or within 2km of the Site, and no evidence of Eels were recorded during any of the other survey work undertaken, such as during the amphibian surveys and invertebrate surveys.

8.22 The existing drainage network (whereby Eels could potentially enter the Site) is described in Chapter 9 Water Resources and Flood Risk of the ES, and comprises an extensive surface water drainage system which discharges to the River Medway via a series of coastal outfalls, drained by a series of gravity drains and pumped drainage systems. The outfalls to the River Medway include a manually controlled penstock and outfalls with interceptors. All of these systems will be retained and are incorporated into green corridors around the Site. Any additional surface water run-off as a result of the Development will be attenuated with a series of new pond and swale features which can deliver ecological benefits (refer to Appendix 8.4). This is set out in the 'Inherent Design Mitigation' section of this chapter and on that basis, it has not been considered necessary to scope European Eel into the assessment of the likely significant effects of the Development on biodiversity and ecology in this chapter.

8.23 The EA response notes that from reviewing aerial imagery, the eastern end of Parcel 4 appears to comprise a relic of estuarine creeks and floodplain grazing marsh. Consideration of whether this area qualifies as Priority Habitat is set out in paragraphs 4.2.8 to 4.2.10 of Appendix 8.5. The response also notes that there may be an opportunity for successful reconnection and reinstatement of a wetland network. The area in question sits behind the Site flood defences and so there is no prospect of reconnecting the area with off-site habitats. However, the area and its links to the existing network of waterbodies and ditches will be retained within green infrastructure corridors as set out in the 'Inherent Design Mitigation' of this chapter.

8.24 Finally, the EA response also notes that there is an opportunity to design an integrated and sustainable layout which protects designated sites and achieves and maintains biodiversity net gain. This ES chapter assesses the potential for designated sites to be affected by the Development, and the Development parameters have been tested using the current (Beta testing version) version of the DEFRA metric to ensure that a net gain would be achievable within the Site at the detailed design stage. This sits outside of the EIA process and net gains are therefore not discussed further in this Chapter.

*Kent County Council*

8.25 Kent County Council (KCC) provided a response to Medway Council on the EIA Scoping consultation in August 2020 under their Ecological Advice Service (EAS) (refer to Appendix 8.3). The response was based on a larger site than the Site, which included areas of saltmarsh and grassland within and adjacent to Medway Estuary Special Protection Area (SPA), Ramsar

and Site of Special Scientific Interest (SSSI) to the east and west of the Site. The Site boundary has since been reduced and now does not include these areas within the Site.

8.26 The KCC response notes that terrestrial invertebrate surveys have been carried out and recommends aquatic invertebrate surveys are undertaken of the on-site waterbodies and intertidal and sub-tidal mudflats surrounding the Site. As set out in Table 8.1 below, a scoping survey was carried out by specialist surveyors in May 2019 to identify areas of the Site which warranted targeted detailed invertebrate survey work. This identified the northern and eastern parts of the Site (Parcel 1 and Parcel 4) as containing habitats which could support invertebrate interest. Detailed surveys were carried out in these areas in 2019 and 2020, with the results set out in Appendix 8.4. The survey methodology included netting of all accessible aquatic habitats within the survey area, including all open water, emerging, submerged and floating vegetation (see paragraph 1.4.4 of Appendix 8.4). As such, it is considered a full appraisal of the value of the on-site waterbodies for invertebrates has been incorporated into the overall evaluation of the invertebrate assemblage at the Site. Since the response was produced, the Site boundary has been reduced such that no intertidal, sub-tidal or mudflats lie within the Site. As such, it is not considered necessary to carry out invertebrate surveys of these off-site habitats in order to inform the assessment.

8.27 The KCC response also notes that Otter surveys were not carried out, but that Otter signs were searched for during the Water Vole surveys. Specific searches for Otter were carried out in all accessible waterbodies within and adjacent to the Site, and indeed the surveys confirmed Otter presence on land adjacent to the east of the Site. As such, Otter are scoped into the assessment.

8.28 The KCC response notes that no Seal surveys have been undertaken, and that there are records of Common Seal *Phoca vituline* within the Site boundary and Grey Seal *Halichoerus grypus* within 1km. Since the response was received, the Site boundary has reduced and there is now no suitable habitat for Seals within the Site. Suitable habitat is present adjacent to the Site for Seals to haul out on the rising/falling tide, albeit none were recorded during the extensive survey work undertaken for wintering and passage birds during 2019 and 2020 (refer to Appendices 1-6 of the Document to Inform a Habitats Regulations Assessment (HRA) which comprises Appendix 8.8 and 8.9 of the ES). Common and Grey Seal are scoped into the assessment on the basis that they may occasionally make use of the estuarine habitats adjacent to the southern boundary of the Site. The assessment draws on a study of Seals across the entire Greater Thames Estuary (refer to paragraph 8.150 below), which included shoreline surveys and powerboat surveys to identify the locations of Seal colonies across the Thames and Medway estuaries and coastlines (for breeding, resting and moulting). For these

reasons it is not considered that specific surveys for Seals are required to inform a robust assessment of the effects of the Development on Common and Grey Seal.

8.29 The response also notes that the assessment should consider any impact of habitat severance and include proposals for maintaining and enhancing habitat connectivity. These elements have been incorporated into the Development parameters as part of inherent mitigation and are incorporated into the assessment (for example, by considering the potential for habitat fragmentation for fauna).

8.30 Finally, the response also states the proposals should demonstrate biodiversity net gains in accordance with NPPF principles (until such time the Environment Bill is enacted into law). The Development demonstrates biodiversity net gains in accordance with NPPF principles by delivering habitat creation, and a range of habitat and faunal enhancements which is set out in detail below. Due to the scale of the Development, the construction period is predicted to span 11 years and therefore it is acknowledged that Development is likely to be built out at a time when the Environment Bill has been enacted into law, at which point it will be mandatory to demonstrate a measurable net gain in relation to habitats (set at 10% in the current draft of the Bill). Accordingly, the Development parameters have been tested using the current (Beta testing version) version of the DEFRA metric to ensure that a net gain would be achievable within the Site at the detailed design stage. This sits outside of the EIA process and so is not discussed further in this Chapter.

### Defining the Zones of Influence

8.31 To inform the scope of the assessment, consideration has been given to the zone of influence of the Development. The zone of influence is defined as the area over which important ecological features may be affected by the biophysical changes caused by the Development and associated activities during both the construction and operational phases.

8.32 The approach to defining the zone of influence is based on that described in 'Guidelines for Ecological Impact Assessment in the UK and Ireland' published by the Chartered Institute of Ecology and Environmental Management (CIEEM)[xvii]. Box 10 of the CIEEM guidelines sets out a range of considerations for establishing zones of influence, which takes into account important ecological features, sensitivities and activities which may generate ecological impacts. In this respect, the zones of influence have been selected on the basis of site specific circumstances with particular regard to the surrounding ecological designations and have been identified to take in relevant receptors. This is in line with the CIEEM guidance which states in paragraph 2.21 *'the zones of influence will vary for different ecological features depending on their sensitivity to environmental change'*. As such, that it is difficult to define

a specific zone of influence which captures all potential effects arising from the Development. Accordingly, two broad zones have been identified as described below and shown on Figure 8.1.

*Primary Zone of Influence*

8.33 The primary zone is defined as the land within the Site itself and surrounding land within 100m. This incorporates habitats and associated species which could be directly affected by the Development footprint and associated works (in terms of habitat loss or damage). This zone also includes areas which could be affected by factors such as noise, vibration, lighting, dust and pollution, the effects of which will be focused within the nearby surrounds of the Site. Survey work has specifically focused on the primary zone of influence to allow an assessment of habitats and species which may be directly affected by the Development.

*Secondary Zone of Influence*

8.34 Beyond the primary zone, a wider (or secondary) zone of influence has been identified, where ecological features may be subject to wider scale effects, such as recreational disturbance, air pollution from traffic or water pollution within the wider River Medway catchment. The assessment of features within this zone is largely based on background information identifying ecological designations, or known habitats and/or species populations of importance which could be sensitive to such wider scale effects. Based on the above, the secondary zone of influence is defined as land between 100m and 2,000m from the Site, as shown on Figure 8.1.

Methodology – Survey Work

8.35 The methodology utilised for the survey work can be split into four main areas: a desktop study, habitat survey, botanical survey, and a range of faunal surveys. The methodology was scoped and agreed with Medway Council as part of the EIA scoping exercise (refer to Appendices 2.1 and 2.2 of the ES). In addition, the assessment has been informed by a review of previous ecological survey work undertaken at the Site, for example to inform the demolition of the former Kingsnorth Power Station, including surveys for Water Vole, Great Crested Newt, reptiles, breeding birds and wintering birds. This information is referred to where relevant within this chapter and also detailed in the Preliminary Ecological Appraisal (Appendix 8.5) and Ecology Report (Appendix 8.6).

*Desktop Study*

8.36 In order to compile background information on the Site and its immediate surroundings, Kent and Medway Biological Records Centre and the Kent Wildlife Trust were contacted, with data on non-statutory designations and species records from within the last 10 years returned on the basis of an approximate minimum search radius of 2km from the Site.

8.37 Information on statutory designations and areas mapped as Priority Habitat was obtained from the online Multi-Agency Geographic Information for the Countryside (MAGIC) database[xviii], which utilises data provided by Natural England. Other data sources checked as part of the desktop study included the Woodland Trust database of notable, veteran and ancient trees. Further detail is provided in Appendix 8.5 and 8.6.

*Habitat Survey*

8.38 The Site and wider surroundings were subject to a Phase 1 habitat survey in April 2019 in order to ascertain the general ecological value of the land contained within the boundaries of the Site and to identify the main habitats and ecological features present. An update walkover survey was carried out in May 2020 to identify any notable changes to the habitats present. The 2020 update walkover recorded conditions were largely consistent with the 2019 survey work carried out, and as such the conclusions of the survey work are considered to remain robust. The surveys included areas which now no longer lie within the Site boundary to the east and west of the Site.

8.39 The survey area was surveyed based on the standard Phase 1 Habitat Survey methodology[xix], whereby the habitat types present are identified and mapped, together with an assessment of the species composition of each habitat. This technique provides an inventory of the basic habitat types present and allows identification of areas of greater potential which require further survey. Any such areas identified can then be examined in more detail through Phase 2 surveys. This method was extended, in line with the Guidelines for Preliminary Ecological Appraisal,[xx] to record details on the actual or potential presence of any notable or protected species or habitats. The results are set out in full in the Preliminary Ecological Appraisal (Appendix 8.5).

*Botanical Survey*

8.40 The Phase 1 Habitat Survey identified five areas (three within the Site and two adjacent to the Site) with the potential to support notable plant species. A botanical survey was undertaken of these areas in May and July 2019, with the results set out in full in the Ecology

Report (Appendix 8.6). Habitats within the five areas were inspected for plants with rarity status, and the locations of any such species were recorded together with an estimate of abundance based on the 'DAFOR' scale:

- D: Dominant (75%) cover;
- A: Abundant (51-75% cover);
- F: Frequent (26-50% cover);
- O: Occasional (11-25% cover); and
- R: Rare (1-10% cover).

*Faunal Surveys*

8.41 General faunal activity, such as new mammal field signs, or birds observed visually or by call during the course of the surveys detailed below (and during subsequent Site visits during 2019, 2020 and 2021) were also recorded, so as to establish the baseline conditions at the Site over an extended time period.

8.42 A summary of survey work undertaken to inform the Development is set out at Table 8.1 below. Further detail on survey methodologies is provided in the Ecology Report at Appendix 8.6.

**Table 8.1 Summary of Phase 2 Faunal Surveys undertaken at the Site**

| Faunal Group | Survey Methodology | Date of Latest Surveys | Guidance |
|---|---|---|---|
| Roosting Bats – Preliminary Assessment of Buildings and Trees | Inspections of buildings and trees were carried out using high powered torches and binoculars to identify any evidence of roosting bats and record potential roosting features, enabling an assessment of the suitability of the tree/building for roosting bats to be carried out. | July 2019 and May 2020 | 'Natural England Standing Advice: Bats'; 'Bat Mitigation Guidelines' (English Nature, 2004);<br><br>'Bat Surveys – Good Practice Guidelines' (Bat Conservation Trust, 2012);<br><br>'Bat Surveys for Professional Ecologists – Good Practice Guidelines' 3rd edition (Bat Conservation Trust, 2016) |
| Commuting and Foraging Bats - manual activity surveys | Five dusk activity surveys were undertaken at the Site to gather information on its use by foraging and commuting bats. This involved surveyors walking a planned transect route through land within the Site and to the east of the Site with regular five minute stopping points, recording all bat activity. The transect route was designed to cover all potentially suitable habitat | Monthly, May to September 2019 with update habitat assessment in May 2020 | |

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|---|---|---|---|
| | for commuting/foraging within the Site. | | |
| Commuting and Foraging Bats - automated activity surveys | Two static bat detectors were positioned at various positions within the Site for a minimum of five days each month for four months i.e. eight positions in total. | Monthly, May to August 2019, with update habitat assessment in May 2020 | |
| Badger | The Site and immediate surrounds were surveyed for evidence of Badger setts and activity, including presence of well-worn paths, push-throughs, snagged hair, footprints, latrines and foraging signs. | June 2019 and May 2020, plus incidental records during all other surveys | 'Natural England Standing Advice: Badger'; 'Occasional Publication No. 9 – Surveying Badgers' (Mammal Society, 1989) |
| Water Vole | Relevant habitats within the Site (such as ditches and ponds) were searched for signs of Water Vole including latrines, burrows, feeding signs and footprints. | May and August 2019, with update habitat suitability assessment in May 2020 | Strachan *et al* '*Water Vole Conservation Handbook, third edition* (Wildlife Conservation Research Unit, Oxford, 2011) |
| Otter | Relevant habitats within the Site (such as ditches and ponds) were searched for the presence of Otter field signs, including holts, feeding signs, slides, footprints and spraints (undertaken concurrent with the Water Vole surveys). | May and August 2019, with update habitat suitability assessment in May 2020 | Life in UK Rivers *'Monitoring the Otter - Conserving Natura 2000 Rivers*' (2003) |
| Great Crested Newt | A total of 24 waterbodies were subject to a Habitat Suitability Index (HSI) to assess their potential to support Great Crested Newts (21 within the Site and three within 250m). | April 2019 and May 2020 | Oldham RS, Keeble J, Swan MJS & Jeffcote M (2000) '*Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus)'*. Herpetological Journal 10 (4), 143-155 |
| | Following the HSI assessment, 12 waterbodies were subject to an environmental DNA (eDNA) survey to determine presence/absence. Water samples were taken in accordance with published guidelines which were then analysed for the presence of Great Crested Newt DNA in a laboratory. | April 2019 | Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014). 'Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067.Freshwater Habitats Trust: Oxford |
| | Following the eDNA surveys, four waterbodies were each subject to six surveys to determine the size class of the population present. | April to June 2019 | 'Natural England Standing Advice: Great Crested Newts'; 'Great Crested Newt Mitigation Guidelines' (English Nature, 2001) |
| Reptiles | Presence/likely absence surveys were carried out in habitats potentially suitable for reptiles using artificial refugia on land within the Site and to the east of the Site. A total of 355 refugia were deployed and surveyed. | April and May 2019 with update habitat suitability assessment in May 2020 | Froglife Advice Sheet 10 Reptile Survey - an introduction to planning, conducting and interpreting surveys for snake and lizard conservation (Froglife, 1999) |

| | | | |
|---|---|---|---|
| Breeding Birds | Breeding bird surveys involved walked transects of the Site and land to the east and west of the Site under suitable weather conditions. Observations of all bird species were noted, and territories mapped. | Five surveys April to June 2019<br>Three surveys in June 2020 | Gilbert *et al Bird Monitoring Methods – A Manual of Techniques for Key UK Species* (RSPB, 1998)<br><br>Bibby *et al Bird Census Techniques* (BTO, RSPB and BirdLife, 2000) |
| Wintering Birds | Off-site intertidal habitats associated with Medway Estuary and Marshes SPA/Ramsar were split into 4 sections – Kingsnorth Near Shore, Damhead Creek, Hoo Flats and Hoo Marshes. All birds at each survey location were counted and recorded with the main aims of obtaining peak counts for all species, and locating significant feeding and/or roosting assemblages. | One visit in December 2018 and two visits per month in January, February and March 2019 (7 in total)<br><br>Two visits per month from October 2019 to March 2020 (12 total)<br><br>Two visits per month from October 2020 to March 2021 (12 total) | The Wetland Bird Survey WeBS (BTO) |
| Passage / Migratory Birds | | Two visits per month in April, May, September and October 2019. One visit in late August 2019.<br><br>Two visits per month in April, May, September and October 2020, and one visit in late August 2020. | |
| Invertebrates | A scoping survey was undertaken to appraise the habitats present in terms of their potential to support notable invertebrate species or populations. | May 2019 | |
| | The scoping survey identified four areas of the Site where further survey was recommended (in Parcels 1, 3, and 4). Active sampling of invertebrates was undertaken in these locations. A number of techniques were used including sweep netting, grubbing/hand searching, pond netting, suction sampling, pitfall trapping, malaise trapping and pan trapping. | September 2019 and May, June and July 2020 | - |

## Methodology – Assessment

### *Evaluation of the Ecological Baseline*

8.43 The evaluation of ecological features and resources is based on professional judgement whilst also drawing on the latest available industry guidance and research. The approach taken in this report is based on that described in 'Guidelines for Ecological Impact Assessment in the

UK and Ireland' published by the CIEEM in 2018 (most recently revised in September 2019) whereby important ecological features are identified, and these are considered within a defined geographical context using the following frame of reference:

- International;
- National;
- Regional;
- County;
- District;
- Local; and
- Site (not of elevated importance at a local level).

8.44 Features considered to be of importance at the site level only have been scoped out of this assessment.

8.45 As set out in Chapter 2 EIA Methodology of the ES, the sensitivity of a receptor is a function of its capacity to accommodate change and reflects its ability to recover if it is affected (i.e. tolerance, adaptability and recoverability). There is no set methodology in the CIEEM guidance to define sensitivity, and in this assessment sensitivity of the receptor to change is based on the scale below:

- 'High' – The receptor has little ability to absorb change without fundamentally altering its present character;
- 'Moderate' – The receptor has moderate capacity to absorb change without fundamentally altering its present character; and
- 'Low' – The receptor is tolerant of change without detriment to its character.

*Characterising Ecological Impacts*

8.46 The approach for the assessment of impacts follows the CIEEM Guidelines 2018 which sets out a methodology for the assessment of potential effects arising from proposed development. These methods are summarised below.

8.47 Based on the Development set out in Chapter 3 Site and Development Description of the ES, likely effects of the Development are determined with reference to aspects of the ecological structure and function on which the feature or resource depends. This includes factors such as the available resources, ecological processes, human influences, historical context, ecological relationships, ecological role or function, and ecosystem properties. Based on this

context, the nature of the effect is characterised and considered under the following parameters:

- Positive or negative or neutral – will the activity lead to an 'adverse', 'beneficial' or 'neutral' effect;
- Extent – the size or amount of an impact, the area of habitat or number of individuals affected;
- Duration – the time for which the impact is expected to last prior to recovery or replacement, i.e. short-term, medium term or long-term;
- Reversibility – an effect may be irreversible in that recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it, i.e. permanent or temporary; and
- Timing and frequency – some changes may only cause an impact if they coincide with critical life-stages or seasons, whilst frequent events may cause a greater effect than a single event.

8.48 Based on these parameters, the scale of effect (or magnitude) can be summarised as shown in Table 8.2 below. This summary is in relation to adverse effects, although the same scale should be applied to beneficial effects.

**Table 8.2 Assessment of Scale (or Magnitude) of Effect**

| Scale of Impact | Nature of Effect |
|---|---|
| Substantial | A permanent or long-term effect on the receptor, which may result in severe damage to key characteristics and implications for the integrity of the receptor or its conservation status. The effect could potentially be short, medium or long-term. |
| Moderate | Impacts resulting in partial loss of or damage to a receptor, which could have implications for the integrity of the receptor or its conservation status. The effect could potentially be short, medium or long-term. |
| Slight | Short/Medium-term or temporary impacts resulting in only minor loss of or damage to a receptor, unlikely to have implications for the integrity of the receptor or its conservation status. The effect could potentially be short, medium or long-term. |
| Negligible | No effect or only a short-term reversible impact with no long-term effect on the receptor. |

*Determining Significance of Ecological Effects*

8.49 Based on the nature of the effect, an assessment is then made as to whether the effect on a habitat or species is likely to be ecologically 'significant'. The CIEEM Guidance defines a 'significant effect' as:

> *'an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general'*, [going on to state that] *'significant effects encompass impacts on structure and function of defined sites, habitats or*

*ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).'*

8.50 Significance is also assessed at an appropriate geographic scale. For example, a significant effect on a SSSI is likely to be of national significance. Notwithstanding this however, consideration is also given to whether an effect is significant at a scale below the geographic context in which the feature is considered important.

8.51 For some ecological features (notably designations), there may be an existing statement of the conservation status of a feature and objectives and targets against which the effect can be judged. For example, SSSIs are assessed under six condition categories, comprising 'favourable', 'unfavourable recovering', 'unfavourable no change', 'unfavourable declining', 'part destroyed', and 'destroyed'. An effect that exerts a change between these condition categories would be considered as significant.

8.52 Where no existing statement of conservation status is available, an assessment is made against the existing status and condition of the habitat or species population, as recorded by survey data and background information, taking into account the level of ecological resilience or existing conditions that a habitat or species is currently subject to. An effect resulting in a long-term change to the existing background population trend or status at a given geographical level would be considered as significant. In this regard, a significant beneficial impact could be defined as one that prevents or slows an existing decline in the favourable conservation status of a habitat or population as much as one that permitted a population or habitat area to increase.

### Limitations and Assumptions

8.53 All of the species that occur in each habitat would not necessarily be detectable during survey work carried out at any given time of the year, since different species are apparent during different seasons. The habitat survey work and subsequent update survey was undertaken within the optimal seasonal period for botanical work. As such, it is considered that the broad habitat types could be identified and an adequate assessment of the intrinsic ecological interest of the Site could be made.

8.54 Attention was paid to the presence of any invasive species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). However, the detectability of such species varies due to a number of factors, e.g. time of year, Site management, etc., and hence the absence of invasive species should not be assumed even if no such species were detected during the Phase 1 survey, or other subsequent Site visits.

8.55 The eDNA survey recorded Great Crested Newts in Pond 1, Pond 2, Pond 5a as well as Ditch 3. During the population surveys of Ditch D3, it was not possible to use all of the standard survey methods due to the fluctuating water levels and steep banks. As a result, Ditch D3 could not be bottled trapped or netted and was only torched. Due to Pond 5a being lined and heavily overgrown with Canadian Pondweed, this pond could not be torched, netted or bottle trapped. Pond 2 was murky due to the substrates in the water and could not be torched. This is not considered to be a significant constraint, as eDNA has confirmed Great Crested Newt presence, whilst historic surveys and Natural England licence applications associated with the demolition of the former power station recorded low populations of Great Crested Newts. The 2019 surveys with the above survey constraints also recorded low populations of Great Crested Newts and as such, the access and visibility constraints do not appear to have adversely affected the survey results.

8.56 Bats can exhibit seasonal use of roosts and being highly mobile, may arrive and start using a site after it has been surveyed, or be roosting elsewhere during the period it was surveyed. Ground investigation works, sealed doors and different ownerships restricted external and / or internal inspections of some buildings, as noted in Appendix 8.5. This is not considered to be a significant constraint as the buildings inspected are all associated with Site infrastructure (such as pumping stations associated with the flood defences) and will therefore be retained unaffected within the Development. Not all trees could be inspected from all directions due to factors such as boundaries, dense scrub and the general complex nature of the woodland in the north-west portion of the Site. Additionally, features in trees can change rapidly, potentially becoming more suitable as time passes. These factors and limitations have been considered when assessing the buildings and trees for roost potential.

8.57 It should be noted that bats are a group of species with a range of dynamic behaviours and as such, bats can roost in different locations, forage in different areas and preferentially commute along different routes in response to a number of changing physical and environmental factors. The bat data collected during the bat surveys shows the number of contacts for different bat species. It is important to note that the number of contacts does not equate to number of individual bats, as several contacts can be generated by one bat flying past the surveyors several times. Instead, the number of contacts provides an index of bat activity, which can be used to identify areas of habitat of greater or lesser importance for bats.

8.58 Species identification by sonogram is limited to a certain extent by similarities in call structure parameters for certain species. All bats modulate their calls according to the habitats they are navigating and their behaviour. This imposes limitations on reliable identification of bats to species level for species of the same genus, and specifically for *Plecotus, Myotis and*

*Nyctalus* bats. Due to the location of the Site and known range of *Plecotus* bats, every *Plecotus* bat recorded was assumed to be Brown Long-eared bat. *Nyctalus* species (Noctule and Leisler's Bat) were separated where possible but grouped where call parameters overlapped and prevented reliable identification to species.

8.59 As set out in Chapter 2 EIA Methodology of the ES, this assessment assumes that no works are proposed to the existing jetties associated with the former power station uses (such as Long Reach jetty) as these lie outside the Site boundary. As such, it is not considered necessary to include any assessment related to changes of use from shipping, berthing, dredging etc as these do not form part of the Development.

8.60 The assessment in this Chapter is based on the Parameter Plan and the land use assumptions within those parameters set out in Chapter 3 Site and Development Description of the ES. The total amount of built floorspace for the Development shall not exceed 315,000sqm (GIA)/ 324,450sqm (GEA), excluding the potential lorry park (which would be up to 1ha in area), and therefore a worst case scenario has been assessed assuming:

- 61,800sqm (GEA) of Sui generis for energy uses (not exceeding 49.9MW, including energy from waste plant);
- 33,990sqm (GEA) of Use Class E(g)(iii) uses;
- 162,225sqm (GEA) of Use Class B2 uses;
- 66,435sqm (GEA) as Use Class B8 (non-data centre) uses; and
- 1ha of lorry park uses.

## Baseline Conditions

### Ecological Designations

8.61 Ecological designations that occur within the primary and secondary Zones of Influence are described in Appendix 8.5 and shown on Figure 8.2. Those which are considered to form important ecological features are described below and have been considered in this assessment.

**Table 8.3 Designations forming Important Ecological Features**

| Name | Status | Description | Approx. distance and direction from Site | Level of value |
|---|---|---|---|---|
| Medway Estuary and Marshes | SPA | A wetland of international importance comprising grazing marshes, inter-tidal flats and saltmarshes. The site provides breeding and wintering habitats for important assemblages of wetland bird species, particularly wildfowl and waders. | Lies adjacent to the southern Site boundary and portions of the western and eastern Site boundaries | International |
| | Ramsar | This site has a complex arrangement of tidal channels, which drain around large islands of saltmarsh and peninsulas of grazing marsh. The mud-flats are rich in invertebrates and also support beds of *Enteromorpha* and some Eelgrass *Zostera* spp. Small shell beaches occur. Grazing marshes are present inside the sea walls around the estuary. The complex and diverse mixes of coastal habitats support important numbers of water birds throughout the year. In summer, the estuary supports breeding waders and terns, whilst in winter it holds important numbers of geese, ducks, grebes and waders. The site is also of importance during spring and autumn migration periods, especially for waders. | | International |
| | SSSI | The Medway Estuary and Marshes form the largest area of intertidal habitats which have been identified as of value for nature conservation in Kent and are representative of the estuarine habitats found on the North Kent coast. A complex of mudflats and saltmarsh is present with in places grazing marsh behind the sea walls which is intersected by dykes and fleets. The area holds internationally important populations of wintering and passage birds and is also of importance for its breeding birds. An outstanding assemblage of plant species also occurs on the site. | | National |
| Medway Estuary | MCZ | The banks of the estuary provide spawning and nursery grounds for a variety of fish. The site is protected on the basis of its marine and intertidal habitats and its populations of European Smelt *Osmerus eperlanus* and the Tentacled Lagoon Worm *Alkmaria romijni* | Lies adjacent to the southern and eastern Site boundaries | National |
| Chattenden Woods and Lodge Hill | SSSI | Comprises a mosaic of habitats including ancient woodland, semi-natural woodland, scrub and grassland. Supports a nationally important population of Nightingale *Luscinia megarhynchos* during the breeding season. | 2.9km north-west | National |
| Tower Hill to Cockham Wood | SSSI | Comprises areas of woodland (largely neglected coppice), scrub, grassy clearings and notable populations of insects, particularly bees and wasps. | 3km west | National |

8.62 Aside from the Medway Estuary designations, there are no other ecological designations within the primary or secondary Zones of Influence (i.e. within 2km of the Site).

8.63 Tower Hill to Cockham Wood SSSI and Chattenden Woods and Lodge Hill SSSI are

substantially distanced from the Site but lie in proximity to the A228 road, and as such have the potential to be affected indirectly as a result of the Development, e.g. from increases in traffic. As such, although these SSSIs lie outside of the primary and secondary Zones of Influence, they are scoped into the assessment.

8.64 All other designations are considered to be sufficiently distanced from the Site that they do not form important ecological features and are not considered in the assessment (the nearest Local Nature Reserve (LNR) is Berengrave Chalkpit LNR, located approximately 4.6km to the south of the Site on the opposite side of the Medway Estuary. The nearest Local Wildlife Site (LWS) is 'Grazing Marsh at Upchurch' LWS, located approximately 2.2km to the south of the Site and also on the opposite side of Medway Estuary).

### *Habitats and Ecological Features*

8.65 Full details of the habitats and ecological features within the Site and primary Zone of Influence are set out in the Preliminary Ecological Appraisal, including Figures 3.2a-3.2e, at Appendix 8.5. A summary is set out in Table 8.4 below.

**Table 8.4 Summary and Evaluation of Important Habitats and Ecological Features present within Primary Zone of Influence**

| Habitat type | Description | Level of Importance |
|---|---|---|
| **Habitats On-Site** | | |
| Priority Habitat - Open Mosaic Habitat (OMH) | Two areas of OMH are present in the Site, located in the south-east corner of Parcel 1 (1.65ha) and the north eastern corner of Parcel 3 on the north side of Damhead Creek (0.72ha). These areas broadly meet the definitions for OMH developed by Riding *et al*, 2010, and are therefore considered to quality as Priority Habitat "Open Mosaic Habitat on Previously Developed Land" | County |
| Priority Habitat Woodland, and other Trees | An area of unmanaged secondary semi-natural broadleaved woodland occurs within the western side of Parcel 1. Tree species present include Birch *Betula* sp., Hornbeam *Carpinus betulus*, Willow *Salix* spp. and White Poplar *Populus alba*. Hawthorn C*rataegus monogyna* and Elder *Sambucus nigra* occur within the understory. A small line of planted trees occurs next to a ditch within the woodland. In two areas, there are woodland clearings which are dominated by grasses and mosses. The ground flora is limited and where vegetation occurs, it is dominated by Common Nettle *Urtica dioica.* Occasional flowering species such as Wood Forget-me-not and Herb Robert also occur.<br>The woodland in Parcel 1 is considered to meet the definition for Priority Habitat "Deciduous Woodland".<br><br>Scattered trees occur within the other parcels on the Site, including within areas of ornamental planting in Parcel 3 and alongside the flood defences in Parcel 2. | Local |
| Semi-improved | There are several areas of semi-improved neutral grassland on Site, with the largest extents associated with the eastern end of Parcel 4 and around the edges of Parcel 3. | Local |

| Habitat type | Description | Level of Importance |
|---|---|---|
| neutral grassland | Grass species present include Perennial Ryegrass *Lolium perenne*, Cocksfoot *Dactylis glomerata*, False Oat Grass *Arrhenatherum elatius* and Yorkshire Fog *Holcus lanatus*. Commonly encountered flowering species include Creeping Buttercup *Ranunculus repens*, Bugle *Ajuga reptans*, Ground Ivy *Glechoma hederacea*, White Clover *Trifolium repens* and Field Forget-me-not *Myosotis arvensis*.<br><br>Other flowering species also identified include Bulbous Buttercup *Ranunculus bulbosus*, Red Clover *Trifolium pratense*, Common Vetch *Vicia sativa*, Spotted Medick *Medicago arabica*, Birds-foot Trefoil *Lotus corniculatus*, Lesser Trefoil *Trifolium dubium* and Bladder Campion *Silene vulgaris*. | |
| Waterbodies (ponds and ditches) | A total of ten vegetated ditches are present within the Site associated with the flood defences and existing drainage infrastructure (ditches D1, D1a, D2, D3, D4, D5, D6, D7a, D7b and D7c on Figure 3.2a in Appendix 8.5).<br><br>Nine ponds are also present (P1, Pa, P2, P3, P4, P5a, P5b, P13 and P17).<br><br>These features are vegetated with common species such as Common Reed with occasional tall ruderal species such as Hemlock *Conium maculatum* and Common Nettle, and small numbers of common flowering species such as Yellow Iris *Iris pseudacorus*. | Local |
| **Habitats Off-site** | | |
| Off-site Areas Supporting Notable Plant Species | Botanical survey work carried out within and adjacent to the Site identified one species with rarity status on land to the west of the Site comprising Sea Barley *Hordeum marinum* (Priority Species, IUCN Red Data Book Vulnerable, Nationally Scarce).<br><br>Four species with rarity status were recorded on land to the east of the Site comprising Common Cudweed *Filago vulgaris* (IUCN Red Data Book Nationally Threatened), Golden Samphire *Inula crithmoides* (Nationally Scarce), Dittander *Lepidium latifolium* (Nationally Scarce) and Small Cord-grass *Spartica maritima* (Priority Species, Nationally Scarce, IUCN Red Data Book Endangered).<br><br>The botanical surveys did not identify any notable plant species in the three areas surveyed within the Site itself. | District |
| Off-site Intertidal saltmarsh | Intertidal saltmarsh occurs within the Medway Estuary and Marshes SPA/Ramsar/SSSI adjacent to the Site. The saltmarsh is dominated by Sea *Lavender Limonium* spp. and these areas are mapped as Priority Habitat. | District |
| Off-site intertidal mud/sand, shingles/ cobbles | Intertidal mud and sand occur within the Medway Estuary and Marshes SPA/Ramsar/SSSI adjacent to the southern Site boundary on the opposite side of the sea wall. These areas are mapped as Priority Habitat. | District |

8.66 The remainder of the Site is dominated by buildings and hardstanding, rubble and spoil heaps, scrub, ephemeral/short perennial vegetation, poor semi-improved grassland, scrub, tall ruderal vegetation and ornamental/introduced shrubs. These habitats are not considered to form important ecological features and therefore are not subject to specific assessment.

### Faunal Use of the Site

8.67 A range of faunal surveys were undertaken at the Site during 2019 and 2020 as set out in Table 8.2 above. Historically, other survey work has been carried out to inform the demolition of the former power station and other projects, which has also been drawn upon in the assessment. A summary of faunal species considered to be of ecological importance occurring within the Site and the primary Zone of Influence is set out in Table 8.5 below.

**Table 8.5 Summary and Evaluation of Important Faunal Species Present within the Site and Primary Zone of Influence**

| Faunal species | Description | Level of Importance |
|---|---|---|
| Roosting Bats – Buildings and Trees | The preliminary roost assessment identified four buildings with bat roost potential as shown on Figure 3.5 within Appendix 8.6, including Buildings B1, B2, B5 and B7.<br><br>Eight trees with high bat roosting potential (T1, 2, 5, 6, 7, 11,16,17), two trees with moderate bat roosting potential (T13 and T18) and six trees (T4, 8, 9, 12, 14 and 15) with low bat roosting potential were identified as shown on Figure 3.5 within Appendix 8.6.<br><br>Given the very large size of the Site, this is a low number of potential roosting features and reflects the open nature of the Site with few buildings and trees present. | Site-Local |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Commuting and Foraging Bats | A large proportion of the Site is sub-optimal for commuting and foraging bats where bare ground, buildings and hard standing is dominant, and the habitats along the sea wall which is open in nature and exposed to the weather. Habitat suitable for commuting and foraging bats is present around the Site in areas of woodland, grassland, ponds and inundation vegetation and along linear features such as scrub edges and ditches.<br><br>The bat activity transects and static monitoring recorded an assemblage of eight bat species utilising the Site to some extent, including Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Noctule, Leisler's, Brown Long-eared, Serotine, and *Myotis* sp.<br><br>Levels of recorded bat activity were very low, and dominated by Common and Soprano Pipistrelle passes with very occasional passed from other species. The highest number of passes during the remote static monitoring was recorded at the southern end of the woodland in Parcel 1, where only 109 passes were recorded over five nights (i.e. average 22 passes per night, or approximately 3 passes per hour).<br><br>Activity was focussed within and around the woodland, the trees in the northern portion of Parcel 2 and the linear habitats around the edges of Parcel 4 (e.g. along Ditch D3). Very little/no activity was recorded elsewhere. The results of the surveys are shown on Figure 3.6a-3.6e within Appendix 8.6.<br><br>Based on the survey work undertaken, it appears that the northern portion of the Site (i.e. Parcels 1 and 4 and the northern portion of Parcel 2) forms part of a wider commuting and foraging resource for bats in the local area and therefore is likely to be value at the Local level. This area of the Site is also likely to form part of the Core Sustenance Zones for bats roosting off-site in the wider surroundings. The rest of the Site is likely to be of value in the context of the Site only given the very low (or none at all) levels of activity recorded and the habitats present. | North portion of the Site (Parcel 1 and 4 and northern portion of Parcel 2): Local<br><br>Remainder of the Site: Site level only |
| Badger | One main sett was recorded, on the western edge of Parcel 4. No other confirmed active setts were recorded, although some disused single-hole outlier setts off-site to the east along with one potential active outlier sett were recorded.<br><br>Other signs of Badger activity were uncommon but widely dispersed, including latrines in Parcels 3 and 4 and off-site to the east and west, indicating that Badgers from the active sett forage widely across the site.<br><br>It is possible that other Badger setts could be present off-site to the west of Parcels 1 and 2 although the lack of signs in Parcel 1 suggests that the main foraging range of Badgers from the main sett is eastwards in Parcels 3 and 4. The results of the Badger surveys are shown on Figure 3.4 within Appendix 8.6. | Site-Local |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Otter | No evidence of Otter was recorded in the ponds or watercourses within or adjacent to the Site during the survey work undertaken. A single Otter spraint was recorded off-site to the east at a location not near any watercourses.<br><br>The Site is enclosed by security fencing and no Otter signs were recorded within the Site. It therefore appears most likely that Otter are not accessing the Site itself, but appear to be moving along the estuary in the wider surroundings. The results of the Otter surveys are shown on Figure 3.7 within Appendix 8.6. | Within the Site: Negligible<br><br>Adjacent to the Site (i.e. along estuary): Local |
| Water Vole | The majority of the habitats within the Site are generally unsuitable for Water Vole, mostly comprising hardstanding and colonising vegetation, in addition to scrub and semi-improved neutral grassland. The ditches and ponds on Site offer suitable opportunities for this species.<br><br>Survey work recorded evidence of Water Vole in ditches D1, D3, D4, D5, D6, D7, and Pond P17. Water levels in D3 fluctuate significantly and so may not support Water Vole all year round. Field signs recorded include burrows, latrines and feeding signs, and a Water Vole was seen in Ditch D5. The features where Water Voles are present are fragmented across the Site and therefore are likely to comprise separate populations. The results of the Water Vole surveys are shown on Figure 3.7 within Appendix 8.6. | District |
| Common Seal and Grey Seal | There are records of Common Seal and Grey Seal utilising the Medway Estuary and there is suitable habitat for Seals to rest and forage adjacent to the southern Site boundary and to a lesser extent within the terminus of Damhead Creek adjacent to the eastern Site boundary. The presence of Seals was not noted during any of the bird surveys undertaken at the estuary during 2019 or 2020, nonetheless as potentially suitable habitat is present off-site, individuals may utilise these habitats to some extent.<br><br>The habitats adjacent to the Site are unlikely to support breeding or any sizeable numbers of resting Seals, as the habitats above the High Water Mark are very small in extent. | Within the Site: Negligible<br><br>Adjacent to the Site (i.e. along estuary): District |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Great Crested Newt | Great Crested Newts were recorded to be present in Ponds P1, P2 and Ditch D3 in Parcel 4, and Pond P5a/b in Parcel 1 as shown on Figure 3.1 within Appendix 8.6.<br><br>Ponds P1 and P2 are former receptor ponds for a Natural England mitigation licence for the demolition of the former power station. Ponds P5a/b are also former receptor ponds for a Natural England mitigation licence for the demolition of two cottages in Parcel 1 which formed the former nature centre for the power station.<br><br>An assessment of the population size class is based on the maximum count of adult Great Crested Newts recorded on any one survey visit. This was 6 (4 in Pond 1 and 2 in Pond 2) recorded during the fourth survey visit.<br><br>The population of Great Crested Newts on the Site is therefore estimated to be 'low' (1-9 individuals). Given that presence was recorded via eDNA in Pond 5a/b and Ditch 3, but none were seen during surveys, it may well be the case that the population estimate would have been higher if P5a/b and D3 had been easier to survey - but P5a/b was mostly dry and water levels in D3 fluctuated considerably; it often held water soon after rain but would dry out within a few days. Therefore, it is considered unlikely that either waterbody is currently capable of supporting significant numbers of Great Crested Newt and are both also unlikely to support breeding in their current state.<br><br>The estimate of a population size class of 'low' is hence considered to be accurate. | Local |
| Reptiles | Surveys recorded low populations of Grass Snake (maximum adult count 0 but a peak count of two juveniles were recorded and therefore adults must be present - a low population is assumed), and good populations of Slow-worm (maximum adult count 7) and Common Lizard (maximum adult count 12) (see Figure 3.2 within Appendix 8.6).<br><br>Reptiles were found in the majority of the locations where suitable habitat was present in Parcels 1, 2 and 4. Very few reptiles were recorded from Parcel 3 and these were from the habitat north of Damhead Creek immediately adjacent to Parcel 4, along with one Grass Snake recorded in the ditch at the eastern edge of Parcel 3.<br><br>There are also records (from members of the public and subsequent verification by Kent Reptile and Amphibian Group KRAG) of a population of the non-native Wall Lizard (*Podarcis muralis*) present to the south-west of the Site and along the southern Site boundary and likely to be associated with the sea wall. | On-site native reptile species (Grass Snake, Common Lizard and Slow-worm): District<br><br>Off-site non-native reptile species (Wall Lizard): Negligible |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Breeding Birds | Large areas of the Site, particularly in Parcels 2 and 3 are unsuitable for breeding for most species of birds, being dominated by buildings and hardstanding. However, the remainder of the Site contains suitable habitat for breeding birds in the form of trees, grassland, scrub and ruderal vegetation.<br><br>The 2019 surveys recorded total 87 species, of which 55 were confirmed breeding and 1 probably breeding within the Site and its immediate surroundings, such as in Damhead Creek or Hoo Marshes. Breeding territories of a small number of notable species were identified including Black Redstart, Cetti's Warbler, Little Ringed Plover, Cuckoo, Ringed Plover, Skylark, Song Thrush, House Sparrow, Lapwing, Linnet, Nightingale and a number of RSPB Amber listed species.<br><br>The 2020 surveys recorded a total of 70 species, of which 41 were breeding/probably breeding and 11 possibly breeding either on-site or in the immediate surroundings. Additional notable species recorded to be breeding/probably breeding which were not recorded in 2019 include Avocet (off-site), Barn Owl (off-site), Starling, Mistle Thrush and a small number of RSPB Amber listed species. Full details can be found in the Document to Inform an HRA (Appendix 8.8 and 8.9). | Within the Site: County<br><br>Adjacent to the Site in Medway Estuary and Marshes SPA/Ramsar: International |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Wintering Birds | The Site itself is not considered to be of particular value for wintering birds due to the habitats present and as such, survey efforts were focussed on the estuary habitats adjacent to the Site.<br><br>The 2018/2019 surveys identified six key high tide roosts off-site in the estuary, at Bishops Island, Oakham Marsh, Damhead Creek, habitat south of the sea wall to the east of Longreach Jetty, habitat south of the sea wall to the west of Longreach Jetty and at Hoo Marsh to the west of the Site (this is discussed further in the Document to Inform an HRA in Appendix 8.8 and 8.9).<br><br>A total of 43 species were recorded in these off-site estuary habitats. No species were recorded in internationally important numbers. Avocet were recorded at nationally important numbers. Brent Goose, Teal and Black-tailed Godwit were recorded in locally important numbers. Teal, Little Grebe, Oystercatcher, Greenshank and Lesser Black-backed Gull were recorded in numbers greater than 50% of the SPA mean peak. In addition, surveys recorded 10 Schedule 1 species, six Priority Species, six RSPB Red listed species, 30 RSPB Amber listed species and 17 SPA/Ramsar qualifying species.<br><br>The 2019/2020 surveys identified the same key roosting sites and a total of 69 species. No species were recorded at internationally or nationally important numbers. Brent Goose, Avocet and Bar-tailed Godwit were recorded in locally important numbers. Gadwall, Little Grebe, Shag and Kingfisher were recorded in numbers greater than 50% of the SPA mean peak. In addition, the 2020 surveys recorded 17 Schedule 1 species, eight Priority Species, ten RSPB Red listed species, 32 Amber listed species and 21 SPA/Ramsar qualifying species.<br><br>The 2020/2021 surveys identified the same key roosting sites and a total of 48 species. No species were recorded at internationally important numbers. Nationally important numbers of Greenshank were recorded. Locally important numbers of Avocet, Brent Goose, Dunlin and Shoveler were recorded.<br><br>Full details can be found in the Annexes to the Document to Inform an HRA (Appendix 8.9). | Within the Site: Site-Local<br><br>Adjacent to the Site in Medway Estuary and Marshes SPA/Ramsar: International |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Passage / Migrant Birds | The Site itself is not considered to be of particular value for passage birds due to the habitats present and as such survey efforts were focussed on the estuary habitats adjacent to the site.<br><br>The 2019 surveys identified the six key off-site roosting areas were used by passage birds as mentioned above. The surveys recorded 53 species in the off-site habitats. No species were recorded in internationally or nationally important numbers. Little Egret, Redshank, Mediterranean Gull, Black-tailed Godwit and Bar-tailed Godwit were recorded in locally important numbers. Kingfisher, Mew Gull, Whimbrel, Redshank and Bar-tailed Godwit were recorded in numbers greater that 50% of the SPA mean peak. In addition, the 2019 surveys recorded 12 Schedule 1 species, eight Priority Species, seven RSPB Red listed species, 25 RSPB Amber listed species and 22 SPA/Ramsar qualifying species.<br><br>The 2020 surveys identified the six key roosting areas mentioned above and a total of 60 species. None were recorded in internationally important numbers. Black-tailed Godwit was recorded in nationally important numbers. Little Egret, Avocet, Black-tailed Godwit and Greenshank were recorded in locally important numbers. Greenshank was also recorded in numbers greater than the 50% SPA mean peak. In addition, surveys recorded eight Schedule 1 species, eight Priority Species, nine RSPB Red listed species, 26 RSPB Amber listed species and 22 SPA/Ramsar qualifying species. Full details can be found in the Document to Inform an HRA (Appendix 8.8). | Within the Site: Site-Local<br><br>Adjacent to the Site in Medway Estuary and Marshes SPA/Ramsar: International |

| Faunal species | Description | Level of Importance |
|---|---|---|
| Invertebrates | The preliminary scoping assessment identified Parcels 1 and 4 as having many features of potential value to invertebrates and therefore detailed surveys were carried out in these areas. Other areas of the Site were not identified as having habitats with the potential to support populations of invertebrates of elevated importance.<br><br>The surveys in Parcel 1 and 4 recorded a total of 901 species. Eight Priority Species were recorded including Phoenix Fly, Five-banded Weevil Wasp, Sea Aster Bee, Brown-banded Carder Bee, Large Garden Bumble Bee, Grizzled Skipper, Small Heath and Wall. In addition, the surveys recorded 15 Nationally Rare/Red Data Book species and 68 Nationally Scarce species. Pantheon software was used to identify the key habitats within the survey area. The Pantheon representation scores for tall sward and scrub, short sward and bare ground and marshland scored most highly, indicating these habitats support rich invertebrate fauna.<br><br>A Species Quality Index (SQI) score was generated for each habitat type, and four habitats scored close to 150, which is the approximate threshold suggested by Natural England which corresponds to a 'good' site supporting a regionally important invertebrate fauna. These habitats included short sward and bare ground (SQI score 146), peatland (SQI 146), marshland (SQI 140) and decaying wood (SQI 140).<br><br>Overall, the surveys recorded a large and diverse invertebrate assemblage in Parcels 1 and 4. The habitats at the eastern end of Parcel 4 are identified as the most important elements of the Site.<br><br>The full results of the invertebrate surveys are set out in Appendix 8.4. | Parcel 1 and Parcel 4: Regional-National<br><br>The rest of the Site: Local |

8.68 Faunal species which have been scoped out from the assessment include species which are likely absent from Site such as Dormouse, or species/species groups which are not of importance beyond the context of the Site, such as Smooth Newts and other common amphibians.

### Future Baseline

8.69 At the time the former power station was operational at the Site, the Site was managed to maintain the landscape and amenity around the power station, for example, by carrying out tree and shrub maintenance and mowing the verges along the power station roads. The woodland and area around Ponds P5a/b formed part of a Nature Study Centre housed in two cottages and this portion of the Site was therefore managed to some extent to benefit biodiversity in the past. Following decommissioning of the power station, the cottages were demolished and the nature area ceased to be managed (in 2014). Following the completion of the demolition of the power station, no management has taken place other than general maintenance (for example grass mowing, maintenance of the flood defences such as ditch

dredging, and tree removal for Health and Safety reasons), and therefore currently the Site is not actively managed to benefit biodiversity.

8.70 In the absence of the Development and any further management, it is expected that scrub habitats would in time encroach over the grassy glades within the woodland in the north-west portion of the Site, which would reduce their value botanically and for its associated populations of invertebrates, reptiles and Great Crested Newts. Over time, scrub encroachment would potentially also reduce the extent of the OMH within the Site which would affect its associated populations of invertebrates, as well as reducing the suitability of grassland habitats to support reptiles. As such, the Development presents the opportunity to secure the future baseline of the Site by bringing retained and new habitats into active management to benefit biodiversity. Alternatively, under a do-nothing scenario, the invertebrate habitats would otherwise largely be lost and the interest of the Site for its associated faunal populations would also be reduced due to a decline in habitat quality.

## Likely Significant Effects

### Inherent Design Mitigation

8.71 The Development has been assessed in terms of its likely significant effects on biodiversity and has been developed following an iterative process of design, with a number of inherent mitigation measures incorporated as part of the Development as set out in Chapter 3 Site and Development Description of the ES, such as the provision of SuDS and green infrastructure.

8.72 A key inherent mitigation measure is the retention and creation of wildlife corridors and networks around an across the Site by incorporating green and blue infrastructure into the Development. This includes a green corridor around the entire Site perimeter, along with the retention of the woodland in the north-eastern portion of the Site and the semi-improved grassland and ditch networks in the eastern portion of Parcel 4. Due to the nature of the Site (with the majority of central areas comprising hardstanding), this represents retention of the key areas where faunal populations have been recorded during the survey work. All of the wetland areas, ditches and waterbodies with the exception of one pond (Pond P17 in Parcel 3) fall within these areas and so will be retained. The design of the corridors is such that all commuting routes for bats are retained, and the main Badger sett is retained and set within a 30m buffer zone.

8.73 Currently, north-south habitat connectivity across the site is poor, due to the large expanse of hard standing in the centre of the Site on the footprint of the former power station. A new 20m wide habitat corridor will be created here as shown on Figure 3.2 Parameter Plan of the

ES which will improve habitat north-south habitat connectivity and provide habitat improved links between the centre of the Site and the habitats along the estuary edge, which will benefit invertebrates in particular.

8.74 A number of the identified important ecological features are thermophilic such as reptiles and some species of invertebrates, and therefore modelling was carried out to ensure the retained habitats would not be affected by overshading of the proposed new buildings to the extent that they would reduce in quality for thermophilic species. The modelling used SunCalc to test all relevant building plots where buildings could cast shade onto these habitats to ensure they received at least 8 hours of sun per day, using a worst case scenario of the maximum building heights at the edge of the plot. Full details of the methodology and the results of the modelling are set out in Appendix 8.7. As a result of the modelling, a 40m no-building zone is shown on the Parameter Plan along the eastern end of the Parcel 4 build plot.

### Identifying Potential Effects

8.75 This section sets out the potential significant effects of the construction and operational phases of the Development on the identified important ecological features and assesses their significance. Table 8.6 below identifies potential effects of the Development which have been scoped in for assessment in terms of important ecological features. All receptors are considered in this Chapter, with the exception of Medway Estuary and Marshes SPA/Ramsar/SSSI, wintering birds and passage/migrant birds, which are all considered in the Document to Inform an HRA (Appendices 8.8 and 8.9). A summary of the findings of the HRA is set out where relevant below.

**Table 8.6 Summary of Potential Effects on Important Ecological Receptors Arising from the Development**

| Receptors | Potential Effects | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Construction Phase (temporary effects) | | | | Operational Phase (permanent effects) | | | |
| | Temporary land-take / damage (construction) | Disturbance (visual, noise) | Hydrology and pollution (dust generation, run-off) | Lighting (construction) | Permanent land-take | Anthropogenic effects / disturbance | Hydrological effects and pollution | Permanent lighting |
| Ecological Designations | | X | X | X | | X | X | X |

| Receptors | Potential Effects | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Construction Phase (temporary effects) | | | | Operational Phase (permanent effects) | | | |
| | Temporary land-take / damage (construction) | Disturbance (visual, noise) | Hydrology and pollution (dust generation, run-off) | Lighting (construction) | Permanent land-take | Anthropogenic effects / disturbance | Hydrological effects and pollution | Permanent lighting |
| Habitats | X | | X | | X | | X | |
| Roosting Bats | X | X | | X | X | X | | X |
| Commuting and Foraging Bats | X | X | | X | X | X | | X |
| Badger | X | X | | X | X | X | | X |
| Otter | X | X | X | X | X | X | X | X |
| Water Vole | X | X | X | | X | X | X | |
| Common and Grey Seal | | X | X | X | | X | X | X |
| Great Crested Newt | X | | X | | X | | X | |
| Reptiles | X | | X | | X | X | | |
| Breeding Birds | X | X | X | X | X | X | X | X |
| Invertebrates | X | | X | | X | | X | |
| Wintering Birds – considered in HRA (Appendix 8.8) | X | X | X | X | X | X | X | X |
| Passage/Migrant birds – considered in HRA (Appendix 8.8) | X | X | X | X | X | X | X | X |

Note: Effects which are scoped into the assessment are marked 'X'. However, this does not indicate a significant effect.

## Construction Phase

8.76 The potential effects considered within this section are those relating to temporary factors arising from the construction process, such as removal of existing infrastructure within the Site (e.g. roads), breaking up of slabs, soil movements and land profiling, construction site noise or dust production etc., which will cease to apply following completion of the Development. Thus, loss of habitats through permanent land take for development is an operational phase effect, although the land take actually occurs during the construction phase of the Development.

8.77 This section draws on information provided in other chapters of the ES where appropriate, including Chapter 11 Air Quality and Chapter 9 Water Resources and Flood Risk. It also draws on information from the Noise Assessment submitted in support of the planning application.

*Construction Effects on Ecological Designations and Associated Fauna*

*Medway Estuary and Marshes SPA/Ramsar/SSSI, Functionally Linked Land at Damhead Creek, and Associated Fauna including Breeding Birds, Wintering Birds and Passage/Migrant Birds*

8.78 An assessment of the potential for the Development to generate likely significant effects on European designations and associated functionally linked land during the construction phases is considered in a Document to Inform an HRA (refer to Appendix 8.8). Medway Estuary and Marshes SPA/Ramsar was scoped into the assessment due to its proximity to the Site.

8.79 The Document to Inform a HRA also considered the potential for likely significant effects at the terminus of Damhead Creek. This lies outside of the SPA/Ramsar and is not subject to any designation, but the intertidal habitats present are contiguous with it and lies adjacent to the Site, and as such considered to form functionally linked habitat to the SPA/Ramsar.

8.80 The Document to Inform an HRA reviewed the identified threats and pressures (i.e. potential impact pathways) relevant to the designation, which were then assessed in terms of whether the Development would generate likely significant effects. These included coastal squeeze[1], changes in biotic conditions, changes in abiotic conditions[2], invasive species, public access/disturbance, changes in species distribution and air pollution (emissions from the Site and traffic).

8.81 In the absence of mitigation, the Document to Inform an HRA identified likely significant effects during construction from disturbance of qualifying bird species from noise, lighting, vibration and visual disturbance, and the degradation of supporting habitats from changes in water quality (from increases in surface water run-off, wastewater generation and accidental discharge of polluted water) and dust deposition. Therefore, a Stage 3 Appropriate Assessment was carried out, the results of which are summarised below.

[1] Coastal squeeze is defined as the loss of natural habitats or deterioration of their quality arising from anthropogenic structures or actions, preventing the landward transgression of those habitats that would otherwise naturally occur in response to sea level rise in conjunction with other coastal processes. Coastal squeeze affects habitat on the seaward side of existing structures.
[2] Biotic conditions refer to living parts of the environment (such as flora and fauna), while abiotic conditions are non-living chemical and physical parts of the environment that can affect living organisms of the functioning of ecosystems (such as pH and temperature).

*Medway Estuary MCZ*

8.82 The Medway Estuary MCZ lies adjacent to the southern and eastern boundaries of the Site. The MCZ designated on the basis of its populations of European Smelt (fish), which migrate into the tidal River Medway to spawn in early spring, and the Tentacled Lagoon Worm present in mudflats. The banks of the estuary provide spawning and nursery grounds for a variety of fish.

8.83 The MCZ does not lie within the Site and therefore there would be no direct effects on the habitats supporting these species (e.g. from temporary land take).

8.84 Chapter 9 Water Resources and Flood Risk of the ES states that construction activities could increase the surface water run-off from the Site, with a potential increase in sediment being present within the run-off. Any increase in run-off may increase the potential pathway for dirty (sediment laden) water discharging into ecological designations, for example, through failure of the existing drainage system (e.g. from a blockage causing increase surface water run-off within the Site), potentially increasing turbid run-off to surrounding habitats. In addition, there is also the potential for accidental discharge of untreated run-off to the existing on-site drainage network and surrounding surface watercourses/waterbodies (such as the estuary). There is also the potential for direct contamination of surface water and surrounding ecologically designated sites to occur due to the potential generation of wastewater during construction. Wastewater may be generated through the use of unsuitable material, substances, equipment or construction techniques. Activities associated with machinery during construction could lead to an increase in turbid runoff and spillages/leaks of fuel, oil etc. These elements have the potential to cause a reduction in water quality within the MCZ.

8.85 In the absence of mitigation, such effects are considered likely to be moderate negative and short-term, which is significant at the national level in relation to increased run-off and wastewater generation and accidental discharge of polluted water. No other effects are expected to occur as the habitats within the MCZ are not sensitive, for example, to dust deposition.

*Chattenden Woods and Lodge Hill SSSI*

8.86 Chattenden Woods and Lodge Hill SSSI lies approximately 2.9km north-west of the Site and comprises a mosaic of habitats woodland, scrub and grassland. Large areas of the woodland are also mapped as ancient semi-natural woodland and the SSSI also supports a nationally important population of breeding Nightingale.

8.87 Due to the distance of the SSSI from the Site, no direct effects would occur during construction, such as noise disturbance, pollution from run-off or dust deposition.

8.88 There is the potential for indirect effects to occur such as air pollution from construction traffic travelling along the A228. The Impact Risk Zones (IRZ) developed by Natural England around the SSSI state air pollution from some development types to be an impact risk, and woodlands are known to be vulnerable to air pollution, particularly from Nitrogen deposition, Ammonia, and acid deposition[xxi]. The southern boundary of the SSSI lies adjacent to the A228, which will be the primary road along which construction traffic will pass. The southern boundary of the SSSI is narrow, and widens as it extends north away from the road beyond the former Chattenden Barracks and Deangate Ridge Golf Course, such that the vast majority of the SSSI lies approximately 400m to 700m from the A228. The nearest parcel of mapped ancient woodland within the SSSI lies approximately 400m from the road at Deangate Wood.

8.89 Chapter 11 Air Quality of the ES considers the potential effects of nitrogen dioxide ($NO_2$), and Particulate Matter ($PM_{10}$ and $PM_{2.5}$) concentrations from construction traffic on human and ecological receptors, and does not identify any significant effects in relation to any ecological receptors.

8.90 Therefore, overall effects on the SSSI as a result of construction of the Development are considered to be negligible and non-significant.

*Tower Hill to Cockham Wood SSSI*

8.91 Tower Hill to Cockham Wood SSSI lies approximately 3km to the west of the Site and comprises woodland (largely neglected coppice), scrub, grassy clearings and notable populations of insects, particularly bees and wasps.

8.92 Due to the distance of the SSSI from the Site, no direct effects would occur during construction, such as noise disturbance, pollution from run-off or dust deposition.

8.93 There is the potential for indirect effects to occur, such as air pollution from construction traffic travelling along the A228. The IRZ for the SSSI do not list air pollution as an impact risk, although as noted above, it is known that woodland habitats can be vulnerable to air pollution. The SSSI is located approximately 300m south of the A228 at its closest point, however the majority is more than 400m away. A single portion of mapped ancient semi-natural woodland lies at the eastern end of the SSSI, approximately 675m south of the A228.

8.94 Chapter 11 Air Quality of the ES considers the potential effects of $NO_2$, $PM_{10}$ and $PM_{2.5}$ concentrations from construction traffic on human and ecological receptors, and does not identify any significant effects in relation to any ecological receptors.

8.95 Given the above, it is considered indirect effects on the SSSI as a result of air pollution from construction traffic passing along the A228 is unlikely. Therefore, overall effects on the SSSI as a result of construction of the Development are considered to be negligible and non-significant.

*Construction Effects on Habitats*

*Open Mosaic Habitat*

8.96 Surveys have identified two areas of OMH within the Site, one in the south eastern corner of Parcel 1 (1.65ha) and a second smaller area in the north eastern corner of Parcel 3 on the north side of Damhead Creek (0.72ha). These areas broadly meet the definitions for OMH developed by Riding *et al*, 2010, and are therefore considered to quality as Priority Habitat "Open Mosaic Habitat on Previously Developed Land".

8.97 The larger area in the south-eastern corner of Parcel 1 has developed over the now demolished office buildings associated with the former power station, where a mosaic of habitats has developed around the remaining hard standing slabs and areas of stored materials (such as piles of sand and aggregates). This area will be removed in its entirety during construction in order to develop the associated building plot. The smaller area in the north-eastern corner of Parcel 3 has developed over an unused area of the former power station, where crushed concrete and broken up slabs have been deposited in the past and have colonised with ruderal and scrub species, sitting alongside a gravelly track with areas of bare ground and short vegetation. This area lies within an area shown as green infrastructure on Figure 3.2 Parameter Plan of the ES and will therefore be retained and will not be directly affected during construction.

8.98 The area of retained OMH lies on a bank several metres above the level where construction will be taking place and as such, would not be affected by changes from polluted surface water run-off, or accidental damage (e.g. from vehicle movements). In the absence of mitigation, there is the potential for dust to deposit on the vegetation and affect habitat quality, which in turn may have adverse effects on associated fauna, particularly invertebrates. Retained OMH has the potential to be adversely affected from inappropriate design of green infrastructure at the detailed design stage of the Development (for example from landscaping works with inappropriate planting or provision of public access/footpaths

through the area).

8.99 OMH is generally of value for the invertebrate species it supports, it develops over disturbed ground and is not typically of value in and of itself but for a range of common habitat types (such as tall ruderal, scrub and bare ground) coming together to form a mosaic. Although these habitats remain common in the wider context, the mosaics they form can be classified as Priority Habitat. In the absence of mitigation, the temporary loss of 1.65ha of OMH Priority Habitat, the risk of dust deposition onto retained OMH and inappropriate landscape design at the detailed design stage of the Development is considered to be moderate negative in the short-term, which is considered to be significant at the County level.

*Woodland and Other Trees*

8.100 One area of woodland is present in the north-west portion of the Site to the west of the Site entrance (refer to Figure 3.2b in Appendix 8.5). A portion of the woodland is mapped as Priority Habitat 'Deciduous Woodland'. The woodland is relatively young in nature as aerial photography from 1990 show the area was dominated by scrub, with little woodland present at that time (refer to paragraph 4.2.7 in Appendix 8.5).

8.101 As shown on Figure 3.2 Parameter Plan, the woodland is to be retained in full as part of the Development's green infrastructure and as such will not be affected directly during construction, for example, from temporary land take. The woodland is securely fenced off from the rest of the Site and accessed via a locked gate, and as such, effects from accidental damage are highly unlikely. There is the potential for the woodland to be indirectly affected during construction, for example, from increases in surface water run-off and wastewater, accidental discharge of polluted water, and dust deposition. The woodland also has the potential to be adversely affected by inappropriate design of green infrastructure at the detailed design stage of the Development (for example, from inappropriate provision of public access, or unsuitable planting specifications). This has the potential to the reduce the habitat quality of the woodland, for example. by changing the structure and species composition. In the absence of mitigation, this has the potential to be moderate negative in the short-term, which is considered to be significant at the Local level.

8.102 There are a number of scattered trees within the Site, the majority of which are immature-semi-mature broadleaf trees in small blocks alongside the roads, which are remnants of the landscaping associated with the former power station. A more substantial tree line is present along the north-west Site boundary (northern end of Parcel 2) on the north side of the flood defence bund, which will be retained within a green infrastructure corridor. A small number of other trees are located in areas of scrub, particularly in the northern parcel to the east of

the access road.

8.103 The existing access road will be upgraded and may require widening – the majority of the roadside trees lie on substantial grass verges and are set well back from the road, and as such are unlikely to be affected directly by any necessary upgrade works. These will be retained if possible at the detailed design stage of the Development. It is assumed that a small number of trees may require removal where they cannot be incorporated into the detailed design (for example where road upgrades extend significantly into the tree Root Protection Zone). In addition, a proportion of the trees located in scrub in the northern portion of the Site lie under the footprint of the built Development area on Parcel 1 and will therefore also require removal to facilitate construction.

8.104 There is also the potential for retained trees to be affected during construction, for example, from accidental damage (e.g. inappropriate storage of materials close the tree). It is not considered that the trees would be particularly vulnerable to polluted surface-water run-off or dust deposition, given they are largely landscaped trees on the verges of existing roads.

8.105 The removal of a small number of roadside immature/semi-mature trees and trees within scrub in the built Development area on Parcel 1 to facilitate construction, and the risk of indirect effects on retained trees (such as accidental damage) is considered to be slight negative and long-term, which is not significant.

*Semi-improved Grassland*

8.106 Several areas of semi-improved grassland are present within the Site, including within and to the west of the woodland in Parcel 1, along the western boundary associated with the flood defence bund (western sides of Parcel 2), around the south-eastern boundary (along the sea wall, footprint of former storage tanks and alongside Damhead Creek in Parcel 3), and a portion of the eastern boundary (the eastern portion of Parcel 4).

8.107 A proportion of the grassland will be retained, for example, where associated with the flood defences and woodland and the majority of the eastern portion of Parcel 4. There is the potential for areas of retained grassland to be indirectly affected during construction for example from accidental damage (e.g. vehicle movements and soil compaction), increases in surface water run-off and wastewater, accidental discharge of polluted water, and dust deposition, which could adversely affect the quality and extent of the habitat.

8.108 Some areas of semi-improved grassland will be lost temporarily, for example, to facilitate construction of SuDS features within the green infrastructure corridors.

8.109 In the absence of mitigation, the temporary loss of a proportion of the semi-improved grassland and the potential indirect effects on retained grassland during construction is considered to be moderate negative and short-term, which is significant at the Local level.

*Waterbodies*

8.110 There are 10 ditches and nine ponds within the Site. All ponds and ditches are to be retained within the Development's green infrastructure areas, with the exception of pond P17. This lies in the south-eastern corner of the Site under the footprint of the built Development area on Parcel 3, and as such will require removal to facilitate construction. As set out in Appendix 8.5, pond P17 has formed in a depression since the demolition of the former power station and is vegetated with Common Reed. The pond is small in size (approximately 15m x 5m) and appears to dry/significantly shrink in size periodically, as on the most recent Site visit in 2020, it was largely choked with ruderal vegetation and the area of water was around 5m x 2m and choked with Common Reed. The pond occasionally supports Water Vole (see below) and therefore would qualify as Priority Habitat in this regard, but would not qualify under any of the habitat criteria.

8.111 The retained ponds and ditches will not be directly affected during construction. However, there is the potential for them to be indirectly affected in the absence of mitigation, for example from accidental damage, increases in surface water run-off and wastewater, accidental discharge of polluted water, and dust deposition.

8.112 In the absence of mitigation, the temporary loss of pond P17 to facilitate construction, and the potential for indirect effects on retained ponds and ditches is considered to be moderate negative and short-term, which is significant at the District level.

*Off-site Intertidal mud/sand, shingles/cobbles*

8.113 Small areas of intertidal mud/sand and shingles/cobbles lie adjacent to the southern Site boundary, beyond the sea wall. As these habitats lie off-site and beyond the sea wall they will not be directly affected during construction.

8.114 Indirect effects during construction have the potential to arise from dust drifting off-site and increases in surface water run-off and wastewater, and polluted surface run-off being accidentally discharged into the estuary. In the absence of mitigation, such effects are considered to be moderate negative and short-term, which is significant at the District level.

*Off-site Areas Supporting Notable Plant Species*

8.115 Botanical survey work carried out within and adjacent to the Site identified five plant species with 'rarity' status, comprising Sea Barley, Common Cudweed, Golden Samphire, Dittander and Small Cord-grass. The botanical surveys did not identify any notable plant species in the three areas identified within the Site itself.

8.116 These plants and the habitats supporting them lie off-site and would not be directly affected during construction. In the absence of mitigation, there is the potential for them to be affected indirectly from dust deposition in the event construction dust drifted off-site, or from increases in surface water run-off, wastewater generation and accidental discharge of polluted water from the Site.

8.117 As the notable plants lie in small discrete areas off-site, in the absence of mitigation, the potential indirect effects from off-site dust drift and water are considered to be slight negative and short-term, which is not significant.

*Off-site Intertidal Saltmarsh*

8.118 The intertidal saltmarshes lie off-site and would not be directly affected during construction. In the absence of mitigation, there is the potential for saltmarsh to be affected indirectly from dust deposition in the event construction dust drifted off-site, and from increases in surface water run-off and wastewater, and polluted surface run-off being accidentally discharged into the estuary.

8.119 In the absence of mitigation, the potential indirect effects from off-site dust drift and water are considered to be moderate negative and short-term which is significant at the District level.

*Construction Effects on Fauna*

*Roosting Bats*

8.120 Surveys have identified four buildings with some extent of bat roosting potential as shown on Figure 3.5 within Appendix 8.6, including Buildings B1, B2, B5 and B7:

- B1 was identified as having moderate potential to support summer roosting bats and having features to support hibernating bats. The building is a small brick plant kiosk

adjacent to the main Site access road. The building lies within the building plot in the north-east corner of the Site, although will be retained during construction, as it holds essential equipment.

- B2 was identified as having low potential to support summer roosting bats and comprises a pre-fabricated security office located in the centre of the main Site access road. The building will be retained during construction.
- B5 was identified as having potential for hibernating bats and comprises a concrete plant kiosk, housing pumping equipment in the southern area of the Site, near the sea wall. The building lies within the Development's green infrastructure area, and as such will be retained during construction.
- B7 was noted in the survey to have some features suitable for hibernating bats and also comprises a small brick plant kiosk, housing pumping equipment near the sea wall. The building lies within the Development's green infrastructure area, and as such will be retained during construction.

8.121 Eight trees with high bat roosting potential (T1, 2, 5, 6, 7, 11,16,17), two trees with moderate bat roosting potential (T13 and T18) and six trees (T4, 8, 9, 12, 14 and 15) with low bat roosting potential were identified as shown on Figure 3.5 within Appendix 8.6.

8.122 The majority of the trees identified as having bat roosting potential lie in areas which will be retained as green infrastructure for the Development. Three trees with low bat roosting potential may be affected to facilitate construction including Tree T9 (in the footprint of the built Development area on Parcel 1), T14 (in the footprint of the built Development area on Parcel 3) and T15 (which may be affected by any upgrade works associated with the existing access road). Taking a precautionary approach, it is assumed that the three trees cannot be incorporated into any detailed design and would be removed to facilitate construction.

8.123 At the outline stage of the Development, it is not anticipated the four buildings will be directly affected during construction as they comprise infrastructure associated with the ongoing functioning of the Site (e.g. pumping stations associated with the flood defences). If, at the detailed design stage, the buildings will be affected (e.g. internal or external refurbishment works are required) in the absence of further survey work and mitigation, bats and their roosts could be affected if present at the time any works are undertaken. Bats and their roosts may also be affected if present in Trees T9, T14 and T15 assuming they cannot be incorporated into any detailed design and would require removal. In the absence of mitigation, this could include accidental killing and injuring of bats and damaging or destroying their roosting places.

8.124 If bat roosts were present in retained buildings and trees, they could also be affected indirectly during construction in the absence of mitigation, in the form of accidental damage, disturbance from noise or poorly positioned lighting.

8.125 While this has the potential to affect individual bats and roosts if present at the time work was undertaken, given the large size and open nature of the Site and the very small number of buildings and trees potentially affected, it is not considered such effects would affect the conservation status of the local bat population. Accordingly, effects are considered to be slight negative and short-term, which is not significant.

*Commuting and Foraging Bats*

8.126 As noted above, a large proportion of the Site is sub-optimal for commuting and foraging bats where bare ground, buildings and hard standing is dominant, and the habitats along the sea wall which is open in nature and exposed to the weather. The bat activity transects and static monitoring recorded an assemblage of eight bat species utilising the Site to some extent. Levels of recorded bat activity were very low and focussed within and around the woodland, the trees in the northern portion of Parcel 2 and the linear habitats around the edges of Parcel 4 (e.g. along Ditch D3). Very little/no activity was recorded elsewhere.

8.127 The Development parameters shown on Figure 3.2 Parameter Plan have incorporated green infrastructure corridors into the design, which have taken into account the main areas where bat activity was recorded during the surveys, and as result, no commuting routes will be severed or fragmented during construction.

8.128 It is considered unlikely that any lighting required during construction would affect commuting or foraging bats, as lighting within any works areas would only be required during working hours in the winter months, when there are reduced daylight hours. At this time of year, bats would be hibernating and are therefore much less likely to be utilising commuting/foraging routes.

8.129 Construction will result in the temporary loss of habitats which may provide a prey resource for foraging bats. Given that very low levels of bat activity were recorded within the Site and levels of foraging activity were also very low, it is not considered that a temporary loss of bat foraging habitat as part of the foraging resource in the wider landscape would adversely affect local bat populations.

8.130 In the absence of mitigation, there is the potential for retained habitats used by commuting and foraging bats to be affected during construction, for example, from accidental damage, but again in the unlikely event this occurs, it is not considered that it would affect the

conservation status of the local bat population. Overall, effects on bats as a result of construction are considered to be slight negative and short-term, which is not significant.

8.131 As such, the potential for adverse effects to occur is significantly reduced, such that it is unlikely that construction lighting would affect the conservation status of the local bat population with regards to commuting/foraging. Therefore, construction effects on foraging / commuting bats are considered to be negligible and non-significant.

*Badgers*

8.132 One main sett was recorded during the survey work in the north-western corner of Parcel 4. No other confirmed active setts were recorded, although two disused single-entrance outlier sets were recorded in proximity to the eastern boundary of the Site. Three further disused single-entrance setts were recorded off-site to the east. Other signs of Badger activity were uncommon but widely dispersed, including latrines in Parcels 3 and 4 and off-site to the east and west, indicating that Badgers from the active sett forage widely across the Site.

8.133 A green infrastructure corridor has been incorporated into the Development parameters where the main sett is located to ensure that it would be retained and buffered during construction. The sett itself is located on a steep bank as part of the Site's flood defences (with all tunnels running into the bank) and as such, the risk of accidental damage to the tunnels is negligible. A 30m green space buffer has been incorporated into the Development parameters, and Badgers have built the sett in close proximity to the existing primary access road. As such, it is considered likely that Badgers are already habituated to passing traffic on the road and with the 30m buffer incorporated into the design. Overall, it is considered unlikely that Badgers in the sett would be disturbed during construction. Notwithstanding this, it is plausible that activities generating loud noises or vibrations may be required beyond 30m from the sett which Badgers may not be habituated to (such as percussive piling), and in the absence of mitigation, such activities have the potential to disturb Badgers occupying the sett. It is not considered that Badgers would be disturbed by lighting during construction, as this would only be required during working hours in the winter months when Badgers are significantly less active.

8.134 As Badger are a mobile and wide-ranging species, there is also the potential for Badger to enter construction areas at night and become trapped or injured. It is considered highly unlikely they would be injured by construction traffic, as this would only occur during normal working hours when Badgers would be in their setts.

8.135 As noted above, green infrastructure corridors have been incorporated into the Development

parameters and these will allow Badger to continue to move around and across the Site during construction. In the absence of mitigation, it is possible these corridors may be blocked (for example, from inappropriate storage of materials or positioning of security fencing), which would affect Badgers' ability to move around and potentially exit and enter the Site.

8.136 Construction will also involve the temporary loss of habitats likely to be used by Badger for foraging, such as grassland and scrub. There are large areas of similar habitats accessible to Badgers within and around the Site and as such, these habitat losses are considered unlikely to affect the conservation status of the local Badger population, or significantly adversely affect the Badger group utilising the Site.

8.137 Overall, in the absence of mitigation, construction effects on Badger are considered to be potentially up to moderate adverse and short-term which is significant at the Local level, in relation to disturbance and construction hazards only.

*Otter*

8.138 No evidence of Otter was recorded in the ponds or watercourses or other habitats within or adjacent to the Site during the survey work undertaken. A single Otter spraint was recorded off-site to the east, associated with the edge of the intertidal saltmarsh habitats. Appendix 8.5 notes that the intertidal habitats in this off-site area provide suitable foraging habitat, and scrub in that area could provide opportunities for building holts or creating resting sites.

8.139 The Site itself appears to be inaccessible to any Otter which may be utilising the edge of the estuary, as there is a vertical sea wall along the southern boundary, security fencing and vertical hard engineering (Damhead Creek) along the eastern boundary, and security fencing along the western boundary separating the Site from Hoo Marshes. This is further supported by the fact that no Otter signs were recorded within the Site. It therefore appears most likely that Otter are not accessing the Site itself, but appear to be utilising the estuary in the wider surroundings.

8.140 There are some small areas of scattered scrub off-site but in close proximity to the eastern Site boundary. However, the scrub is somewhat sparse and located adjacent to a track which is regularly patrolled by Site security. Due to the lack of cover and regular passing vehicles, it is considered unlikely that Otter would build holts in close proximity to the Site. The nearest area of more dense scrub which is not directly adjacent to the security track is approximately 200m from the Site boundary. At these distances, it is considered unlikely that if any holts were present that Otter would be disturbed (e.g. from noise or lighting) during construction. Due to the land levels, there is also no line of sight at ground level (where the majority of

construction activities will be occurring) from any of the built Development area to this off-site habitat and so no visual disturbance would occur.

8.141 It is also considered to be relatively unlikely that foraging Otter swimming in the estuary or travelling along the intertidal habitats would be disturbed during construction. Otter are primarily nocturnal and so would be moving around the area at night when construction activities are not occurring (construction would occur during normal working hours as set out in Chapter 5 Construction Methodology and Sequencing of the ES), although some populations (particularly urban and coastal populations) are known to be active during the day. Taking a precautionary approach it is assumed Otter foraging along the estuary will occasionally do this during the day. Otter are not considered to be particularly sensitive to disturbance, with unpublished observations noting Otter will rest beneath roads, in industrial buildings, close to quarries and at other sites close to human activity, and as also evidenced by the colonisation of Otters into towns and cities[xxii]. The presence of the sea wall and flood defences and in-built buffer zones around the Site boundaries means the potential for visual and lighting disturbance is minimal and noise would be attenuated by these structures.

8.142 Chapter 9 Water Resources and Flood Risk of the ES predicts likely significant effects during the construction phase of the Development prior to the implementation of mitigation measures in relation to increases in surface water run-off and wastewater, and accidental discharge of polluted water, which has the potential to affect water quality on and off-site in the absence of mitigation. It is not considered that Otter would be sensitive to these potential changes, as it is unlikely they would occur to the extent that their foraging resources would be affected to a level that would affect the conservation status of the local Otter population.

8.143 Overall, it is considered effects on Otter during construction are negligible which is not significant.

*Water Vole*

8.144 The majority of the habitats within the Site are generally unsuitable for Water Vole, mostly comprising hardstanding and colonising vegetation, in addition to scrub and semi-improved neutral grassland. The ditches and ponds on-Site offer suitable opportunities for this species.

8.145 Survey work recorded evidence of Water Vole in six ditches and one pond (ditches D1, D3, D4, D5, D6, D7, and Pond P17). The Ecology Report in Appendix 8.6 includes an assessment of the likely population sizes based on the frequency of Water Vole field signs, and concludes a medium population is likely to be present in ditch D6 (on the eastern boundary) and low populations in all the other waterbodies where they were recorded.

8.146 All waterbodies where Water Voles were recorded will be retained during construction, with the exception of pond P17, which lies within the footprint of the built Development area in the eastern portion of Parcel 3. As described above in the habitats section, P17 is not a good example of this habitat type, as it is shallow in nature and as a consequence is becoming choked with vegetation. The pond supports a low population of Water Vole, with one burrow, five latrines and confirmed feeding signs recorded during the surveys. The pond is considered to be sub-optimal Water Vole Habitat and it is possible that it forms an overspill area for the medium population in ditch D6, or is acting as a "stepping stone" location for individuals moving/dispersing between ditch D6 and D7. Due to the small size of the pond and the amount Water Vole signs recorded, P17 is likely to comprise a single Water Vole territory or a transient area.

8.147 In the absence of mitigation, there is a risk of accidental killing or injuring individual Water Vole(s) should they be present at the time P17 is removed to facilitate construction. The temporary removal of the pond during construction could also prevent Water Voles moving between ditches D6 and D7.

8.148 The ditches where Water Voles were recorded will all be retained, and sit within green infrastructure corridors as part of the Development parameters. These corridors are at least 20-30m wide as shown on Figure 3.2 Parameter Plan and as such, it is considered Water Vole would not be disturbed during construction, and there would be no risk of damage to any burrows. In the absence of mitigation, there would be a risk of accidental damage to Water Vole habitat, for example, if the green infrastructure corridors were not adequately protected during construction. There is also the potential for indirect effects which may reduce the quality of the habitat to support Water Voles, for example from increases in surface water run-off and wastewater, accidental discharge of polluted water, and dust deposition onto vegetation.

8.149 Overall, in the absence of mitigation, the removal of pond P17 to facilitate construction and the potential indirect effects on retained habitats are considered to potentially have a moderate negative effect on Water Vole in the short-term, which is significant at the District level.

*Common and Grey Seals*

8.150 The desktop study returned records of Common Seal and Grey Seal utilising the Medway Estuary, and as noted in Appendix 8.6, there is suitable habitat for Seals to rest on intertidal mud/shingle/cobbles adjacent to the southern Site boundary. There is suitable foraging habitat within the open water of the estuary. The presence of Seals was not noted during any

of the bird surveys undertaken at the estuary during 2019 or 2020. Nonetheless, as potentially suitable habitat is present off-site, individuals may utilise these habitats to some extent.

8.151 The habitats adjacent to the Site are unlikely to support breeding or any sizeable numbers of resting Seals, as the habitats above the High Water Mark are very small in extent. This conclusion can be further supported by a study of Seals usage of the Greater Thames Estuary[xxiii] which carried out breeding Seal surveys in December 2014 and did not identify any breeding sites for Common or Grey Seal within the Medway Estuary. As part of the same study, a Seal Population Survey was carried out in August 2014 (the typical time where Seals will group together on land to moult and so is an ideal time to survey numbers), which identified four Common Seal summer colonies in the Medway Estuary, the closest of which appears to lie at Oakham Marsh or the islands to the north of it approximately 1km east of the Site. In a 2013 Seal Population Survey, the same colony was located further east. No Grey Seal summer colonies were recorded in the Medway Estuary during the population surveys, these were all located off the east Kent coast.

8.152 The Seal surveys from the study show that overall, the record of Grey Seal from the desktop study is likely to be incidental as there is no evidence of any breeding Grey Seals or summer colonies within the Medway Estuary. There is also no evidence of breeding Common Seal, although summer colonies have been identified within around 1km of the Site. At a distance of 1km, it is considered unlikely resting Common Seal would be disturbed during construction (for example from noise), and as Seals are a highly mobile species it is also unlikely their foraging activity would be adversely affected. It is also considered unlikely any other construction activities (such as dust deposition or water pollution) would affect Common Seal, for example by affecting prey resources.

8.153 Overall, it is considered effects on Seals during construction would be negligible, which is non-significant.

*Great Crested Newts*

8.154 Surveys have confirmed the presence of Great Crested Newts in Ponds 5a and 5b in the northern western corner of the Site. These comprise two lined ponds forming part of the Nature Centre which was historically present at the Site. The cottages which housed the Nature Centre were demolished under Natural England licence and ponds 5a and 5b formed the receptor area for that relocation exercise. Great Crested Newts were also recorded to be present in Ponds P1, P2 and Ditch D3 in Parcel 4. Pond P1 and P2 were created as part of mitigation for a Natural England licence associated with the demolition of the former power station, and it is understood approximately four individual Great Crested Newts were relocated

as part of that exercise (further demonstrating the number of Great Crested Newts within the Site is low).

8.155 Based on the survey work undertaken, the population of Great Crested Newts on the Site is therefore estimated to be 'low'. This concurs with the results of the previous licensed translocation exercises carried out at the Site, which in total only relocated approximately four individual Great Crested Newts.

8.156 The waterbodies where Great Crested Newts have been recorded are retained within green infrastructure corridors in the Development parameters, and are therefore also buffered from construction by greenspace. There would be no loss of "core" terrestrial habitat (suitable habitat within 50m of the waterbody, as shown on Figure 3.1 in Appendix 8.6) around P1, P2, P5a and b during construction. There will be a loss of a small proportion of core habitat to the north of ditch D3 to facilitate construction. Suitable terrestrial habitats within 250m of all waterbodies where Great Crested Newts were recorded will also be lost temporarily during construction. In the absence of mitigation, there is a risk of accidentally killing or injuring individual Great Crested Newts, and damaging or destroying their resting places.

8.157 There is also the potential for retained habitats to be affected, for example, from dust deposition, increases in surface water run-off and wastewater and the accidental discharge of polluted water, which has the potential to reduce their suitability for Great Crested Newt. The Development parameters incorporate green infrastructure which will allow Great Crested Newts to continue to move around and across the Site during construction, albeit there is a low risk that these corridors could be affected if not adequately protected during construction.

8.158 In the absence of mitigation, construction effects on Great Crested Newts are considered to be moderate negative, which is significant at the Local level.

*Reptiles*

8.159 Surveys recorded low populations of Grass Snake and good populations of Slow-worm and Common Lizard, with the majority recorded along edge habitats associated with the grassy flood defence bunds in the west and centre of the Site. A single Grass Snake was recorded on the eastern boundary at Ditch D6, but no reptiles were recorded in the majority of the central areas of the Site and any areas away from edge habitats. The majority of the habitat where reptiles were recorded has been incorporated into the green infrastructure corridors and will therefore be retained during construction. Some temporary losses of suitable reptile habitat may occur, for example where constructing SuDS features within the green infrastructure. Where this occurs, in the absence of mitigation there is a risk of accidentally

killing or injuring individual reptiles.

8.160 There is a known population of the non-native Wall Lizard recorded which is likely to be associated with the sea wall. The sea wall will not be affected during construction and correspondingly the Wall Lizard population will also remain unaffected.

8.161 Grass Snake, Slow-worm and Common Lizard recorded within the Site are not considered to be particularly vulnerable to changes in habitat quality resulting from indirect effects which may arise from construction, for example, dust deposition and changes in water quality.

8.162 Overall, it is considered that as the vast majority of habitat where reptiles were recorded will be retained during construction, the conservation status of reptiles can be readily maintained at the Site. However, as there is a risk of accidental killing/injuring individuals where some small areas of habitat require removal to facilitate construction, overall effects on native reptiles within the Site in the absence of mitigation are considered to be slight negative and short-term, which is not significant. Effects on the off-site population of Wall Lizard are considered to be negligible and non-significant.

*Breeding Birds*

8.163 This section assesses the breeding bird assemblage associated with the Site itself. Off-site breeding birds, along with wintering and passage birds are covered as part of the Medway Estuary and Marshes SPA/Ramsar/SSSI above and in the separate Document to Inform an HRA.

8.164 Breeding bird surveys identified an assemblage of up to 55 species confirmed breeding within or adjacent to the Site, including a number of species listed on Schedule 1 of the Wildlife and Countryside Act, and on the RSPB Red and Amber lists of Birds of Conservation Concern. Table 8.7 summaries the results and potential effects on the breeding territories of the most notable bird species confirmed breeding (i.e. Schedule 1 and Red Listed BoCC).

**Table 8.7 Summary of Potential Effects on Key Breeding Bird Species**

| Species | Protection/BoCC listing | Survey Results | Effects on identified territories during construction |
|---|---|---|---|
| Black Redstart | Sch 1, Red | The 2019 and 2020 surveys both recorded a single territory associated with a concrete structure on the southern boundary alongside the sea wall. | The structure is associated with the flood defences and will be retained and therefore unaffected during construction. |
| Cetti's Warbler | Sch1 | 2019 and 2020 surveys both identified five territories around the north and west boundaries, associated with scrubby ditches. | The habitats will be retained in green infrastructure corridors and as such it is considered no loss of territories would occur. A proportion of each territory is likely to encompass off-site habitat in any event. |
| Little | Sch 1 | 2019 survey identified a territory in the | This territory will be lost to construction, |

| | | | |
|---|---|---|---|
| Ringed Plover | | south east portion of the Site in the open area where the power station was demolished. 2020 survey recorded as "possibly breeding" in the same location | but the habitat where it was recorded would have only become suitable for this species since the demolition of the power station in 2018. |
| Barn Owl | Sch 1 | 2020 survey recorded Barn Owl nesting in a building adjacent to the north-east boundary. | The nesting location lies off-site and the nearest development plot where construction will be taking place is approximately 300m away. |
| Cuckoo | Red | 2019 survey identified 2 territories in the north-western part of the Site, associated with the woodland, roadside landscaping trees and scrubby ditches. 2020 surveys recorded one record of "possibly breeding" on the western boundary which overlaps with one of the territories identified in 2019. | The territory associated with the woodland will be unaffected as the woodland will be retained. The majority of habitat associated with the second territory will be retained, although some roadside landscaping trees may require removal to facilitate any required upgrade works to the existing road. |
| Ringed Plover | Red | 2019 survey identified a territory in the south east portion of the Site in the open area where the power station was demolished. 2020 survey identified two territories in the same location. | These territories will be lost to construction, but the habitat where the territories were recorded would have only become suitable for this species in recent years since the demolition of the power station in 2018. |
| Skylark | Red | 2019 survey identified two territories in the centre of the Site on the poor semi-improved grassland and the open areas where the power station was demolished. The 2020 surveys identified three territories in the same areas. | These will be lost to construction. |
| Song Thrush | Red | 2019 and 2020 surveys identified three territories associated with the northern portion of the Site around the woodland. | The woodland will be retained and no loss of territories is anticipated. |
| Mistle Thrush | Red | 2020 survey identified one "possibly breeding" in the northern portion of the Site. | The habitats will be retained in green infrastructure corridors and as such it is considered no loss of territories would occur. |
| House Sparrow | Red | 2019 surveys identified four territories associated with trees around the Site boundaries and within the Site. | The habitats will be retained in green infrastructure corridors and as such it is considered no loss of territories would occur. A proportion of each territory is likely to encompass off-site habitat in any event. |
| Lapwing | Red | 2019 surveys recorded two territories in the south east portion of the Site in the open area where the power station was demolished, and the 2020 survey recorded one territory in a similar area. | These territories will be lost to construction, but the habitat is likely to have only become suitable for this species since 2018 following demolition of the power station. |
| Linnet | Red | 2019 surveys recorded a large number of territories across the majority of the Site. 2020 surveys recorded four territories associated with the south and east boundaries. | The majority of the habitats where Linnet territories were recorded will be retained within green infrastructure, however a loss of a small number of territories is likely to occur given the large number present. |
| Nightingale | Red | 2019 surveys recorded one territory associated with the woodland. | The woodland will be retained and no loss of territory is anticipated. |

8.165 Based on the above, the majority of habitats where notable bird species were recorded will be retained during construction as they lie within green infrastructure corridors. The habitats/a portion of habitats associated with a small number of territories for Little Ringed Plover, Cuckoo, Ringed Plover, Skylark, Lapwing and Linnet are likely to require removal to facilitate construction. The removal of other habitats within the Site (such as trees and scrub) will also remove habitat for more common bird species. It is considered unlikely that Barn Owl nesting off-site would be disturbed (e.g. from noise) during construction, as the nearest built Development area is located approximately 300m away.

8.166 It is considered that the bird interest of the Site can be maintained during construction as the majority of suitable habitats will be retained. It is not considered that the loss of a small number of territories for the above notable species would affect their local conservation status as there are abundant suitable habitats elsewhere, and the habitats in the south of the Site being utilised by Skylark, Ringed Plover, Little Ringed Plover and Lapwing have only become suitable for these species since the power station was demolished in 2018. In addition, it is not considered the bird assemblage present would be sensitive to other factors such as dust deposition and changes in water quality.

8.167 In the absence of mitigation, there is the potential for removal of vegetation during the breeding season to accidentally kill/injure individual birds and their checks and eggs, and to damage or destroy active nests. On this basis, effects are considered to be moderate negative, which would be significant at the County level.

*Invertebrates*

8.168 Surveys identified the key areas for invertebrates within the Site are the areas of OMH and the eastern end of Parcel 4. The area of OMH in Parcel 1 (1.56ha) will be removed to facilitate construction, and the second area in Parcel 3 (0.72ha) is retained in an area of green infrastructure. The majority of the eastern end of Parcel 4 will be retained with the exception of a rectangle of semi-improved grassland (approximately 50mx80m or 0.4ha) which will be removed in order to straighten a dog-leg in the existing fence. In the absence of mitigation, the overall invertebrate interest of this portion of the Site would be reduced as a result of habitat losses within areas identified as key habitats. Habitat losses elsewhere on Site would also have an effect to a lesser degree as these habitats are of less importance to invertebrates (hence why surveys were only carried out in Parcels 1 and 4).

8.169 There is also the potential for retained habitats to be affected during construction (for example from accidental damage or polluted surface water run-off) which could reduce habitat quality for the invertebrate assemblage.

8.170 In the absence of mitigation, these effects are considered to be potentially substantial negative and short-term, which would be significant at the Regional-National level.

### Operational Phase

8.171 The potential effects considered within this section are those relating to the operational phase of the Development. This includes the loss of habitats through permanent land-take in addition to potential effects resulting from the operation of the completed Development

such as traffic increases, changes in hydrology, or noise and light disturbance. Following remediation of the Site, operational effects in terms of land contamination are considered to be not significant, as set out in Chapter 2 EIA Methodology of the ES. Correspondingly, significant effects on ecological receptors are unlikely in relation to land contamination.

*Operational Effects on Ecological Designations and Associated Fauna*

*Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek and Associated Fauna including Breeding Birds, Wintering Birds and Passage/Migrant Birds*

8.172 The potential for likely significant effects to arise during the operational phase of the Development are considered for the Medway Estuary and Marshes SPA/Ramsar/SSSI and associated functionally linked land in the Document to Inform an HRA.

8.173 In the document, a Stage 2 HRA screening exercise was carried out in order to identify likely significance of effects arising out of the operation of the Development. Potential effects which are considered in the document include coastal squeeze, changes in biotic conditions, changes in abiotic conditions, invasive species, public access/disturbance, changes in species distribution and air pollution (emissions from the Site and traffic).

8.174 In the absence of mitigation, the Document to Inform an HRA identified likely significant effects during operation through disturbance of qualifying bird species from lighting and visual disturbance, and through the degradation of supporting habitats from changes in water quality. Therefore, a Stage 3 Appropriate Assessment was carried out, the results of which are summarised below (in the 'Residual Effects' section of the chapter).

*Medway Estuary MCZ*

8.175 The MCZ does not lie within the Site and therefore there would be no direct effects on the habitats supporting these species (e.g. from permanent land take).

8.176 Chapter 9 Water Resources and Flood Risk of the ES considers that in the absence of mitigation, the operational Development could impact on water quality on-site and in surrounding habitats from operational activities increasing soil erosion (which could block existing drainage systems leading to an increase in turbid run-off into surrounding habitats), and discharge of polluted surface water run-off (for example form accidental spillage) which could contain fine particulates, hydrocarbons, oils and chemicals and wastewater.

8.177 In relation to the MCZ, in the absence of mitigation effects on water quality are considered likely to be moderate negative and long-term, which is significant at the national level. No other effects are expected to occur as the habitats within the MCZ are not sensitive for example to dust deposition or changes in air quality.

*Chattenden Woods and Lodge Hill SSSI*

8.178 Due to the distance of the SSSI from the Site, no direct effects would occur during operation of the Development, such as land-take, noise disturbance or pollution from run-off.

8.179 There is the potential for indirect effects to occur, such as air pollution, from traffic associated with the completed Development travelling along the A228, and as noted above (in relation to construction), the IRZ around the SSSI state air pollution from some development types to be an impact risk, and woodlands are known to be vulnerable to air pollution, however the majority of the SSSI lies at least 400-700m form the road beyond Chattenden Barracks and Deangate Ridge Golf Course. A small portion of the southern boundary of the SSSI lies adjacent to the A228.

8.180 Chapter 11 Air Quality of the ES considers the potential for significant effects on the SSSI resulting from operational traffic in relation to airborne NOx concentrations, eutrophication and acidification. In relation to NOx concentrations, the Process Contributions (PCs) arising from the vehicle emissions from the additional traffic generated by the Development are modelled within 2 x 200m transects from the A228 which passes close to the SSSI (see Table 11.51). Within the transect 200m from the roadside the predicted annual mean NOx PCs are above 1% of the relevant Critical Level. The annual mean PECs were therefore calculated, a background concentration for NOx of 19.6µg/m3 was determined for this site and added to the PCs to calculate the PECs. The PECs within 200m of the roadside are above 70% of the Critical Level, therefore in accordance with the EA screening criteria, the impact cannot be considered to be insignificant and therefore further assessment is required.

8.181 The SSSI is designated on the basis of its woodland, unimproved neutral grassland and population of Nightingales. The Nightingales would not be sensitive to changes in airborne NOx concentrations. The SSSI citation states the area of grassland which forms the reasons for the designation is at Rough Shaw and Lodge Hill Training Area which are at least 700m from the A228. The nearest ancient woodland component (which is the habitat which would be most sensitive to increases in NOx concentrations) is approximately 750m from the A228. At these distances the impact of the emissions from road traffic would be insignificant. Small areas of woodland are located closer to the road, and areas designated at Priority Habitat 'Deciduous Woodland' are located at around 15m and 45m from the roadside. These areas

are located within Management Unit 08 of the SSSI, which is listed as being in 'favourable' condition.

8.182 The results indicate that the Critical Level is only likely to be exceeded at locations within 5m of the roadside. The SSSI lies within 5m of the roadside for a length of approx. 230m (i.e. an area of 0.1ha, or 0.02% of the total area of the SSSI) and the habitats within this area comprise the road embankment which is largely vegetated with trees and scrub to the west and east of Upchat Road. A further short section further east of Upchat Road comprises a planted hedgerow. The Air Quality chapter notes that the assessment presents the worst-case assessment with regards to local background concentrations, i.e. the background concentrations are assumed to remain at current levels in the future years. In reality it is likely that background concentrations may reduce in the future. The Air Quality Chapter did not identify any effects on the SSSI in relation to eutrophication or acidification.

8.183 Given the above, taking into account the condition of the SSSI in proximity to the road, the fact that the Critical Level is not predicted to be exceeded, and that even given the worst case scenario has been assessed in terms of background concentrations only 0.02% of the SSSI could be affected by increases in NOx, effects from the emissions from the additional road traffic generated by the Development are considered to be negligible and non-significant.

*Tower Hill to Cockham Wood SSSI*

8.184 Due to the distance of the SSSI from the Site, no direct effects would occur during operation of the completed Development, such as land take, noise disturbance or pollution from run-off.

8.185 There is the potential for indirect effects to occur such as air pollution from traffic travelling along the A228. The IRZ for the SSSI do not list air pollution as an impact risk, although as noted above it is known that woodland habitats can be vulnerable to air pollution. The SSSI is located approximately 300m south of the A228 at its closest point. However, the majority of the SSSI is more than 400m away. A single portion of mapped ancient semi-natural woodland lies at the eastern end of the SSSI, approximately 675m south of the A228.

8.186 As noted above, modelling has been carried out as part of the assessment of the Development's likely significant effects on air quality in Chapter 11 Air Quality of the ES, which has identified effects in relation to increases in airborne NOx concentrations would only occur within 5m of the A228, and no effects were identified in relation to eutrophication or acidification. The SSSI is located at considerably further distance than this and therefore overall effects on the SSSI from the operational Development are considered to be negligible

and non-significant.

*Operational Effects on Habitats*

*Open Mosaic Habitat*

8.187 As noted above, one area of OMH totalling 1.56ha will be lost during construction and one area totalling 0.72ha will be retained within a green infrastructure corridor. As shown on Figure 3.2 Parameter Plan, a green infrastructure corridor runs along the southern edge of the built Development area on Parcel 1, which incorporates the southern portion of the OMH which will be affected during construction. This remaining retained area is considered to be too small to allow for a meaningful sized area of OMH to be retained or re-created, and as such it is considered appropriate to assume the entire 1.56ha area will be permanently lost.

8.188 The 0.72ha of retained OMH in the eastern green infrastructure area in Parcel 3 as noted above lies on a bank above the areas which will be developed, and as such would not be at risk from changes in water quality. As noted above, inherent mitigation has been built into the Development parameters to ensure retained habitats are not overshaded by the new buildings and receive at least 8 hours of sun per day, to ensure that the OMH will function to support its associated invertebrate populations.

8.189 Chapter 11Air Quality of the ES did not identify any potentially significant effects from the operational Development in relation to emissions from the Development itself which could potentially affect on-site habitats.

8.190 Retained OMH has the potential to be adversely from a lack of ongoing long-term management, which could cause the habitat to scrub over and eventually be lost. In addition, a lack of inappropriate management may adversely affect the quality and extent of OMH in the long-term.

8.191 In the absence of mitigation or compensation, the permanent loss of 1.56ha of OMH Priority Habitat and potential effects from a lack of/inappropriate long-term management of retained OMH is considered to be moderate negative and long-term, which is considered to be significant at the County level.

*Woodland and Other Trees*

8.192 The woodland will be retained in the on-site greenspace and so would not be directly affected by the operational Development, for example as a result of permanent land-take. There is the

potential for indirect effects to arise from a reduction in water quality. As noted above, Chapter 11 Air Quality of the ES did not identify any potentially significant effects from the operational Development in relation to emissions from the Development itself which could potentially affect on-site habitats.

8.193 The northern portion of the woodland was managed to some extent to benefit biodiversity in the past as part of the Nature Centre at the former power station. Currently, the woodland is not managed specifically, other than keeping existing informal paths open for Site security purposes and removing any trees/branches which may pose a falling hazard. In the long-term, a lack of/inappropriate management could result in a reduction of habitat quality, changes in species composition, anthropogenic effects (e.g. trampling/littering) or changes to the structure of the woodland (for example the existing open grassy areas may become scrubbed over). In the absence of mitigation, such effects are considered to be moderate negative and long-term, which is significant at the Local level.

8.194 A noted above, it is assumed a number of other trees will be permanently lost where they cannot be incorporated into the detailed design. It is not considered any retained trees would be particularly vulnerable to changes in hydrology, polluted surface-water run-off or dust deposition given they are landscaped trees on the verges of existing roads. Similarly, any new trees would be selected appropriately in terms of species, size and situation and planted to specification. Accordingly, in the absence of mitigation the permanent loss of a small number of roadside landscaping trees is considered to be slight negative and long-term, which is non-significant.

*Semi-improved Grassland*

8.195 A proportion of the semi-improved grassland resource will be permanently lost where it lies under the footprint of the built Development areas, or where other features are required within the green infrastructure corridors, such as footpaths and SuDS. The areas where this will occur are in the north-east portion of Parcel 1, the edges of the southern portion of Parcel 2, a rectangle at the eastern portion of Parcel 4 (to straighten up a current dog-legged fence), around the footprint of the former storage tanks in Parcel 3, and small areas around the eastern edges of Parcel 3.

8.196 Retained and new grassland within the operational Development could potentially be affected in the long-term, from a lack of/inappropriate management (such as an inappropriate mowing regime) or anthropogenic effects (e.g. trampling/littering) which could cause a deterioration of the quality of the grassland (e.g. reduced species diversity). It is not considered that the grassland would be sensitive to the predicted changes in water quality, and as noted above,

Chapter 11 Air Quality of the ES did not identify any potentially significant effects from the operational Development in relation to emissions from the Development itself which could potentially affect on-site habitats.

8.197 In the absence of mitigation, such effects are considered to be moderate negative and long-term, which is significant at the Local level.

*Waterbodies*

8.198 It is unlikely that it will be possible to reinstate Pond P17 following construction as it lies within the footprint of a built Development area, and as such, it is assumed it would be permanently lost during the operational phase of the Development. The pond itself is a poor example of this habitat type, as it has no open water and is becoming choked with Common Reed and Bulrush. Nonetheless, it qualifies as Priority Habitat as surveys have confirmed the presence of a low population of Water Vole.

8.199 During the Development's operational phase, the retained ponds and ditches could potentially be affected in the long-term, from a lack of/inappropriate management (for example a lack of vegetation and silt management causing waterbodies to become choked with vegetation and eventually dry up), anthropogenic effects (e.g. littering), changes in water quality, which could all cause a deterioration of the quality of the habitat. As noted above, Chapter 11 Air Quality of the ES did not identify any potentially significant effects from the operational Development in relation to emissions from the Development itself which could potentially affect on-site habitats.

8.200 In the absence of mitigation, the permanent loss of pond P17 and the potential indirect effects are considered to be moderate negative and long-term, which is significant at the District level.

*Off-site Intertidal Mud/Sand, Shingles/Cobbles*

8.201 Small areas of off-site intertidal mud/sand and shingles/cobbles lie adjacent to the southern part of the Site boundary, beyond the sea wall. As these habitats lie beyond the sea wall, they will not be directly affected during operation.

8.202 Indirect effects during the Development's operational phase have the potential to arise from changes in water quality (for example accidental discharge of polluted water off-site into the estuary). In the absence of mitigation, such effects are considered to be moderate negative and long-term, which is significant at the District level.

*Off-site Areas Supporting Notable Plant Species*

8.203 The off-site areas supporting notable plant species would not be directly affected during operation. As noted above, modelling has been undertaken to ensure the new buildings would not overshade habitats and as such would still receive at least 8 hours of sunlight per day (with one buffer zone incorporated into the Development parameters as in-built mitigation).

8.204 As the notable plants lie in small discrete areas off-site, it is not considered they would be vulnerable to changes in water quality and as noted above, Chapter 11 Air Quality of the ES did not identify any potentially significant effects from the operational Development in relation to emissions from the Development itself which could potentially affect nearby habitats. Therefore overall, operational effects are considered to be negligible, which is not significant.

*Off-site Areas of Intertidal Saltmarsh*

8.205 The off-site intertidal saltmarsh habitat would not be directly affected during operation. As noted above, modelling has been undertaken to ensure the new buildings would not overshade habitats and as such would still receive at least 8 hours of sunlight per day (with one buffer zone built into the Development parameters as in-built mitigation).

8.206 Indirect effects during the Development's operational phase have the potential to arise from changes in water quality (for example accidental discharge of polluted water off-site into the estuary). In the absence of mitigation, such effects are considered to be moderate negative and long-term, which is significant at the District level.

*Operational Phase Effects on Fauna*

*Roosting Bats*

8.207 Any bat roosts in retained building or trees would not be affected directly during operation of the completed Development. It is not considered that any roosts would be affected by noise, as the majority of activities within the operational Development would take place in buildings or be general vehicles noise. However, in the absence of mitigation bat roosts may be affected by operational lighting (for example, lighting illuminating potential roosting features).

8.208 Given the large size and open nature of the Site and the very small number of buildings and trees potentially affected, it is not considered that such effects would affect the conservation status of the local bat population. Accordingly, effects are considered to be slight negative and long-term, which is not significant.

*Commuting and Foraging Bats*

8.209 As noted above, the Development parameters have incorporated green infrastructure corridors into the design, which will retain all linear routes which could be used by commuting and foraging bats, such that there would be no change to the way bats currently move around and across the Site.

8.210 The operational Development would result in permanent loss of some habitats which would support an invertebrate prey biomass resource for foraging bats, such as semi-improved grassland, scrub and a small number of trees. Given the habitats present and the low levels of bat activity recorded during the surveys, it is considered unlikely that the Site forms an important part of bats foraging range in the wider landscape, and as such, the loss of small areas of suitable foraging habitat is not considered likely to affect the conservation status of local bat populations.

8.211 In the absence of mitigation, there is the potential for poorly designed lighting to affect commuting and foraging bats, for example, by illuminating commuting routes. This is most likely to occur in the northern portion of the Site where comparatively higher levels of bat activity were recorded and where the primary access road bisects the Site. However, the main access road is already lit with tall column lights and security flood lights at the entrance gate, and as such it is likely bats are already habituated to lighting at this location. Additional lighting is likely to be required within the Development plots, which if poorly designed could cause light spill onto habitats which are not already illuminated by existing lighting. These could potentially affect the conservation status of local bat populations by changing foraging/commuting behaviour or cutting off access to foraging route (where bats do not pass lit areas).

8.212 In the absence of suitable long-term management, it is possible the retained habitats within the Site may deteriorate in quality such that they become less suitable for commuting and foraging bats, or for example inappropriate vegetation removal may open up gaps in commuting routes to an extent that bats would not cross them.

8.213 Therefore, in the absence of mitigation, operational effects on commuting and foraging bats are considered to be moderate negative and long-term which is significant at the Local level.

*Badgers*

8.214 During the operational phase of the Development, Badgers would be able to continue to move freely around and across the Site along the green infrastructure corridors, and the main sett

will remain in place and be buffered from built Development.

8.215 The completed Development will result in a permanent loss of Badger foraging habitat, such as grassland and scrub. There are large areas of similar habitats accessible to Badgers within and around the Site and as such, these habitat losses are considered unlikely to affect the conservation status of the local Badger population, or significantly adversely affect the Badger group utilising the Site.

8.216 It is considered unlikely that Badgers at the sett would be disturbed by noise or lighting during the Development's operational phase due to the 30m buffer incorporated around the sett, and also given that the existing Site access road is already lit and so Badger will be habituated to these conditions. Similarly, Badger will also be habituated to crossing the road. Due to the positioning of the green corridors around the Site, it should be possible for Badger to continue to move around the area without the need to cross any additional roads. Accordingly, although traffic during the operational phase will be increased compared to the baseline conditions, the risk of Badgers being accidentally killed while crossing roads is low.

8.217 In the absence of suitable long-term management, it is possible that the retained habitats within the Site may deteriorate in quality such that they become less suitable for Badger foraging, or for example inappropriate vegetation removal may expose the main sett or open up gaps which make it less likely for Badgers to cross roads and access other areas within the Site or off-site. This would adversely affect the individual Badgers utilising the Site, but would not affect the conservation status of the local Badger population.

8.218 Overall, in the absence of mitigation, operational effects on Badger are considered to be slight negative and long-term, which is not significant.

*Otter*

8.219 The operational Development would not result in any permanent loss of suitable Otter habitat as the Site security fences will remain in place and Otter will continue to be able to move freely along the edge of the estuary. As noted above, Otter are not particular sensitive to disturbance and so with the inclusion of green infrastructure around the edges of the Site it is considered unlikely Otter moving along the estuary would be disturbed by noise, lighting or visual disturbance. It is not considered Otter would be sensitive to the predicted potential changes in water quality (prior to mitigation), as it is unlikely they would occur to the extent that their foraging resources would be affected to a level that would affect the conservation status of the local Otter population.

8.220 Overall, operational effects on Otter are considered to be negligible, which is not significant.

*Water Vole*

8.221 It is unlikely that it will be possible to reinstate Pond P17 following construction, as it lies within the footprint of a built Development area, and as such it is assumed it would be permanently lost during the operational phase of the Development. As noted above, it is possible P17 is used as a "stepping stone" for Water Voles moving between ditch D6 and D7, and if this is the case, the loss of P17 could cause permanent habitat fragmentation in the absence of mitigation.

8.222 The Water Vole populations around the Site are currently fragmented and the Development parameters incorporate a series of green infrastructure corridors. This creates the opportunity to create new Water Vole habitat and improve the linkages between the locations where they are currently present, for example by incorporating permanently wet areas with marginal vegetation into the design of new SuDS.

8.223 With the SuDS incorporated into the operational Development, there remains the potential that the retained and new habitats may be adversely affected by changes in water quality or a lack of/inappropriate management, which for example could cause ditches to silt up or scrub over. This has the potential to decrease the suitability of the Site for Water Vole in the long-term and as such in the absence of mitigation has the potential to be moderate negative and long-term, which is significant at the District level.

*Common and Grey Seals*

8.224 As noted above, studies of the entire Greater Thames Estuary have not identified any breeding sites for Common and Grey Seal in the Medway Estuary. A small number of summer Common Seal colonies were identified, with the closest being around 1km east of the Site. The habitats in closer proximity to and adjacent to the Site are unlikely to be suitable for resting Seals as the land above the high water mark is very small.

8.225 As such, is not considered that Seals would be disturbed as part of general operational activities within the Site (such as vehicle movements) if resting at least 1km away or foraging at closer distance, particular as these areas will be largely screened by the sea wall and set back from it by a green infrastructure corridor. It is also considered that changes to any other conditions (such as water quality) would not affect Seals, for example, through affect prey resources.

8.226 Overall, operational phase effects from the Development on Seals are considered to be negligible, which is not significant.

*Great Crested Newts*

8.227 The operational Development will result in some permanent losses of suitable terrestrial Great Crested Newt habitat. Within "core" areas within 50m of the waterbodies where Great Crested Newts were recorded, this will be limited to some loss of poor semi-improved grassland under the footprint of the built Development area to the north of Ditch D3 in Parcel 4. Within 250m, this would comprise areas of poor semi-improved grassland, semi-improved grassland, scrub and tall ruderal vegetation under the footprint of the built Development areas in Parcels 1, 3 and 4.

8.228 With the provision of green infrastructure corridors, Great Crested Newts would be able to continue to move around the Site. In addition, the Great Crested Newt locations around the Site are currently fragmented and the green corridors create the opportunity to create new Great Crested Newt aquatic and terrestrial habitat and improve the linkages between the locations where they are currently present, for example, by incorporating permanently wet areas with marginal vegetation into the design of new SuDS.

8.229 With the SuDS incorporated into the operational Development, there remains the potential that the retained and new habitats may be adversely affected by changes in water quality, or a lack of/inappropriate management, which for example could cause ditches or ponds to silt up or scrub over. This has the potential to decrease the suitability of the Site for Great Crested Newts in the long-term. This, coupled with the permanent loss of terrestrial habitats within 250m of the waterbodies, has the potential to be moderate negative and long-term, which is significant at the Local level in the absence of mitigation.

*Reptiles*

8.230 The operational Development will result in the permanent loss of suitable reptile habitats under the footprint of the built Development. As the vast majority of areas where native reptiles were recorded within the Site will be retained within green infrastructure, it is considered that despite the loss of a small areas of habitat, the reptile population can be readily maintained at the Site. Nonetheless, there remains the potential that the retained and new habitats may be adversely affected by changes in water quality, or a lack of/inappropriate management, which for example could cause areas of grassland to scrub over. This has the potential to decrease the suitability of the Site for reptiles in the long-term, but is unlikely to affect the conservation status of the local population. This, coupled with the permanent loss of some a small amount of suitable reptile habitat, has the potential to be slight negative and

long-term, which is not significant for the on-site populations of native reptiles.

8.231 The population of non-native Wall Lizard would be unaffected during the operational phase of the Development as there would be no habitat losses and the sea wall will remain unaffected, and therefore effects on this species are considered to be negligible and non-significant.

*Breeding Birds*

8.232 This section assesses the breeding bird assemblage associated with the Site itself. Off-site breeding birds, along with wintering and passage birds are covered as part of the Medway Estuary and Marshes SPA/Ramsar/SSSI above and in the Document to Inform an HRA.

8.233 The operational Development will result in the permanent loss of habitats suitable for breeding birds, including the habitats/a portion of habitats associated with a small number of territories of notable species including Little Ringed Plover, Cuckoo, Ringed Plover, Skylark, Lapwing and Linnet. The loss of other habitats within the Site (such as trees and scrub) will also remove habitat for more common bird species. It is considered unlikely that Barn Owl nesting off-site would be disturbed during operation as the nearest built Development area is located approximately 300m away. It is not considered the bird assemblage present would be sensitive to other factors, such as changes in water quality.

8.234 It is considered that the bird interest of the Site can be maintained within the operational Development, as the majority of suitable habitats will be retained within the green infrastructure corridors. It is not considered that the loss of a small number of territories for the above notable species would affect their local conservation status as there are abundant suitable habitats elsewhere, and the habitats in the south of the Site being utilised by Skylark, Ringed Plover, Little Ringed Plover and Lapwing have only become suitable for these species since the power station was demolished. In addition, there will be opportunities for habitat creation and enhancement within the retained and new habitats which will benefit birds (as set out below).

8.235 In the absence of mitigation, operational effects on breeding birds are considered to be neutral and long-term, which is not significant.

*Invertebrates*

8.236 As noted above, one area of OMH totalling 1.56ha will be lost during construction and one area totalling 0.72ha will be retained within a green infrastructure corridor. As shown on Figure 3.2 Parameter Plan, a green infrastructure corridor runs along the southern edge of

the northernmost built Development area, which incorporates the southern portion of the OMH which will be affected during construction. This remaining retained area is considered to be too small to allow for a meaningful sized area of OMH to be retained or re-created, and as such, it is considered appropriate to assume the entire 1.56ha area will be permanently lost. The 0.4ha area in the eastern portion of Parcel 4 lies under the footprint of one of the built Development areas and therefore will also be permanently lost.

8.237 Inherent mitigation has been built into the Development parameters to ensure retained habitats are not overshaded by the new buildings and receive at least 8 hours of sun per day, to ensure that the retained OMH and the eastern portion of Parcel 4 will function to support its associated invertebrate populations.

8.238 Retained habitats have the potential to be adversely affected from a lack of ongoing long-term management, which could cause the habitat to scrub over and the invertebrate interest be reduced by a corresponding reducing in microhabitats and habitat diversity.

8.239 In the absence of mitigation or compensation, the permanent loss of 1.56ha of OMH and 0.4ha of habitat identified as key areas for invertebrates within the Site, plus other habitats of lesser value, and potential effects from a lack of/inappropriate long-term management of retained habitats is considered to be potentially substantial negative and long-term, which is considered to be significant at the Regional-National level.

## Mitigation Measures

### Construction Phase

8.240 In the absence of mitigation or compensation, the assessment has identified likely significant effects during the construction phase of the Development in relation to the following important ecological features:

- Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek – disturbance to qualifying bird species (noise, vibration, lighting and visual) and degradation of supporting habitat from changes in water quality and dust deposition as set out in the Document to Inform an HRA (Appendix 8.8);
- Medway Estuary MCZ – increases in surface water run-off and wastewater generation, and potential accidental discharge of polluted water.
- OMH – temporary loss of 1.56ha of Priority Habitat, dust deposition onto retained OMH, inappropriate landscape design at the detailed design stage of the Development;

- Woodland – polluted surface water run-off, dust deposition, inappropriate design of green infrastructure at the detailed design stage of the Development;
- Semi-improved Grassland - temporary loss of a proportion of the grassland and potential indirect effects on retained grassland (e.g. accidental damage, polluted surface-water run-off, dust deposition);
- Waterbodies – loss of pond P17 to facilitate construction and potential indirect effects on retained ponds and ditches (e.g. accidental damage, polluted surface-water run-off, dust deposition);
- Off-site intertidal mud/sand, shingle/cobbles – dust drifting off-site, increases in surface water run-off and wastewater, and accidental discharge of polluted water;
- Off-site intertidal saltmarsh - dust drifting off-site, increases in surface water run-off and wastewater, and accidental discharge of polluted water;
- Badger – possible disturbance to retained main sett and construction hazards (e.g. falling into excavations or movement routes becoming blocked by security fencing);
- Water Vole – loss of pond P17 to facilitate construction (loss of Water Vole habitat likely to be a single territory, risk of killing/injuring individuals, possible temporary habitat fragmentation by removing "stepping stone" between D6 and D7), potential indirect effects on retained habitats (e.g. accidental damage, polluted surface water run-off and dust deposition);
- Great Crested Newt – loss of terrestrial habitat to facilitate construction (risk of killing/injuring individuals and damaging/destroying resting places), potential indirect effects on retained habitats (e.g. accidental damage, accidental blocking of movement corridors, polluted surface water run-off and dust deposition);
- Breeding birds – killing/injuring birds, chicks and eggs, and damaging/destroying active nests; and
- Invertebrates – loss of habitats of key importance to facilitate construction, potential indirect effects on retained habitats (e.g. accidental damage, polluted surface water run-off and dust deposition).

8.241 Other effects are identified which are not significant, but mitigation is still required (e.g. to comply with legislation or as part of environmental best practice) comprising:

- Other Trees - removal of a small number of roadside landscaping trees to facilitate construction (e.g. upgrading the existing access road) and potential indirect effects (e.g. accidental damage);
- Off-site Areas Supporting Notable Plant Species – dust drifting off-site;
- Roosting Bats – loss of three trees with low bat roosting potential to facilitate construction, potential indirect effects on retained buildings and trees (e.g. accidental damage and disturbance from noise and lighting);

- Commuting and Foraging Bats – effects retained habitats from accidental damage and lighting; and
- Reptiles – risk of killing/injuring individuals during removal of reptile habitat to facilitate construction, and effects on retained reptile habitat (e.g. accidental damage).

8.242 The assessment identified neutral or negligible effects for several important ecological features during construction and no mitigation is proposed. These comprise Chattenden Woods and Lodge Hill SSSI, Tower Wood and Cockham Wood SSSI, Otter, Wall Lizard, Common Seal and Grey Seal.

*Mitigation for Likely Significant Effects – Construction Phase*

*Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek*

8.243 In order to mitigate the predicted effects in relation to bird disturbance, changes in water quality and dust deposition which could arise during construction, a number of measures are set out in the Document to Inform an HRA. In summary the measures comprise:

- Production of a CEMP secured via condition to include a range of pollution prevention measures (as set out in the mitigation section of Chapter 9 Water Resources and Flood Risk of the ES) and construction safeguards;
- Production of a Dust Management Plan secured via a separate condition to include the mitigation measures set out in Chapter 11 Air Quality of the ES (which include those 'highly recommended' measures set out within Institute of Air Quality Management (IAQM) guidance);
- An External Lighting Strategy will be produced which will be implemented site-wide for any lighting required during construction and can be secured via a condition;
- A Construction Method Statement will be produced for all construction activities in Parcel 3 (either one for the entire Parcel, or each developer will produce one as different development plots come forward within Parcel 3). This can be secured via condition and will detail the measures which will be implemented to minimise disturbance as far as possible, based on a bespoke assessment of the detailed layout, construction activities and timeframes (examples of what these plot-specific measures could include are set out in full in the separate Document to Inform an HRA).

*Medway Estuary MCZ and Habitats*

8.244 Protection of Medway Estuary MCZ and Retained Habitats. In order to minimise potential

effects from dust, polluted surface water run-off and accidental damage as far as possible, standard mitigation measures will be put in place Site-wide during the construction. These measures can be secured via a planning condition for a Construction Environmental Management Plan (CEMP) for the entire Site or on a phased basis and will include:

- All trees to be retained during construction will be protected during construction in line with standard arboriculturalist best practice (BS5837:2012) or as otherwise directed by a suitably competent arboriculturalist. This will involve the use of protective fencing or other methods appropriate to safeguard the root protection areas of retained trees;
- All areas of the Site designated as green infrastructure will be demarcated with fencing and signage. No entry will be permitted into the area unless necessary for landscaping works, construction of SuDS, or delivering habitat and faunal enhancements;
- An External Lighting Strategy will be produced which will be implemented site-wide for any lighting required during construction. These measures include, for example, use of luminaires with accurate optics, use of cowls or light-shield accessories and use of timers to avoid illuminating any retained habitats during construction. These measures can be secured via a condition for a detailed lighting design for any lighting required during construction;
- Pollution control measures as set out in the 'Mitigation Measures' section of Chapter 9 Water Resources and Flood Risk of the ES, to include run-off interceptor channels, wastewater treatment (e.g. settling tanks to remove sediment, temporary interceptors and hydraulic brakes), repair of damage to the existing drainage network wherever possible, use of granular material along drainage service runs to reduce infiltration of potential leaks, dust suppression to reduce the spread of sediment, positioning of construction compounds and materials away from existing drainage systems and surface watercourses, bunding around any areas at risk of spillage (e.g. vehicle maintenance areas), mitigation measures during any excavation and piling work (e.g. appropriate disposal of water arising from excavations), and compliance with a range of best practice measures for pollution prevention. In addition, the CEMP would include a programme of water quality monitoring; and
- Routing of construction traffic to avoid sensitive areas wherever possible, such as alongside green infrastructure corridors and ditches.

8.245 Chapter 11 Air Quality of the ES sets out mitigation measures to reduce the emission of dust and control dispersion in the construction site to safeguard retained habitats. These include the implementation of the 'highly recommended' measures set out in AQMA guidance, which will be incorporated into a Dust Management Plan for the Site and can be secured via planning condition. The relevant 'highly recommended' measures are set out in full in Chapter 11.

8.246 Potential effects were identified in relation to woodland and OMH in the absence of appropriate landscape design at the detailed design stage of the Development (for example inappropriate planting or provision of public access). An Ecological Design Strategy will be produced which can be secured via planning condition. This will be produced with Ecologists and Landscape Architects to develop a strategy for the areas shown as green infrastructure and specific Development Plots as necessary. This will allow a coherent approach to delivering habitat creation, enhancements and landscaping as the various Development Plots are constructed (with the indicative construction programme covering a period of 11 years).

8.247 It is important to note that the Strategy will need to consider what quantum of habitat creation or enhancement will be necessary to deliver compensation for habitat losses (see below) at the detailed design stage of the Development, and should then go above and beyond this in order to achieve the following key aims below:

- Increase net area of OMH across the Site in order to create an increased area of key invertebrate habitat compared to current conditions;
- Increase net tree cover across the Site, which is currently very low. This can be achieved by planting pockets of native woodland planting and scattered trees, which will also benefit a range of fauna by creating areas of shelter and "stepping stone" habitats whilst still preserving the open character of the Site.
- Increase net quality of grassland across the Site, by creating new areas of diverse grassland and enhancing areas of retained grassland.
- Increase net area of waterbodies across the Site. This can be achieved by creating wildlife friendly SuDS holding areas of permanent water and marginal planting, and enhancement of existing waterbodies. Ponds 5a, 5a, P4 and ditch D1 would particularly benefit from this.

8.248 A Landscape and Biodiversity Management Strategy (LBMS) (refer to Appendix 7.9 of the ES) divides the Site into several Landscape Character Zones, and sets out a framework for long-term management of the Site. The LBMS has incorporated the key elements set out above.

*Badger*

8.249 As noted above, the main Badger sett will be retained and has been incorporated into a green infrastructure corridor at least 30m wide. As set out in the habitat safeguards above, all areas designated as green infrastructure will be fenced with Heras and signage to prevent accidental damage, and this will ensure the sett itself will be protected and buffered form construction works by at least 30m. Consideration should be given to ensuring Badger can continue to move around the Site and cross the main access road by providing gaps below the fence at

least 30cm high, for example, by raising the Heras on an additional block in certain locations.

8.250 As set out above, certain activities have the potential to disturb Badger at a distance greater than 30m, such as percussive piling. The risk of Badger disturbance will be reassessed at the detailed design stage of the Development on Parcels 1 and 4 and a view will be taken as to whether additional mitigation or licensing is necessary to prevent or minimise potential disturbance.

8.251 In order to safeguard Badger should they enter the site during construction works, the following measures will be implemented:

- Any lighting required during construction will not illuminate the main sett or any of the fenced green infrastructure corridors;
- Any trenches or excavations within the site that are to be left open overnight will be provided with a means of escape should a Badger enter. This could simply be in the form of a gently graded ramp or roughened plank of wood placed in the trench as a ramp to the surface. This is particularly important if the trench fills with water;
- Any temporarily exposed open pipes (>150mm outside diameter) should be blanked off at the end of each working day so as to prevent Badgers gaining access as may happen when contractors are off-site;
- Any trenches/pits will be inspected each morning to ensure no Badgers have become trapped overnight. Should a Badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, forming a temporary sett. Should a trapped Badger be encountered a suitably qualified ecologist will be contacted immediately for further advice;
- The storage of topsoil or other 'soft' building materials in the Site will be given careful consideration. Badgers will readily adopt such mounds as setts. So as to avoid the adoption of any mounds, these will be kept to a minimum and any essential mounds subject to daily inspections with consideration given to temporarily fencing any such mounds to exclude Badgers;
- The storage of any chemicals at the site will be contained in such a way that they cannot be accessed or knocked over by any roaming Badgers;
- Fires will only be lit in secure compounds away from areas of Badger activity and not allowed to remain lit during the night; and
- Unsecured food and litter will not be left within the working area overnight.

8.252 Badgers are dynamic animals and levels of Badger activity can rapidly change at a site, with new setts being created at any time. Given the known presence of Badger setts in the Site an update survey will be carried out prior to commencement of site works in order to confirm

the current status of Badgers at the site. As development is likely to come forward in phases over a number of years, it is likely several surveys will be required. Any survey would re-visit the known main sett and identified disused setts to confirm their status and search the rest of the survey area (which could be the entire Site or a single Development area) for Badger signs. Where any new setts are identified, additional mitigation and licensing may be required.

8.253 The above measures for Badger should be developed further at the detailed design stage of the Development, when details of the nearest works to the main sett are known, and can be set out in full in an Ecological Mitigation and Enhancements Plan (or similar) secured via condition.

*Water Vole*

8.254 In order to avoid killing/injuring Water Voles during construction, mitigation will be implemented prior to the removal of pond P17. This will involve capturing and relocating individuals from P17 to another suitable location (either existing suitable habitat which is not currently occupied, or new habitat which has becoming suitably established to support Water Vole) under Natural England licence. This should be further considered at the detailed design stage for the Development area within which P17 lies, when for example details of the work programme are known, but however is likely to include the following:

- Update survey work of P17, D6 and D7 and any potential release sites to establish carrying capacity to receive more Water Voles;
- Identification of a suitable Water Vole release site as close to P17 as possible;
- Implementation of any preparation work associated with the release site (e.g. habitat creation or enhancement);
- Consideration of risks to Water Vole during construction – for example when P17 is removed, Water Vole may still try to move between diches D6 and D7 which would cause them to enter the construction are and so barrier fencing may be required; and
- Consideration of methods to minimise temporary fragmentation between ditches D6 and D7 during construction in the absence of P17 acting as a possible "stepping stone", for example through programming and timing of works

8.255 The construction safeguards set out above in relation to habitats will safeguard Water Vole habitat from accidental damage, polluted surface water run-off and dust deposition.

8.256 As the Development is likely to be built out in phases over a number of years, update Water Vole surveys should be undertaken of relevant waterbodies as the Development is built out. As such, it is likely several surveys will be required. Any survey should be carried out at a

suitable time of year and search for signs of Water Voles in all relevant waterbodies. All waterbodies with the exception of P17 will be retained and buffered from development, and as such it is not anticipated any further licensing or relocation exercises would be required as a result of any update survey work.

8.257 The physical loss of the pond P17 which is likely to contain a single Water Vole territory will be compensated for with the provision of a new pond of greater size and suitability for Water Vole (see compensation section below).

8.258 The above measures for Water Vole should be developed further at the detailed design stage of the Development, when details of the works in the south-east portion of the Site are known, and can be set out in full in an Ecological Mitigation and Enhancements Plan (or similar) secured via planning condition.

*Great Crested Newts*

8.259 All waterbodies which recorded Great Crested Newts will be retained during construction. However, there will be losses of terrestrial habitat around these waterbodies where Great Crested Newts may be present. In order to avoid killing/injuring Great Crested Newts during construction, and in order to permit the damage/destroying of their resting places (by the removal of terrestrial habitat) mitigation will be implemented prior to habitat removal under Natural England licence. There are currently two ways to achieve this, via a Natural England Mitigation Licence, or by joining a District Level Licensing (DLL) scheme, which in Kent is also operated by Natural England.

8.260 In relation to DLL, currently Natural England model the relevant habitat losses in order to calculate a conservation payment. The developer joins the scheme and makes the conservation payment, which is then used to fund Great Crested Newt conservation at a landscape scale. In the event Development were to take up the DLL option rather than the Mitigation Licence option, no mitigation would be required on-site to protect Great Crested Newts or provide compensatory habitat (as this would happen off-site funded by the conservation payment). However, Natural England currently calculates the conservation payment assuming all waterbodies within the Site where Great Crested Newts will be present will be lost. As in fact all waterbodies where newts were recorded will be retained, it is likely the conservation payment may be prohibitively high (and indeed not accurate to the actual situation on the ground). Therefore, joining DLL may not be a viable option and a Natural England mitigation licence would be required.

8.261 The licensing options will be reviewed at the detailed design stage and the most suitable

option will be pursued. Once this has been decided, full details of the proposed mitigation (if required) can be set out in a Mitigation and Enhancements Plan (or similar), secured via condition. Where the mitigation licence option is pursued the following measures will be considered in the Mitigation and Enhancements Plan and any subsequent licence application:

- Requirements for any update surveys (likely given the time that will have elapsed between the most recent surveys and any future licence application) ;
- Selection of the suitable terrestrial release area (most likely to be the eastern area of the Site around P1 and P2);
- Preparation of the release area e.g. any habitat enhancements;
- Calculation of habitat losses within 0-50m, 50-250m and 250-500m from the waterbodies where Great Crested Newts are present;
- Provision of compensatory habitat (habitat creation and enhancement);
- Locations of semi-permanent and drift fencing;
- Development of a 30 day (due to a low population being present) capture and relocation program at a suitable time of year;
- Consideration of any infrastructure related requirements such as provision of amphibian friendly gulley pots or dropped kerbs in certain locations;
- Provision of habitat enhancements (terrestrial/aquatic); and
- Consideration of long-term management and monitoring.

8.262 Protection of Retained Great Crested Newt Habitat (Aquatic and Terrestrial). The construction safeguards set out above in relation to habitats will safeguard Great Crested Newt habitat from accidental damage, polluted surface water run-off, dust deposition and the accidental blocking of movement corridors.

*Breeding Birds*

8.263 To avoid a potential offence under the relevant legislation, no clearance of suitable vegetation should be undertaken during the bird-nesting season (1st March to 31st August inclusive). If this is not practicable, any potential nesting habitat to be removed should first be checked by a competent ecologist in order to determine the location of any active nests. Any active nests identified would then need to be cordoned off (minimum 5m buffer) and protected until the end of the nesting season or until the birds have fledged. These checking surveys would need to be carried out no more than three days in advance of vegetation clearance. These measures can be secured via a planning condition for an Ecological Mitigation and Enhancements Plan (or similar).

*Invertebrates*

8.264 Construction will result in the loss of areas which survey has identified as being of key importance to the invertebrate assemblage on Site, including 1.56ha of OMH and 0.4ha of semi-improved grassland. In order to compensate for these losses, new habitat will be created elsewhere within the Site, see compensation section below. The new habitats will be delivered prior to any losses occurring during construction. Full details should be set out at the detailed design stage for example in an Ecological Mitigation and Enhancements Plan (or similar) secured via planning condition.

8.265 Protection of Retained Habitats (Aquatic and Terrestrial). The construction safeguards set out above in relation to habitats will safeguard invertebrate habitat from accidental damage, polluted surface water run-off and dust deposition.

*Mitigation for Non-significant Effects – Construction*

8.266 A number of non-significant effects have been identified during the construction phase of the Development where mitigation is still required in order to comply with legislation or as part of best practice measures. These are set out below.

*Habitats*

8.267 The assessment identified non-significant effects in relation to the removal of a small number of trees to facilitate construction (roadside landscape trees and a small number of trees within scrub in the north eastern area of Parcel 1. Any tree losses will be compensated for with new planting as set out below.

8.268 The assessment also identified non-significant effects in relation to dust drifting off-site during construction and potentially affecting off-site areas supporting notable plant species. The construction safeguards set out above in relation to habitats production of a Dust Management Plan will minimise the risk of this occurring as far as possible.

*Roosting Bats*

8.269 Prior to commencement of development, an update ground level assessment of buildings and trees which will be affected will be carried out in order to determine any changes to the original survey results. It is possible that several update surveys may be necessary as different phases of the Development are built out. Where any additional trees with low bat potential are identified that will be affected, these will be "soft felled" using the technique below. In

the event any trees with moderate or high bat roosting potential are identified which will be affected, further survey work will be required in the form of dusk/dawn surveys (two for moderate potential trees and three for high potential trees) at a suitable time of year.

8.270 Currently all the buildings with bat roosting potential will be retained. However this could potentially change at the detailed design stage, for example modification or refurbishment work may be required to the pumping stations. In the event this were to occur, it will be necessary to carry out dusk/dawn surveys at a suitable time of year (1/2/3 surveys for low/moderate/high potential).

8.271 Three trees with low bat roosting potential are likely to be unable to be incorporated into the Development at the detailed design stage and will likely require removal to facilitate construction (trees T9, T14 and T15). In accordance with current guidelines[xxiv] further survey work is not required trees with low bat roosting potential, and instead these can be "soft felled" under ecological watching brief. This involves cutting sections of the tree and carefully lowering them to the ground, after which they will be left undisturbed on the ground for at least 24 hours to allow any bats, should these be present, to escape.

8.272 If any evidence for the presence of roosting bats is recorded, works on that tree will be suspended and consideration will be given to the need to undertake works under a European Protected Species (EPS) development licence, and a licence application will be made to Natural England as required.

8.273 Retained trees will be protected from accidental damage using Tree Protection Fencing, as set out in the habitat construction safeguards above. This would ensure that in the event bats were present in the trees that the roost would be safeguarding and would be unlikely to be disturbed during construction. Retained buildings will also be protected with Heras fencing where practicable to avoid accidental damage during construction (albeit this is considered unlikely as they largely lie within the green infrastructure corridors.

8.274 As noted above, construction lighting is only likely to be required during the winter months in normal working hours and bats will be largely hibernating at this time. However, poorly positioned lighting during construction (e.g. which illuminates potential roosting features) carries some risk of affecting bats which may be emerging from hibernation to forage in the winter, or during the shoulder seasons where bats may be becoming more active but lighting is still required on-site. Accordingly, the following measures will be implemented during construction in relation to lighting:

- Avoid locating site compounds and parking areas in proximity to trees and buildings with bat roosting potential (where not already illuminated by the lighting along the main access road);
- Use the minimum amount of temporary lighting necessary for safe working and the minimum brightness;
- Angle any temporary lighting downwards to illuminate the work areas and avoid light spill; and
- Avoid illuminating any buildings or trees (i.e. moving temporary lighting further away or angling further downwards.

8.275 The above measures in relation to roosting bats should be further developed at the detailed design stage and any additional survey requirements or mitigation identified, if necessary. This should then be set out in full in an Ecological Mitigation and Enhancements Plan (or similar) which can be secured via condition.

*Commuting and Foraging Bats*

8.276 The assessment identified non-significant effects in relation to the low risk of commuting and foraging habitats being affected through accidental damage, or bats themselves being affected by poorly positioned lighting. The construction safeguards set out above in relation to habitat protection and lighting will minimise the risk of this occurring as far as possible. As noted above, these measures can be secured via a planning condition for an Ecological Mitigation and Enhancements Plan (or similar).

*Reptiles*

8.277 Protection of Individual Reptiles. The assessment identified effects in relation to the risk of killing/injuring reptiles during removal of suitable habitat during construction. This was considered to be non-significant as the vast majority of habitat where reptiles were recorded will be retained in green infrastructure areas, and as such only small areas of reptile habitat are likely to require removal to facilitate construction. The approach to mitigation generally takes two forms – for small areas of habitat reptiles can be displaced from the works areas into suitable adjacent habitat using phased vegetation removal. For larger areas, a translocation exercise can be carried out whereby the works area is fenced with reptile fencing and reptiles within are captured and relocated to another suitable location on-site.

8.278 Due to the large size of the Site, the Development will come forward in phases over a number of years, and so it is likely reptile mitigation would need to be implemented on a plot-by-plot

basis using the most suitable approach based on the detailed design of the specific plot. As such, these measures should be developed at the detailed design stage and incorporated into an Ecological Mitigation and Enhancements Plan (or similar) secured via condition. If a single Plan is produced for the entire Site, this should set out an overarching approach which should then be defined at each relevant Development Plot (and the Plan updated accordingly or a stand-alone one produced for the relevant plot). Due to the large size of the Site and green infrastructure corridors and the small areas of reptile habitat which require removal, it is considered there will be ample space on-site to implement the necessary displacement/relocation exercises and deliver any compensatory habitat required.

8.279 The construction safeguards set out above in relation to habitats will safeguard reptile habitat from accidental damage during construction.

### Operational Phase

8.280 In the absence of mitigation or compensation, the assessment has identified significant effects during the operational phase of the Development for the following important ecological features:

- Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek – disturbance of qualifying species (lighting and visual) and degradation of supporting habitat through changes in water quality as set out in the Document to Inform an HRA (Appendix 8.8);
- Medway Estuary MCZ – reduction in water quality (e.g. from polluted surface water run-off);
- OMH – permanent loss of 1.56ha of Priority Habitat and lack of/inappropriate long-term management;
- Woodland – changes in water quality, and lack of/inappropriate long-term management;
- Semi-improved Grassland – permanent loss of a proportion of the on-site resource, and lack of/inappropriate long-term management;
- Waterbodies – permanent loss of Pond P17, changes in water quality and lack of/inappropriate long-term management;
- Off-site mud/sand and shingle/cobbles, and off-site saltmarsh – changes in water quality;
- Commuting and Foraging Bats – operational lighting, lack of/inappropriate long-term management of foraging habitat;
- Water Vole – changes in water quality and lack of/inappropriate long-term management;
- Great Crested Newt – permanent loss of terrestrial habitat, changes in water quality and lack of/inappropriate long-term management; and

- Invertebrates – permanent habitat loss and lack of/inappropriate management.

8.281 Other effects are identified which are not significant, but mitigation is still required (e.g. to comply with legislation or as part of environmental best practice) including:

- Trees – permanent loss of a small number of roadside landscaping trees and within Parcel 1;
- Roosting Bats – operational lighting; and
- Badgers – operational lighting, lack of/inappropriate long-term management of foraging habitat; and
- Reptiles – permanent loss of habitat, lack of/inappropriate long-term habitat management.

8.282 The assessment identified neutral or negligible effects on several important ecological features at the operational phase of the Development and no mitigation is proposed. These comprise Chattenden Woods and Lodge Hill SSSI, Tower Wood and Cockham Wood SSSI, off-site areas with notable plant species, Wall Lizard, Otter, Common and Grey Seals, and breeding birds.

*Mitigation for Likely Significant Effects – Operation*

*Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek*

8.283 In order to mitigate the predicted likely significant effects in relation to disturbance of qualifying bird species from lighting and visual disturbance, the Document to Inform an HRA sets outs parameters for the operational Development's lighting design, which can be secured via planning condition. The risk of visual disturbance will also be mitigated through a sensitive landscape design at the detailed design stage, which can also be secured via planning condition. Elements which will be taken into account to minimise the risk of visual disturbance as far as possible would be targeted to the green infrastructure corridors along the southern Site boundary and the eastern boundary around the terminus of Damhead Creek and would comprise as a minimum:

- Consideration of positioning of footpaths or maintenance tracks to make use of Site topography to screen the human form, and siting these as far away from the sea wall as practicable;
- Use of perforated visual screens to screen vehicle movements and break up the human form of people using the green space,
- Use of bird hides to guide users to designated viewing points;

- Strategic positioning of features such as SuDS and planting to discourage people to approach the sea wall aside from the designated viewing points;
- Positioning of pockets of planting in strategic area to further break up the human form and further screen vehicle movements; and
- Avoiding encouraging public access or provide additional screening to the green infrastructure on the north side of the terminus of Damhead Creek as this is elevated above the creek and the human form would therefore be more visible.

8.284 In the absence of mitigation, Chapter 9 Water Resources and Flood Risk predicts operational effects in relation to changes in water quality, which could affect the Medway Estuary Mitigation is set out in Chapter 9, which comprises implementation of the Outline Drainage Strategy (including surface water attenuation via a series of pond and swale features and pumping system, and a maintenance and monitoring strategy), implementation of operational wastewater treatment, and development of a number of operational procedures (such as an emergency spill response procedure) and measures to prevent any increase in pollutants to the surrounding environment.

*Medway Estuary MCZ and Habitats*

8.285 As set out above, temporary habitat losses will occur during construction and a proportion of the habitats lost will not be able to be re-instated (for example where semi-improved grassland is removed to create a SuDS basin, or where OMH will be removed and it is not practical to retain or reinstate it as the area would be too small in size to function as OMH.) Accordingly, permanent habitat losses will occur for OMH, waterbodies, semi-improved grassland and trees. These losses will be compensated for by creating new habitats and enhancing existing habitats, as set out in the compensation section below. The compensation measures would be set out in full in an Ecological Design Strategy (secured via planning condition).

8.286 As set out above, mitigation in relation to water quality and pollution control will be delivered in the form of the implementation of the Outline Drainage Strategy, which will safeguard the MCZ and habitats.

8.287 A Landscape and Ecology Management Plan (LEMP) will be produced (which can be secured via planning condition), in order to ensure that all habitats within the Site (retained and new) are managed appropriately in the long-term to benefit biodiversity and ensure they remain in optimal condition for the fauna associated with the Site. The LEMP should tie into the measures set out in the Ecological Design Strategy. Any LEMP for the Site should include the

following key aims as a minimum:

- Introduce and establish new habitats to benefit biodiversity and landscape amenity;
- Contribute to local and national objectives i.e. create and improve the condition of Priority Habitats and local Priority Species; and
- Introduce long-term management to achieve ongoing biodiversity and landscape benefits and ensure opportunities for biodiversity are enhanced under the completed Development.

*Commuting and Foraging Bats*

8.288 At the detailed design stage of the Development, a detailed lighting design will be produced, either for the entire Site or as different phases are built out (e.g. for the road infrastructure and associated individual development plots) which can be secured via planning condition. The final design should be reviewed by an Ecologist to provide confirmation the design will not adversely affect commuting and foraging bats (and other nocturnal fauna). It is likely to be necessary to produce lux plot models to demonstrate this and the design will likely need to incorporate the following measures:

- Appropriate luminaire specifications – consideration should be given to the type of luminaires used, in particular luminaries should lack UV elements and metal halide and fluorescent sources should be avoided in preference for LED luminaries. A warm white spectrum (ideally <2,700K) should be adopted to reduce the blue light component;
- Light barriers / screening – new planting (e.g. hedgerows and trees) or fences, walls and buildings can be strategically positioned to reduce light spill;
- Spacing and height of lighting units – increasing spacing between lighting units will minimise the area illuminated and allow bats to fly in the dark refuges between lights. Reducing the height of lighting will also help decrease the volume of illuminated space and give bats a chance to fly over lighting units (providing the light does not spill above the vertical plane). Low level lighting options should be considered for any parking areas and pedestrian / cycle routes, e.g. bollard lighting, handrail lighting or LED footpath lighting;
- Light intensity – light intensity (i.e. lux levels) should be kept as low as possible to reduce the overall amount and spread of illumination;
- Directionality – to avoid light spill lighting should be directed only to where it is needed. Particular attention should be paid to avoid the upward spread of light so as to minimise trespass and sky glow;
- Dimming and part-night lighting – lighting control management systems can be used, which involves switching off/dimming lights for periods during the night, for example when

human activity is generally low (e.g. 12.30 – 5.30am). The use of such control systems may be particularly beneficial during the active bat season (April to October). Motion sensors can also be used to limit the time lighting is operational.

8.289 A LEMP secured via planning condition will ensure that habitat for commuting and foraging bats is maintained in suitable condition in the long-term.

*Water Vole*

8.290 A LEMP secured via planning condition will ensure that Water Vole habitat is maintained in suitable condition in the long-term.

*Great Crested Newt*

8.291 A LEMP secured via planning condition will ensure that Great Crested Newt is maintained in suitable condition in the long-term.

*Mitigation for Non-Significant Effects – Operation*

8.292 A number of non-significant effects have been identified for the operational phase of the Development, where mitigation is still required in order to comply with legislation or as part of best practice measures. These are set out below.

*Trees*

8.293 Compensation for the permanent loss of trees is set out below, and will be detailed in full in an Ecological Design Strategy, which has a key aim of increasing net tree cover across the Site.

*Roosting Bats and Badger*

8.294 The measures above set out for commuting and foraging bats will also be applied to roosting bats in order to ensure that no buildings or trees with bat roosting potential are illuminated by operational lighting. They will also be applied to Badger to ensure that the main sett and green infrastructure is not illuminated to ensure Badger can continue to move freely around these areas.

8.295 A LEMP secured via planning condition will ensure that buildings and trees are managed appropriately to ensure risks to potentially roosting bats are minimal (for example when

carrying out maintenance). It will also ensure habitats will be managed and maintained in the long-term to provide suitable movement corridors and foraging habitat.

*Reptiles*

8.296 A LEMP secured via planning condition will ensure that reptile habitats are maintain and to ensure risks to reptiles are minimal (for example when carrying out maintenance). It will also ensure habitats will be managed and maintained in the long-term to provide suitable movement corridors.

## Compensation Measures

8.297 The assessment identified effects on habitats and fauna in relation to temporary and permanent habitat losses. Where habitats cannot be reinstated these effects cannot be mitigated for and compensation is necessary. The proposed compensation measures are set out below and will be developed further at the detailed design stage of the Development in an Ecological Design Strategy (which can be secured via planning condition).

### OMH and Invertebrates

8.298 In order to compensate for the permanent loss of 1.56ha of OMH Parcel 1, at least the equivalent area will be created in the eastern portion of the Site by expanding the area of 0.72ha of retained OMH in Parcel 3. In addition, the retained 0.72ha will be subject to enhancement works – the area will significantly benefit from this as although it currently qualifies as OMH Priority Habitat, a number of areas (primarily where the larger pieces of broken up slabs are deposited) are becoming colonised with scrub, including a large component of Buddleia. The area is considered to be the most suitable location to implement that habitat compensation as it will expand the smaller retained area to create a single larger area at least 2.28ha in size. As noted above, the retained area of OMH is located on a gently sloping area on a bank above the height of the built Development areas so would not be at risk in the long-term for example from pollution incidents. The area which will be expanded as compensation lies along a flat area at the top of that bank and along a south-facing bank running down to Damhead Creek, which is ideal for thermophilic species.

8.299 The following actions will be considered and would be developed in full in the Ecological Design Strategy secured via planning condition:

- Removal of a proportion of scrub;

- Ground disturbance;
- Ground re-shaping (e.g. scraping topsoil or creating above-ground mounds);
- Transfer of substrates (e.g. sand piles) and soils from the OMH to be lost in Parcel 1 in order to relocate seed banks and invertebrate eggs/larvae;
- Plug planting of larval and food plants for invertebrates recorded in the OMH to be lost; and
- Creation of other features for invertebrates such as log piles to create a variety of microhabitats.

8.300 The habitat creation and enhancement works will be implemented prior to commencement of construction in Parcel 1 in order to ensure that there will be no overall temporary loss of habitat, as the new habitat will be in place before the existing habitat is removed.

### Trees

8.301 The woodland will be retained but non-significant effects were identified as a result of possible removal roadside landscaping trees, should it not be possible to retain them as part of any necessary work to upgrade the Site roads. A small number of trees located in areas of scrub will also require removal to facilitate construction. Where any tree removal is required, this will be compensated for with new native tree planting of appropriate species. Further detail would be provided in the Ecological Design Strategy and it is anticipated full detail would come forward as part of the detailed hard and soft landscape plans at the detailed design stage.

### Semi-improved Grassland and Invertebrates

8.302 In order to compensate for losses of semi-improved grassland around the Site, areas of new grassland will be created, and the retained areas of poor semi-improved grassland will be enhanced. The areas where permanent losses will occur are in the north-east portion of Parcel 1, the edges of the southern portion of Parcel 2, a rectangle at the eastern portion of Parcel 4 0.4ha in area (to straighten up a current dog-legged fence), around the footprint of the former storage tanks in Parcel 3, and small areas around the eastern edges of Parcel 3.

8.303 The key areas where new grassland can be created will focus on areas which lie within green infrastructure corridors which are currently bare ground or hard standing. These are located on the south side of Ditch D3 in Parcel 3, along the northern edge of Parcel 2, the southern end of Parcel 1 (where as noted above it would not be practical to retain or re-create OMH) and along the north-south 20m wide green corridor shown on the Parameter Plan.

8.304 The following actions will be considered and would be developed in full in the Ecological Design Strategy secured via condition:

- Breaking up hardstanding;
- Ground preparation (e.g. preparation or import of topsoil);
- Seeding with an appropriate mix (to include larval and adult foodplant species of key invertebrates recorded during the surveys).

8.305 The semi-improved grassland within the Site is not considered to be of value beyond the Local level; the areas to be lost are relatively small in size and scattered in pockets around the Site such that losses would likely occur on a phased basis as the different Development Plots come forward over many years. As such, it is considered appropriate to create these habitats on completion of construction of the relevant areas as different plots come forward. The key area for grassland creation will be the new north-south green corridor, which will be 20m wide and at least 350m long (i.e. 0.7ha in size), this is associated with the primary access road and as such would be delivered at an early stage of construction.

### Waterbodies and Water Vole

8.306 In order to compensate for the permanent loss of Pond P17, a new pond will be created in a nearby location in an area of green infrastructure. The following design elements will be considered and would be developed in full in the Ecological Design Strategy secured via condition:

- New pond should be a larger size than the pond lost;
- New pond should incorporate an area of open water in the centre at least 1.5m deep to ensure it does not become choked with Common Reed and Bulrush (as P17 currently is) such that it can develop into better quality habitat than what has been lost;
- Bank profiles suitable for Water Vole burrowing and access/egress for other fauna (e.g. Great Crested Newt);
- Aquatic and marginal planting to accommodate a range of fauna (e.g. to include foodplants for adult and larval notable invertebrates); and
- Surrounding landscaping to provide a mixture of cover and open habitat around the pond (e.g. flower-rich grassland with small pockets of tree and scrub planting).

8.307 The overall waterbody resource on the Site is not considered to be of value beyond the Local level, and only a single pond will be lost to the proposals. As such, it is not considered imperative that the new pond is created before P17 is removed during construction if it is not possible to do this (e.g. the location of the new pond lies within an area where temporary

work is required during construction, such as creation of SuDS).

### Other Fauna

8.308 In addition to compensation for the loss of habitats in and of themselves, it is possible that further compensation of habitat losses associated with other fauna may be required above what is set out above. The exact quantum would not be known until the detailed design stage where full details on the habitats that can be retained/require removal is known. Additional habitat compensation may be necessary for the following (and would be confirmed and set out in full at the detailed design stage in the Ecological Design Strategy):

- Great Crested Newt. Compensation for the loss of Great Crested Newt terrestrial habitat may be required if the Site does not join the Kent DLL scheme (over and above what is set out for the above habitats). Due to the very large size of the Site, it is considered any additional compensation would be able to be delivered on-Site by way of further habitat creation and enhancements and general on-site landscaping.
- Reptiles. Compensation for the loss of reptile habitat may be required over and above what is set out for the above habitats, in the event the area of reptile habitat lost exceed the amount created/enhanced with the above measures. This is considered unlikely given only a very small proportion of suitable reptile habitat will be lost and large areas of habitat compensation are to be delivered including at least 0.7ha of new flower-rich grassland.

## Enhancement Measures

8.309 The NPPF encourages new developments to maximise the opportunities for biodiversity through incorporation of enhancement measures. The proposals present the opportunity to deliver ecological enhancements at the Site for the benefit of local biodiversity, thereby making a positive contribution towards the broad objectives of national conservation priorities, the Kent BAP and other local conservation strategies (such as the recently launched ten-year Shrill Carder Bee Conservation Strategy). These should be further developed at the detailed design stage and could be set out within the Ecological Mitigation and Enhancements Plan (secured via planning condition). It will be important at the detailed design stage of the Development to clearly define the exact requirements for compensation so that enhancements can be delivered over and above this and there is no "double counting". Examples of enhancements which could be included are:

- Incorporation of green roofs or walls into the detailed design for a proportion of new

ancillary buildings to provide additional habitats to benefit invertebrates;

- Habitat enhancements (the waterbodies would particularly benefit from this);
- Provision of bat boxes;
- Provision of reptile and amphibian hibernacula;
- Provision of log piles to provide shelter for reptile and amphibians and provide an increased deadwood resource for invertebrates; and
- Provision of bird boxes targeted to certain species, particularly Barn Owl, Black Redstart and House Sparrow (Red listed birds breeding on Site which regularly use nest boxes).

### Residual Effects

8.310 In relation to Medway Estuary and Marshes SPA/Ramsar/SSSI and its associated functionally linked land, the Appropriate Assessment within the separate Document to Inform an HRA demonstrates that the implementation of mitigation would reduce the likely effects to a level which would not affect the integrity of the designations.

8.311 Following the implementation of the above measures, all adverse effects arising out of the Development in respect of both the construction and operational phases would be reduced to a level which is not significant.

8.312 For the operational phase of the Development, overall Neutral-Slight Positive effects are predicted in relation to OMH, semi-improved grassland, Great Crested Newt and breeding birds. Slight Positive effects are predicted in relation to woodland and other trees, roosting bats, commuting and foraging bats, reptiles and invertebrates. Moderate positive effects are predicted in relation to waterbodies and Water Vole, which are considered to be significant at the Local and District levels respectively.

### Cumulative Effects

8.313 The potential for cumulative effects for the construction and operational phases of the Development have been assessed in relation to the identified cumulative schemes set out in Chapter 2 EIA Methodology (consented and reasonably foreseeable schemes). A summary in relation to the elements relevant to biodiversity are set out in Table 8.8 below.

## Table 8.8 Summary of Assessment of Cumulative Effects for Biodiversity

| Planning Reference and Description | Distance from the Site | Potential for Cumulative Effects to be Generated |
|---|---|---|
| Consented Developments | | |
| Damhead Creek II Power Station Combined Cycle Gas Turbine (CCGT)<br><br>Section 36 Electricity Act variation to consent (Ref: DAM/B/2.4/S36C) | Adjacent to northern boundary. | The proposals do not alter the overall output of the power station, and Natural England agreed there would continue to be a negligible impact on Medway Estuary and Marshes SPA/Ramsar/SSSI. The applicant also concluded the proposed changes to the operation of the existing power station were unlikely to have significant effects on the environment and it was therefore unnecessary to submit a new Environmental Statement.<br><br>The applicant did submit an Environmental Information Report, which concluded there were not likely to be any significant effects arising as a result of the proposed variation.<br><br>On that basis, it is considered that there is no potential for cumulative effects to be generated associated with this consented development. |
| Kingsnorth Quarry Lane to the south of Stoke Road (ref: MC/12/0020)<br><br>Variation of Condition 14 of planning consent MC/05/0589 | Approximately 200m to the west. | The application was approved with conditions for sand and gravel extraction which will occur from approx. 2013-2024. The work would be implemented in accordance with requirements of the Mineral Planning Authority, and the decision notice includes conditions in relation to regulation of traffic movements, movement of soils, noise, water pumping, protection of watercourses and ditches, dust control, a programme of groundwater monitoring.<br><br>A Nature Conservation Management Plan, a landscaping scheme and landscape management scheme have also been produced and their implementation is secured via conditions.<br><br>Natural England confirmed the proposals would not have a significant effect on Medway Estuary and Marshes SPA/Ramsar/SSSI, and the Environment Agency confirmed the proposals have a low environmental risk.<br><br>On that basis, it is considered that there is no potential for cumulative effects to be generated associated with this consented development. |
| Kingsnorth Industrial Estate<br><br>Outline application for the construction of a business park (Ref: MC/08/0370), plus Reserved Matters Applications and discharge of conditions: MC/10/1342, MC/13/0541, MC/14/3646, MC/15/1658, MC/16/0479, MC/16/0475, MC/18/1878, MC/18/1979 and MC/19/2757. | Approximately 500m to the north. | The application was accompanied by an ES and the site incorporates an existing ecological mitigation area intended to provide mitigation for the development and Damhead Creek Power Station. Surveys identified populations of Water Vole, reptiles, Great Crested Newt and birds, as well as notable populations of invertebrates. The ES concluded that with the implementation of mitigation and inclusion of habitats within the landscape zone, the proposals would result in slight-moderate positive effects for biodiversity.<br><br>On that basis, it is considered that there is no potential for cumulative effects to be generated associated with this consented development. |
| Stoke Road Business Centre Stoke Road (ref: MC/17/4424)<br><br>Outline planning application for up to 200 residential dwellings | Approximately 1.2km north-west. | Due to the distance of the consented development from the Site, there would be no potential for cumulative effects to occur in the event construction were to occur on both sites at the same time (from noise, dust, water pollution etc.). |

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| (ref: MC/17/4424), and subsequent reserved matters application (ref: MC/19/0888) | | Due to the distance from the Site and the consented development being residential in nature, there would also be no potential for cumulative effects to occur at the operational stage (e.g. from HGV movements or air pollution).<br><br>On that basis, it is considered there is no potential for cumulative effects to be generated associated with this consented development. |
| Land south of Stoke Road, Hoo St Werburgh<br><br>Outline application for up to 100 dwellings (ref: MC/19/3129). | Approximately 1.3km north west | As above. |
| Land at White House Farm Stoke Road (ref: MC/18/0247) Outline planning application for up to 65 dwellings and subsequent reserved matters application (ref: MC/19/1736) | Approximately 1.6km to the north west. | As above. |
| Street Farm, Stoke Road (ref: MC/15/0098) Redevelopment of former farm site to provide a residential development of up to 50 dwellings and subsequent reserved matters application (ref. MC/18/1795). | Approximately 1.7km to the north west. | As above. |
| Land south of Ratcliffe Highway Junction with Bells Lane (ref: MC/17/1884) Detailed application to provide up to 232 residential units. | Approximately 2.9km to the north west. | As above. |
| Land at Hillcrest, Ratcliffe Highway. Detailed application for 21 dwellings (Ref: MC/19/3328). | Approximately 2.95km to the north west. | As above. |
| National Grid Property Holdings Grain Road. (Ref: MC/09/1628). Outline application for up to 464,685 sqm of built employment floorspace. The outline application was revised in March 2015 (MC/15/0702) with an application for approval of reserved matters to MC/09/1628 approved in July of 2015 with conditions (Ref: MC/15/1051). | Approximately 4.2km to the north east. | The outline application was accompanied by an ES informed by a range of ecological survey work. The ES concluded that with the implementation of mitigation, residual effects would be negligible for the majority of ecological receptors. Positive effects were identified in relation to reedbed, Water Vole and invertebrates, which was considered to be significant positive at the national level. Slight positive effects were also predicted for open water habitats.<br><br>On that basis, it is considered that there is no potential for cumulative effects to be generated in the event this development was to come forward. |
| GridLink Interconnector Ltd, Kingsnorth Power Station<br><br>A planning application for the construction of a converter station and associated underground electricity cables (ref: MC/20/2738), and an application for a Lawful Development Certificate | Within the Site at the eastern end of Parcel 3. | As the proposals lie within the Site, they are already considered as part of the above assessment. The proposals accord with the Development parameters and therefore no additive effects will occur. |

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| (proposed) (ref. MC/21/0028) for the Installation of an underground 400 kV cable system between the new GridLink Interconnector Ltd converter station site and the existing National Grid ESO Kingsnorth 400 kV sub-station located at the Kingsnorth Power Station. | | |
| Reasonably Foreseeable Developments | | |
| Land South of Britannia Road, High Halstow<br>Environmental Scoping Opinion Request for provision of up to 790 dwellings, two form entry primary school, provision of a retail unit or GP/pharmacy and access. | Approximately 2.2km<br>to the north west. | Due to the distance of the development from the Site, there would be no potential for cumulative effects to occur in the event the development was consented and construction were to occur on both sites at the same time (from noise, dust, water pollution etc.).<br><br>Due to the distance from the Site and the proposed development being residential in nature, there would also be no potential for cumulative effects to occur at the operational stage (e.g. from HGV movements or air pollution).<br><br>On that basis, it is considered that there is no potential for cumulative effects to be generated in the event this development were to come forward. |

8.314 In summary, the identified schemes have not recorded any significant negative residual effects in terms of ecology, following the implementation of mitigation. Therefore, given that no significant adverse residual effects have been identified as a result of the Development or the cumulative schemes, there would be no potential for them to combine to produce additive effects.

8.315 In addition, the 'non-significant' effects arising out of the Development are unlikely to generate new significant negative effects, or increase the magnitude of the existing non-significant effects, when considered in-combination with the identified cumulative schemes.

## Summary

8.316 An assessment has been undertaken of the likely significant effects of the Development on the environment with respect to biodiversity. Ecological surveys of the Site and adjacent areas has been undertaken, including a desk study, an extended Phase 1 survey and Phase 2 faunal surveys, including specific survey work in respect of rare plant species, Badger, bats, Water Vole, Otter, Great Crested Newt, reptiles, breeding birds, wintering birds, passage/migrant birds and invertebrates. Surveys were carried out in 2019 and 2020, and the Site was most recently visited in August 2020 to carry out an update habitat survey.

8.317 A number of statutory ecological designations were identified by the desk study, with the closest being Medway Estuary and Marshes SPA/Ramsar/SSSI which lies adjacent to the southern Site boundary. There are no other ecological designations within the primary or secondary Zones of Influence (i.e. within 2km of the Site).

8.318 The Site supports significant areas of hardstanding associated with the demolished power station. Habitats considered to comprise important ecological features which are assessed in this Chapter include OMH, woodland and other trees, semi-improved grassland, waterbodies (ponds and ditches), off-site intertidal mud/sand/shingles/cobbles, off-site habitats support notable plant species and off-site saltmarsh. The habitats within the Site are generally considered to be of importance at a Local or District level. The OMH is considered to be of County importance. Other habitats are present within the Site which do not form important ecological features include for example scrub, tall ruderal vegetation and short mown amenity grass.

8.319 Surveys of protected species have found that the Site supports bats, Badger, Water Vole, Great Crested Newts, Reptiles, breeding birds and invertebrates. In addition Otter, Common Seal and Grey Seal are present/likely to be present off-site in the wider area. Generally populations are considered to be of importance at the Local or District level. The breeding bird assemblage is considered to be of County importance and the invertebrate assemblage is considered to be of importance at the Regional-National level in the northern portions of the Site (and Local elsewhere within the Site).

8.320 A number of inherent mitigation measures have been incorporated into the design of the Development, with the key elements being the establishment of green infrastructure corridors around and across the Site. The corridors have been designed to maintain habitat connectivity across the entire Site which will maintain corridors for more mobile fauna such as Badgers and commuting and foraging bats. They have also been sited to retain and buffer a main Badger sett, retain the vast majority of habitat where reptiles have been recorded, retain and buffer all waterbodies where Great Crested Newts have been recorded, retained and buffer all habitats where Water Vole have been recorded with the exception of pond P17, and retain habitat associated with key breeding bird territories (such as Nightingale). Modelling has also been carried out to ensure the proposed buildings will not overshade retained habitats, which has resulted in a 40m building stand-off being incorporated into the parameters for Parcel 4.

8.321 In the absence of mitigation, potentially significant effects are predicted at the construction stage for Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek, Medway Estuary MCZ, OMH, woodland, semi-improved grassland, waterbodies, off-site mud/sand and shingles/cobbles, off-site intertidal saltmarsh, Badger,

Water Vole, Great Crested Newt, Breeding birds and Invertebrates. Non-significant effects are predicted in relation to trees, off-site areas supporting notable plant species, roosting bats, commuting and foraging bats and reptiles. Mitigation is outlined above and should be fully developed at the detailed design stage of the Development and set out via production of a CEMP, Ecological Design Strategy and an Ecological Mitigation and Enhancements Plan which can be secured via planning condition. The implementation of mitigation reduces the residual effects during construction to a level which is not significant.

8.322 In the absence of mitigation, potentially significant effects are predicted during the Development's operational phase for Medway Estuary and Marshes SPA/Ramsar/SSSI and Functionally Linked Land at Damhead Creek, Medway Estuary MCZ, OMH, woodland, semi-improved grassland, waterbodies, off-site mud/sand and shingle/cobbles, off-site intertidal saltmarsh, commuting and foraging bats, Water Vole, Great Crested Newt and invertebrates. Non-significant effects are predicted in relation to trees, reptiles, roosting bats and Badgers. Mitigation is proposed above, which should be developed further and set out in full in a LEMP and a detailed lighting design which can be secured via planning condition. The implementation of mitigation brings the residual effects during operation to a level which is not significant, and indeed neutral-slight positive, and slight positive effects are predicted for a number of important ecological features. Moderate positive effects are predicted in relation to waterbodies and Water Vole, which is considered to be significant at the Local and District level respectively.

8.323 As no significant adverse residual effects have been identified as a result of the Development, there would be no potential for it to combine with any other consented or foreseeable schemes to produce additive effects.

8.324 Table 8.9 contains a summary of the likely significant effects of the Development.

## Table 8.9: Table of Significance – Biodiversity

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| **Construction** | | | | | | | | | | | |
| Medway Estuary and Marshes SPA/Ramsar/SSSI | Temporary | Substantial Negative | Mitigation:<br>- Construction safeguards secured via planning condition for a CEMP<br>- Dust Management Plan secured via condition<br>- Sensitive lighting design secured via condition<br>- Construction Method Statement for all works in Parcel 3 | ✓ | | | | | | | Negligible |
| Medway Estuary MCZ | Temporary | Moderate Negative | Mitigation:<br>- Construction safeguards secured via planning condition for a CEMP | | ✓ | | | | | | Negligible |
| Chattenden Woods and Lodge Hill SSSI | n/a | Negligible | None required | | ✓ | | | | | | Negligible |
| Tower Wood to Cockham Wood SSSI | n/a | Negligible | None required | | ✓ | | | | | | Negligible |
| OMH | Temporary | Moderate Negative | Mitigation:<br>- Construction safeguards secured via planning condition for a CEMP<br>- Ecological Design Strategy secured via planning condition with key aim to increase coverage of OMH across the Site (above what may be required for compensation)<br>Compensation:<br>- Compensation for habitat losses – create new OMH and enhance retained OMH prior to any habitat loss | | | | | ✓ | | | Neutral - Slight Positive |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Woodland and Other Trees | Temporary | Moderate Negative ((woodland) and Slight Negative (other trees) | Mitigation:<br>- Construction safeguards secured via planning condition for a CEMP<br>- Ecological Design Strategy secured via planning condition with a key aim to increase net tree coverage across the Site (above what may be required for compensation)<br>Compensation:<br>- Compensation for individual tree losses if required – new native planting | | | | | | | ✓ | Slight Positive |
| Semi-improved Grassland | Temporary | Moderate Negative | Mitigation:<br>- Construction safeguards secured via planning condition for a CEMP<br>- Ecological Design Strategy secured via planning condition with a key aim to increase the quality of grassland across the Site via habitat creation and enhancement (above what may be required for compensation)<br>Compensation:<br>- Compensation for habitat losses – create new flower-rich grassland and enhance retained grassland (phased as the Development is built out in the various plots) | | | | | | | ✓ | Neutral-Slight Positive |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Waterbodies | Temporary | Moderate Negative | Mitigation:<br>- Construction safeguards secured via planning condition for a CEMP<br>- Ecological Design Strategy secured via planning condition with a key aim to increase net area and quality of waterbodies across the Site via habitat creation and enhancement (above what would be required for compensation)<br>Compensation:<br>- Compensation for loss of P17 – creation of new pond prior to loss if possible<br>Enhancement:<br>- The existing waterbodies would benefit from enhancement e.g. desilting/reprofiling | | | | | | | ✓ | Moderate Positive |
| Off-site Intertidal Mud/Sand and Shingles/Cobbles | Temporary | Moderate negative | Mitigation:<br>- Construction safeguards in relation to water (secured via planning condition for a CEMP) | | | | | | ✓ | | Negligible |
| Off-site Areas with Notable Plants | Temporary | Slight Negative | Mitigation:<br>- Produce Dust Management Plan (secured via planning condition for a CEMP) | | | | | | ✓ | | Negligible |
| Off-site Intertidal Mud and Saltmarsh | Temporary | Moderate Negative | Mitigation:<br>- Produce Dust Management Plan and construction safeguards in relation to water (secured via planning condition for a CEMP) | | | | | | ✓ | | Negligible |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Roosting Bats | Temporary | Slight Negative | Mitigation:<br>- Update assessment of buildings and trees and carry out further surveys if necessary<br>- Soft felling of trees with low bat roosting potential<br>- Physical protection of buildings and trees with bat roosting potential<br>- Sensitive positioning of temporary lighting<br>- Produce Ecological Mitigation and Enhancements Plan secured via planning condition<br>Enhancement:<br>- Provision of bat boxes | | | | | | | ✓ | Negligible |
| Commuting and Foraging Bats | Temporary | Slight Negative | Mitigation:<br>- Protection of retained habitats<br>- Sensitive positioning of temporary lighting<br>- Produce Ecological Mitigation and Enhancements Plan secured via condition | | | | | | | ✓ | Negligible |
| Badger | Temporary | Moderate Negative | Mitigation:<br>- Measures to protect main sett and construction safeguards secured via planning condition (e.g. Ecological Mitigation and Enhancements Plan)<br>- Pre-construction update surveys<br>- Produce Ecological Mitigation and Enhancements Plan secured via planning condition | | | | | | | ✓ | Slight Negative |
| Otter | n/a | Negligible | None required (although mitigation for birds in the SPA/Ramsar would also benefit Otter). | | | | | | | ✓ | Negligible |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Water Vole | Temporary | Moderate Negative | Mitigation:<br>- Protection of Water Voles in and around P17 – relocation exercise under licence from Natural England<br>- Construction safeguards to protect retained habitats<br>- Pre-construction update surveys<br>- Produce Ecological Mitigation and Enhancements Plan secured via planning condition<br>Compensation:<br>- Habitat compensation – new pond of greater size and suitability for Water Voles than the one lost<br>Enhancement:<br>- The enhancement of existing waterbodies as set out above will also benefit Water Vole | | | | | | ✓ | | Slight Negative |
| Common and Grey Seal | n/a | Negligible | None required (although mitigation for birds in the SPA/Ramsar would also benefit these species). | | | | | | ✓ | | Negligible |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Great Crested Newts | Temporary | Moderate Negative | Mitigation:<br>- Protection of Great Crested Newts in terrestrial habitat within 250m of waterbodies where present – relocation exercise under Natural England mitigation licence, or join District Level Licensing scheme (both informed by update surveys).<br>- Construction safeguards to protect retained habitats<br>- Habitat compensation if required (not necessary if development joins DLL scheme)<br>- Produce Ecological Mitigation and Enhancements Plan secured via planning condition<br>Compensation:<br>- Habitat creation and/or enhancement to compensate for loss of terrestrial habitat<br>Enhancement:<br>- Targeted enhancements for amphibians e.g. hibernacula<br>- Habitat creation/enhancement over and above what is required for compensation | | | | | | | ✓ | Neutral-Slight Positive |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Reptiles | Temporary | Slight Negative | Mitigation:<br>- Displacement or translocation exercise as appropriate, likely on a plot-by-plot basis as development comes forward over a number of years<br>- Construction safeguards to protect retained habitats<br>- Produce Ecological Mitigation and Enhancements Plan secured via condition<br>Compensation:<br>- Habitat creation and/or enhancement to compensate for habitat losses<br>Enhancement:<br>- Targeted enhancements for reptiles e.g. hibernacula<br>- Habitat creation/enhancement over and above what is required for compensation | | | | | | ✓ | | Neutral-Slight Positive |
| Breeding Birds on-site (off-site breeding birds along with wintering and passage birds are covered as part of the Medway Estuary and Marshes SPA/Ramsar/SSSI above) | Temporary | Moderate Negative | Mitigation:<br>- Avoid vegetation removal during breeding season (Mar-Aug) or carry out nesting bird checks<br>- Produce Ecological Mitigation and Enhancements Plan secured via condition<br>Enhancement:<br>- Habitat creation and enhancement would provide benefits<br>- Targeted enhancements e.g. bird boxes | | | | | ✓ | | | Neutral-Slight Positive |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Invertebrates | Temporary | Substantial Negative | Compensation:<br>- Delivery of compensatory habitat (OMH and semi-improved grassland) for entire operational Development prior to any impacts occurring at construction. Compensatory habitat to be greater than those lost<br>- Produce Ecological Mitigation and Enhancements Plan secured via condition<br>Enhancement:<br>- Enhancements targeted to invertebrates e.g. log piles | | ✓ | | | | | | Neutral-Slight Positive |
| **Completed Development** | | | | | | | | | | | |
| Medway Estuary and Marshes SPA/Ramsar/SSSI | Permanent | Slight Negative | Mitigation:<br>- Sensitive lighting design secured via condition<br>- Sensitive landscaping scheme in green infrastructure along southern boundary and around terminus of Damhead Creek secured via condition | ✓ | | | | | | | Negligible |
| Medway Estuary MCZ | Permanent | Moderate Negative | Mitigation:<br>- Implementation of drainage strategy, wastewater treatment and operational procedures in relation to drainage and water quality. | | ✓ | | | | | | Negligible |
| Chattenden Woods and Lodge Hill SSSI | Permanent | Negligible | None required | | ✓ | | | | | | Negligible |
| Tower Wood to Cockham Wood SSSI | Permanent | Negligible | None required | | ✓ | | | | | | Negligible |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| OMH | Permanent | Moderate Negative | Mitigation:<br>- Long-term management secured via planning condition for a LEMP<br>Compensation:<br>- Compensation for permanent habitat losses – create new OMH and enhance retained OMH prior to any habitat loss<br>Enhancement:<br>- Green roofs or walls on a proportion of ancillary buildings | | | | | ✓ | | | Neutral-Slight Positive |
| Woodland and Other Trees | Permanent | Moderate Negative (woodland) and Slight Negative (other trees) | Mitigation:<br>- Long-term management secured via planning condition for a LEMP<br>Compensation:<br>- Compensation for permanent losses of trees – new native planting | | | | | | | ✓ | Slight Positive |
| Semi-improved Grassland | Permanent | Moderate Negative | Mitigation:<br>- Long-term management secured via planning condition for a LEMP<br>Compensation:<br>- Compensation for permanent losses of grassland – habitat creation and enhancement | | | | | | | ✓ | Neutral-Slight Positive |
| Waterbodies | Permanent | Moderate Negative | Mitigation:<br>- Long-term management secured via planning condition for a LEMP<br>Compensation:<br>- Compensation for permanent loss of P17 – creation of new pond of larger size and better quality prior to loss if possible | | | | | | | ✓ | Moderate Positive |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Intertidal Mud/Sand and Shingles/Cobbles | Permanent | Moderate Negative | Mitigation:<br>- Implementation of drainage strategy, wastewater treatment and operational procedures in relation to drainage and water quality. | | | | | | ✓ | | Negligible |
| Off-site Areas with Notable Plants | Permanent | Negligible | None required | | | | | | ✓ | | Negligible |
| Off-site Intertidal Mud and Saltmarsh | Permanent | Negligible | None required | | | | | | ✓ | | Negligible |
| Roosting Bats | Permanent | Slight Negative | Mitigation:<br>- Sensitive lighting design at the detailed design stage secured via planning condition<br>Enhancement:<br>- Bat boxes | | | | | | | ✓ | Slight Positive |
| Commuting and Foraging Bats | Permanent | Moderate Negative | Mitigation:<br>- Sensitive lighting design at the detailed design stage secured via planning condition<br>- Appropriate long-term habitat management regime secured via condition (e.g. LEMP)<br>Enhancement:<br>- Habitat creation and enhancements will deliver a benefit | | | | | | | ✓ | Slight Positive |
| Badger | Permanent | Slight Negative | Mitigation:<br>- Sensitive lighting design secured via condition.<br>- Appropriate long-term habitat management regime secured via planning condition (e.g. LEMP)<br>Enhancement:<br>- Habitat creation and enhancements will deliver a benefit | | | | | | | ✓ | Neutral |
| Otter | n/a | Negligible | None required (although mitigation for birds in the SPA/Ramsar would also benefit Otter). | | | | | | | ✓ | Negligible |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Water Vole | Permanent | Moderate Negative | Mitigation:<br>- Appropriate long-term habitat management regime secured via condition (e.g. LEMP)<br>Compensation:<br>- New habitat to compensate for permanent loss of P17<br>Enhancement:<br>- Habitat creation and enhancement to improve linkages of suitable habitat around the Site will benefit Water Vole | | | | | | | | Moderate Positive |
| Common and Grey Seal | n/a | Negligible | None required (although mitigation for birds in the SPA/Ramsar would also benefit these species). | | | | | | ✓ | | Negligible |
| Great Crested Newts | Permanent | Moderate Negative | Mitigation:<br>- Appropriate long-term habitat management regime secured via condition (e.g. LEMP)<br>Compensation:<br>- Habitat creation/enhancement to compensate for permanent loss of proportion of terrestrial habitat around waterbodies<br>Enhancement:<br>- Targeted enhancement e.g. hibernacula | | | | | | | ✓ | Neutral-Slight Positive |
| Reptiles | Permanent | Slight Negative | Mitigation:<br>- Appropriate long-term habitat management regime secured via condition (e.g. LEMP)<br>Compensation:<br>- Habitat creation/enhancements to compensate for permanent habitat losses<br>Enhancement:<br>- Creation of new/more diverse habitat types will provide benefits (where over and above what is required for compensation)<br>- Targeted enhancements e.g. hibernacula | | | | | | ✓ | | Slight Positive |

| **Potential Effect** | **Nature of Effect** (Permanent / Temporary) | **Significance** (Substantial/ Moderate/ Slight) (Positive/Negative/Neutral/Negligible) | **Mitigation /Compensation Enhancement Measures** | **Geographical Importance*** | | | | | | | **Residual Effects** (Substantial/Moderate/ Slight) (Positive/Negative/Neutral/Negligible) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | I | UK | E | R | C | D | L | |
| Breeding Birds on-site (off-site breeding birds along with wintering and passage birds are covered as part of the Medway Estuary and Marshes SPA/Ramsar/SSSI above) | Permanent | Neutral | Mitigation:<br>- Appropriate long-term habitat management regime secured via condition (e.g. LEMP)<br>Enhancement:<br>- Creation of new/more diverse habitat types will provide benefits<br>- Targeted enhancements e.g. bird boxes | | | | | ✓ | | | Neutral-Slight Positive |
| Invertebrates | Permanent | Substantial Negative | Mitigation:<br>- Appropriate long-term habitat management regime secured via planning condition (e.g. LEMP)<br>Compensation:<br>- Habitat creation/enhancement to compensate for permanent loss of 1.56ha of OMH and 0.4ha semi-improved grassland<br>Enhancement:<br>- Targeted enhancements e.g. log piles, green roofs and green walls on a proportion of ancillary buildings | | ✓ | | | | | | Slight Positive |
| **Cumulative Effects** | | | | | | | | | | | |
| *None Identified* | | | | | | | | | | | |

*** Geographical Level of Importance**
I = International; UK = United Kingdom; E = England; R = Regional; C = County; D = District; L = Local

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