

Appendix: Ecology and Biodiversity

Annex 1: Preliminary Ecological Appraisal

Annex 2: Biodiversity Net Gain Assessment Report

Annex 3: Bird Survey Report

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Northfleet Central 1 Ltd

Ecological Services

Preliminary Ecological Appraisal

Northfleet Harbourside, Gravesham.



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Executive Summary

Purpose	To define the baseline ecological conditions of the Site at Northfleet, Gravesham, and to evaluate the nature conservation importance of ecological features present within the Zone of Influence for the Proposed Development. This report assesses potential impacts on important ecological features, sets out avoidance, mitigation, compensation, and enhancement measures and details the type and extend of any residual effects or further surveys required to understand the potential impacts of the Proposed Development on important ecological features of the Site.
Introduction	An initial Preliminary Ecological Appraisal (PEA) was undertaken in May 2022 in support of the EIA Scoping Report (Appendix C of the EIA Scoping Report). Further to design development works and additional ecological survey work, the PEA has been updated in September 2022. The PEA followed the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal (2017) guidelines, standard Phase 1 habitat survey protocol (JNCC, 2010) and British Standard 42020 (2013) 'Biodiversity – Code of Practice for Planning and Development'. The site is located in Ebbsfleet, Northfleet. The site is currently occupied by a number of industrial warehouses, a sea freight terminal, a shell petrol station, a car dealership and Ebbsfleet FC Stadium.
Key Findings	The site is in a highly urban area and the habitats on the site were largely considered to be of low ecological value. The site could support nesting birds (including Schedule 1) within the vegetation, buildings and gravel works. There are habitats bounding the site but not within the redline boundary that have high ecological value. There is potential for the disturbance of Schedule 1 bird species and aquatic invertebrates in these areas around the site such as in Northfleet Harbour and habitat adjacent to the site on the Thames. Further screening is needed in order to assess the impact of the development on the Swanscombe Peninsula SSSI with a focus on the importance of the mudflats next to the site as a foraging area for birds of the SSSI.

Recommendations	Designated Sites – The site is adjacent to Swanscombe Peninsula (SSSI) and four non-statutory sites. Once detailed design is available for the Proposed Development, Kent Wildlife Trust and NE will be consulted to discuss any potential further mitigation measures (as required and relevant) to be incorporated into the detailed design of the Proposed Development to further mitigate adverse impacts upon the SSSI arising from recreational pressures. This may form specific on-site detailed landscaping measures or off-site financial contributions to aid management/maintenance of the SSSI, however this will be discussed and agreed. For Ebbsfleet Marshes LWS the mitigation should be designed into the scheme and secured via the Design Code. This includes the inclusion of high-quality amenity space on-site to ensure the increased population on site have sufficient and attractive green space without having to access the LWS. The LWS is also separated from the site by the railway line reducing accessibility. Nesting Birds – Design Measures to be included in design include specific black redstart mitigation, tree lines to limit visual disturbance, guided walks and pathways and ecological input on drainage plans. Construction Additional surveys to be completed include: pre-construction black redstart surveys and winter bird surveys. It is recommended that a Precautionary Working Method Statement (PWMS) is written to capture all specific working methods for Schedule 1 birds and are included within the CEMP. Measures to be included in the CEMP and PWMS include clearance prior to nesting season or if in nesting season, black redstart nesting survey to be carried out prior to demolition. Buffer zones around active nests and yearly black redstart surveys to be carried out if black redstart are confirmed to be breeding on site. Noisy or disturbing works are to avoid sensitive periods of the year through phasing and where not possible visual and noise barriers are to be used along with methods to limit noise and vibration such as low impact machinery and soft starts for piling. Toolbox talks and training to be given to the site teams by a suitably qualified ecologist to provide the site teams with key information on the mitigation measures detailed in the PWMS. Completed Development Mitigation A Biodiversity Enhancement and Management Plan (BEMP) will set out appropriate timings for all proposed habitat management activities and locations bird boxes to be installed to limit disturbance. Education to the public during sensitive times of the year for birds on limiting of disturbance will be given in the information centre/ café. Invasive Species – For the removal of Japanese knotweed an Ecological Clerk of Works (ECoW) or suitably qualified person should be on site to oversee the removal management plan.
Conclusions	Based on the findings of the PEA, the site has low ecological value. However, due to the high ecological value sites adjacent to the site, mitigation measures must be put in place during the works to limit disturbance of Schedule 1 birds adjacent to the site and the Swanscombe Peninsula SSSI. The Proposed Development provides exciting opportunities for biodiversity enhancement such as wildlife friendly planting, native tree planting to compensate for any vegetation loss on the site and green and brown roofs on buildings to contribute to urban greening and compensate for loss of potential black redstart nesting habitat.

Table of Contents

1 Purpose of the document..... 7

1.2 Validity of data 7

2 Introduction 8

2.1 Background Information 8

2.2 Site Description 8

2.3 Scope of Works 9

2.4 Proposed Works 9

2.5 Quality Assurance 9

3 Methodology 11

3.1 Zone of Influence..... 11

3.2 Desk Study 11

3.3 Extended Phase 1 habitat survey..... 12

3.4 Assessment and Evaluation 12

4 Limitations..... 14

5 Results..... 15

5.1 Desk Study 15

5.2 Priority habitats..... 16

5.3 Protected or notable species records 16

5.4 Phase 1 habitat survey 21

5.5 Habitats 23

5.6 Target Notes..... 27

6 Ecological Features 27

7 Potential impacts on habitats within the site 30

7.1 Designated Sites & Priority Habitats..... 30

7.2 Habitats 30

7.3 Protected / Notable Species 30

7.4 Designated Sites & Priority Habitats..... 31

7.5 Habitats 31

7.6 Protected / Notable Species 31

7.7 Designated Sites & Priority Habitats..... 33

7.8 Habitats 33

7.9 Protected / Notable Species 33

8 Potential impacts to habitats surrounding the site 34

9 Compensation & Recommendations 36

9.1 Nesting birds..... 36

9.2 Other birds **Error! Bookmark not defined.**

9.3 Wild mammals 38

9.4 Invasive plants 39

9.5 Shading **Error! Bookmark not defined.**

9.6 Habitat Management Plan **Error! Bookmark not defined.**

10 Enhancements 40

Appendix A Phase 1 Habitat Survey Map 42

..... 42

Appendix B Constraints Map..... 43

..... 43

Appendix C Relevant Legislation 44

Appendix D About Schofield Lothian 46

List of Tables

Table 3-1 Sources of desk study records 11

Table 3-2: Scale of Constraints..... 13

Table 5-1: Protected and notable species records from the desk study 17

Table 5-2: Weather conditions during survey 22

Table 5: RLB South..... 23

Table 6: RLB North-East..... 24

Table 7: RLB North-West..... 25

1 Purpose of the document

1.1.1 The purpose of this document is to provide information regarding any protected and /or notable habitats and species that occur or have the potential to occur on or near the Proposed Development(s) and identification of the potential impacts of the works.

1.1.2 This assessment has been designed to meet:

- Chartered Institute of Ecology and Environmental Management 'Guidelines for Preliminary Ecological Appraisal' (2017); and
- British Standard 42020 (2013) 'Biodiversity – Code of Practice for Planning and Development'.

1.1.3 The objectives are to:

- Identify any designated sites for nature conservation and habitats on, near and adjacent to the site;
- Identify any notable and/ or protected plant or animal species of nature conservation value, which may occur on or near the site;
- Identify the presence of any invasive plant species on or adjacent to the site;
- Provide a habitat map with target notes of ecological features as identified above;
- Undertake a preliminary assessment of the potential impacts on any ecological receptors of conservation value identified on, near or adjacent to the site; and
- Recommend further surveys, mitigation, and enhancement measures as appropriate.

1.1.4 An initial Preliminary Ecological Appraisal (PEA) was undertaken in May 2022 in support of the EIA Scoping Report (Appendix C of the EIA Scoping Report). Further to design development works and additional ecological survey work, the PEA was updated in September 2022 - this report.

1.2 Validity of data

1.2.1 The findings of this study are valid for a period of 24 months from the phase 1 habitat survey on 23rd May 2022. If works have not commenced within two years of this date, then an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

2 Introduction

2.1 Background Information

2.1.1 Schofield Lothian was appointed by Northfleet Central 1 Ltd (the Applicant)) to carry out an extended Phase 1 habitat survey of land at Northfleet, Kent in order to prepare a Preliminary Ecological Appraisal (PEA).

2.1.2 By undertaking an investigation of the habitats and species present, this report will provide the Applicant and Local Planning Authority with a greater understanding of the ecological value of the area. It identifies any potential risks, obligations and restrictions that may be necessary to guarantee compliance with wildlife legislation.

2.2 Site Description

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

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

2.2.2 The extent of this has been illustrated in Figure 1.

RLB South

2.2.3 The RLB South area of the site is currently mainly occupied by industrial and commercial activities with Ebbsfleet FC stadium taking up a large amount of the area.

RLB North-East

2.2.4 The RLB North-East area of the is currently mainly occupied by industrial and commercial activities with a large active Sand and Gravel works and other industrial buildings such as a car and truck mechanics buildings.

RLB North-West

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

2.3 Scope of Works

- 2.3.1 The following surveys were commissioned by the Applicant and form part of this PEA:
- Desktop study and ecological data search; and
 - Extended Phase 1 habitat survey.

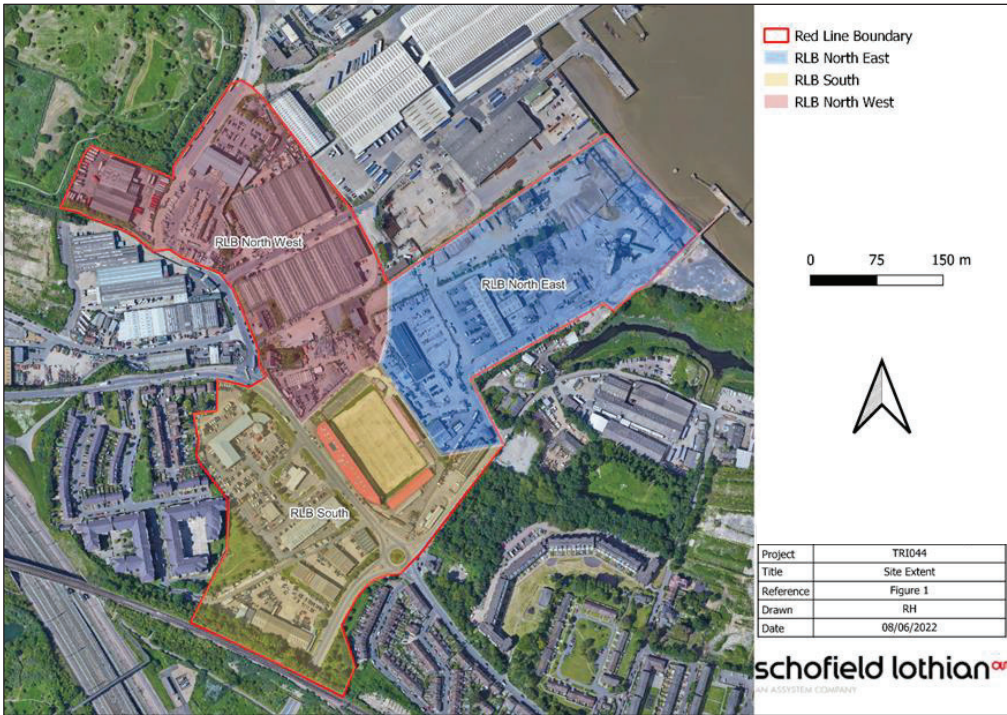
2.4 Proposed Works

- 2.4.1 The Applicant is seeking permission for the ‘Proposed Development’, which comprises:
- “Outline planning application with all matters reserved, except for the primary means of access, for a mixed-use redevelopment involving the demolition of existing buildings and structures including site preparation / remediation works, and the development of residential units (Use Class C3), Use Class E floorspace including floorspace for retail, food and beverage, office floorspace and flexible Class E floorspace, floorspace for a new multi-use stadium with associated business and leisure facilities, floorspace for a hotel (Use Class C1), floorspace for community uses (Use Class F2) and other sui generis uses, delivery of open space and the realignment of the A226 Galley Hill Road / Stonebridge Road with hard / soft landscaping, car and cycle parking, highways works, infrastructure works, ancillary and associated works”.*

2.5 Quality Assurance

- 2.5.1 This survey and subsequent report were undertaken in line with Schofield Lothian’s Business System (SBS). Our SBS places great emphasis on honesty, respect, integrity and trust, collaboration, and accountability. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2015, 14001:2015 and 18001:2007.
- 2.5.2 All lead Schofield Lothian ecologists are members of (at the appropriate level) the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct when undertaking ecological work.

Figure 1: Site Redline Boundary



3 Methodology

3.1 Zone of Influence

- 3.1.1 The Zone of Influence (Zol) is the area over which the ecological features identified may be subject to significant effects because of the Proposed Development. These will vary between ecological receptors.

3.2 Desk Study

- 3.2.1 An ecological desk study was undertaken to determine the presence of any designated sites for nature conservation, habitats of conservation importance and protected and notable species that occur within 1 kilometre (km) of the study area. Due to the Site's location within a heavily urban area and lack of ecological connectivity to the Site, 1km was deemed an appropriate distance for the data search. Further data was obtained from Kent & Medway Biological Records Centre and the Multi-Agency Geographic Information for the Countryside (MAGIC) website.
- 3.2.2 Only records from within the last ten years and considered relevant to the Site have been included in this report.

Table 3-1 Sources of desk study records

Source	Information Requested
Kent & Medway Biological Records Centre	Protected and priority species (2km)
Kent & Medway Biological Records Centre	Sites of local importance (2km)
Multi-Agency Geographic Information for the Countryside	International statutory sites (5km) National statutory sites (2km)

- 3.2.3 The search buffers listed in Table 3-1 are sufficient to cover the potential Zol of the Proposed Development. For protected and priority species, and sites of local importance the impacts of the Proposed Development were not expected to exceed 2km, due to the urban setting of the site and lack of ecological connectivity.
- 3.2.4 For International designated and National sites, the search buffer was extended to 5km and 2km respectively.
- 3.2.5 Impact Risk Zones (IRZs) are a tool developed by Natural England to help assess the potential risks to Nationally or Internationally Designated Sites of Nature Conservation Importance posed by development proposals. IRZs for this report were located using magic.defra.gov.uk and reviewed against the Proposed Development proposals to understand if the Local Planning Authority would need pre-application advice from Natural England.

3.3 Extended Phase 1 habitat survey

- 3.3.1 A field survey in the form of an 'extended' Phase 1 habitat survey was undertaken by Molly Richardson, an ecologist with over 5 years' experience (GCN class 1 license holder 2020-45785-CLS-CLS), Joanna Meredith, an ecologist with over 5 years' experience, Rorie Hather, an ecologist with over 3 years' experience, on 23rd May 2022.
- 3.3.2 All habitats within the survey area were identified and mapped in compliance with the 'Handbook for Phase 1 habitat survey: a technique for environmental audit' (Joint Nature Conservation Committee, 2010¹). The dominant plant species were recorded and any protected, uncommon or invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981² (as amended) were noted.
- 3.3.3 The protected species considered relevant to the assessment, based on geographical region and the presence of suitable habitats within the site, were as follows.
- Bats: assessment of trees and buildings for their potential to support roosting bats;
 - Birds: assessment of habitats and buildings for their suitability for nesting birds including Schedule 1 species and important sites for overwintering birds; and
 - Botanical interest: invasive species and / or species of botanical importance.
- 3.3.4 Consideration was given to the potential for the Site to support Priority Habitats and Priority Species, as listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006).

3.4 Assessment and Evaluation

- 3.4.1 This PEA has been produced in broad accordance with CIEEM's Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017b)³ and Guidelines for Ecological Report Writing (CIEEM, 2017a)⁴.
- 3.4.2 Where relevant and appropriate, the evaluation of ecological features and the potential ecological impacts of the proposals have followed CIEEM's Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018)⁵.
- 3.4.3 The level of value of specific ecological receptors is assigned using a geographic frame of reference, with international, national, regional, county (metropolitan), district, local and site only value in descending order.

¹ http://archive.jncc.gov.uk/pdf/pub10_handbookforphase1habitatsurvey.pdf

² <http://www.legislation.gov.uk/ukpga/1981/69>

³ <https://cieem.net/wp-content/uploads/2019/02/Guidelines-for-Preliminary-Ecological-Appraisal-Jan2018-1.pdf>

⁴ <https://cieem.net/resource/guidelines-for-ecological-report-writing/>

⁵ <https://cieem.net/wp-content/uploads/2019/02/Combined-EcIA-guidelines-2018-compressed.pdf>

- 3.4.4 A negligible value is assigned where the habitat offers minimal value to wildlife. Where best practice guidelines are unavailable or unclear, experienced ecologists have used their judgement to assess and categorise the suitability of habitats for protected and/or notable species, refer to Table 3-2.
- 3.4.5 The need and scope for additional species surveys has been determined based on the suitability of the habitats for protected and/or notable species, the potential impacts of the Proposed Development and the nature of the legal protection afforded to the species likely to be present.
- 3.4.6 Value judgements are based on various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include site designations (such as Sites of Special Scientific Interest), or for undesignated features the size, conservation status (locally, nationally or internationally), and the quality of the ecological resource. In terms of the latter, 'quality' can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats) or species populations or assemblages.

Table 3-2: Scale of Constraints

Likelihood	Definition
High	An actual or potential constraint that is subject to relevant legal protection and is likely to be a material consideration in determining the planning application (e.g., statutory nature conservation designations and European/nationally protected species). Further survey likely to be required (as detailed in this report) to support a planning application.
Moderate	An actual or potential constraint that is covered by national or local planning policy and depending on the level of the potential impact because of the Proposed Development may be a material consideration in determining the planning application. Further survey may be required to support a planning application
Low	Unlikely to be a constraint to the Proposed Development or require further survey prior to submission of a planning application. Mitigation is likely to be covered under Construction Environmental Management Plan (CEMP) or precautionary method of works (e.g., generic requirements for the management of nesting bird risks).

4 Limitations

- 4.1.1 Biological records can be received from a wide variety of sources and may or may not be comprehensive and accurate. However, if assessed in conjunction with a Phase 1 habitat survey, they can contribute to a robust ecological assessment of a site.
- 4.1.2 Access was limited across the site with most of the RLB North-East area of the site having no access permission at the time of the survey.
- 4.1.3 Not all areas of the site were accessible during the site survey. The walkover survey took place from Public Right of Way (PRoW), meaning fenced off private land could not be accessed. Despite this, a significant amount of the site was accessed, so there are no significant limitations to this PEA.
- 4.1.4 The desk study and field survey will not produce a comprehensive list of plants and animals as this will be limited by factors that influence their presence (e.g., activity and dormancy periods). An assessment can however be made of the habitats within the survey area, their nature conservation value and potential to support protected or priority species.
- 4.1.5 Despite the limitations described, there are deemed to be no significant limitations to this PEA.

5 Results

5.1 Desk Study

Statutory designated sites

- 5.1.1 A desk-based search shows that there are five sites with European or National statutory designation within the 5km of the site:
- Swanscombe Peninsula Site of Special Scientific Interest (SSSI) is located adjacent to the north-west of the site. This was granted SSSI status in November 2021.
 - Swanscombe Skull Site National Nature Reserve (NNR and SSSI) is located 1.3km to the south-west of the site.
 - Swanscombe Marine Conservation Zone (MCZ) is located 1.2km to the north-west of the site.
 - West Thurrock Lagoon and Marshes SSSI is located 2.4km to the north-west of the site.
 - Lion Pit SSSI is located 2.8km north-west of the site.
- 5.1.2 The site is in the Impact Risk Zone for Swanscombe Peninsula SSSI and West Thurrock Lagoon and Marshes SSSI. Swanscombe Peninsula SSSI is a corridor of habitats connecting Ebbsfleet Valley with the southern shore of the River Thames between Dartford and Gravesend. The site is a complex of open mosaic habitats on previously developed land and traditional estuarine habitats located near and within the River Thames.
- 5.1.3 The nearest Internationally statutory designated site to the Proposed Development is Thames Estuary & Marshes Ramsar and Special Protection Area (SPA), is located 6km to the east of the site.

Non-statutory designated sites

- 5.1.4 A desk-based search based on Kent & Medway Biological Records Centre shows that there are four local wildlife sites within the Zone of Influence:
- GR19 Botany Marshes is located within Swanscombe Peninsula SSSI (adjacent to the north-west) of the site – habitats include, significant areas of wet grassland, reedbed and, notable areas of salt marsh, exposed mud and sheltered riparian habitats.
 - GR05 Ebbsfleet Marshes is located 50m south of the site - Habitats include grassland, marsh, scrub, the River Ebbsfleet and a large, flooded quarry to the north-east known as 'blue lake'. This Local Wildlife Site (LWS) was first notified in 1985, but since then the construction of the Channel Tunnel Rail Link, Ebbsfleet International Rail Station and its associated parking has caused severe fragmentation of the LWS.
 - DA13 Alkerden Lane Pit is located 1.5km west of the site - is located close to the Site to the south of the railway line, A226 and Swanscombe Peninsula. Habitats include grassland, scrub, woodland and an inland cliff. The site was mainly designated for supporting nationally and county scarce plant species including narrow-leaved everlasting pea *Lathyrus sylvestris*, a relict population of yellow vetchling *Lathyrus aphaca* and the county's largest population of green-flowered helleborine *Epipactis*

phyllanthus. An area of former landfill on the site is also known to support a rare assemblage of invertebrates including at least one UK Biodiversity Action Plan (BAP) species.

- M031 River Thames SINC borders the north-west of the site - The River Thames and the tidal sections of creeks and rivers which flow into it comprise a number of valuable habitats not found elsewhere in London.

5.2 Preliminary Roost Assessment (PRA)

- 5.2.1 The buildings and trees present within the site had no signs of potential bat roosts. All construction was in good working order, so that no crevices were apparent.
- 5.2.2 An assessment of all accessible trees and buildings was made in terms of suitability to support roosting bats. Where access within the site was not possible due to existing industrial activities, features were assessed utilising satellite imagery from Google maps, and from adjoining areas on-site where visibility was possible. The buildings were well-sealed and offered very limited opportunities for bat roosting, and the trees did not have features suitable for roosting bats. The surrounding area is susceptible to high levels of disturbance from humans and lighting therefore offering very limited opportunities for bats.
- 5.2.3 There is negligible potential for roosting bats on site and no impact expected on this species.

5.3 Priority habitats

- 5.3.1 Priority habitats include those listed in Section 41 of the Natural Environment and Rural Communities Act (2006) habitats of principal importance as well as those listed in The London Biodiversity Action Plan (BAP). The following Priority Habitats are located within 1km of the Proposed Development:
- Coastal and Floodplain Grazing Marsh;
 - Coastal Saltmarsh;
 - Deciduous Woodland; and
 - Mudflats, directly adjoining the site to the north and north-east.

5.4 Protected or notable species records

- 5.4.1 The MAGIC website showed there is no record of previous applications for European Protected Species (EPS) development licences within 1km of the survey area. The Kent & Medway Biological Records report detailed five bat roosts (unknown type) and three hibernating bats within 2km of the site but not within the red line boundary.
- 5.4.2 Records of protected and/or notable species have been obtained from the Kent & Medway Biological Records report, see Table 5-1. Ones considered potentially relevant to the Site have been included.

Table 5-1: Protected and notable species records from the desk study

Species	Number of records	Date of most recent record	Nearest record from site
Birds			
Unidentified Gull	1	15/04/2018	Botany Marsh (TQ609754)
Little Grebe (<i>Tachybaptus ruficollis</i>)	155	05/07/2019	TQ67 (TQ67C)
Great Crested Grebe (<i>Podiceps cristatus</i>)	38	16/04/2019	TQ67 (TQ67B)
Gannet (<i>Morus bassanus</i>)	1	20/11/2018	Northfleet (TQ6174)
Cormorant (<i>Phalacrocorax carbo</i>)	191	29/07/2019	Botany Marsh (TQ609754)
Little Egret (<i>Egretta garzetta</i>)	151	29/07/2019	Botany Marsh (TQ609754)
Great White Egret (<i>Egretta alba</i>)	1	17/05/2014	Swanscombe Marsh (TQ6075)
Grey Heron (<i>Ardea cinerea</i>)	274	29/07/2019	TQ67 (TQ67C)
Spoonbill (<i>Platalea leucorodia</i>)	1	13/04/2017	Swanscombe Marsh (TQ6075)
Mute Swan (<i>Cygnus olor</i>)	100	29/07/2019	TQ67 (TQ67C)
Pink-footed Goose (<i>Anser brachyrhynchus</i>)	1	09/10/2012	Northfleet (TQ6174)
Greylag Goose (<i>Anser answer</i>)	182	25/07/2019	Swanscombe Marsh (TQ6075)
Canada Goose (<i>Branta canadensis</i>)	65	03/07/2019	Swanscombe Marsh (TQ6075)
Brent Goose (<i>Branta bernicla</i>)	15	27/12/2019	Northfleet (TQ6174)
Red-breasted Goose (<i>Branta ruficollis</i>)	1	08/02/2015	Northfleet (TQ6174)
Egyptian Goose (<i>Alopochen aegyptiacus</i>)	5	10/04/2018	Swanscombe Marsh (TQ6075)
Shelduck (<i>Tadorna tadorna</i>)	236	21/12/2019	TQ67 (TQ67C)
Wigeon (<i>Anas penelope</i>)	13	01/03/2019	Northfleet (TQ6174)
Gadwall (<i>Anas strepera</i>)	220	30/12/2019	Botany Marsh (TQ609754)
Teal (<i>Anas crecca</i>)	216	30/12/2019	Botany Marsh (TQ609754)
Mallard (<i>Anas platyrhynchos</i>)	275	30/12/2019	TQ67 (TQ67B)
Pintail (<i>Anas acuta</i>)	11	03/03/2018	Swanscombe Marsh (TQ6075)
Garganey (<i>Anas querquedula</i>)	31	16/04/2019	Swanscombe Marsh (TQ6075)
Shoveler (<i>Anas clypeata</i>)	117	05/07/2019	Botany Marsh (TQ609754)
Pochard (<i>Aythya farina</i>)	73	29/11/2019	Northfleet (TQ6174)
Tufted Duck (<i>Aythya fuligula</i>)	117	29/11/2019	TQ67 (TQ67B)
Aythya hybrid (<i>Aythya spp.</i>)	2	22/03/2019	Swanscombe Marsh (TQ6075)
Scaup (<i>Aythya marila</i>)	20	20/11/2018	Northfleet (TQ6174)
Common Scoter (<i>Melanitta nigra</i>)	6	24/03/2016	Northfleet (TQ6174)
Red-breasted Merganser (<i>Mergus serrator</i>)	1	20/11/2018	Northfleet (TQ6174)
Goosander (<i>Mergus merganser</i>)	3	05/01/2018	Swanscombe Marsh (TQ6075)
Marsh Harrier (<i>Circus aeruginosus</i>)	203	29/11/2019	Botany Marsh (TQ609754)
Hen Harrier (<i>Circus cyaneus</i>)	2	30/03/2019	Swanscombe Marsh (TQ6075)
Montagu's Harrier (<i>Circus pygargus</i>)	1	01/05/2016	Northfleet (TQ6174)
Sparrowhawk (<i>Accipiter nisus</i>)	87	29/11/2019	TQ67 (TQ67C)

Species	Number of records	Date of most recent record	Nearest record from site
Common Buzzard (<i>Buteo buteo</i>)	88	29/11/2019	Northfleet (TQ6174)
Kestrel (<i>Falco tinnunculus</i>)	210	30/12/2019	TQ67 (TQ67B)
Hobby (<i>Falco Subbuteo</i>)	34	18/08/2019	Northfleet (TQ6174)
Peregrine (<i>Falco peregrinus</i>)	76	30/12/2019	Northfleet (TQ6174)
Red-legged Partridge (<i>Alectoris rufa</i>)	25	30/12/2019	TQ67 (TQ67C)
Pheasant (<i>Phasianus colchicus</i>)	138	23/05/2019	TQ67 (TQ67C)
Water Rail (<i>Rallus aquaticus</i>)	142	29/11/2019	Northfleet (TQ6174)
Moorhen (<i>Gallinula chloropus</i>)	137	30/09/2019	TQ67 (TQ67B)
Coot (<i>Fulica atra</i>)	148	29/11/2019	TQ67 (TQ67B)
Oystercatcher (<i>Haematopus ostralegus</i>)	155	02/08/2019	TQ67 (TQ67C)
Avocet (<i>Recurvirostra avosetta</i>)	20	16/03/2018	Northfleet (TQ6174)
Stone-curlew (<i>Burhinus oedicnemus</i>)	2	27/04/2012	Swanscombe Marsh (TQ6075)
Little Ringed Plover (Charadrius dubius)	32	12/04/2016	Swanscombe Marsh (TQ6075)
Ringed Plover (<i>Charadrius hiaticula</i>)	60	03/12/2019	TQ67 (TQ67C)
Golden Plover (<i>Pluvialis apricaria</i>)	4	20/11/2018	Northfleet (TQ6174)
Grey Plover (<i>Pluvialis squatarola</i>)	43	03/12/2019	Northfleet (TQ6174)
Lapwing (<i>Vanellus vanellus</i>)	232	29/11/2019	TQ67 (TQ67C)
Knot (<i>Calidris canutus</i>)	3	06/12/2014	Swanscombe Marsh (TQ6075)
Purple Sandpiper (<i>Calidris maritima</i>)	24	22/03/2018	Swanscombe Marsh (TQ6075)
Dunlin (<i>Calidris alpina</i>)	120	19/11/2019	Northfleet (TQ6174)
Jack Snipe (<i>Lymnocyptes minimus</i>)	81	27/12/2019	Swanscombe Marsh (TQ6075)
Snipe (<i>Gallinago gallinago</i>)	115	29/11/2019	TQ67 (TQ67C)
Woodcock (<i>Scolopax rusticola</i>)	4	13/03/2017	Northfleet (TQ6174)
Black-tailed Godwit (<i>Limosa limosa</i>)	73	29/11/2019	Northfleet (TQ6174)
Curlew (<i>Numenius arquata</i>)	146	21/12/2019	Northfleet (TQ6174)
Redshank (<i>Tringa tetanus</i>)	202	21/12/2019	TQ67 (TQ67C)
Greenshank (<i>Tringa nebularia</i>)	8	27/09/2015	Northfleet (TQ6174)
Green Sandpiper (<i>Tringa ochropus</i>)	149	21/08/2019	Swanscombe Marsh (TQ6075)
Common Sandpiper (<i>Actitis hypoleucos</i>)	131	29/11/2019	"Botany Marsh
Turnstone (<i>Arenaria interpres</i>)	156	30/12/2019	(TQ609754)"
Mediterranean Gull (<i>Larus melanocephalus</i>)	60	02/06/2019	Northfleet (TQ6174)
Little Gull (<i>Larus minutus</i>)	45	21/08/2019	Northfleet (TQ6174)
Black-headed Gull (<i>Larus ridibundus</i>)	189	30/09/2019	Northfleet (TQ6174)
Common Gull (<i>Larus canus</i>)	86	30/12/2019	Botany Marsh (TQ609754)
Lesser Black-backed Gull (<i>Larus fuscus</i>)	67	30/09/2019	Northfleet (TQ6174)
Herring Gull (<i>Larus argentatus</i>)	102	30/09/2019	Botany Marsh (TQ609754)
Yellow-legged Gull (<i>Larus michahellis</i>)	92	15/03/2019	Swanscombe Marsh (TQ6075)
Caspian Gull (<i>Larus cachinnans</i>)	9	04/02/2017	Northfleet (TQ6174)
Great Black-backed Gull (<i>Larus marinus</i>)	98	30/12/2019	Northfleet (TQ6174)

Species	Number of records	Date of most recent record	Nearest record from site
Kittiwake (<i>Rissa tridactyla</i>)	11	12/02/2019	Northfleet (TQ6174)
Sandwich Tern (<i>Sterna sandvicensis</i>)	25	24/07/2018	Northfleet (TQ6174)
Common Tern (<i>Sterna hirundo</i>)	65	08/09/2018	Northfleet (TQ6174)
Arctic Tern (<i>Sterna paradisaea</i>)	22	08/09/2018	Northfleet (TQ6174)
Black Tern (<i>Chlidonias niger</i>)	11	31/08/2018	Northfleet (TQ6174)
Guillemot (<i>Uria aalge</i>)	3	06/09/2019	"Greenhithe/Swansco
Feral Pigeon (<i>Columba livia</i>)	59	30/09/2019	mbe (TQ5974)"
Stock Dove (<i>Columba oenas</i>)	94	30/09/2019	Northfleet (TQ6174)
Wood Pigeon (<i>Columba palumbas</i>)	196	30/09/2019	TQ67 (TQ67B)
Collared Dove (<i>Streptopelia decaocto</i>)	103	30/09/2019	TQ67 (TQ67B)
Ring-necked Parakeet (<i>Psitacula krameria</i>)	68	29/11/2019	TQ67 (TQ67B)
Cuckoo (<i>Cuculus canorus</i>)	119	22/06/2019	TQ67 (TQ67B)
Barn Owl (<i>Tyto alba</i>)	4	29/01/2015	Northfleet (TQ6174)
Little Owl (<i>Athene noctua</i>)	5	23/04/2019	TQ67 (TQ67B)
Short-eared Owl (<i>Asio flammeus</i>)	27	29/01/2019	TQ67 (TQ67C)
Swift (<i>Apus apus</i>)	52	28/06/2019	TQ67 (TQ67B)
Kingfisher (<i>Alcedo atthis</i>)	58	21/06/2019	Swanscombe Marsh (TQ6075)
Green Woodpecker (<i>Picus viridis</i>)	130	29/11/2019	TQ67 (TQ67B)
Great Spotted Woodpecker (<i>Dendrocopus major</i>)	42	17/11/2019	TQ67 (TQ67C)
Woodlark (<i>Lullula arborea</i>)	2	28/10/2016	"Botany Marsh
Skylark (<i>Alauda arvensis</i>)	192	29/11/2019	(TQ609754)"
Sand Martin (<i>Riparia riparia</i>)	73	06/09/2019	Northfleet (TQ6174)
Swallow (<i>Hirundo rustica</i>)	69	06/09/2019	Swanscombe Marsh (TQ6075)
House Martin (<i>Delichon urbica</i>)	73	06/09/2019	TQ67 (TQ67B)
Tree Pipit (<i>Anthus trivialis</i>)	3	19/09/2015	TQ67 (TQ67B)
Meadow Pipit (<i>Anthus pratensis</i>)	153	30/12/2019	TQ67 (TQ67B)
Rock Pipit (<i>Anthus petrosus</i>)	154	27/12/2019	TQ67 (TQ67B)
Water Pipit (<i>Anthus spinoletta</i>)	75	23/03/2019	Swanscombe Marsh (TQ6075)
Yellow Wagtail (<i>Motacilla flava</i>)	40	01/09/2016	TQ67 (TQ67C)
Grey Wagtail (<i>Motacilla cinerea</i>)	99	19/11/2019	Northfleet (TQ6174)
Pied Wagtail (<i>Motacilla alba yarrellii</i>)	80	30/09/2019	Swanscombe Marsh (TQ6075)
White Wagtail (<i>Motacilla alba alba</i>)	3	22/03/2014	TQ67 (TQ67B)
Waxwing (<i>Bombycilla garrulus</i>)	39	28/01/2017	TQ67 (TQ67C)
Wren (<i>Troglodytes troglodytes</i>)	125	01/09/2019	TQ67 (TQ67B)
Dunnock (<i>Prunella modularis</i>)	127	30/09/2019	Swanscombe Marsh (TQ6075)
Robin (<i>Erithacus rubecula</i>)	146	30/09/2019	Northfleet (TQ6174)
Nightingale (<i>Luscinia megarhynchos</i>)	59	31/05/2019	TQ67 (TQ67B)
Black Redstart (<i>Phoenicurus ochruros</i>)	11	22/10/2016	TQ67 (TQ67B)
Redstart (<i>Phoenicurus phoenicurus</i>)	8	01/05/2018	TQ67 (TQ67B)

Species	Number of records	Date of most recent record	Nearest record from site
Whinchat (<i>Saxicola rubetra</i>)	44	05/10/2019	TQ67 (TQ67B)
Stonechat (<i>Saxicola torquate</i>)	320	30/12/2019	Northfleet (TQ6174)
Wheatear (<i>Oenanthe Oenanthe</i>)	59	16/04/2019	Swanscombe Marsh (TQ6075)
Ring Ouzel (<i>Turdus torquatus</i>)	14	19/10/2018	Northfleet (TQ6174)
Blackbird (<i>Turdus merula</i>)	169	29/11/2019	TQ67 (TQ67C)
Fieldfare (<i>Turdus pilaris</i>)	79	27/12/2019	Northfleet (TQ6174)
Song Thrush (<i>Turdus philomelos</i>)	129	27/12/2019	Swanscombe Marsh (TQ6075)
Redwing (<i>Turdus iliacus</i>)	49	21/12/2019	TQ67 (TQ67B)
Mistle Thrush (<i>Turdus viscivorus</i>)	43	03/12/2019	Northfleet (TQ6174)
Cetti's Warbler (<i>Cettia cetti</i>)	376	30/12/2019	TQ67 (TQ67B)
Grasshopper Warbler (<i>Locustella naevia</i>)	33	02/06/2019	Northfleet (TQ6174)
Sedge Warbler (<i>Acrocephalus Schoenobaenus</i>)	100	24/08/2019	TQ67 (TQ67B)
Reed Warbler (<i>Acrocephalus scirpaceus</i>)	188	26/08/2019	Swanscombe Marsh (TQ6075)
Dartford Warbler (<i>Sylvia undata</i>)	11	16/01/2016	TQ67 (TQ67B)
Lesser Whitethroat (<i>Sylvia curruca</i>)	91	13/09/2019	TQ67 (TQ67B)
Whitethroat (<i>Sylvia communis</i>)	172	13/09/2019	TQ67 (TQ67B)
Garden Warbler (<i>Sylvia borin</i>)	11	22/06/2019	Swanscombe Marsh (TQ6075)
Blackcap (<i>Sylvia atricapilla</i>)	159	30/09/2019	TQ67 (TQ67B)
Chiffchaff (<i>Phylloscopus collybita</i>)	280	30/09/2019	TQ67 (TQ67B)
Willow Warbler (<i>Phylloscopus trochilus</i>)	46	06/09/2019	TQ67 (TQ67B)
Goldcrest (<i>Regulus regulus</i>)	28	11/03/2018	TQ67 (TQ67B)
Firecrest (<i>Regulus ignicapillus</i>)	4	03/04/2016	TQ67 (TQ67B)
Spotted Flycatcher (<i>Muscicapa striata</i>)	7	25/05/2018	TQ67 (TQ67B)
Bearded Tit (<i>Panurus biarmicus</i>)	116	03/11/2019	Northfleet (TQ6174)
Long-tailed Tit (<i>Aegithalos caudatus</i>)	67	16/11/2019	Northfleet (TQ6174)
Coal Tit (<i>Parus ater</i>)	8	23/04/2019	TQ67 (TQ67B)
Blue Tit (<i>Parus caeruleus</i>)	122	30/09/2019	Swanscombe Marsh (TQ6075)
Great Tit (<i>Parus major</i>)	101	28/03/2019	TQ67 (TQ67C)
Great Grey Shrike (<i>Lanius excubitor</i>)	3	22/10/2015	Swanscombe Marsh (TQ6075)
Jay (<i>Garrulus glandarius</i>)	59	17/11/2019	TQ67 (TQ67B)
Magpie (<i>Pica pica</i>)	239	21/12/2019	TQ67 (TQ67B)
Jackdaw (<i>Corvus monedula</i>)	82	19/11/2019	Swanscombe Marsh
Rook (<i>Corvus frugilegus</i>)	6	06/05/2019	(TQ6075)
Carrion Crow (<i>Corvis corone corone</i>)	146	30/09/2019	TQ67 (TQ67B)
Raven (<i>Corvus corax</i>)	231	30/12/2019	TQ67 (TQ67B)
Starling (<i>Sturnus vulgaris</i>)	138	30/09/2019	TQ67 (TQ67C)
House Sparrow (<i>Passer domesticus</i>)	66	30/09/2019	Northfleet (TQ6174)
Chaffinch (<i>Fringilla coelebs</i>)	177	30/09/2019	TQ67 (TQ67B)
Brambling (<i>Fringilla montifringilla</i>)	7	19/10/2018	"Botany Marsh

Species	Number of records	Date of most recent record	Nearest record from site
Greenfinch (<i>Carduelis chloris</i>)	112	24/08/2019	(TQ609754)"
Goldfinch (<i>Carduelis carduelis</i>)	156	30/09/2019	TQ67 (TQ67B)
Siskin (<i>Carduelis spinus</i>)	10	23/03/2019	TQ67 (TQ67B)
Linnet (<i>Carduelis cannabina</i>)	159	27/12/2019	TQ67 (TQ67B)
Lesser Redpoll (<i>Carduelis cabaret</i>)	11	19/10/2018	Northfleet (TQ6174)
Common Crossbill (<i>Loxia curvirostra</i>)	2	04/08/2005	TQ67 (TQ67B)
Bullfinch (<i>Pyrrhula pyrrhula</i>)	14	05/01/2018	TQ67 (TQ67B)
Yellowhammer (<i>Emberiza citrinella</i>)	10	14/01/2018	Northfleet (TQ6174)
Reed Bunting (<i>Emberiza schoeniclus</i>)	225	30/12/2019	TQ67 (TQ67B)
Corn Bunting (<i>Miliaria calandra</i>)	31	27/09/2014	Northfleet (TQ6174)
Saker (<i>Falco cherrug</i>)	2	22/09/2016	Northfleet (TQ6174)
Mammals			
Natterer's Bat (<i>Myotis nattereri</i>)	37	18/08/2015	TQ616730
Leisler's Bat (<i>Nyctalus leisleri</i>)	6	11/08/2015	TQ602749
Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	2	24/09/2013	TQ592720
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	17	28/07/2015	TQ611741
Reptiles			
Slow worm (<i>Anguis fragilis</i>)	9	25/04/2019	TQ5971974179
Common lizard (<i>Zootoca vivipara</i>)	>20	16/08/2020	TQ5971675603
Grass snake (<i>Natrix helvetica</i>)	>10	31/05/2020	TQ6011775662

- 5.4.3 The desk study also included historic records, over 10 years old, for protected species including (within 2km of the site):
- Great crested newt; and
 - Water vole.

5.5 Phase 1 habitat survey

- 5.5.1 The results of the Phase 1 habitat survey are presented below. A Phase 1 habitat survey map of the Proposed Development Site is provided in Appendix A. This map illustrates the location and extent of the different habitat types recorded within the survey area at the Proposed Development Site. Photographs taken during the field survey are presented in Appendix B.
- 5.5.2 Table 5-2 details the weather conditions at the time of the surveys and Table 5-3 – Table 5-5 presents the habitats present within the site.

Table 5-2: Weather conditions during survey

Parameter	Survey 1 (PEA)
Date(s)	23/05/2022
Start time and finish time	10am to 2.30pm
Temperature (°C)	17
Cloud Cover (%)	100
Wind (Beaufort Scale)	3
Precipitation	Heavy rain from 1:30pm

5.6 Habitats

Table 5-3: Habitats present within RLB South

Buildings The site contains eight buildings. A mixture of brick and metal industrial buildings and including the built parts of the football stadium. No access was granted to assess these buildings externally or internally.		
Hardstanding and Ephemeral vegetation The majority of the site is hard standing which is a mixture of parking. Part of the vegetation on site is the Japanese knotweed (<i>Fallopia japonica</i>) stands.	 	
Amenity Grassland The amenity grassland is the habitat that makes up the maintained football pitch within the stadium.	Inaccessible.	

Introduced shrub and scattered trees Introduced shrub with scattered treelines around the site.		
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Table 5-4: Habitats present within RLB North-East

Buildings The site contains four buildings. A mixture of brick and metal industrial buildings including a builders merchant, mechanics shop and an asphalt mixing plant. No access was granted to assess these buildings externally or internally.		
Hardstanding and Ephemeral vegetation The majority of the site is hard standing which is a mixture of parking and storage of aggregate piles for the sand and gravel works.	Inaccessible	
Hedge with Trees – Species Poor Introduced shrub with scattered treelines around the site. A few mature trees appear to be present. Viewed from satellite imagery, no access to this part of the site.		

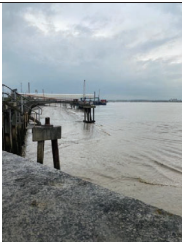
Standing water Two un-covered standing water troughs are present within the sand and gravel works. Viewed from satellite imagery, no access to this part of the site.	Inaccessible	
Sea Wall The Thames Flood Wall provides a large metal and concrete barrier between the Thames and the site.		

Table 5-5: Habitats present within RLB North-West

Buildings The site contained multiple industrial units. All were deemed unsuitable for potential bat roosts due to the lack of insulation offered. The potential for nesting birds is present, though none were seen during the Phase 1 habitat survey. Also present were a number of shipping containers. These however did not provide any potential habitats to considered species.		
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Hardstanding and Ephemeral vegetation The majority of the RLB North-West site was dominated by hardstanding carriageways and walkways. Ephemeral vegetation was present, though no species of significance were observed. Species included Oxford Ragwort (<i>Senecio squalidus</i>), Mallow species (<i>Malva</i> sp), Poppy (<i>Papaver pseudoorientale</i>), groundsel (<i>Senecio vulgaris</i>), Fennel (<i>Foeniculum</i>), red valerian (<i>Centranthus ruber</i>).		
Introduced shrubs Shrubs such as Buddleia (<i>Buddleia davidii</i>), Bramble (<i>Rubus fruticosus</i> agg.), Nettles (<i>Urtica dioica</i>), Grasses and Ivy (<i>Hedera helix</i>), and Rose spp.		
Hedge with Trees – Species Poor A number of scattered trees were found to be present on site. These include Ash (<i>Fraxinus excelsior</i>), Pussy Willow (<i>Salix caprea</i>), and Hawthorn (<i>Crataegus monogyna</i>).		

5.7 Target Notes

- 5.7.1 The Target Note numbers within the extended Phase 1 habitat map in Appendix A correspond to the following points of ecological interest within the site:
- TN1 – Intertidal mudflats (which could support aquatic invertebrates);
 - TN2 – Shingle above high tide mark (little ringed plover nesting habitat); and
 - TN3 - Northfleet Harbour (Cetti’s warbler nesting habitat).

6 Ecological Features

6.1 Birds

- 6.1.1 Breeding bird surveys were undertaken in July 2022 (as set out in **ES Volume 3, Appendix: Ecology and Biodiversity – Annex 3**). The surveys were led by an experienced ecologist and was based on current best practice guidelines⁶.
- 6.1.2 The bird survey method was a modified version of the Wetland Bird Survey (WeBS) core count ‘Look-See’ method (Bibby et al., 2000) which allowed included species counts and behaviour monitoring of the species with a particular interest in breeding behaviour.
- 6.1.3 Areas of habitat assessed to have the potential to support Schedule 1 breeding birds noted in the desk study or assemblages of birds of significance were surveyed during the key breeding season (March to August inclusive). Schedule 1 birds are specially protected under the Wildlife & Countryside Act 1981 (as amended). This means that it is an offence to intentionally disturb these birds whilst they are building a nest, or in, on or near a nest containing eggs or young; or to disturb dependent young even if not in the nest.
- 6.1.4 All species seen and heard within the survey were recorded and mapped and breeding behaviour and possible nesting locations were noted. Foraging activity levels on the mudflats which adjoin the site to the north and east within the River Thames and Robin’s Creek respectively were also recorded during these surveys. Lack of access to the gravel pits on-site limited the surveys. The mudflats and Robin’s Creek were viewed from the Thames pathway which is currently diverted to a route that runs to the south-east of Robin’s Creek to the Thames barrier. A high specification spotting scope was used to view the mudflats adjoining the site and Robin’s Creek from vantage points selected on the Thames pathway, so the surveys were able to correctly identify all species on the mudflats and the shingle beach from the viewpoints. Limited areas were blocked from view from the pier.
- 6.1.5 The surveyors spent one-two hours at each vantage point, where all species and movements were recorded, and any evidence of breeding behaviour was noted.

⁶ Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S. 2000. Bird Census Techniques. Second Edition. Academic Press, London.

- 6.1.6 Disturbance behaviour was also recorded; this is defined as any behaviour shown by the birds that constituted a diversion from normal behaviour. These behaviours were noted to understand a baseline of what the birds using the areas next to the site are habituated to or not from the on-site aggregate works.
- 6.1.7 Winter bird surveys will be undertaken in 2022 to understand the importance of the mudflats to support overwintering assemblages of wildfowl, due to potential disturbance impacts during the construction phase. Further black redstart surveys will also be undertaken to confirm nesting presence/absence on site during the breeding season (May to August inclusive) prior to construction.
- 6.1.8 The presence of Ecological Features within the Zone of Influence of the Proposed Development, and an evaluation of their importance based on the findings of the Desk Study, extended Phase 1 habitat survey is provided below.

Table 3-6: Important Ecological Features

Feature	Likelihood of Occurrence	Rationale
Designated Sites – Statutory & Non-Statutory		
Designated sites	Present (within search area)	The site is adjacent to Swanscombe Peninsula (SSSI) and four non-statutory sites. Once detailed design is available for the Proposed Development, Kent Wildlife Trust and NE will be consulted to discuss any potential further mitigation measures (as required and relevant) to be incorporated into the detailed design of the Proposed Development to further mitigate adverse impacts upon the SSSI arising from recreational pressures. This may form specific on-site detailed landscaping measures or off-site financial contributions to aid management/maintenance of the SSSI, however this will be discussed and agreed. Ebbsfleet Marshes LWS is located 50m to the south-west of the scheme and could be impacted by pollution (from construction) and recreational pressure (completed development).
Priority Habitats		
Mudflats	Present (adjacent)	Mudflats present adjacent to the north-east boundary of the site. The mudflats are currently highly disturbed from shipping traffic, which would reduce the suitability of the mudflats for invertebrates and likely only support local species, such that the effect is considered to be at a Local level. Effects on the invertebrate assemblages within the mudflats could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats becoming degraded and being less suitable for invertebrates.
Invertebrates		
Aquatic Invertebrates	Likely present (adjacent to site)	The mudflats have the potential to support aquatic invertebrates. Winter bird surveys will be undertaken in 2022 to understand the importance of the mudflats to support overwintering assemblages of wildfowl, due to potential disturbance impacts during the construction phase.
Mammals		
Bats	Likely absent (roosting)	No suitable features were found for roosting bats. Further ground level assessment surveys are needed in areas where no access was granted.

Hedgehog	Low	Hedgerows and tree lines provide limited suitable habitat for hedgehogs. Consideration during construction should be given to ensure this species is not harmed. However, any population(s) present on site is likely to be of insufficient size or diversity to be of significant ecological value.
Birds		
Nesting Birds	High	A wide range of passerine bird species were recorded in the desk study. The habitats could support local assemblages of birds which might use the buildings and vegetation to nest within.
Schedule 1 Birds	High	Suitable habitat for black redstart (<i>Phoenicurus ochruros</i>) to nest on site and suitable nesting habitat surrounding the site for little ringed plover (<i>Charadrius dubius</i>), Cetti's warbler (<i>Cettia cetti</i>) and marsh harrier (<i>Circus aeruginosus</i>). Two Schedule 1 bird species were confirmed to be breeding in areas next to the RLB North-East site area. A little ringed plover (<i>Charadrius dubius</i>) pair were confirmed to be breeding (juveniles seen) on the shingle beach on the mudflats to the north of the site on the south bank of the River Thames. Cetti's Warbler (<i>Cettia Cetti</i>) were confirmed to be breeding in Robin's Creek to the east of the site.
Invasive Plants		
Japanese knotweed	High	A significant area of Japanese knotweed (<i>Fallopia japonica</i>) is present on the south area of the site.

6.1.9 Based on the findings of the PEA, the following features of ecological importance were either (a) assessed as likely to be absent from the Site, (b) have Negligible nature conservation value; or (c) are not within the Zone of Influence of the Proposed Development.

6.1.10 Important ecological features (IEFs) that will be considered in the ecological assessment include, but are not limited to, the following:

- Swanscombe Peninsula SSSI (incorporating Botany Marshes LWS)- National;
- Ebbsfleet Marshes LWS - Local;
- River Thames SIN - Metropolitan;
- Nesting bird habitat - Local;
- Schedule 1 birds (including little ringed plover and black redstart) – National; and
- Aquatic invertebrates within the mudflat habitat – County.

6.1.11 The remaining non-statutory designations are not considered to be affected by the Proposed Development owing to their spatial separation and/or lack of ecological connections with the Proposed Development.

6.1.12 The following Potential Important Ecological Features (IEFs) of the site are therefore not considered further

- Reptiles;
- Badgers;
- Great crested newts; and
- Water vole.

7 Potential impacts on habitats within the site

RLB South

7.1 Designated Sites (including both statutory and non-statutory designated sites) & Priority Habitats

7.1.1 The site is located within close proximity to Ebbsfleet Marshes LWS. There are potential impacts on this non-statutory designated site from the proposed works such as pollution, as well as recreational pressure from the completed development.

7.2 Habitats

7.2.1 The ecological importance of the terrestrial habitats present within this section of the Site is low, the impact is considered to be minimal. The minimal ecological disturbance would be contained on the Site only and will not impact the ecological habitats surrounding the Site.

7.3 Protected / Notable Species

7.3.1 The following section considers the likely impact of the proposals on protected or notable species. This is based on those species for which potentially suitable habitat occurs within or adjacent to the site.

Bats

7.3.2 No evidence of bats was recorded during the external assessments of the buildings at the site. The buildings were well sealed and offered very limited opportunities. The buildings and structures, when considering the surrounding area and high levels of disturbance from humans and lighting, did not support any suitable roosting features, and are defined as having a negligible potential to support roosting bats in accordance with the BCT criteria.

Nesting birds

7.3.3 The site provides a low potential for nesting black redstart. Black redstart requires areas of sparse wasteland vegetation and stony ground for feeding and tall and complex structures with ledges and crevices for nesting, which are currently absent on the Site. Existing levels of disturbance on the Site and in the surrounding area would also likely discourage black redstart from nesting on the Site, even if suitable habitat was present.

Invertebrates

7.3.4 The Site includes limited habitat for invertebrates. The presence of invertebrates on Site and within the local area is negligible.

Other mammals

- 7.3.5 The Site provides some suitable habitat for common mammals, such as red fox (*Vulpes vulpes*) including the car park which red foxes could use as a place of refuge. Common wild mammals, such as red fox, may venture onto the Site during the demolition and construction of the Proposed Development and there is a possibility that they may be killed or injured.

Plants

- 7.3.6 A significant area (approximately 5 meters wide and 2 meters deep) of Japanese knotweed (*Fallopia japonica*) is present on site, noted in the Phase 1 map. A management plan is required to define the areas of land likely to be contaminated by knotweed rhizomes, exclusion zones and a methodology for on-site treatment or appropriate removal of contaminated land.
- 7.3.7 Japanese knotweed is listed under the Wildlife and Countryside Act 1981 (as amended) Schedule 9 Part II. Section 14 prohibits planting in the wild of plants listed in Part II of Schedule 9, or otherwise causing the plants to grow there.

RLB North-East

7.4 Designated Sites (including both statutory and non-statutory designated sites) & Priority Habitats

- 7.4.1 The site is located within close proximity to the River Thames SINC and the priority mudflat habitat. There are potential impacts on this non-statutory designated site from the proposed works such as habitat loss and pollution.

7.5 Habitats

- 7.5.1 The ecological importance of the terrestrial habitats present within this section of the Site is low, the impact is considered to be minimal. There is however a risk that ecological disturbance could impact the ecological habitats surrounding the Site in particular the intertidal mudflats next to the site and Northfleet harbour in the absence of mitigation.

7.6 Protected / Notable Species

- 7.6.1 The following section considers the likely impact of the proposals on protected or notable species. This is based on those species for which potentially suitable habitat occurs within or adjacent to the Site. Please refer to Table 3-2 for the definitions of the scale of constraints.

Bats

- 7.6.2 Access was not available to carry out external assessments of the buildings within RLB North-East. From satellite imagery it appears that the buildings are mainly large, open corrugated metal factory buildings which are likely to offer very limited opportunities for bat roosting. The

buildings and structures as subject to high levels of disturbance from humans and lighting meaning there is limited connectivity to surrounding habitat. No further surveys are required.

- 7.6.3 No access was available to carry out external inspections on the trees within the tree lines and hedges around the site. From satellite imagery some mature trees appear to present however these is limited connectivity between these and other suitable bat habitat. No further surveys are required.

Birds

- 7.6.4 The site provides a moderate potential for nesting black redstart. Black redstart requires areas of sparse wasteland vegetation and stony ground for feeding provided in the sand and gravel works aggregate piles and tall and complex structures with ledges and crevices for nesting which may be present in some of the structures and buildings around the sand and gravel works. Existing levels of disturbance on the site are likely to discourage black redstart from nesting on the site due to frequent movements of the aggregate. However, despite the disturbance, further assessment is needed in the key black redstart breeding season (May – June inclusive) due to the amount of suitable habitat present.

- 7.6.5 Two Schedule 1 bird species were confirmed to be breeding in areas next to the RLB North-East site area. A little ringed plover (*Charadrius dubius*) pair were confirmed to be breeding (juveniles seen) on the shingle beach on the mudflats to the north of the site on the south bank of the River Thames. Cetti's Warbler (*Cettia Cetti*) were confirmed to be breeding in Robin's Creek to the east of the site.

- 7.6.6 The site provides good habitat for nesting birds in both the ground level vegetation and trees within the site.

Invertebrates

- 7.6.7 The Site includes limited habitat for invertebrates and only small, isolated pockets of larval food sources. The presence of invertebrates on Site and within the local area is negligible.

Other mammals

- 7.6.8 The Site provides some suitable habitat for common mammals, such as red fox (*Vulpes vulpes*) including the car park which red foxes could use as a place of refuge. Common wild mammals, such as red fox, may venture onto the Site during the demolition and construction of the Proposed Development and there is a possibility that they may be killed or injured.
- 7.6.9 The site does not provide sufficient foraging or connected habitat for badger (*Meles meles*).

Plants

- 7.6.10 No INNS or notable plant species were sighted in this area during the survey.

RLB North-West

7.7 Designated Sites (including both statutory and non-statutory designated sites) & Priority Habitats

- 7.7.1 The Swanscombe Peninsula SSSI is located to the north-west of the site. There are potential impacts on this statutory designated site from the proposed works such as pollution and shading.

7.8 Habitats

- 7.8.1 The ecological importance of the terrestrial habitats present within this section of the Site is low, the impact is considered to be minimal. The minimal ecological disturbance would be contained on the Site. There is the potential for ecological habitats surrounding the Site to be impacted from pollution and shading.

7.9 Protected / Notable Species

- 7.9.1 The following section considers the likely impact of the proposals on protected or notable species. This is based on those species for which potentially suitable habitat occurs within or adjacent to the Proposed Development Site.

Bats

- 7.9.2 No evidence of bats was recorded during the external assessments of the buildings at Northfleet, Gravesham. The buildings were well sealed and offered very limited opportunities. The buildings and structures, when considering the surrounding area and high levels of disturbance from humans and lighting, did not support any suitable roosting features, and are defined as having a negligible potential to support roosting bats in accordance with the BCT criteria.

Nesting birds

- 7.9.3 The site provides a low potential for nesting black redstart. Black redstart requires areas of sparse wasteland vegetation and stony ground for feeding and tall and complex structures with ledges and crevices for nesting, which are currently absent on the Site. Existing levels of disturbance on the Site and in the surrounding area would also likely discourage black redstart from nesting on the Site, even if suitable habitat was present.
- 7.9.4 There is some potential for other nesting birds on site. Buildings offer suitable areas to nest on the roofs, as well as the hedgerow with trees present.

Invertebrates

- 7.9.5 The Site includes limited habitat for invertebrates. The presence of invertebrates on Site and within the local area is negligible.

Other mammals

- 7.9.6 The Site provides some suitable habitat for common mammals, such as red fox (*Vulpes vulpes*) including the car park which red foxes could use as a place of refuge. Common wild mammals, such as red fox, may venture onto the Site during the demolition and construction of the Proposed Development and there is a possibility that they may be killed or injured.
- 7.9.7 The desk study recorded presence of hedgehog near Site. As RLB North-West is adjacent to woodland, hedgerow and tree lines there is the potential for hedgehog to access the site during demolition and construction of the Proposed Development, with the potential they may be killed or injured.

Plants

- 7.9.8 No stands of significant vegetation were discovered on site.

8 Potential impacts to habitats surrounding the site

The Thames

- 8.1.1 Intertidal mudflats are present on the north-east boundary of the site at low tide, Target Note 1 in the map on Appendix A, which extend for at least 50m into the Thames. These are gently sloping mudflats which turn into a shingle beached area which is above the tide line on the edge of the flood wall of the Thames. Some commercial piers/ loading docks are present in this area providing further habitat for food for waterbirds. This habitat is connected by the Thames to the SSSI site of Swanscombe marshes around 600m along the Thames. The SSSI is known to support notable species such shelduck (*Tadorna tadorna*) and little egret (*Egretta garzetta*) in both its saltmarsh habitats and intertidal mudflats and Schedule 1 species such as little ringed plover (*Charadrius dubius*).
- 8.1.2 During the PEA, a range of waterbirds were seen foraging on the mudflats next to the site including shelduck along with herring gulls, black headed gulls, female shoveler with young and mallards.
- 8.1.3 The gravel beach area, Target Note 2 on the map in Appendix A, is suitable for little ringed plover to use for nesting (a Schedule 1 species) which are known to be in the area.
- 8.1.4 Two Schedule 1 bird species were confirmed to be breeding in areas next to the RLB North-East site area. A little ringed plover (*Charadrius dubius*) pair were confirmed to be breeding (juveniles seen) on the shingle beach on the mudflats to the north of the site on the south bank of the River Thames. Cetti's Warbler (*Cettia Cetti*) were confirmed to be breeding in Robin's Creek to the east of the site.
- 8.1.5 Winter bird surveys will be undertaken in 2022 to understand the importance of the mudflats to support overwintering assemblages of wildfowl, due to potential disturbance impacts during the construction phase. Further black redstart surveys will also be undertaken to confirm nesting presence/absence on site during the breeding season (May to August inclusive) prior to construction.

- 8.1.6 Both the intertidal mudflats and the gravel beach area may be affected by drainage from the scheme and visual and noise disturbance from the construction works.
- 8.1.7 The mudflats have the potential to support aquatic invertebrates. Information gathered from the bird surveys should provide detail on the quality and quantity of aquatic invertebrates and their importance as a food resource for birds.
- 8.1.8 Mudflats present adjacent to the north-east boundary of the site. The mudflats are currently highly disturbed from shipping traffic, which would reduce the suitability of the mudflats for invertebrates and likely only support local species, such that the effect is considered to be at a Local level. Effects on the invertebrate assemblages within the mudflats could arise as a result of an increase of pollution incidences such as dust arisings, noise, night lighting, vibration, and surface water/pollution run-off during the demolition and construction phase. This could result in the habitats becoming degraded and being less suitable for invertebrates.

Swanscombe Peninsula SSSI

- 8.1.9 Swanscombe Peninsula SSSI is a nationally designated site for breeding birds, invertebrates and flowering plants. RLB North-West is directly adjacent to this SSSI. There is the potential for pollution to impact this SSSI during construction. Recreational disturbance due to an increase in residential properties could further impact the SSSI.

9 Compensation & Recommendations

9.1 Designated sites

Swanscombe Peninsula SSSI & Ebbsfleet Marshes LWS – Pollution Impacts

- 9.1.1 Given the potential for indirect Minor Adverse effects on the Swanscombe Peninsula SSSI, Ebbsfleet Marshes, and the Priority Mudflat Habitat, resulting from the demolition and construction works, relevant ecological measures defined within a detailed Construction Environmental Management Plan (CEMP), to be secured via condition, will minimise the potential for any adverse indirect ecological effects upon the designated sites and the habitats and species it supports.
- 9.1.2 Measures relating to pollution incidences, to be included within the detailed CEMP(s) include:
- Details on the location of appropriate fencing, agreed in conjunction with a suitably qualified ecologist, to protect off-site habitats (such as the adjacent Priority Habitat) where appropriate to prevent effects associated with the encroachment of construction vehicles and plant;
 - Pollution prevention measures including procedures for oils, chemicals and other potentially contaminative construction material storage designed to prevent the release of any accidental spillages and effects associated with contaminated surface run-off;
 - Supervision of delivery of fuel and oils with pipelines and fuelling points protected from vandalism and unauthorised interference;
 - Use of drip trays when filling smaller containers from tanks or drums to avoid drips and spills from entering the ground or drainage systems and watercourses to prevent effects associated with contaminated surface run-off;
 - Controlling works with concrete and washing out ready-mix concrete wagons in 'safe areas' away from waterbodies and retained habitats to prevent effects associated with contaminated surface run-off;
 - Procedures for emergency environmental incidents such as pollution events; and
 - Measures to minimise vibration and dust arisings, including, when necessary, regular damping down of the site by spraying with water and covering stockpiled material within a contained area, where required, to enable run-off to be treated.

Swanscombe Peninsula SSSI – Recreational Disturbance

- 9.1.3 It is recommended that an audit of the SSSI is undertaken to monitor the recreational usage from the Proposed Development on the SSSI. This will identify the effect threshold or the point at which wildlife begins to be disturbed by such recreation activities to provide informed recommendations to key stakeholders regarding further development and infrastructure construction and visitor management. This will inform future phases of this Proposed Development on the most appropriate and proportionate mitigation requirements to reduce impacts on the SSSI if a threshold is reached.

- 9.1.4 Once detailed design is available for the Proposed Development, Kent Wildlife Trust and NE will be consulted to discuss any potential further mitigation measures (as required and relevant) to be incorporated into the detailed design of the Proposed Development to further mitigate adverse impacts upon the SSSI arising from recreational pressures. This may form specific on-site detailed landscaping measures or off-site financial contributions to aid management/maintenance of the SSSI, however this will be discussed and agreed.

The River Thames SINC

- 9.1.5 An ecological lighting strategy will set out measures to reduce effects on ecology including the use of dark buffer zones along the tidal River Thames to reduce the effects of artificial lighting on fish and marine mammals.
- 9.1.6 Prevention of hydrological impacts through adherence to an appropriate Surface Water Management Strategy.
- 9.1.7 A Sustainable Drainage System to both avoid or mitigate any potential effects on water quality within priority habitats and the aquatic invertebrates they support. A Sustainable Drainage System would also provide suitable hydrological conditions for new wetland habitats of ecological value to become established.

9.2 Birds (Non-schedule 1 and Schedule 1)

- 9.2.1 A detailed CEMP will minimise the potential for any adverse ecological effects upon Schedule 1 birds.
- 9.2.2 Assuming the presence of overwintering birds, visual and noise barriers will be used to prevent disturbance to the birds on the mudflats to the north and east of the site on the south bank of the River Thames and at Robin's Creek during the breeding season, as detailed above, when works cannot be phased outside of this time period. Visual and noise barriers in winter along the mudflats will be used if determined by the 2022-2023 winter bird surveys.
- 9.2.3 Soft starts and other methods such as the use of low impact machinery to limit noise and vibration disturbance will be used for noisy works such as piling if undertaken during the breeding season and will be detailed in the CEMP.
- 9.2.4 It is recommended that Precautionary Working Method Statement (PWMS) is written to capture all specific working methods for Schedule 1 birds.

9.2.5 Surveys to be completed:

- Pre-construction black redstart surveys to determine appropriate levels of mitigation. These should be undertaken in the key breeding season (March to August Inclusive) to confirm if black redstart are nesting directly on the site or not.
- Winter bird surveys will be undertaken in the winter of 2022-2023 which will determine the use of the mudflats by overwintering birds and will inform the mitigation needed during winter.

9.2.6 Measures relating to Schedule 1 birds, to be included within the detailed CEMP(s) and PWMS:

- Clearance of site prior to bird nesting season (March-September inclusive), or if in nesting season then a black redstart nesting survey to be carried out prior to demolition.
- If black redstart are confirmed to be breeding on site then a 300m buffer zone must be implemented around each nest until the nest is confirmed as inactive by a suitably qualified ecologist. If black redstart are confirmed to be breeding on site then black redstart surveys must be undertaken at the start of each breeding season of each year of construction where black redstart breeding habitat remains on site.
- Noisy or disturbing works to avoid sensitive periods of the year where possible through phasing. Sensitive areas include:
 - Around Robins Creek during the key Cetti's Warbler breeding season- April to July.
 - Around the shingle beach area on the mudflats in key Little Ringed Plover nesting season May-July.
 - Around any areas on site where black redstart are confirmed to be breeding in further surveys in the key breeding season – March to August.
- Visual and noise barriers will be used to prevent disturbance to the birds on the mudflats to the north and east of the site on the south bank of the River Thames and at Robin's Creek during the breeding season as detailed above when works cannot be phased outside of this time period. Visual and noise barriers in winter along the mudflats will be used if determined by the 2022-2023 winter bird surveys.
- Soft starts and other methods such as the use of low impact machinery to limit noise and vibration disturbance will be used for noising works such as piling if undertaken during the breeding season and will be detailed in the CEMP and PWMS.
- Toolbox talks and training to be given to the site teams by a suitably qualified ecologist to provide the site teams with key information on the mitigation measures detailed in the PWMS.

- 9.2.7 A Sustainable Drainage System to both avoid or mitigate any potential effects on water quality and flow within sensitive habitats, and to provide suitable hydrological conditions for new wetland habitats of ecological value to become established, will be developed. The Drainage Strategy which supports the planning application has integrated such measures.

9.3 Wild mammals

- 9.3.1 All wild mammals, including red fox, are protected by the Wild Mammals (Protection) Act 1996 which makes it an offence to intentionally cause any wild mammal unnecessary suffering by

certain methods. Common wild mammals, such as red fox and hedgehog may venture onto the site during the refurbishment and construction of the Proposed Development.

9.4 Invasive plants

- 9.4.1 A management plan, prepared by a suitably qualified ecologist, is required to define the areas of land likely to be contaminated by Japanese knotweed rhizomes, exclusion zones and a methodology for on-site treatment or appropriate removal of contaminated land should be incorporated into a CEMP. In advance of site works invasive plant species surveys will be updated and measures implemented through the construction works to safeguard against the spread of any invasive non-native species. The main contractor will ensure that all materials imported or exported from the site are not contaminated and monitoring will take place post-construction to ensure that invasive species do not colonise the site.

9.5 Embedded Mitigation

- 9.5.1 The Proposed Development will include the provision of significant planting and landscaping on-site. This is secured via the Design Code which commits to a high-quality detailed landscaping design via measures including:
- Bird and bat boxes (integrated into the walls of buildings and on suitable trees), including features for house sparrows, starlings, swifts and house martins;
 - Native and locally characteristic tree, shrub and hedge planting;
 - Provision brown roofs to the north-eastern extent of the site (within the Riverside Neighbourhood Character Area) to allow for suitable habitat for black redstart and other bird species;
 - Bug hotels and purpose made bug boxes;
 - Wildlife links hibernacula and refugia suitable for smaller fauna including reptiles and amphibians;
 - The use of nectar-rich and berry producing plants to attract a wider range of insects, birds and mammals and continue to accommodate those already utilising the site; and
 - A wildlife sensitive lighting strategy.

10 Enhancements

- 10.1.1 Planning policy at the national and local level and strategic biodiversity partnerships encourage inclusion of ecological enhancements in development projects. Ecological enhancements can also contribute to green infrastructure and ecosystem services such as storm water attenuation and reducing the urban heat island effect. The following measures would be suitable for integration into the Proposed Development site's design but are not a requirement.

Native tree and scrub planting

- 10.1.2 It is recommended that the native trees and hedgerows be retained and protected during the refurbishment and construction of the Proposed Development. It is recommended that native trees and scrub species are included within any landscaping to enhance the site.
- 10.1.3 It is recommended wildlife planting should be integral to the soft landscape plans and should include native species and/or species of recognised wildlife value. The use of nectar-rich and berry producing plants will attract a wider range of insects, birds and mammals and continue to accommodate those already utilising the site. Where possible, larger shrubs should be under-planted to create greater structure and cover for wildlife. The use of block planting of single species should be avoided in favour of a higher diversity of plant types per square metre.

Good horticultural practice

- 10.1.4 Good horticultural practice should be utilised, including the use of peat-free composts, mulches and soil conditioners, native plants with local provenance and avoidance of the use of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Installation of Green Roofs

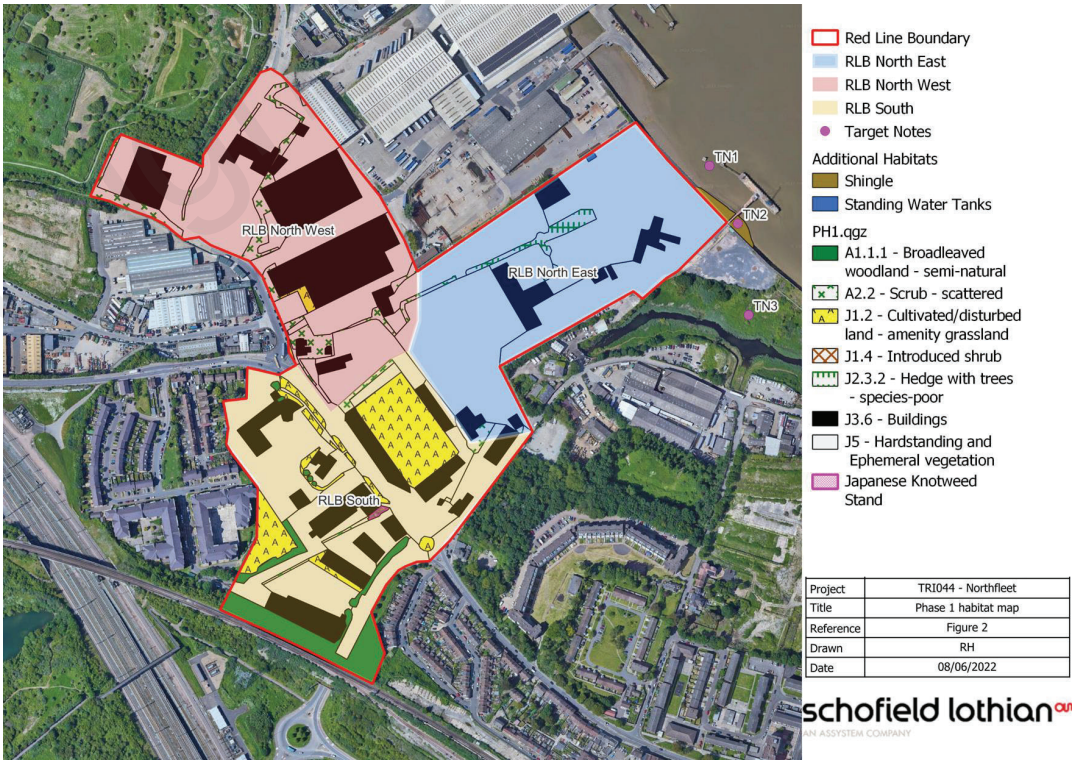
- 10.1.5 It is recommended that green roofs containing intensive planting are provided on the refurbished buildings. To maximise biodiversity, this should comprise of the intensive planting of a range of native grasses and flowering plants. This would provide habitat for birds and invertebrates and would represent a valuable ecological enhancement. This should ideally only be accessible for maintenance purposes, to minimise disturbance to wildlife. If the roof terraces are to be open to the public, it is recommended that the intensive planting is kept off walking routes to avoid disturbance.
- 10.1.6 Other features could be installed on an intensive green roof terrace, to enhance its ecological value. A bird bath and bird feeders could be provided, to provide washing and feeding opportunities for birds. Stone or log piles would also provide shelter for a variety of invertebrates. An insect house could also be installed.
- 10.1.7 Brown roof terraces could also be considered with the addition of pebble and boulder areas to create contoured habitat for black redstarts. This should only be used on areas not open to the public to limit disturbance.

- 10.1.8 Small stone piles using the pebbles around the site could added within both the green and brown roofs. These dry areas can warm up quickly and will benefit a wide variety of species such as butterflies bees and wasps (Mining bees and Solitary wasps), beetles and spiders
- 10.1.9 Bee banks could be created which are particularly beneficial for solitary bees and wasps to dig nest burrows into. These can easily be created by using sand to create mounds which are south facing so that they receive the most sunshine throughout the day. Vegetation arisings from the maintenance of planted areas could be places in small piles on the green roof areas to provide overwintering habitat for invertebrates

Provision of wildlife boxes

- 10.1.10 Bird boxes could be installed within the tree planting on the ground and on the roof amongst the intense green roof terraces. Swift boxes would be advised for the intense green roof terraces as swifts can fly up to 10,000 feet.
- 10.1.11 Insect houses can be installed both within the ground level intensive planting and on the intense green roof terraces.
- 10.1.12 Bird boxes should be installed on the refurbished buildings, to provide roosting habitat for bats and nesting habitat for birds, respectively. These could be installed onto or within the walls or on the roof of the buildings.
- 10.1.13 Bird boxes should be installed with different sized holes (including both 32mm and 26mm diameter) to cater for different species, including notable species that could occur on the site. This should include nest boxes for house sparrow on the proposed buildings, such as the Schwegler 1SP Sparrow Terrace. A further suggestion is the Schwegler No 24 Brick Box and Schwegler 1B Bird Box, including both 32mm and 26mm diameter holes. These boxes should also be located adjacent to any landscaped areas, at least 3m above the ground and facing southeast to north, to avoid direct sunlight and the heaviest rain.
- 10.1.14 Small, open fronted bird boxes could be attached to the underside of the ledges or terraces on in order to provide nesting space for black redstarts and other birds such as robin.

Appendix A Phase 1 Habitat Survey Map



Appendix C Relevant Legislation

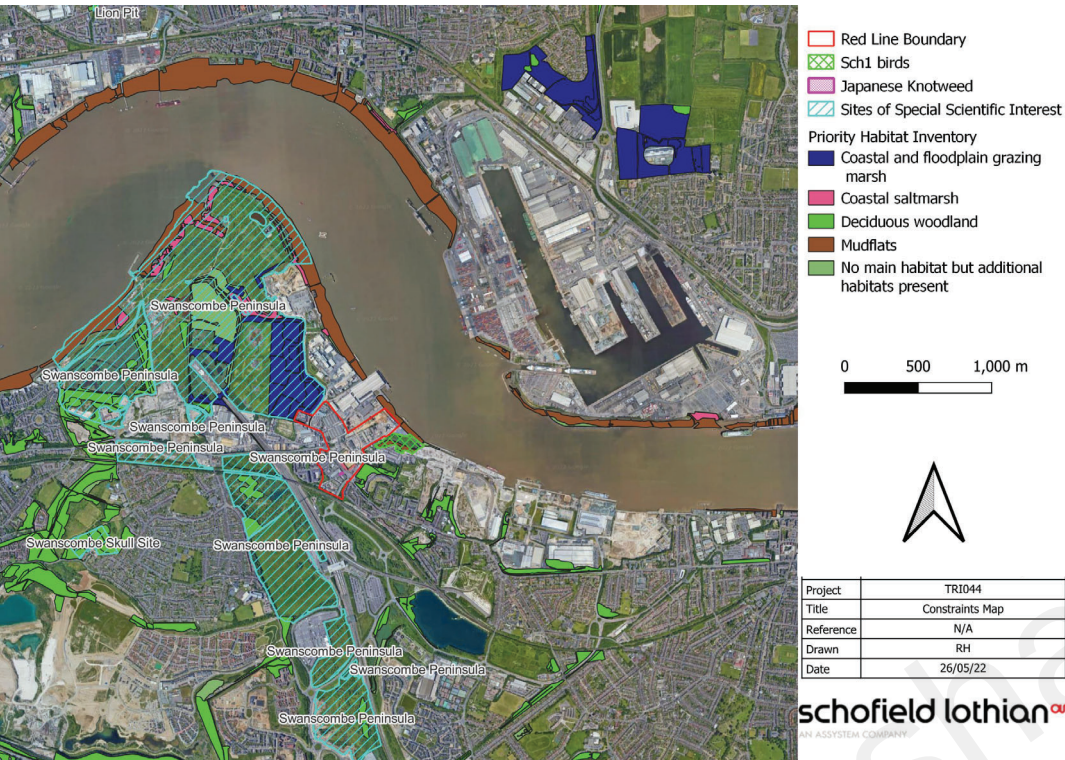
C.1 The Conservation of Habitats and Species Regulations 2017

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

C.2 The Wildlife and Countryside Act (WCA) 1981 (as amended)

- C.2.1 The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Habitat Regulations 2010 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).
- C.2.2 Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species. All relevant species-specific legislation is detailed later in this Appendix.
- C.2.3 Schedule 1 – Part 1 relates to birds and their young, for which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest. Schedule 1 – Part 2 relates to birds afforded

Appendix B Constraints Map



special protection during the close season which is 1 February to 31 August (21 February to 31 August below high-water mark), but which may be killed or taken outside this period.

C.3 The Countryside and Rights of Way (CROW) Act 2000

- C.3.1 The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife.
- C.3.2 Legislation detailed in the WCA places a duty on government departments and the National Assembly for Wales to have regard for biodiversity and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

C.4 The Natural Environment and Rural Communities (NERC) Act 2006

- C.4.1 Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CROW Act 2000.

C.5 UK Biodiversity Action Plan

- C.5.1 The United Kingdom Biodiversity Action Plan (UK BAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UK BAP contained a list of priority habitats and species of conservation concern in the UK and outlined biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats were also included. The priority habitats and species correlated with those listed on Section 41 and 42 of the NERC Act.
- C.5.2 The UK BAP required that conservation of biodiversity be addressed at a County level through the production of Local BAPs. These were complementary to the UK BAP, however, were targeted towards species of conservation concern characteristic of each area. In addition, several local authorities and large organisations have produced their own BAPs.

C.6 Species and Habitats of Material Consideration for Planning in England

- C.6.1 In 2011, the government published the 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' to replace the previous England Biodiversity Strategy. In 2012 the UK BAP was replaced by the UK Post-2010 Biodiversity Framework.
- C.6.2 Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP habitats and species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process, but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species under the UK Post-2010 Biodiversity Framework. The list of habitats and species remains unchanged and is still derived from Section 41 list of the Natural Environment and Rural Communities (NERC) Act 2006. As was previously the case when it was a BAP priority species hen harrier continues to be regarded as a priority species although it does not appear on the Section 41 list.

Appendix D About Schofield Lothian

- D.1.1 Schofield Lothian is an infrastructure consultancy delivering added value professional services to Clients.
- D.1.2 Combining over 40 years of expertise in infrastructure with Assystem's 'Engineering Powered by Digital' approach for truly unparalleled added value professional services
- D.1.3 We have in-depth expertise in these service areas:
 - Consents & Engagement Services
 - Environment & Sustainability Services
 - Project Management Services
 - Commercial Management Services (Quantity Surveying, Estimating & Contracts)
- D.1.4 Our customised Client Teams bring Client's expertise and experience to deliver an effective and sustainable solution for your project (via secondment, service teams or advisory).
- D.1.5 Through our values we have a vibrant and successful company, where people can thrive, and Clients prosper.
- D.1.6 We believe passionately in delivering added value through a collaborative approach and have the flexibility to respond quickly to facilitate the client's requirements.

D.2 Values

- D.2.1 Our values are part of our DNA. They guide the way we work with each other, with our clients, and within our communities. Our values are:
 - Honesty – we tell the truth, we will be sincere and fair
 - Respect – we show regard and consideration for the opinions of other
 - Integrity & Trust – we demonstrate strong moral principles and are trustworthy
 - Collaboration – we work to achieve shared goals
 - Accountable – we are accountable and responsible for our actions and results
- D.2.2 Through these values we have a vibrant and successful company where people can thrive, and clients prosper. They define our culture.

D.3 Accreditations

- D.3.1 Quality processes are very important to us especially in delivering our professional services to Clients. In addition to our in-house Business System (SBS), which outlines the processes and procedures within the company, we are accredited to these international recognised standards:
 - ISO 9001 Quality Management System
 - ISO 14001 Environmental Management System
 - BS OHSAS 18001 Health & Safety Management System
 - IIP Investors in People
- D.3.2 We are also accredited to the following industry standards: RISQS Railway Industry Supplier Qualification Scheme, UDVB Utilities and ConstructionOnline.

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Appendix: Ecology and Biodiversity

Annex 1: Preliminary Ecological Appraisal

Annex 2: Biodiversity Net Gain Assessment Report

Annex 3: Bird Survey Report

Northfleet Central 1 Ltd
Ecology Services

Biodiversity Net Gain Assessment
Northfleet Harbourside, Gravesham



Document Management

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Executive Summary

Schofield Lothian was commissioned by Northfleet Central 1 Ltd ('the Applicant') to undertake a Biodiversity Net Gain Assessment of land at Northfleet, Gravesham ('the site').

A Biodiversity Net Gain assessment was undertaken using the Defra Biodiversity Metric Calculator 3.1 to further understand the biodiversity enhancements the Proposed Development could provide, based upon the Illustrative Masterplan (as discussed in **ES Volume 1, Chapter 4: The Proposed Development**).

The Environmental Bill has been given Royal Assent and become the Environment Act 2021. This will make Biodiversity Net Gain (BNG) mandatory, meaning developments will need to deliver at least 10% net gain increase in biodiversity¹.

The existing site comprises of 'urban tree', 'other woodland; broadleaved', 'introduced shrub', 'littoral mud' and 'native hedge with trees' habitats.

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

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

RLB South

The RLB South area of the site is currently mainly occupied by industrial and commercial activities with Ebbsfleet FC stadium taking up a large amount of the area.

RLB North-East

The RLB North-East area of the site is currently mainly occupied by industrial and commercial activities with a large active Sand and Gravel works and other industrial buildings such as a car and truck mechanics buildings.

RLB North-West

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

The illustrative landscaping of the Proposed Development includes 'vegetate garden', 'other woodland; mixed', 'modified grassland', 'other green roof', 'biodiverse green roof', 'urban tree', 'introduced shrub', 'ornamental pond', 'rain garden', 'lowland meadow planting' and 'native hedgerow'.

Hardstanding and buildings have not been included within this assessment due to their negligible biodiversity value.

The assessment concludes that a total net change in habitat units (based upon the Illustrative Masterplan) equates to **6.03**, (using the Defra Biodiversity Metric Calculator 3.1), resulting in a BNG increase of **352%**. The total net change in hedgerow units equates to **3.03**, (using the Defra Biodiversity Metric Calculator 3.1), resulting in a hedgerow increase of **75.73%**.

Given the increase of this initial BNG assessment at this early stage in planning, this report demonstrates how the Proposed Development is likely to achieve at least a 10% net gain, as set out in the Environmental Bill 2020, once construction is complete, utilising the Illustrative Masterplan for the purposes of assessment.

The planning application commits to achieving a minimum of 20% BNG in line with the Kent Nature Partnership (KNP), with future detailed BNG assessments to be undertaken at the Reserved Matters Applications (RMA) stage, as relevant, based on the detailed landscaping plans.

¹ Environment Act 2021 (<https://cieem.net/environment-act-2021/>)

Table of Contents

1 Introduction 6

2 Methodology..... 8

2.2 Limitations and Constraints..... 9

3 Results 10

4 Enhancements 14

4.2 Wildlife Boxes 14

5 Conclusions..... 16

Appendix A Pre and Post-Construction Habitat Maps..... 17

Appendix B Relevant Legislation..... 19

Appendix C About Schofield Lothian 22

Table 1: The headline results produced by the BM3.1 tool..... **Error! Bookmark not defined.**

Table 2: Pre-Construction Results 11

Table 3: Post-Construction Assessment..... 12

Table 4: Pre-existing Hedgerow Assessment 13

Table 5: Post Construction Hedgerow Assessment..... 13

1 Introduction

- 1.1.1 This Biodiversity Net Gain (BNG) assessment has been prepared by Schofield Lothian on behalf of Northfleet Central 1 Ltd ('the Applicant') in support of a development at Northfleet, Gravesham ('the site') within the borough of Gravesham Borough Council.
- 1.1.2 Mandatory biodiversity net gain as set out in the Environment Bill is likely to become law in 2023. The Bill sets out the requirement for a minimum 10% gain required calculated using the Biodiversity Metric².
- 1.1.3 The existing site comprises of 'urban tree', 'other woodland; broadleaved', 'introduced shrub', 'littoral mud' and 'native hedge with trees' habitats.
- 1.1.4 Due to the scale of the site the was split into three areas (as illustrated in Appendix A.1), referred to as:
- RLB South; The RLB South area of the site is currently mainly occupied by industrial and commercial activities with Ebbsfleet FC stadium taking up a large amount of the area.
 - RLB North-East; The RLB North-East area of the site is currently mainly occupied by industrial and commercial activities with a large active Sand and Gravel works and other industrial buildings such as a car and truck mechanics buildings and
 - RLB North-West; The RLB North-West area of the site is dominated by industrial units, hardstanding mixed with ephemeral vegetation. Also on site are scattered trees, ornamental planting as well as sparse species-poor hedgerow with trees. Directly to the north of the site is Swanscombe Peninsula SSSI, which directly includes a dense treeline adjacent to the site boundary.
- 1.1.5 This assessment will provide the Applicant with a greater understanding of the BNG which could be achieved by the Proposed Development. It identifies the total pre-construction ecological baseline habitat units of the site prior to works commencing.
- 1.1.6 The post development habitat units were calculated using the Defra Biodiversity Metric 3.1. It should be noted that given the outline nature of the planning application, landscaping is not sought for approval. Therefore, an Illustrative Masterplan has been prepared, as presented in the Design and Access Statement and **ES Volume 1, Chapter 4: The Proposed Development**, which includes illustrative landscaping. The BNG assessment has been based upon this Illustrative Masterplan at this time, whereby future detailed BNG assessments will be undertaken at the Reserved Matters Applications (RMA) stage, as relevant, based on the detailed landscaping plans.

² Environmental Bill (2020) <https://www.gov.uk/government/publications/environment-bill-2020>

- 1.1.7 This BNG assessment will follow the 10 principles for BNG assessments as established by Defra. The 10 best practice principles are as follows:

Principle 1. Apply the Mitigation Hierarchy: Do everything possible to first avoid and then minimise impacts on biodiversity.

Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere: Avoid impacts on irreplaceable biodiversity - these impacts cannot be offset to achieve No Net Loss or Net Gain.

Principle 3. Be inclusive and equitable: Engage stakeholders early, and involve them in designing, implementing, monitoring and evaluating the approach to Net Gain.

Principle 4. Address risks : Mitigate difficulty, uncertainty and other risks to achieving Net Gain.

Principle 5. Make a measurable Net Gain contribution: Achieve a measurable, overall gain for biodiversity and the services ecosystems provide while directly contributing towards nature conservation priorities.

Principle 6. Achieve the best outcomes for biodiversity: Achieve the best outcomes for biodiversity by using robust, credible evidence and local knowledge to make clearly-justified choices.

Principle 7. Be additional: Achieve nature conservation outcomes that demonstrably exceed existing obligations.

Principle 8. Create a Net Gain legacy: Ensure Net Gain generates long-term benefits.

Principle 9. Optimise sustainability: Prioritise BNG and, where possible, optimise the wider environmental benefits for a sustainable society and economy.

Principle 10. Be transparent: Communicate all Net Gain activities in a transparent and timely manner, sharing the learning with all stakeholders.

- 1.1.8 This BNG assessment and report follows the 10 best practice principles established by Defra in order to create the most accurate biodiversity net gain (BNG) assessment possible.
- 1.1.9 Kent Nature Partnership (KNP), working with local planning authorities (LPAs), is trying to progress the adoption of a 20% target for Biodiversity Net Gain (BNG). To assist this, they have undertaken a strategic level viability assessment for 15% and 20% requirements (CIEEM, 2022³).

³ CIEEM (2022) [https://cieem.net/kent-assesses-20-biodiversity-net-gain-requirement/#:~:text=Kent%20Nature%20Partnership%20\(KNP\)%2C,15%25%20and%2020%25%20requirements](https://cieem.net/kent-assesses-20-biodiversity-net-gain-requirement/#:~:text=Kent%20Nature%20Partnership%20(KNP)%2C,15%25%20and%2020%25%20requirements).

2 Methodology

- 2.1.1 In accordance with the National Planning Policy Framework (NPPF), proposals should seek to demonstrate BNG. The NPPF states plans (paragraph 174) should 'promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity'⁴.
- 2.1.2 The metric approach to calculate the biodiversity net gain units of the site was achieved using the Biodiversity Metric 3.1 (DEFRA, 2022⁵). This method provides a quantitative approach to the losses and gains that result from the Proposed Development and land use changes.
- 2.1.3 The pre-construction and post construction habitats are shown in Appendix A.1 and A.2. The areas (hectares) of each pre-construction habitat were estimated through aerial imagery, professional judgement and using arboriculture data obtained through surveying.
- 2.1.4 To establish a baseline for the site the following inputs and assessments were made:
- The areas (hectares) for each habitat were calculated using the red line boundary provided by the Applicant;
 - The areas (hectares) were calculated for the following habitats found on the pre-existing site: 'urban tree', 'other woodland; broadleaved', 'introduced shrub', 'littoral mud' and 'native hedge with trees' habitats.
 - The habitats were inputted into the tool and assigned a pre-set distinctiveness value, indicative of the inherent 'value' of this habitat;
 - The habitats on site were subject to a 'condition assessment', in line with Defra Technical Guidance. The 'condition' of the habitat is considered a measure of habitat quality and measures the 'working-order' against the optimal potential of habitat type. Condition assessment criteria cover broad habitat types and professional judgement was used where appropriate;
 - Due to the minimal ecology found present on site the site has been defined as 'low' in ecology terms;
 - The habitats were subject to a strategic significant assessment based on the site's position within local plan strategy;
 - The site is not included in any local plan strategy and therefore has been given a 'low' score for strategic significance;
 - Inputs were entered into the Biodiversity Net Gain Metric 3.1 (BM3) Tool to calculate baseline units for the Site and generate suggested actions to address any potential habitat losses as part of developing design; and
 - Whilst BM3.1 utilises a structured approach to calculating BNG, it does not represent a complete tool for assessing BNG and, therefore professional judgement and other sources of guidance have been used where appropriate.

⁴ NPPF (2019) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/810197/NPPF_Feb_2019_revised.pdf

⁵ Defra (2022) <http://publications.naturalengland.org.uk/publication/6049804846366720>

- 2.1.5 The Proposed Development habitats are shown in Appendix **Error! Reference source not found.**
- 2.1.6 For the Proposed Development to meet the BNG requirements the following are required:
 - Create strong links between the surrounding habitat;
 - Increase biodiversity by including new/extended native habitats across the site; and
 - Use plant species known for their ability to mitigate the effects of urban pollution and the ability to capture and clean surface water run-off.

2.2 Limitations and Constraints

- 2.2.1 Full BNG calculations using the metric approach cannot be fully completed until post construction. This will then generate the BNG final calculations to determine if BNG has been achieved. The proposed works submitted for planning permission provide a good representation of the biodiversity net gain which can feasibly be achieved by the Proposed Development, as demonstrated by the Illustrative Masterplan, in order to meet the requirements of the NPPF and the draft Environment Bill 2020.
- 2.2.2 Whilst the BM3.1 uses a structured approach to calculating BNG, it does not represent a complete tool for assessing BNG, therefore professional judgement and other sources of guidance have been used where appropriate.

3 Results

- 3.1.1 The post-construction calculations were achieved using the predicted square metres (converted into hectares for the tool) for each proposed habitat types. The following habitat types have been proposed:
 - Vegetated garden (including allotments, orchards, productive landscapes and pollinator planting);
 - Other woodland; mixed;
 - Modified grassland;
 - Other green roof;
 - Biodiverse green roof;
 - Urban tree;
 - Introduced shrub;
 - Ornamental pond;
 - Rain garden;
 - Lowland meadow planting; and
 - Native hedgerow.

3.1.2 Table 1 shows the headline results taken from the BM3.1 tool.

Table 1: The headline results produced by the BM3.1 tool

Summary of Results	Habitat Units	Hedgerow Units	River Units
On-site baseline	6.03	4.00	0.00
On-site post-intervention	27.25	7.03	0.00
Off-site baseline	0.00	0.00	0.00
Off-site intervention	0.00	0.00	0.00
Total net unit change	21.22	3.03	N/A
Total percentage change	352%	75.73%	N/A
Trading rules satisfied?	Yes		

- 3.1.3 The results show the total habitat units achieved from the proposed works equate to 27.24. The total habitat units from the baseline ecology assessment of the pre-construction site equated 6.03. This results in a biodiversity net unit change of 21.22. Hedgerow units have also increased from 4.00 to 7.03 units.
- 3.1.4 Table 2 shows the pre-construction results and table 3 shows the post construction results along with the habitat unit breakdown for each proposed habitat. The proposed urban trees habitat has the highest habitat unit value with a value of 7.83.

Table 2: Pre-Construction Results

Habitats and areas			Distinctiveness		Condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline	Units retained
Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier		Total habitat units	
Urban	Urban Tree	0.2159	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (x)	1.73	0.82
Woodland and forest	Other woodland; broadleaved	0.3	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same broad habitat or a higher distinctiveness habitat required (x)	2.40	
Urban	Introduced shrub	0.05	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required z	0.10	
Intertidal sediment	Littoral mud	0.15	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same habitat required =	1.80	1.80
											6.03	2.62

Table 3: Post-Construction Assessment

Broad Habitat	Proposed habitat	Area in hectares	Distinctiveness		Condition		Strategic significance			Temporal multiplier							Difficulty multipliers				Habitat units delivered
			Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		
Urban	Vegetated garden	1.537	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1		Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	2.97		
Woodland and forest	Other woodland; mixed	0.95	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	30		Standard time to target condition applied	30	0.343	Low	Standard difficulty applied	Low	1	2.61		
Grassland	Modified grassland	1.16	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	4		Standard time to target condition applied	4	0.867	Low	Standard difficulty applied	Low	1	4.02		
Urban	Other green roof	0.9	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1		Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	1.74		
Urban	Biodiverse green roof	0.5	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5		Standard time to target condition applied	5	0.837	Medium	Standard difficulty applied	Medium	0.67	2.24		
Urban	Urban Tree	2.5597	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	27		Standard time to target condition applied	27	0.382	Low	Standard difficulty applied	Low	1	7.83		
Urban	Introduced shrub	0.43	Low	2	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1		Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	0.83		
Lakes	Ornamental lake or pond	0.0381	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3		Standard time to target condition applied	3	0.899	Low	Standard difficulty applied	Low	1	0.14		
Urban	Rain garden	0.42	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3		Standard time to target condition applied	3	0.899	Low	Standard difficulty applied	Low	1	1.51		
Grassland	Lowland meadows	0.2	V.High	8	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	10		Standard time to target condition applied	10	0.700	High	Standard difficulty applied	High	0.33	0.74		
																			24.63		

Table 4: Pre-existing Hedgerow Assessment

UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline
Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		
1	Native Hedgerow with trees	0.5	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	4.00
											4.00

Table 5: Post Construction Hedgerow Assessment

	Proposed habitats	Habitat distinctiveness	Habitat condition	Strategic significance	Temporal multiplier	Difficulty multipliers	risk	Hedge delivered	units
New hedge number	Habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition/years	Final difficulty of creation	
2	Native Hedgerow	2.1	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	5	Low	7.03
									7.03

4 Enhancements

- 4.1.1 Species used for the vegetated garden (including allotments, orchards, productive landscapes and pollinator planting) should all be native where possible. The pollinator planting could include species which are known to be beneficial for pollinators such as, lavender (*Lavandula angustifolia*), honeysuckle (*Lonicera periclymenum*) and common sunflower (*Helianthus annuus*)⁶. Insect houses / log piles on site could be incorporated to promote biodiversity within the local area.
- 4.1.2 The proposed hedgerow will incorporate native hedgerow species. The proposed hedgerow is considerably longer in length than the pre-existing hedgerow on site. The proposed hedgerow will improve ecologically connectivity within the local area.
- 4.1.3 The proposed 629 trees and the retention of some of the existing trees would be beneficial in terms of improving local biodiversity. The proposed trees should include as many native species as possible; these native species would be beneficial to the local ecology of the area and the wider context of increasing greenery across London. Native species which could be used for the proposed tree planting include, dogwood (*Cornus* sp), pendunculate oak (*Quercus robur*), silver birch (*Betula pendula*) and European hornbeam (*Carpinus betulus*).
- 4.1.4 The Biodiversity Metric 3.1 suggests that it will take 27 years for standard time to reach target condition for all proposed trees post construction and 30 years for the proposed mixed woodland habitat. Therefore, it is imperative these trees are well managed and maintained to increase their biodiversity value.

4.2 Wildlife Boxes

- 4.2.1 Wildlife boxes are a great way to enhance the development site and promote local biodiversity. These can be incorporated directly into the building.
- 4.2.2 Bat boxes should be located at a height that is at least 3m from the ground, sheltered from strong winds and exposed to the sun for part of the day. The box should be positioned so it faces between south-west and south-east and there should be a clear unobstructed flight line in. Boxes suited to pipistrelles would be beneficial on this Site given the urban context.
- 4.2.3 Bird boxes should aim to support local priority species such as swift, black redstart and house sparrow. All boxes should face east or north (out of prevailing winds and direct sub). Swift boxes should be placed in groups of three, and as swifts enter their nests in flight from below, at least 2 metres of unobstructed airspace is needed below. Black redstart boxes should have different aspects, e.g one facing north and the other east, or different heights, and should be close together as only one pair will use the Site. House sparrow boxes should also be in groups.

⁶ London Wildlife Trust (2021) <https://www.wildlondon.org.uk/actions/best-plants-bees-and-pollinators>

4.2.4 It is recommended that the Applicant incorporates some further biodiversity enhancement measures where possible as per the National Planning Policy Framework (2021⁷). Such measures could include, but are not limited to, the following:

- Native tree species;
- Native planting within the vegetated garden (including allotments, orchards, productive landscapes and pollinator planting);
- Pollinator planting – incorporating known pollinator species and colourful/scented plants;
- Native hedgerow planting;
- Bird boxes – swift boxes, sparrow houses, black redstart boxes;
- Bat boxes; and
- Insect houses – log piles could also be included.

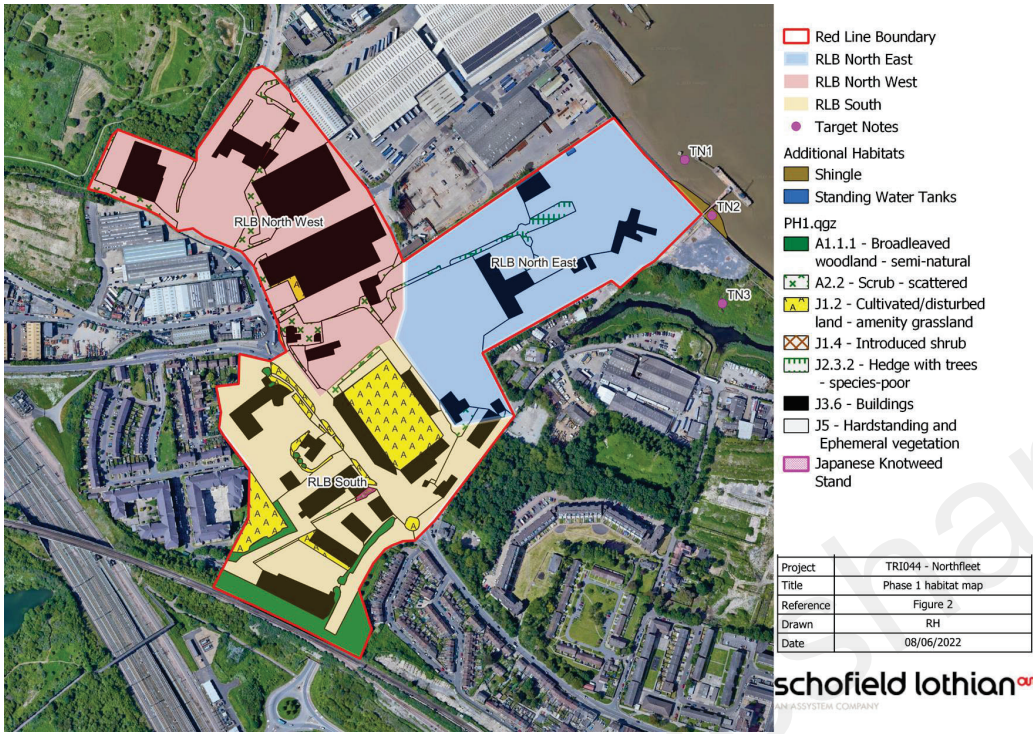
5 Conclusions

- 5.1.1 In conclusion, the Illustrative Masterplan will result in a significant biodiversity net gain of 352%. Developments are advised to have a biodiversity net gain of at least 20% which is significantly exceeded by the Illustrative Masterplan. The Illustrative Masterplan has a habitat units value of 27.25 in comparison to the existing site which has a habitat units value of 6.03, with 2.62 habitat units retained, resulting in a net gain of 21.22 habitat units. This has been shown through the use of the Defra Biodiversity Metric 3.1 which calculated the habitat value of the pre-construction habitats and the proposed post construction habitats.
- 5.1.2 The Illustrative Masterplan would result in a 75.73% net gain of hedgerow units on site. The pre-construction hedgerow units equated 4.00 and the post construction hedgerow units equated 7.03.
- 5.1.3 The vegetated garden (including allotments, orchards, productive landscapes and pollinator planting), other woodland; mixed, modified grassland, other green roof, biodiverse green roof, urban tree, introduced shrub, ornamental pond, rain garden, lowland meadow planting; and native hedgerow of the Illustrative Masterplan would all increase biodiversity and connectivity within the local area. As a result, the Illustrative Masterplan would have a significant positive biodiversity net gain of 352%.
- 5.1.4 Given the increase of this initial BNG assessment at this early stage in planning, this report demonstrates how the Proposed Development is likely to achieve at least a 10% net gain, as set out in the Environmental Bill 2020, once construction is complete, utilising the Illustrative Masterplan for the purposes of assessment. This shows how the Proposed Development in the future could significantly contribute positively to the increase in biodiversity within the local area.
- 5.1.5 The planning application commits to achieving a minimum of 20% BNG in line with the Kent Nature Partnership (KNP), with future detailed BNG assessments to be undertaken at the Reserved Matters Applications (RMA) stage, as relevant, based on the detailed landscaping plans.

⁷ National Planning Policy Framework (2021) Conserving and enhancing the natural environment: Paragraphs 174 to 188

Appendix A Pre and Post-Construction Habitat Maps

A.1 Pre-Construction



A.2 Post Construction Illustrative Landscape Masterplan



Appendix B Relevant Legislation

B.1 Kent Nature Partnership

- B.1.1 In response to the KNP's promotion of a 20% BNG target for the county, Kent County Council (with funding support from Natural England) commissioned this strategic viability assessment of BNG in Kent. The purpose is to assist the county's planning authorities to understand whether targeting a higher BNG than the statutory minimum of 10% is potentially viable in the county.

B.2 Environment Act 2021

- B.2.1 This statement sets out how the Environment Bill will put the environment at the centre of policy making. It will make sure that we have a cleaner, greener and more resilient country for the next generation. It includes details on:

- creating a new governance framework for the environment;
- a new direction for resources and waste management;
- improving air quality;
- securing our water services;
- enhancing our green spaces;
- updating laws on chemicals (REACH).

- B.2.2 The environmental targets policy paper sets out how we will develop our long-term targets under the Environment Bill framework.

- B.2.3 Mandatory biodiversity net gain as set out applies in England only by amending the Town & Country Planning Act (TCPA) and is likely to become law in 2023. The Act sets out the following key components to mandatory BNG:
- Minimum 10% gain required calculated using Biodiversity Metric & approval of net gain plan;
 - Habitat secured for at least 30 years via obligations/ conservation covenant;
 - Habitat can be delivered on-site, off-site or via statutory biodiversity credits.

B.3 The Conservation of Habitats and Species Regulations 2017, (as amended)

- B.3.1 The Conservation of Habitats and Species Regulations 2017 consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.
- B.3.2 Under the Regulations, competent authorities i.e. government departments and public bodies, have a general duty to have regard to the EC Habitats Directive and Wild Birds Directive. The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I and II of

the Habitats Directive respectively) to the European Commission. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs) classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites form a network termed Natura 2000. The Regulations enable the country agencies to enter into management agreements on land within or adjacent to a European site, in order to secure its conservation. The Regulations also provide for the control of potentially damaging operations, whereby consent from the country agency may only be granted once it has been shown through appropriate assessment that the proposed operation will not adversely affect the integrity of the site. When considering potentially damaging operations, the precautionary principle applies i.e. consent cannot be given unless it is ascertained that there will be no adverse effect on the integrity of the site.

- B.3.3 The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

B.4 The Wildlife and Countryside Act (WCA) 1981 (as amended)

- B.4.1 The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Habitat Regulations 2010 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).
- B.4.2 Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species. All relevant species specific legislation is detailed later in this Appendix.
- B.4.3 Schedule 1 – Part 1 relates to birds and their young, for which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest. Schedule 1 – Part 2 relates to birds afforded special protection during the close season which is 1 February to 31 August (21 February to 31 August below high water mark) but which may be killed or taken outside this period.

B.5 The Countryside and Rights of Way (CROW) Act 2000

- B.5.1 The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife
- B.5.2 legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

B.6 The Natural Environment and Rural Communities (NERC) Act 2006

B.6.1 Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CROW Act 2000.

B.7 UK Biodiversity Action Plan

B.7.1 The United Kingdom Biodiversity Action Plan (UK BAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UK BAP contained a list of priority habitats and species of conservation concern in the UK, and outlined biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats were also included. The priority habitats and species correlated with those listed on Section 41 and 42 of the NERC Act.

B.7.2 The UK BAP required that conservation of biodiversity was addressed at a County level through the production of Local BAPs. These were complementary to the UK BAP, however were targeted towards species of conservation concern characteristic of each area. In addition, a number of local authorities and large organisations have produced their own BAPs.

B.8 Species and Habitats of Material Consideration for Planning in England

B.8.1 In 2011, the government published the 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' to replace the previous England Biodiversity Strategy. In 2012 the UK BAP was replaced by the UK Post-2010 Biodiversity Framework.

B.8.2 Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP habitats and species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species under the UK Post-2010 Biodiversity Framework. The list of habitats and species remains unchanged and is still derived from Section 41 list of the Natural Environment and Rural Communities (NERC) Act 2006. As was previously the case when it was a BAP priority species hen harrier continues to be regarded as a priority species although it does not appear on the Section 41 list.

Appendix C About Schofield Lothian

C.1.1 Schofield Lothian is an infrastructure consultancy delivering added value professional services to Clients.

C.1.2 Now in our 40th year, we have been serving our Clients since 1979. We have considerable experience in infrastructure markets including infrastructure, rail, transport, highways, property and utilities market segments servicing both the private and public sectors.

C.1.3 We have in-depth expertise in these service areas:

- Consents & Engagement Services
- Environment & Sustainability Services
- Project Management Services
- Commercial Management Services (Quantity Surveying, Estimating & Contracts)

C.1.4 Our customised Client Teams bring Clients expertise and experience to deliver an effective and sustainable solution for your project (via secondment, service teams or advisory).

C.1.5 Through our values we have a vibrant and successful company, where people can thrive and Clients prosper.

C.1.6 We believe passionately in delivering added value through a collaborative approach and have the flexibility to respond quickly to facilitate the client's requirements.

C.2 Values

C.2.1 Our values are part of our DNA. They guide the way we work with each other, with our clients, and within our communities. Our values are:

- Honesty – we tell the truth, we will be sincere and fair
- Respect – we show regard and consideration for the opinions of other
- Integrity & Trust – we demonstrate strong moral principles and are trustworthy
- Collaboration – we work to achieve shared goals
- Accountable – we are accountable and responsible for our actions and results

C.2.2 Through these values we have a vibrant and successful company where people can thrive and clients prosper. They define our culture.

C.3 Accreditations

C.3.1 Quality processes are very important to us especially in delivering our professional services to Clients. In addition to our in-house Business System (SBS), which outlines the processes and procedures within the company, we are accredited to these international recognised standards:

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- BS OHSAS 18001 Health & Safety Management System
- IIP Investors in People

C.3.2 We are also accredited to the following industry standards: RISQS Railway Industry Supplier Qualification Scheme, UDVB Utilities and ConstructionOnline.

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Appendix: Ecology and Biodiversity

Annex 1: Preliminary Ecological Appraisal

Annex 2: Biodiversity Net Gain Assessment Report

Annex 3: Bird Survey Report

Northfleet Central 1 Ltd
Ecological Services

Bird Survey Report
Northfleet, Gravesham



Document Management

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Purpose	The surveys were undertaken to determine the presence / absence Schedule 1 and non-Schedule 1 bird species on and around the site a Northfleet, Gravesham and understand how they are using the site in both winter and summer. This report will then assess any avoidance, mitigation, compensation and enhancement measures needed to avoid the Proposed Development causing an offence.
Introduction	A Phase one habitat survey was undertaken in May 2022 and found the site and immediate surrounding area to have the potential to support at four Schedule 1 bird species. As such, breeding bird surveys were completed in July 2022 to confirm presence of breeding birds on this. This report details the results of the breeding bird surveys and will be updated in winter 2022/2023 with the results of the wintering bird surveys. Areas of habitat assessed to have the potential to support Schedule 1 breeding birds noted in the desk study or assemblages of birds of significance were surveyed during the key breeding season (March to August inclusive). All species seen and heard within the survey were recorded and mapped and breeding behaviour and possible nesting locations were noted. Foraging activity levels on the mudflats which adjoin the site to the north and east within the River Thames and Robin's Creek respectively were also recorded during these surveys. Winter bird surveys will be undertaken in 2022/2023 to understand the importance of the mudflats to support overwintering assemblages of wildfowl.
Key Findings	Two Schedule 1 bird species were confirmed to be breeding in areas next to the RLB North-East site area. A Little Ringed Plover (<i>Charadrius dubius</i>) pair were confirmed to be breeding (juveniles seen) on the shingle beach on the mudflats to the north of the site on the south bank of the River Thames. Cetti's Warbler (<i>Cettia Cetti</i>) were confirmed to be breeding in Robin's Creek to the east of the site. Black redstart (<i>Phoenicurus ochruros</i>) was confirmed as present and breeding due to behaviour in the area. It is considered that black redstart is breeding near the RLB North-East area, however due to access constraints it could not be confirmed that this species is present or absent from the site itself. As such, precautionary additional black redstart surveys will be undertaken to confirm nesting presence/absence on site during the breeding season (May to August inclusive) prior to construction once access is granted. Foraging activity on the mudflats to the north and east of the site during all of the surveys was deemed to be low.

Recommendations	Design Measures to be included in design include specific black redstart mitigation, tree lines to limit visual disturbance, guided walks and pathways and ecological input on drainage plans. Construction Additional surveys to be completed include: pre-construction black redstart surveys and winter bird surveys. It is recommended that a Precautionary Working Method Statement (PWMS) is written to capture all specific working methods for Schedule 1 birds and are included within the CEMP. Measures to be included in the CEMP and PWMS include clearance prior to nesting season or if in nesting season, black redstart nesting survey to be carried out prior to demolition. Buffer zones around active nests and yearly black redstart surveys to be carried out if black redstart are confirmed to be breeding on site. Noisy or disturbing works are to avoid sensitive periods of the year through phasing and where not possible visual and noise barriers are to be used along with methods to limit noise and vibration such as low impact machinery and soft starts for piling. Toolbox talks and training to be given to the site teams by a suitably qualified ecologist to provide the site teams with key information on the mitigation measures detailed in the PWMS. Completed Development Mitigation A Biodiversity Enhancement and Management Plan (BEMP) will set out appropriate timings for all proposed habitat management activities and locations bird boxes to be installed to limit disturbance. Education to the public during sensitive times of the year for birds on limiting of disturbance will be given in the information centre/ café.

Table of Contents

1	Introduction	6
1.2	Site Description	6
1.3	Scope of Works	7
1.4	Quality Assurance	8
2	Methodology	8
2.1	Bird survey.....	8
3	Limitations.....	8
4	Results	9
4.1	Breeding Bird Survey.....	9
5	Assessment	12
6	Recommendations & Enhancements	13
6.1	Design	13
6.2	Construction	13
6.3	Completed Development Mitigation.....	14
6.4	Enhancement Measures.....	14
Appendix A	Phase 1 Habitat Map	16
Appendix B	Bird Survey 1 Map	17
Appendix C	Bird Survey 2 Map	18
Appendix D	Relevant Legislation	19
Appendix E	About Schofield Lothian	22

1 Introduction

- 1.1.1 Schofield Lothian was commissioned by Northfleet Central 1 Ltd to undertake bird surveys in the summer of 2022 and the winter of 2022-2023.
- 1.1.2 The initial phase one habitat survey (Schofield, 2022) found the Potential Development had the potential to support nesting birds and potentially up to four species of nesting Schedule 1 birds.
- 1.1.3 The Potential Development is connected by the Thames to SSSI site of Swanscombe marshes around 600m along the Thames notified under Section 28 of the Wildlife and Countryside Act 1981. The SSSI is known to support notable species of bird such shelduck (*Tadorna tadorna*) and little egret (*Egretta garzetta*) in both its saltmarsh habitats and intertidal mudflats and Schedule 1 species such as little ringed plover (*Charadrius dubius*).
- 1.1.4 By undertaking an investigation of the habitats and species present in both summer and winter, this report will provide a greater understanding of the ecological value of the area and immediate surrounding areas for birds. It identifies any potential risks, obligations and restrictions that may be necessary to guarantee compliance with wildlife legislation.
- 1.1.5 Surveys were led by Joanna Meredith an ecologist with over five years' experience supported by Jamie Walker, a graduate ecologist.

1.2 Site Description

- 1.2.1 Due to the scale of the site the was split into three areas referred to as:
- RLB South;
 - RLB North-East; and
 - RLB North-West.
- 1.2.2 Only areas deemed to have the potential to support Schedule 1 nesting birds in the PEA were assessed during the bird surveys. All of these are in the RLB North-East area of the site.
- 1.2.3 The habitat assessed to have potential to support Schedule 1 bird species both on and next to the site are as follows:
- Sand and Gravel Works (onsite)
 - Mudflats (offsite)
 - Robin's Creek (otherwise known as Northfleet Harbour) (offsite)
- 1.2.4 These habitats are detailed in the Phase 1 habitat map in Appendix A. The Target Note numbers within the extended Phase 1 habitat map in Appendix A correspond to the following points of ecological interest within the site.
- TN1 – Intertidal mudflats
 - TN2 – Shingle beach above high tide mark
 - TN3 – Robin's Creek

Sand and Gravel works

- 1.2.5 The Sand and Gravel works onsite provides a moderate potential for nesting black redstart (*Phoenicurus ochruros*). Black redstart requires areas of sparse wasteland vegetation and stony ground for feeding provided in the sand and gravel works aggregate piles and tall and complex structures with ledges and crevices for nesting which may be present in some of the structures

and buildings around the sand and gravel works. Existing levels of disturbance on the Site are likely to discourage black redstart from nesting on the site due to frequent movements of the aggregate. However, despite the disturbance, further assessment was needed in the key black redstart breeding season due to the amount of suitable habitat present.

- 1.2.6 The sand and gravel works provides potential foraging and nesting habitat for little ringed plover (*Charadrius dubius*) in the form of the aggregate piles. No standing water is present in this area and the Thames Flood Wall blocks the connectivity of this habitat to the Thames. As little ringed plover need to be able to walk their chicks to water source habitats for foraging before they have fledged the site itself is considered low suitability for nesting little ringed plover.
- 1.2.7 The Proposed Development provides good habitat for nesting birds in both the ground level vegetation and trees within the site.
- 1.2.8 Buildings and structures within the sand and gravel works may provide suitable nesting habitat. A full assessment has not been made of each structure due to the lack of access.

Mudflats

- 1.2.9 Intertidal mudflats are present on the north-east boundary of the site at low tide, Target Note 1 in the map on Appendix A, which extend for at least 50m into the Thames. These are gently sloping mudflats which turn into a shingle beached area which is above the tide line on the edge of the flood wall of the Thames. Some commercial piers/ loading docks are present in this area providing further habitat for food for waterbirds. This habitat is connected by the Thames to SSSI site of Swanscombe marshes around 600m along the Thames.
- 1.2.10 During the PEA a range of waterbirds were seen foraging on the mudflats next to the site including shelduck along with herring gulls, black headed gulls, female shoveler with young and mallards. Bird surveys are needed to understand the use of the mudflats for foraging by waterbirds which may be coming from the SSSI both in summer and winter months to cover both breeding and overwintering species.
- 1.2.11 The gravel beach area, Target Note 2 on the map in Appendix A, is suitable for little ringed plover to use for nesting (a Schedule 1 species) and are known to be in the area.

Robin's Creek

- 1.2.12 Robin's Creek, Target Note 3 in the habitat map in Appendix A, provides suitable nesting, foraging and overwintering habitat to a range of birds and waterfowl including Schedule 1 birds which have additional protections from disturbance whilst nesting. Cetti's Warbler was seen and heard during the PEA in the Creek area adjacent to south boundary of the RLB North-East area of the site within suitable breeding habitat. Whilst it is more likely that the Swanscombe Peninsula would be more favourable, the reedbeds at the Robin's Creek may also provide suitable nesting habitat for marsh harriers (*Circus aeruginosus*).

1.3 Scope of Works

- 1.3.1 The survey objectives were to:
 - Carry out an assessment of the habitat identified with the potential to support Schedule 1 breeding birds to confirm presence of breeding on site and in the immediate surrounding areas.

- Carry out an assessment of the habitat identified as having the potential to support assemblages of wildfowl in summer and winter to understand the importance of the habitat as a foraging area for birds from the Swanscombe Marshes SSSI.

1.4 Quality Assurance

- 1.4.1 This survey and subsequent report were undertaken in line with Schofield Lothian's Business System (SBS). Our SBS places great emphasis on honesty, respect, integrity and trust, collaboration, and accountability. All staff members are committed to establishing and maintaining our certification to the international standards BS EN ISO 9001:2015, 14001:2015 and 18001:2007.
- 1.4.2 All lead Schofield Lothian ecologists are members of (at the appropriate level) the Chartered Institute of Ecology and Environmental Management (CIEEM) and follow their code of professional conduct when undertaking ecological work.

2 Methodology

2.1 Bird survey

- 2.1.1 The visual bird disturbance survey method was a modified version of the Wetland Bird Survey (WeBS) core count 'Look-See' method (Bibby et al., 2000) which allowed both species counts to be undertaken and disturbance behaviour of the birds to be recorded.
- 2.1.2 Different vantage points (VP) were selected to provide the best visual coverage of the survey area. The selection of the vantage points was limited due to access.
- 2.1.3 Two hours were spent on the vantage point overlooking the mudflats and one hour was spent on the Robin's Creek.
- 2.1.4 For the first five minutes spent at each VP, weather conditions were recorded, and surveyors counted individually all nationally important species e.g. shoveler, tufted duck and pochard and a total count of other wildfowl and water bird species present. Any evidence of breeding behaviour was noted.
- 2.1.5 Potential disturbance events were also noted to understand a baseline of what the birds react to. Disturbance behaviour of waterfowl is defined as any behaviour shown by the birds that constituted a diversion from normal behaviour. These behaviours were noted on the map by the surveyor doing the waterfowl count.
- 2.1.6 Surveys were conducted at dawn to get the highest level of bird activity and specifically black redstart activity. Surveys were timed for when low tide coincided with dawn in order to see the full extent of the mudflats and use of this habitat by birds.

3 Limitations

- 3.1.1 Lack of access to the gravel pits on-site limited the surveys. The mudflats and Robin's Creek were viewed from the Thames pathway which is currently diverted to a route that runs to the

southeast of Robin's Creek to the Thames barrier. A high specification spotting scope was used to view the site mudflats and Robin's Creek from vantage points selected on the Thames pathway, so the surveys were able to correctly identify all species on the mudflats and the shingle beach from the viewpoints. Limited areas were blocked from view from the pier however this was not thought to be a significant limitation due to the length of time these areas were observed and the use of identification of bird calls. Potential for breeding birds on the RLB North-East section of site directly was thought to be limited to black redstart. Birds flying from the site and their breeding call was used to try and identify if any of these species are present in the area and a precautionary approach of assumed breeding on site was taken if heard in the area due to suitability of the site to support breeding black redstart.

- 3.1.2 Surveys were undertaken in July which is still within the main breeding season. Surveys earlier in the year were not undertaken due to access. The PEA was undertaken in May and identified breeding of the Cetti's warbler. The main species this would have affected were the black redstart to whom a precautionary approach was taken so this should not have limited the survey effort.
- 3.1.3 The surveys were carried out in July during periods of significant hot weather. This was not thought to have limited the survey as the surveys were undertaken early in the morning when the temperature was lower and would have been time in the day when birds were most active.

4 Results

4.1 Breeding Bird Survey

- 4.1.1 Table 4-1 details the weather conditions at the time of the surveys.

Table 4-1: Weather conditions during survey

Parameter	Survey 1	Survey 2
Date(s)	13/07/2022	28/07/2022
Start time and finish time	05:00 to 08:00	06:00 to 09:00
Temperature (°C)	22	16
Cloud Cover (%)	0	0
Wind (Beaufort Scale)	0	1
Precipitation	None	None

- 4.1.2 Table 4-2 details the bird species recorded from Vantage Point 1 (see Appendix B) during the surveys and Table 4-3 details the bird species recorded from Vantage Point 2 during the surveys.
- 4.1.3 Appendix C shows the location and movement of the birds using the British Trust for Ornithology Bird codes from Vantage Point 1 during the survey 1 and Appendix D shows the movement during survey 2.
- 4.1.4 Two Schedule 1 species were confirmed to be breeding at locations adjacent to the Proposed Development. These are:
- Little ringed plover- confirmed nesting on the shingle beach at TN2 in the PEA.
 - Cetti's warbler- confirmed nesting in Robin's Creek

- 4.1.5 One Schedule 1 species was confirmed to be breeding in the area but due to access the breeding location could not be confirmed, however a precautionary approach is being taken and this species is assumed to be present breeding on site due to the suitability of the habitat and the direction of the call.

- Black redstart- assumed to be present breeding on site throughout the gravel pit area.

Table 4-2: Bird species recorded from Vantage Point 1

Species Name	Number	Breeding Confirmed	Notes	Schedule 1
Survey 1				
Oystercatcher (<i>Haematopus ostralegus</i>)	2	No	One flew into mudflats from north and foraged on the mudflats. Another seen flying north along the Thames past the site.	-
Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	14	No	Foraging on the mudflats	-
Great Black-backed Gull (<i>Larus marinus</i>)	1	No	Seen flying north along the Thames past the site	-
Shoveler (<i>Anas clypeata</i>)	3	Yes	Female with two chicks foraging on the mudflats and swimming close to shore.	-
Grey Heron (<i>Ardea cinerea</i>)	1	No	Flew northwest over site	-
Cormorant (<i>Phalacrocorax carbo</i>)	1	No	Flew south along the Thames past site	-
Sand Martin (<i>Riparia riparia</i>)	20	No	Flying above and around the site using the Thames barrier as a perch	-
Survey 2				
Little Ringed Plover (<i>Charadrius dubius</i>)	2	Yes	Adult heard alarm and seen flying south along the Thames away from the site. Later heard calling and seen flying up the beach to the shingle underneath the jetty. Juvenile seen on the shingle beach.	Yes
Black headed gull (<i>Chroicocephalus ridibundus</i>)	53	No	Foraging on the mudflats. Disturbance reaction to an event where a worker dropped a pipe on the jetty causing 8 BHGs on the mudflats close to fly away.	-
Herring Gull (<i>Larus argentatus</i>)	2	No	Adult with Juvenile	-
Mallard (<i>Anas platyrhynchos</i>)	15	No	7 seen foraging around mudflats and water along shore edge. Others seen flying to and from the Thames to Robin's Creek.	-
Oystercatcher (<i>Haematopus ostralegus</i>)	1	No	Flew from the north and foraged on the mudflats	-
Gadwall (<i>Anas strepera</i>)	2	No	Flew from Robin's Creek over the mudflats and north up the Thames.	-

Table 4-3: Bird species recorded from Vantage Point 2

Species Name	Number	Breeding Confirmed	Notes	Schedule 1
Survey 1				
Cetti's Warbler (<i>Cettia cetti</i>)	2	Yes	Male holding territory in the reeds of Robin's Creek	Yes
Black Redstart (<i>Phoenicurus ochruros</i>)	1	Yes	Assumed breeding in area due to male heard calling in breeding season. Location of nest site unknown.	Yes
Moorhen (<i>Gallinula chloropus</i>)	2	Yes	Breeding in Robin's Creek	-
Mallard (<i>Anas platyrhynchos</i>)	9	Yes	Breeding in Robin's Creek	-
Blackbird (<i>Turdus merula</i>)	1	No	-	-
Wren (<i>Troglodytes troglodytes</i>)	1	No	-	-
Blue tit (<i>Cyanistes caeruleus</i>)	4	No	-	-
Goldfinch (<i>Carduelis carduelis</i>)	5	No	-	-
Feral Pigeon (<i>Columba livia</i>)	1	No	-	-
Grey Wagtail (<i>Motacilla cinerea</i>)	1	No	-	-
Survey 2				
Cetti's Warbler (<i>Cettia cetti</i>)	1	Yes	Same as previous surveys	
Moorhen (<i>Gallinula chloropus</i>)	3	Yes	Chicks seen with adult	
Black Redstart (<i>Phoenicurus ochruros</i>)	1	Yes	-	
Mallard (<i>Anas platyrhynchos</i>)	4	No	-	
Wren (<i>Troglodytes troglodytes</i>)	1	No	-	
Blackbird (<i>Turdus merula</i>)	1	No	-	
Little Egret (<i>Egretta garzetta</i>)	1	No	-	

5 Assessment

- 5.1.1 **Little Ringed Plover-** A Schedule 1 wading bird recorded in the Swanscombe Marshes SSSI. Little ringed plover build scrapes instead of nests on shingle beaches or gravel habitats. These areas must have direct access to a water source to allow the young to foraged before they can fly as such no areas on site were deemed suitable for nesting due to the Thames barrier. They are migratory and return to the UK each year around April/ May to breed and often return to the same nesting location. As such there is the chance that little ringed plover will return to the shingle beach area next to the site to breed in future years. As the shingle beach is directly next to the Thames wall there is the potential for nesting little ringed plover to be disturbed.
- 5.1.2 **Cetti's Warbler-** A Schedule 1 bird recorded in the Swanscombe Marshes SSSI. Cetti's warbler males will hold territory over area of reed bed and other suitable habitat and may have multiple females with nests within this area. As the reed beds are right next to the site there is the potential for nesting Cetti's warbler to be disturbed.
- 5.1.3 **Black Redstart-** A schedule 1 bird recorded within the Swanscombe Marshes SSSI and surrounding area. It should be noted that no access was available on-site to confirm breeding locations of black redstart but singing males were heard next to the site. As such, taking a precautionary approach due to the suitability of the habitat, this species is assumed to be present breeding on-site. There is potential for nest to be directly damaged or disturbed during the construction of the Proposed Development.
- 5.1.4 **Marsh harrier** – A Schedule 1 raptor recorded in the Swanscombe Marshes SSSI were not found to be nesting during the survey or seen so were not considered further in the assessment.
- 5.1.5 **Mudflats-** despite the size of the mudflats foraging numbers of wildfowl on the mudflats was relatively low with a slight increase on the second survey. It is therefore thought that the mudflats do not provide significant foraging habitat for the birds on the Swanscombe Marshes SSSI during the summer. Assessment is still needed during the winter to assess the suitability for overwintering birds.
- 5.1.6 Site clearance during the demolition and construction phase of the Proposed Development will result in the loss of scattered trees and some scrub, habitats which are likely to provide nesting opportunities for a variety of bird species during the breeding season. Potential nesting habitat for the Schedule 1 species black redstart will also be lost due to the redevelopment of the gravel pits area.
- 5.1.7 This loss of habitat is considered to be temporary as the new buildings and areas of tree planting included within the landscaping proposals will provide replacement nesting opportunities for those lost. Furthermore, suitable nesting habitat is present within the wider area. As such, it is considered that the temporary loss of suitable nesting habitat during the construction phase of the Proposed Development will have no significant effect on the favourable conservation status of bird populations in the local area. It is possible that vegetation clearance or construction activities may result in the damage or destruction of an active bird's nest if undertaken during the bird nesting season (March to August inclusive).
- 5.1.8 Any such damage and disturbance of an active nest would constitute an adverse effect, at Local (Site) level and an offence under the Wildlife and Countryside Act 1981 and so will be a legislative consideration during the construction phases.
- 5.1.9 The construction works may lead to the disturbance of nesting birds including Schedule 1 species, arising from vehicles, people and construction activities leading to visual and noise

disturbance. This disturbance is likely to be intermittent throughout the nesting period and will vary by species and in extent depending on the proximity of the nest to the areas exposed to disturbance but could result in a reduction of suitable opportunities for nesting birds within the site. It is possible this could cause disturbance to breeding Schedule 1 birds such as little ringed plover who have been recorded as breeding on the mudflats to the north of the site and Cetti's warbler who have been recorded as breeding in Robin's Creek to the east of the site (see ES Volume 3, Appendix: Ecology and Biodiversity – Annex 5). It is also possible that construction activities undertaken during the operational phase of the Proposed Development may result in the damage or destruction of an active bird's nest if undertaken during the bird nesting season (March to August inclusive).

- 5.1.10 Any such disturbance of a Schedule 1 bird during the breeding period could result in the failure of an active nest which could have an adverse effect on populations of breeding birds, which would be significant at the Regional level.
- 5.1.11 It would also constitute an offence under the Wildlife and Countryside Act 1981 and so will be a legislative consideration during the construction phase of the Proposed Development.

6 Recommendations & Enhancements

6.1 Design

- 6.1.1 Specific black redstart mitigation is included in the landscaping design with brown roofs with features to encourage insects such as puddle pools and stone and log piles, foraging habitat and ledges and nest boxes to be installed on site in inaccessible areas.
- 6.1.2 Tree line will be used to limit visual disturbance from public on the Robin's Creek.
- 6.1.3 Guided walks and pathways will be designed to encourage the public to walk around the site area rather than onto sensitive areas for birds such as the SSSI.
- 6.1.4 Ecological input must be sort when finalising the drainage plans to minimise the impacts to the mudflats and gravel beach area.

6.2 Construction

- 6.2.1 Given the potential for direct effects on Schedule 1 birds resulting from the demolition and construction works, additional surveys and ecological relevant measures defined within a detailed CEMP will minimise the potential for any adverse ecological effects upon Schedule 1 birds. It is recommended that Precautionary Working Method Statement (PWMS) is written to capture all specific working methods for Schedule 1 birds.

Surveys to be completed:

- Pre-construction black redstart surveys to determine appropriate levels of mitigation. These should be undertaken in the key breeding season (March to August Inclusive) to confirm if black redstart are nesting directly on the site or not.
- Winter bird surveys will be undertaken in the winter of 2022-2023 which will determine the use of the mudflats by overwintering birds and will inform the mitigation needed during winter.

Measures relating to Schedule 1 birds, to be included within the detailed CEMP(s) and PWMS:

- 6.2.2 Clearance of site prior to bird nesting season (March-September inclusive), or if in nesting season then a black redstart nesting survey to be carried out prior to demolition.
- 6.2.3 If black redstart are confirmed to be breeding on site then a 300m buffer zone must be implemented around each nest until the nest is confirmed as inactive by a suitably qualified ecologist. If black redstart are confirmed to be breeding on site then black redstart surveys must be undertaken at the start of each breeding season of each year of construction where black redstart breeding habitat remains on site.
- 6.2.4 Noisy or disturbing works to avoid sensitive periods of the year where possible through phasing. Sensitive areas include:
- Around Robins Creek during the key Cetti's Warbler breeding season- April to July.
 - Around the shingle beach area on the mudflats in key Little Ringed Plover nesting season May- July.
 - Around any areas on site where black redstart are confirmed to be breeding in further surveys in the key breeding season – March to August.
- 6.2.5 Visual and noise barriers will be used to prevent disturbance to the birds on the mudflats to the north and east of the site on the south bank of the River Thames and at Robin's Creek during the breeding season as detailed above when works cannot be phased outside of this time period. Visual and noise barriers in winter along the mudflats will be used if determined by the 2022-2023 winter bird surveys.
- 6.2.6 Soft starts and other methods such as the use of low impact machinery to limit noise and vibration disturbance will be used for noising works such a pilling if undertaken during the breeding season and will be detailed in the CEMP and PWMS.
- 6.2.7 Toolbox talks and training to be given to the site teams by a suitably qualified ecologist to provide the site teams with key information on the mitigation measures detailed in the PWMS.

6.3 Completed Development Mitigation

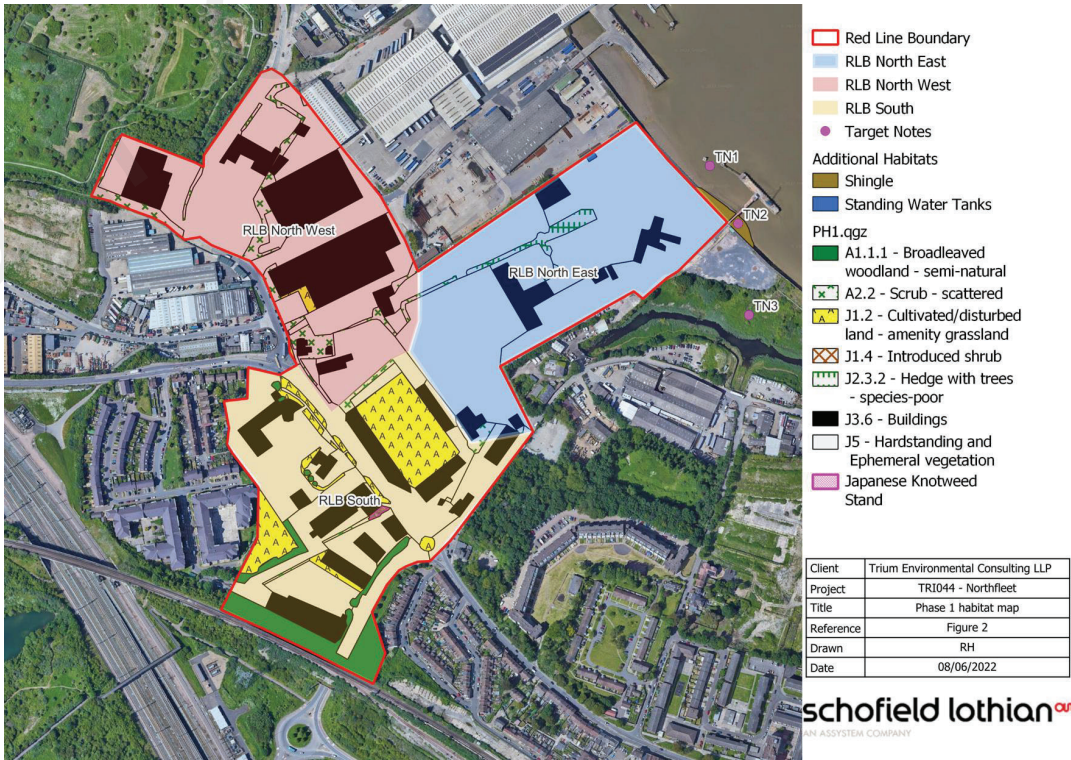
- 6.3.1 A Biodiversity Enhancement and Management Plan (BEMP) which will set out appropriate timings for all proposed habitat management activities, the destruction or disturbance of bird nests or killing or injury of nesting birds from inappropriate management can be avoided. In addition, the BEMP should outline the location and types of bird boxes to be installed, to ensure key features for breeding birds will be created in locations subject to minimum disturbance.
- 6.3.2 Education to the public during sensitive times of the year for birds on limiting of disturbance will be given in the information centre/ café.

6.4 Enhancement Measures

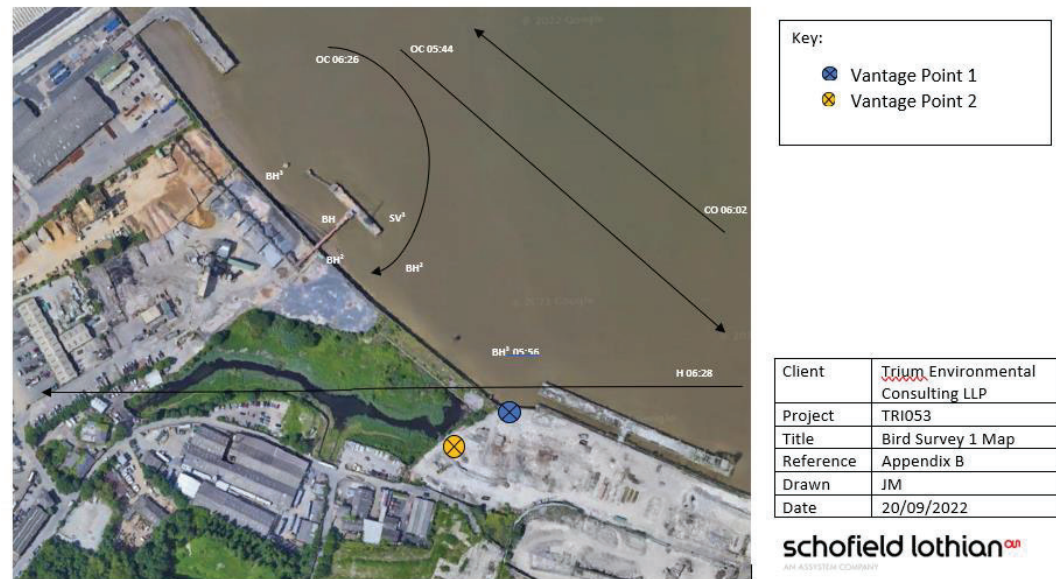
- 6.4.1 The National Planning Policy Framework (NPPF) outlines government planning policies and how they should be applied within local authorities. The framework places an emphasis on sustainable development, encouraging the re-use of land that has previously been developed overusing land that has a higher environmental value and by minimising impacts on biodiversity. The NPPF states that developments should aim to conserve or enhance biodiversity and encourages opportunities to incorporate biodiversity in and around developments.

- 6.4.2 Taking the requirements of NPPF into account, North Kent Marshes are over 10km away so should not be affected by the Northfleet works however there is a North Kent Catchment Improvement Plan. The project could carry out some of the actions on the improvement plan through volunteering in order to improve North Kent Marshes which would improve the wider area for bird species found at the Northfleet site. These actions include practical action days to improve habitat such as litter picks and management of bankside vegetation.
- 6.4.3 A range of bird boxes and insect boxes could be added to the planting and retained trees to increase the local bird population. Suitable wildlife boxes can be brought from a number of retailers and further advice, if necessary, can be provided by Schofield Lothian on construction and siting arrangements.

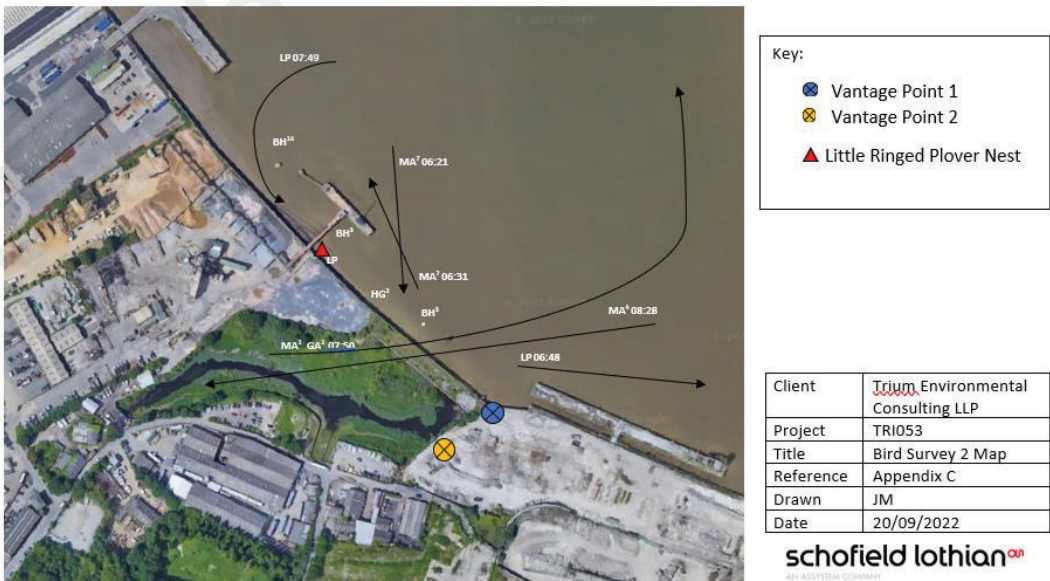
Appendix A Phase 1 Habitat Map



Appendix B Bird Survey 1 Map



Appendix C Bird Survey 2 Map



Appendix D Relevant Legislation

D.1 NPPF

- D.1.1 The NPPF outlines government planning policies and how they should be applied within local authorities. The framework places an emphasis on sustainable development, encouraging the re-use of land that has previously been developed over using land that has a higher environmental value and by minimising impacts on biodiversity. The NPPF states that developments should aim to conserve or enhance biodiversity and encourages opportunities to incorporate biodiversity in and around developments

D.2 The Conservation of Habitats and Species Regulations 2017

- D.2.1 The Conservation of Habitats and Species Regulations 2017 consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.
- D.2.2 Under the Regulations, competent authorities i.e. government departments and public bodies, have a general duty to have regard to the EC Habitats Directive and Wild Birds Directive. The Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I and II of the Habitats Directive respectively) to the European Commission. The Regulations also require the compilation and maintenance of a register of European sites, to include SACs and Special Protection Areas (SPAs) classified under Council Directive 79/409/EEC on the Conservation of Wild Birds (the Birds Directive). These sites form a network termed Natura 2000. The Regulations enable the country agencies to enter into management agreements on land within or adjacent to a European site, in order to secure its conservation. The Regulations also provide for the control of potentially damaging operations, whereby consent from the country agency may only be granted once it has been shown through appropriate assessment that the proposed operation will not adversely affect the integrity of the site. When considering potentially damaging operations, the precautionary principle applies i.e. consent cannot be given unless it is ascertained that there will be no adverse effect on the integrity of the site.
- D.2.3 The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 4. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a few purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

D.3 The Wildlife and Countryside Act (WCA) 1981 (as amended)

- D.3.1 The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Habitat Regulations 2010 (as amended), offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).
- D.3.2 Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species. All relevant species-specific legislation is detailed later in this Appendix.
- D.3.3 Schedule 1 – Part 1 relates to birds and their young, for which it is an offence to intentionally or recklessly disturb at, on or near an 'active' nest. Schedule 1 – Part 2 relates to birds afforded special protection during the close season which is 1 February to 31 August (21 February to 31 August below high-water mark), but which may be killed or taken outside this period.

D.4 The Countryside and Rights of Way (CROW) Act 2000

- D.4.1 The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife.
- D.4.2 Legislation detailed in the WCA places a duty on government departments and the National Assembly for Wales to have regard for biodiversity and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

D.5 The Natural Environment and Rural Communities (NERC) Act 2006

- D.5.1 Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CROW Act 2000.

D.6 UK Biodiversity Action Plan

- D.6.1 The United Kingdom Biodiversity Action Plan (UK BAP), first published in 1994 and updated in 2007, was a government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UK BAP contained a list of priority habitats and species of conservation concern in the UK and outlined biodiversity initiatives designed to enhance their conservation status. Lists of Broad and Local habitats were also included. The priority habitats and species correlated with those listed on Section 41 and 42 of the NERC Act.
- D.6.2 The UK BAP required that conservation of biodiversity be addressed at a County level through the production of Local BAPs. These were complementary to the UK BAP, however, were targeted towards species of conservation concern characteristic of each area. In addition, several local authorities and large organisations have produced their own BAPs.

D.7 Species and Habitats of Material Consideration for Planning in England

- D.7.1 In 2011, the government published the 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' to replace the previous England Biodiversity Strategy. In 2012 the UK BAP was replaced by the UK Post-2010 Biodiversity Framework.
- D.7.2 Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP habitats and species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process, but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species under the UK Post-2010 Biodiversity Framework. The list of habitats and species remains unchanged and is still derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006. As was previously the case when it was a BAP priority species hen harrier continues to be regarded as a priority species although it does not appear on the Section 41 list.

Appendix E About Schofield Lothian

- E.1.1 Schofield Lothian is an infrastructure consultancy delivering added value professional services to Clients.
- E.1.2 Combining over 40 years of expertise in infrastructure with Assystem's 'Engineering Powered by Digital' approach for truly unparalleled added value professional services
- E.1.3 We have in-depth expertise in these service areas:
- Consents & Engagement Services
 - Environment & Sustainability Services
 - Project Management Services
 - Commercial Management Services (Quantity Surveying, Estimating & Contracts)
- E.1.4 Our customised Client Teams bring Client's expertise and experience to deliver an effective and sustainable solution for your project (via secondment, service teams or advisory).
- E.1.5 Through our values we have a vibrant and successful company, where people can thrive, and Clients prosper.
- E.1.6 We believe passionately in delivering added value through a collaborative approach and have the flexibility to respond quickly to facilitate the client's requirements.

E.2 Values

- E.2.1 Our values are part of our DNA. They guide the way we work with each other, with our clients, and within our communities. Our values are:
- Honesty – we tell the truth, we will be sincere and fair
 - Respect – we show regard and consideration for the opinions of other
 - Integrity & Trust – we demonstrate strong moral principles and are trustworthy
 - Collaboration – we work to achieve shared goals
 - Accountable – we are accountable and responsible for our actions and results
- E.2.2 Through these values we have a vibrant and successful company where people can thrive, and clients prosper. They define our culture.

E.3 Accreditations

- E.3.1 Quality processes are very important to us especially in delivering our professional services to Clients. In addition to our in-house Business System (SBS), which outlines the processes and procedures within the company, we are accredited to these international recognised standards:
- ISO 9001 Quality Management System
 - ISO 14001 Environmental Management System
 - BS OHSAS 18001 Health & Safety Management System
 - IIP Investors in People
- E.3.2 We are also accredited to the following industry standards: RISQS Railway Industry Supplier Qualification Scheme, UDVb Utilities and ConstructionOnline.

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