

RWE GREAT YARMOUTH

PRELIMINARY ECOLOGICAL APPRAISAL



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Preliminary Ecological
Appraisal
A
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EXECUTIVE SUMMARY

- RPS were commissioned by RWE Generation UK plc to undertake a Preliminary Ecological Appraisal of land at Great Yarmouth Power Station, S Denes Rd, Great Yarmouth, NR30 3PY.
- This comprised a desk study, UKHAB habitat survey and an ecological scoping survey which assessed the potential of the site to support species of conservation concern or other species which could present a constraint to the development of the site.
- There are currently no site proposals.
- The site is approximately 5.5 ha in size and comprises buildings, hardstanding, bare ground, introduced shrub, and shortly mown grassland.
- Two statutory designated sites are present in close proximity to the site. The closest of these is Southern North Sea Special Area of Conservation (SAC), 0.17 km from the site. The Outer Thames Estuary Special Protection Area (SPA), also in close proximity to the site is located 0.46 km to the east.
- The site also falls within the Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ) for several SSSI designated sites over 2 km from the site.
- There is potential for future construction activities within the site boundary to cause damage to designated sites from airborne pollutants and runoff pollutants, and the operation of any industrial and commercial development could have adverse impacts on designated sites from aerial emissions and runoff pollutants.
- Natural England will need to be consulted prior to any future development on site. This should be carried out in conjunction with the development of an Ecological Mitigation Strategy which would set out proposals and requirements for mitigation. This should include application of the mitigation hierarchy which would first aim to avoid impacts on ecological features via careful design of development proposals, then minimise the magnitude of impacts, and then looking at mitigation and compensation measures for residual impacts.
- Future works on site have the potential to impact breeding birds and roosting bats, in addition a Biodiversity Net Gain assessment alongside further botanical surveys may be required depending on the scale and / or location of any future proposals for the site. In the absence of any current proposals for the site no further surveys are recommended at present.

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1 INTRODUCTION

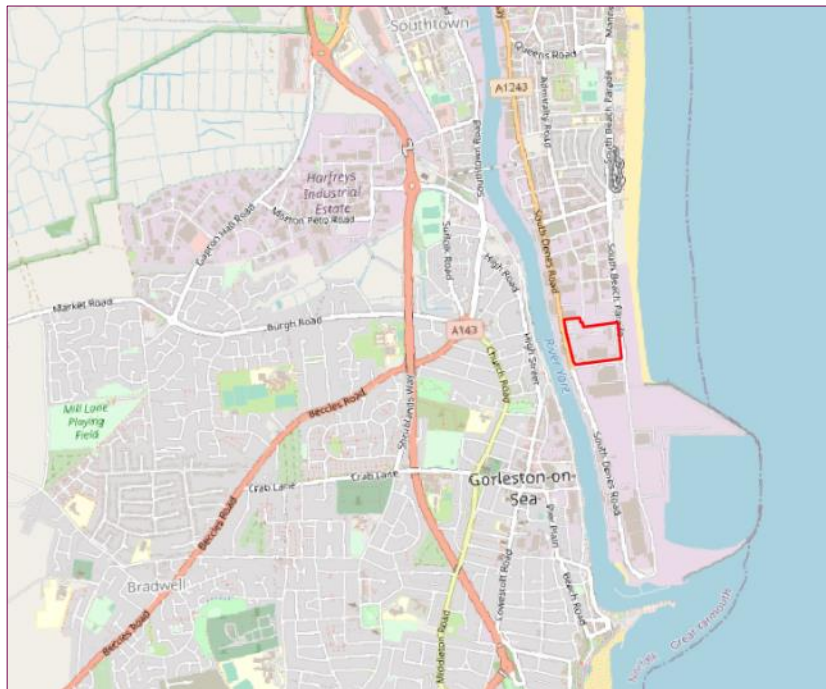
1.1 Purpose and scope of this report

- 1.1.1 RPS was commissioned by RWE Generation UK plc to undertake a Preliminary Ecological Appraisal (PEA) of land at Great Yarmouth Power Station, S Denes Rd, Great Yarmouth, NR30 3PY.
- 1.1.2 To undertake an initial assessment of any potential ecological impacts of future proposals, a desk study, Phase 1 Habitat Survey, and a preliminary protected species assessment were carried out. This is termed as a Preliminary Ecological Appraisal Report (PEAR) in accordance with CIEEM (2017). This assessment is considered 'preliminary' until any required protected species, habitat or invasive species surveys are completed, and the results incorporated into a final Ecological Appraisal or Ecological Impact Assessment (EclA) which supports the planning application.
- 1.1.3 The PEA aims to:
- undertake a desk-based review of designated sites and records of protected species and other species that could present a constraint;
 - map and assess the habitats present on site;
 - assess the site for potential to support protected species or other species that could present a constraint, and make appropriate recommendations for further survey work if necessary;
 - provide outline options for mitigation measures as appropriate; and
 - make recommendations for appropriate biodiversity enhancements in line with national and local planning policy.
- 1.1.4 This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RPS. The surveys and desk-based assessments undertaken as part of this review and subsequent report including the Ecological Appraisal Notes are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013).

1.2 Study Area and Zone of Influence

- 1.2.1 The site is located in Great Yarmouth, Norfolk. The National Grid coordinates for the centre of the site are TG 53021 05066. The site is approximately 5.5 ha in size.
- 1.2.2 The site comprises hardstanding, buildings, modified grassland, neutral grassland, and introduced shrub, all associated with the existing power station.
- 1.2.3 The site location is shown on Figure 1.1 overleaf. Aerial imaging available via Google Earth Pro was also reviewed to assess the site in relation to its context in the wider landscape. The site is not connected to the wider landscape due to its urban surroundings and lack of connecting habitats.
- 1.2.4 The term Zone of Influence is used to describe the geographic extent of potential impacts of a proposed development. The Zone of Influence is determined by the nature of the development and also in relation to designated sites, habitats or species which might be affected by the proposals.
- 1.2.5 For this site, the Zone of Influence is considered to be land on and immediately adjacent to the site and, with specific reference to badgers and GCN, 30m and 500m, respectively.

Figure 1.1: Site location



1.3 Development proposals

1.3.1 There are currently no proposals for the site.

1.4 Legislation and policy

1.4.1 Relevant legislation, policy guidance and both Local and National Biodiversity Action Plans (BAPs) are referred to throughout this report where appropriate. Their context and application is explained in the relevant sections of this report.

1.4.2 The relevant articles of legislation are:

- The National Planning Policy Framework (NPPF, 2021);
- ODPM Circular 06/2005 (retained as Technical Guidance on NPPF 2021);
- Local planning policies (Great Yarmouth Borough Council);
- The Conservation of Habitats and Species Regulations 2021;
- The Wildlife and Countryside Act 1981 (as amended);
- The Protection of Badgers Act 1992;
- The Countryside and Rights of Way Act 2000;
- The Hedgerow Regulations 1997;
- The Natural Environment and Rural Communities Act 2006;
- National / Local Biodiversity Action Plan for Norfolk.

1.4.3 A summary of legislation relevant to protected or other species identified as potential constraints in this report is provided in Appendix A.

2 METHODS

2.1 Desk Study

- 2.1.1 Ecological records within a 2 km radius of the site were requested from Norfolk Biodiversity Information Service (NBIS). Data requests were limited to records for protected species recorded within the last ten years and sites of nature conservation interest within 2 km of the site. This included a review of existing statutory sites of nature conservation interest, such as Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Area of Conservation (SACs) and National Nature Reserves (NNRs), and non-statutory sites, such as Sites of Importance for Nature Conservation (SINCs) and Local Wildlife Sites (LWSs).
- 2.1.2 Locations of statutory designated sites were accessed via the government 'MAGIC' website (MagicMap, 2023).
- 2.1.3 A 1:25,000 OS map was used to identify nearby features such as ponds or green corridors that could provide habitat or connectivity to other areas.

2.2 Ecological Appraisal

- 2.2.1 The ecological appraisal consisted of two components: a UKHAB Habitat survey and a scoping survey for protected species and other species of conservation concern which could present a constraint to development.
- 2.2.2 The survey was carried out on 13th April 2023 by Peter Watson, a suitably experienced RPS Principal Ecologist. Peter was assisted in the field by Rose Poston-Saynor (RPS Consultant Ecologist).
- 2.2.3 The habitat survey followed the standard methodology (Butcher *et al* 2020), and as described in the Guidelines for Preliminary Ecological Assessment (CIEEM, 2017). In summary, this comprised walking over the survey area and recording the habitat types and boundary features present.
- 2.2.4 A protected species scoping survey was carried out in conjunction with the habitat survey. The site was assessed for its suitability to support protected species, in particular great crested newts *Triturus cristatus*, reptiles, birds, badgers *Meles meles*, bats, and other species of conservation importance that could pose a planning constraint.
- 2.2.5 The surveyor looked for evidence of use including signs such as burrows, droppings, footprints, paths, hairs, refugia and particular habitat types known to be used by certain groups such as ponds. Any mammal paths were also noted down and where possible followed. Fence boundaries were walked to establish any entry points or animal signs such as latrines. Areas of bare earth were inspected for mammal prints. Areas of habitat considered suitable for protected species or those of conservation interest were recorded.

2.3 Limitations

Desk Based Assessment

- 2.3.1 The desk study data is third party controlled data, purchased for the purposes of this report only. RPS cannot vouch for its accuracy and cannot be held liable for any error(s) in these data.

Survey

- 2.3.2 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation and prediction of the natural environment.

- 2.3.3 The protected / notable species assessment provides a preliminary view of the likelihood of these species occurring on the site, based on the suitability of the habitat, known distribution of the species in the local area provided in response to our enquiries and any direct evidence on the site. It should not be taken as providing a full and definitive survey of any protected/notable species group.

Accurate Lifespan of Ecological Data

- 2.3.4 The majority of ecological data remain valid for only short periods due to the inherently transient nature of the subject. The survey results contained in this report are considered accurate for two years, assuming no significant considerable changes to the site conditions.

3 RESULTS

3.1 Designated Sites

- 3.1.1 There are two statutory designated sites for nature conservation value within 2 km of the site. The closest of these is Southern North Sea Special Area of Conservation (SAC), 0.17 km from the site. The Outer Thames Estuary Special Protection Area (SPA), also in close proximity to the site is located 0.46 km to the east.
- 3.1.2 No non-statutory sites are located within the 2 km search radius of the site.
- 3.1.3 A summary of these sites is provided in Table 3.1 below and the location of each site is detailed in Figure 3.1.

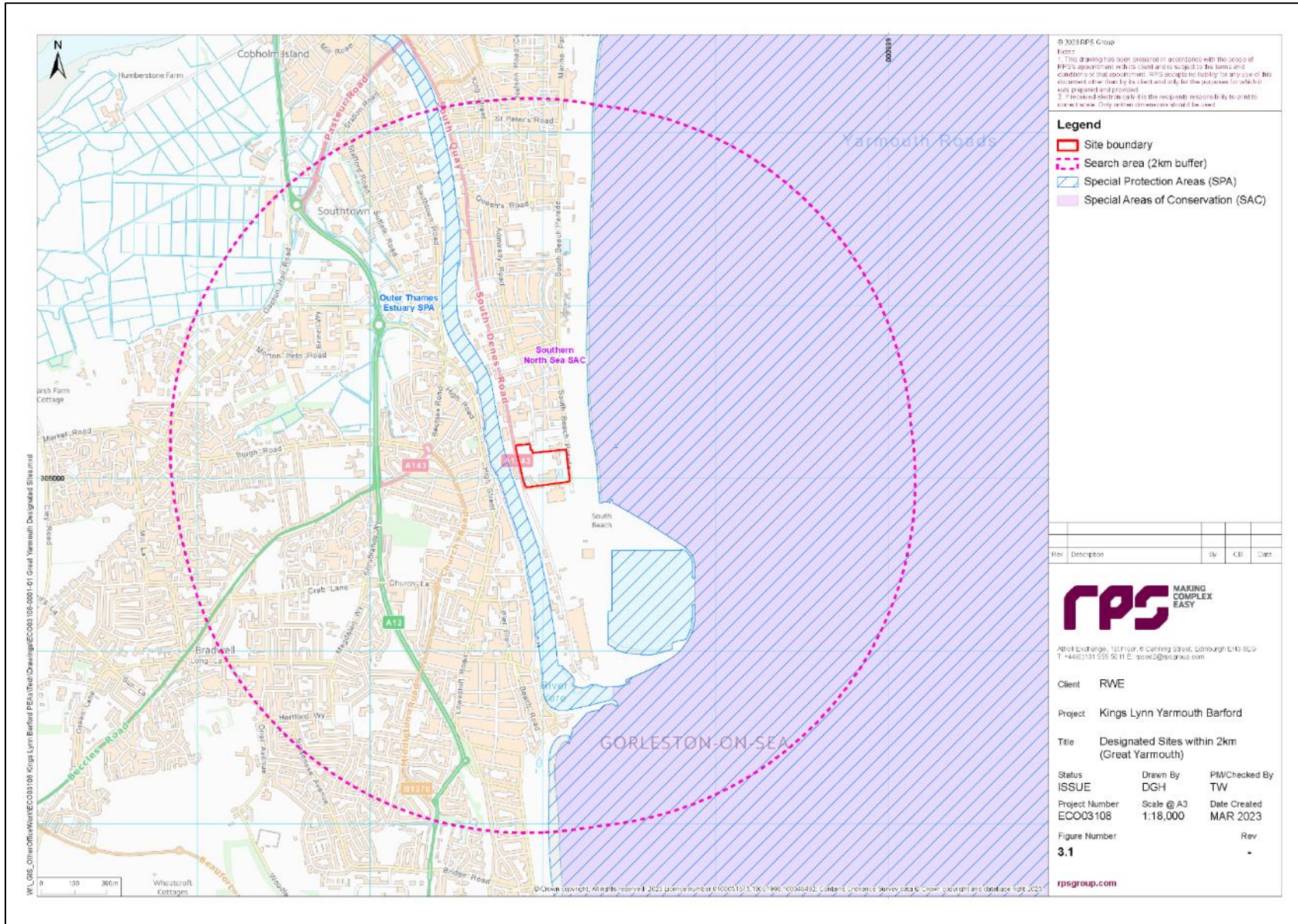
Table 3.1: Designated sites within 2 km of the study area

Site name	Type	Approx. area (ha)	Interest Features	Distance from site (km)
Statutory Sites				
Southern North Sea	SAC	3695054	Marine habitat. Presence of harbour porpoise <i>Phocoena phocoena</i> .	0.17
Outer Thames Estuary	SPA	392451	Marine habitat. Presence of red-throated diver <i>Gavia stellata</i> , little tern <i>Sterna albifrons</i> and common tern <i>Sterna hirundo</i> .	0.46
Non-statutory Sites				
None				

Abbreviations used in Table 3.1: SAC: Special Area of Conservation; SPA: Special Protection Area; ha: hectare.

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Figure 3.1: Designated sites within 2 km



3.2 Species

- 3.2.1 Records of protected species were obtained from the Norfolk Biodiversity Information Service (NBIS). A number of species of conservation importance or otherwise notable were recorded within the 2 km search radius of the site. A summary of these records is provided in Table 3.2.
- 3.2.2 In order to simplify the results, only records of species from the last 10 years are shown. In addition, only data with a 6-figure grid reference resolution or higher are provided, since locations given at a lower resolution do not allow accurate calculation of distance to the site boundary.
- 3.2.3 Several additional bird records were returned from the records centre. However, these have been excluded from the table as the grid references covered a 10 km square and could not be accurately located.

Table 3.2: Species records from the last 10 years within 2 km of the site

Common name	Scientific name	Nearest distance from site (km)	Year of most recent record	Conservation Status
INVERTEBRATES				
Banded Grass-veneer	<i>Pediasia fuscicollis</i>	0.33	2015	RedList_VU
Mouse Moth	<i>Amphipyra tragopoginis</i>	0.33	2014	NERC, UKBAP
Small Square-spot	<i>Diarsia rubi</i>	0.33	2013	NERC, UKBAP
White-line Dart	<i>Euxoa tritici</i>	0.33	2015	NERC, UKBAP
Marbled Yellow Pearl	<i>Evergestis extimalis</i>	0.33	2015	Nb
Rustic	<i>Hoplodrina blanda</i>	0.33	2016	NERC, UKBAP
Rosy Rustic	<i>Hydraecia micacea</i>	0.33	2013	NERC, UKBAP
Rosy Minor	<i>Litoligia literosa</i>	0.33	2014	NERC, UKBAP
Waste Grass-veneer	<i>Pediasia contaminella</i>	0.33	2015	Nb
Dark Spinach	<i>Pelurga comitata</i>	0.33	2014	NERC, UKBAP
Mullein Wave	<i>Scopula marginepunctata</i>	0.33	2014	NERC, UKBAP
Tawny Wave	<i>Scopula rubiginata</i>	0.33	2016	BS
BIRDS				
Swift	<i>Apus apus</i>	0.12	2013	BoCC5:Red, RedList_EN
MAMMALS				
Serotine	<i>Eptesicus serotinus</i>	1.50	2018	WCA5, HabDir4, Bern Apx2, RedList_VU
Hedgehog	<i>Erinaceus europaeus</i>	1.47	2015	NERC, UKBAP, RedList_VU
Long-finned Pilot Whale	<i>Globicephala melas</i>	1.32	2017	WCA 5, NERC, UKBAP, HabDir4
Noctule	<i>Nyctalus noctula</i>	1.50	2018	WCA 5, NERC, UKBAP, HabDir4, HabRegs2, Bern Apx2
Harbour Porpoise	<i>Phocoena phocoena</i>	0.16	2020	WCA 5, NERC, UKBAP, HabDir2:4, Bern Apx2
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	0.36	2019	WCA 5, HabDir4, HabRegs2
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	0.36	2019	WCA 5, NERC, UKBAP, HabDir4, HabRegs2, Bern Apx2
Brown Long-eared Bat	<i>Plecotus auritus</i>	0.77	2018	WCA 5, NERC, UKBAP, HabDir4, HabRegs2, Bern Apx2

Abbreviations used in Table 3.2: WCA5: Wildlife & Countryside Act Schedule 5; NERC: Natural Environment & Rural Communities Act Species of Principal Importance; UKBAP: UK Biodiversity Action Plan; Red Data Book (non IUCN) NB: Notable B; HabDir2, 4: Habitats Directive Annex 2, 4; RedList_EN; GB Red List (2001): Endangered; RedList_VU: GB Red List (2021): Vulnerable; HabRegs2: The Conservation (Natural Habitats, &) Regulations 2017 (Schedule 2); BoCC5:Red: Birds of Conservation Concern 5 Red status; Bern Apx2: Bern Convention Appendix 2; BS: Breckland Specialists.

3.3 UKHAB Habitat Survey

- 3.3.1 The survey results are presented in the form of a map with the habitat types and boundary features marked (Figure 3.2). Photographs can be found in Appendix B.
- 3.3.2 Descriptions of the habitat types and boundary features are detailed below. Habitat descriptions are defined by broad habitat types (UKHab: Butcher *et al*, 2020).

Other Neutral Grassland: g3c, 64

- 3.3.3 Several areas of shortly mown neutral grassland were recorded across site, primarily as border habitats around buildings and pathways.
- 3.3.4 Species present included perennial ryegrass *Lolium perenne*, Yorkshire fog *Holcus lanatus*, red fescue *Festuca rubra*, yarrow *Achillea millefolium*, creeping cinquefoil *Potentilla reptans*, black medic *Medicago lupulina*, hairy tare *Vicia hirsuta*, smooth cats ear *Hypochaeris glabra*, greater plantain *Plantago major*, hedge mustard *Sisymbrium officinale*, beaked hawks beard *Crepis vesicaria*, doves foot cranesbill *Geranium molle*, chickweed *Stellaria media*, and red dead nettle *Lamium purpureum*.
- 3.3.5 There was no variation in habitat structure as the grassland is regularly managed.

Modified Grassland: g4, 64

- 3.3.6 Several areas of shortly mown modified grassland were recorded across the site. These were separated from the neutral grassland due to the low species diversity and types of species present.
- 3.3.7 Species within the modified grassland included perennial ryegrass, red fescue, white clover, ragwort *Jacobaea vulgaris*, yarrow, and dandelion *Taraxacum agg.*
- 3.3.8 There was no variation in habitat structure as the grassland is regularly managed.

Introduced Shrub: u, 1160

- 3.3.9 Three areas of introduced shrub, including a shrub hedgerow, were recorded on site to the north.
- 3.3.10 Species included *Escallonia sp*, *Buxus sp*, and other ornamental species. The shrubs were heavily managed at the time of the survey.

Standing Water: r1, 39

- 3.3.11 An industrial lagoon was recorded within the south-eastern corner of the site. The waterbody did not contain any vegetation and the banks were steep-sided concrete and plastic sheeting. An outfall pipe was noted adding water into the lagoon.

Urban, Developed Land: u1b5, u1b

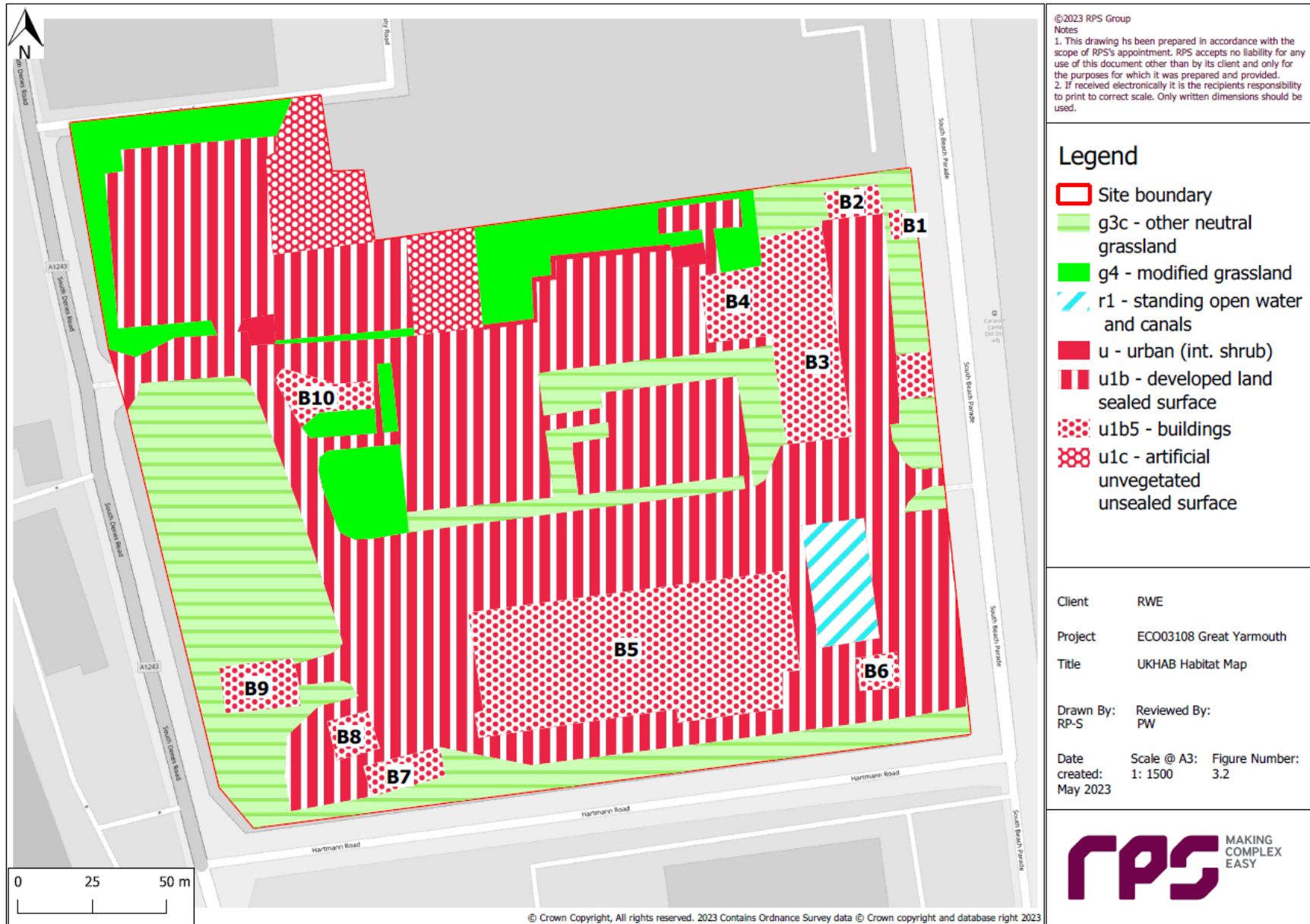
- 3.3.12 The majority of the site comprised buildings (u1b5) and hardstanding (u1b) associated with the power station operations.

Urban, Artificial Unvegetated Unsealed Surface: u1c

- 3.3.13 Two areas of bare ground were recorded along the northern boundary, adjacent to two separate car parks. No vegetation was recorded in these areas.

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Figure 3.2: UKHAB habitat map



3.4 Ecological Scoping Survey

Plants

- 3.4.1 No rare or protected plant species were recorded on site during the survey. The site is unlikely to support protected or notable species given the types of habitat present.

Invertebrates

- 3.4.2 The habitats on site provide limited suitable habitat for invertebrates and it is considered unlikely that any notable species would be present.

Amphibians

- 3.4.3 A single waterbody was recorded on site. This was not considered suitable for amphibians due to the steep artificial banks, lack of vegetation, and urban setting.
- 3.4.4 The River Yare and coastal waters were present within 500m from the site boundaries, although these were not considered suitable for amphibians.
- 3.4.5 No additional waterbodies were recorded within 500m.

Reptiles

- 3.4.6 The site was not considered to provide suitable habitats for reptiles due to the dominance of hardstanding and short grassland, and a lack of connectivity to the wider landscape.
- 3.4.7 No reptile records were returned in the desk study.

Birds

- 3.4.8 The shrub and buildings on site provide suitable nesting habitat for a range of bird species, and the grassland habitats provide suitable foraging opportunities.
- 3.4.9 Anecdotal evidence of peregrine falcon sightings were recorded from site workers, and possible feeding remains (pheasant wing) were recorded on site.
- 3.4.10 The Outer Thames Estuary SPA is classified for the protection of wintering, foraging and breeding birds.

Bats

Roosting

- 3.4.11 Several buildings on site were considered to provide low roosting suitability for bats, due to features present such as gaps around ducting and cladding panels, although these were only assessed externally. Refer to Table 3.3 below for further details on roosting features, and Figure 3.2 above for building locations.

Table 3.3: External bat features on buildings

Building no.	Description	Suitable features	Suitability
B1	Semi-permanent cabin building with GRP roof	Access behind weather boards	Low
B2	Steel clad building with no visible entry points	None	Negligible
B3	Steel clad building with no visible entry points	None	Negligible

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B4	Steel clad building with no visible entry points	None	Negligible
B5	Main turbine hall, steel cladding	None	Negligible
B6	Steel clad building with no visible entry points	None	Negligible
B7	Steel framed and clad	Ventilation ducts and openings	Low
B8	Steel clad building with no visible entry points	None	Negligible
B9	Steel framed and clad	Access points at eaves	Low
B10	Security building, brick rendered with a flat GRP roof. Some cladding panels on walls	Limited access points in cladding and brick	Low

Foraging and commuting

- 3.4.12 The grassland on site was considered to provide low foraging potential, although the site is not well-connected to the wider landscape, so this suitability is considered limited.

Badgers

- 3.4.13 No badger setts or other signs of badgers were recorded during the survey. The majority of the site provided very limited opportunities for sett excavation due to its flat and open nature and being dominated by hardstanding and buildings with little refuge.
- 3.4.14 The grassland provides some foraging opportunities for badgers, however, as the site is not well-connected to the wider landscape, this suitability is limited.

Other Protected or Notable Species

- 3.4.15 The site was not considered to provide suitable habitat for other protected or notable species due to a lack of suitable features.

4 EVALUATION AND POTENTIAL IMPACTS

4.1 Designated sites

- 4.1.1 Two statutory designated sites are present in close proximity to the site. The closest of these is Southern North Sea Special Area of Conservation (SAC), 0.17 km from the site. The Outer Thames Estuary Special Protection Area (SPA), also in close proximity to the site is located 0.46 km to the east.
- 4.1.2 There is potential for future construction activities within the site boundary to cause damage to designated sites from airborne pollutants and runoff pollutants, and the operation of any industrial and commercial development could have adverse impacts on designated sites from aerial emissions and runoff pollutants. Mitigation measures are provided in Section 5.
- 4.1.3 No non-statutory sites are located within the 2 km search radius of the site.
- 4.1.4 The site falls within the Site of Special Scientific Interest (SSSI) Impact Risk Zone (IRZ) for several SSSI designated sites over 2 km from the site.
- 4.1.5 Natural England (NE) define IRZs around each SSSI which reflect the sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts. Local Planning Authorities (LPAs) have a duty to consult NE before granting planning permission on any development that is in or likely to affect a SSSI. The SSSI IRZs can be used by LPAs to consider whether a proposed development is likely to affect a SSSI and determine whether they will need to consult NE to seek advice on the nature of any potential SSSI impacts and how they might be avoided or mitigated.
- 4.1.6 The site sits within the SSSI Impact Risk Zones for three statutory designated sites that are located over 2km from the application site to the west and north, Halvergate Marshes SSSI, Breydon Waters SSSI and Great Yarmouth North Denes SSSI. The applications for the site do fall into the identified risk categories and therefore, consultation with NE would be required for any future application.
- 4.1.7 Breydon Waters SSSI is also designated as a RAMSAR site, SPA and Local Nature Reserve (LNR), Breydon Waters also forms part of the wider Broads SPA. Mitigation measures are provided in Section 5.

4.2 Habitats

- 4.2.1 The habitats on site were considered widespread, common, and of low ecological importance. Removal of grassland habitat should be replaced with a high-quality grassland habitat in order to satisfy any Biodiversity Net Gain requirements.

4.3 Species

Plants

- 4.3.1 The habitats present on site were managed, common and widespread and had very limited potential to support any rare or notable plant species, therefore no further botanical surveys or mitigation measures are recommended.

Invertebrates

- 4.3.2 The habitats on site were managed, common and widespread and had very limited potential to support any rare or notable invertebrate species, therefore no further invertebrate surveys or mitigation measures are recommended.

Amphibians

- 4.3.3 A single waterbody was present on site, with no suitable water bodies recorded within 500m of the site. This waterbody was considered unsuitable for GCN due to the steep artificial banks and lack of vegetation. The site was considered unsuitable for amphibians due to the abundance of shortly mown amenity grassland, hardstanding, and buildings, and lack of connectivity to the wider landscape.
- 4.3.4 In addition, no amphibian records returned in the desk study.
- 4.3.5 Therefore, it is considered unlikely that amphibians would be present on site or pose a constraint to development, and they will not be considered further in this report.

Reptiles

- 4.3.6 The site was not considered to provide suitable habitats for reptiles due to the dominance of hardstanding and short grassland, and the lack of connectivity to the wider landscape.
- 4.3.7 Therefore, it is considered unlikely that reptiles would be present on site or pose a constraint to development, and they will not be considered further in this report.

Birds

- 4.3.8 The shrub and buildings on site provide suitable nesting habitat for a range of bird species, and the grassland habitats provide suitable foraging opportunities. Should any of the nesting habitats require removal or demolition, this could impact nesting birds and mitigation measures are therefore outlined in Section 5.

Bats

- 4.3.9 Several buildings on site were considered to provide low roosting suitability for bats. The buildings will not be impacted and therefore further surveys are not required.
- 4.3.10 The grassland on site was considered to provide low foraging potential, although the site is not well-connected to the wider landscape. No grassland is to be impacted, and therefore further surveys are not required.
- 4.3.11 General recommendations for bat-friendly lighting are included in Section 5, should new lighting be proposed on site.

Badgers

- 4.3.12 No badger setts or other signs of badgers were recorded during the survey and the site provided limited opportunities for sett excavation. Therefore, no further badger surveys are recommended, and they will not be considered further in this report.

Other Protected or Notable Species

- 4.3.13 No impacts to other protected or notable species are anticipated and no further surveys are required.

5 MITIGATION AND ENHANCEMENT

5.1 Designated sites

- 5.1.1 There is potential for future construction activities within the site boundary to cause damage to designated sites from airborne pollutants and runoff pollutants, and the operation of any industrial and commercial development could have adverse impacts on designated sites from aerial emissions and runoff pollutants.
- 5.1.2 Natural England will need to be consulted prior to any future development on site. This should be carried out in conjunction with the development of an Ecological Mitigation Strategy which would set out proposals and requirements for mitigation. This should include application of the mitigation hierarchy which would first aim to avoid impacts on ecological features via careful design of development proposals, then minimise the magnitude of impacts, and then looking at mitigation and compensation measures for residual impacts.
- 5.1.3 Pollution prevention measures, especially dust suppression and runoff, should be adhered to during any future construction works in order to prevent any negative impacts through pollution of the nearby designated sites.
- 5.1.4 The following mitigatory measures would need be implemented as a minimum:
- The site layout should be planned so that machinery and dust causing activities are located away from receptors, as far as is possible;
 - Site runoff of water or mud should be avoided;
 - There should be no idling vehicles and vehicle engines will be switched off when not in use;
 - Bonfires and burning of waste materials should be avoided;
 - The name and contact details of person(s) accountable for air quality and dust issues should be displayed on the site boundary. This may be the environment manager / engineer or the site manager;
 - Construction works should be undertaken in accordance with the best practicable means (as defined in Section 72 of the Control of Pollution Act 1974), to minimise noise and vibration effects. Noise control measures will be consistent with the recommendations of the current BS 5228 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' – Part 1: Noise and Part 2 – Vibration;
 - Lighting during construction should take into account the requirements of British Standard EN12464-2:2014 Lighting - Lighting of Work Places, Outdoor Works. Lighting units should be designed to minimise illumination outside the construction works area.
- 5.1.5 These measures will need to be included within a Construction Environmental Management Plan (CEMP) for the site, should development be planned in the future, which will detail how the designated sites will be protected.

Birds

- 5.1.6 Over wintering and / or breeding bird surveys may be required depending on the scale of any future development plans for the site.
- 5.1.7 A suitably qualified ecologist will need to be on site to check shrubs and buildings for nesting birds prior to any vegetation clearance or demolition if this takes place within the breeding bird season (typically March-August inclusive). Any nests found must be left undisturbed until the chicks have fledged.
- 5.1.8 Should active bird nests be discovered, appropriate measures would need to be put in place to ensure that any nest remains undisturbed. This would involve placing a buffer around the nest, within which no works will be undertaken until the nest has been judged, by a suitably qualified

ecologist, to no longer be in use (i.e. fledged young have left the nest, or the nesting attempt has failed).

- 5.1.9 The radius of protective buffers will be dependent on the species present and stage of breeding (i.e. with eggs, chicks, etc.) and will be determined by an ecologist.
- 5.1.10 Where no active nests are located, clearance works should proceed within 2 days of the inspection.
- 5.1.11 The provision of bird boxes on buildings around the site would provide replacement habitat for breeding birds.

Bats

- 5.1.12 Bats are nocturnal and adapted to roost and forage in low light conditions, therefore increases in artificial lighting can cause disturbance or disrupt existing flight paths. To protect foraging and commuting bats throughout any construction, night working should be avoided to prevent an increase in light levels across the retained habitats.
- 5.1.13 It is recommended that where lighting is proposed for the site, this should be designed in such a way as to minimise any light spillage onto the grassland and boundaries which provide some limited foraging and commuting features. The following guidance on design recommendations for bat-friendly lighting included in the Guidance Note on the impact and design of artificial light on bats produced by the Bat Conservation Trust (BCT) in 2018 be considered when designing an appropriate lighting scheme. This includes:
 - Do not "over" light. This is a major cause of obtrusive light and is a waste of energy. Use only the minimum amount of light needed for safety. There are published standards for most lighting tasks, adherence to which will help minimise upward reflected light.
 - Eliminate any bare bulbs and any light pointing upwards. The spread of light should be kept near to or below the horizontal.
 - Use narrow spectrum bulbs to lower the range of species affected by lighting.
 - Use light sources that emit minimal ultra-violet light. Insects are attracted to light sources that emit ultra-violet radiation.
 - Reduce light-spill so that light reaches only areas needing illumination. Shielding or cutting light can be achieved through the design of the luminaire or with accessories, such hoods, cowls, louvers and shields to direct the light.

5.2 Enhancement opportunities

- 5.2.1 Planning policy at the national and local level and strategic biodiversity partnerships encourage inclusion of ecological enhancements in development projects so as to provide a net gain in biodiversity. In addition to the above mitigation measures, opportunities to enhance the site in terms of biodiversity include:
 - 5.2.2 New landscape planting should be designed to compensate for the loss of any grassland. The grassland is currently of low biodiversity value but a higher value habitat comprising a variety of native wildflower species could be added to compensate for this loss and to enhance the biodiversity of the site.
- 5.2.3 There should be a commitment to retaining all newly created habitats in the long-term.

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APPENDICES

Relevant Legislation

A.1 BIRDS

All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; and
- intentionally take or destroy the egg of any wild bird.

Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

A.2 BATS

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species. It is an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts

A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe, and Lesser Horseshoe.

Appendix B

Photographs

Photograph 1. Neutral Grassland.



Photograph 2. Modified Grassland.



Photograph 3. Urban Developed Land.



Photograph 4. Bare Ground.



Photograph 5. Introduced Shrub.



Photograph 6. Standing Water.



Photograph 7. Building 1.



Photograph 8. Typical Potential Access Point.

