NORTH FALLS

Offshore Wind Farm

HABITATS REGULATIONS ASSESSMENT

Annex 2B Lesser Black-backed Gull Compensation; Effects on Designated Sites

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Contents

Tables

Figures

Glossary of Acronyms

AEoI	Adverse Effect on Integrity
AOE	Alde-Ore Estuary
AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
DCO	Development Consent Order
Defra	Department for Environment, Food & Rural Affairs
DESNZ	Department of Energy Security and Net Zero
EA1N	East Anglia ONE North
EA2	East Anglia TWO
GGOW	Greater Gabbard Offshore Wind Farm
GLVIA	Guidelines for Landscape and Visual Assessment
HRA	Habitats regulations Assessment
INNS	Invasive Non-Native Species
km	Kilometre
LBBG	Lesser Black-back Gull
LCT	Landscape Character Type
MarESA	Marine Evidence based Sensitivity Assessment
NB	Norfolk Boreas
NFOW	North Falls Offshore Wind Farm
NNR	National Nature Reserve
NV	Norfolk Vanguard
OWF	Offshore wind farm
PEIR	Preliminary Environmental Impact Assessment Report
PRoW	Public Right of Way
RWE	Renewables UK Swindon Limited
SAC	Special Area of Conservation
SECHNL	Suffolk and Essex Coast and Heaths National Landscape
SEP	Sheringham Shoal Extension Project
SHC	Suffolk Heritage Coast
SPA	Special Protection Area

SSER	SSE Renewables Offshore Windfarm Holdings Limited
SSSI	Special Scientific Interest
UK	United Kingdom
UXO	Unexploded Ordnance
WTG	Wind turbine generator
ZTV	Zone of Theoretical Visibility

Glossary of Terminology

Habitats Regulations	Refers to both the Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project Or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.

1 Introduction

1.1 Background

1. The North Falls Offshore Wind Farm (hereafter 'North Falls' or 'the Project') is located approximately 40km off the East Anglian coast in England. When operational, North Falls would have the potential to generate renewable power for approximately 400,000 UK homes from up to 57 wind turbines.

2. The Applicant, North Falls Offshore Wind Farm Ltd (NFOW), is a joint venture between SSE Renewables Offshore Windfarm Holdings Limited (SSER) and RWE Renewables UK Swindon Limited (RWE), both of which are highly experienced developers.

3. As part of the Development Consent Order (DCO) application, the Applicant must provide information to support the Habitats Regulations Assessment (HRA) to be completed by the Competent Authority, the Secretary of State for the Department of Energy Security and Net Zero (DESNZ).

1.2 Purpose of document

4. This document provides an assessment of effects of proposed Lesser Black-back Gull (LBBG) compensation for North Falls on the following relevant designated sites:

   - Alde-Ore Estuary Special Protection Area (SPA);
   - Alde-Ore Estuary Ramsar site;
   - Alde-Ore Estuary Site of Special Scientific Interest (SSSI);
   - Orfordness-Havergate National Nature Reserve (NNR);
   - Orfordness-Shingle Street Special Area of Conservation (SAC); and
   - Suffolk and Essex Coast and Heaths National Landscape.

5. The detailed design of the compensatory measure will be developed post consent, in accordance with the Outline LBBG Compensation Implementation and Monitoring Plan [**REP1-019**], informed by pre-construction surveys and lessons learned from nearby existing compensation for the Norfolk Projects and East Anglia ONE North and TWO. The assessment will be refined post consent to inform a Planning Application under the Town and Country Planning Act. This approach is consistent with other consented offshore wind farms including Dudgeon and Sheringham Shoal Extension Projects, Norfolk Vanguard, Norfolk Boreas, East Anglia ONE North and East Anglia TWO.

6. The proposed compensation is described in the Lesser Black-Backed Gull Compensation Document [**REP1-017/018**] and the Lesser Black-backed Gull Outline Compensation Implementation and Monitoring Plan [**REP1-019/020**]) and summarised below.

1.3 Proposed Compensation

1.3.1 Location

7. The preferred location for the LBBG compensation is Lantern Marshes on Orfordness, Suffolk (Figure 1), which is considered in this document. Other options which continue to be considered for Project-led compensation include Gedgrave Marshes and Outer Trial Bank.

8. Should an alternative site be taken forward, the associated effects will be assessed in accordance with the screening provided in Section 10 of the Lesser Black-Backed Gull Compensation Document [**REP1-017/018**].

9. Lantern Marshes is known to have previously supported breeding LBBGs, and is understood to have at one time supported the majority of the breeding pairs of this species within the Alde Ore Estuary (AOE) SPA. In recent years few or no pairs have bred here. The reason(s) for LBBG declines at this site are thought to be related to predators, as well as flooding (with flood defences now repaired); change of habitat following floods; and/or reduction in food source.

10. There is a grassed bank along the western edge between the River Alde and Lantern Marshes and a shingle bank along the eastern edge of the site, with a flattened top which is used by the National Trust to access the site.

11. A site visit was undertaken in October 2024. The habitat is primarily unmanaged grassland with a long sward (Plate 1a), with man-made lagoons between the bank along the river and the main grassland area of Lantern Marshes (Plate 1b). A network of man-made drainage ditches are present across the site.

a) From the north of Lantern Marshes looking approximately south

b) From the north of Lantern Marshes looking approximately south-south-west.

Plate 1 Site photographs of Lantern Marshes

12. Defra (2024) shows the following priority habitats present within Lantern Marshes:

- Saline lagoons; and
- Coastal vegetated shingle.

13. A review of British Geological Survey (BGS) maps and borehole data shows the geology on Lantern Marshes is Alluvium (comprising of a variety of materials

including Silt, Clays, Sands and Peat) overlying Crag (Sand and Gravel) which in turn is underlain by the London Clay (Clay becoming Silt with depth).

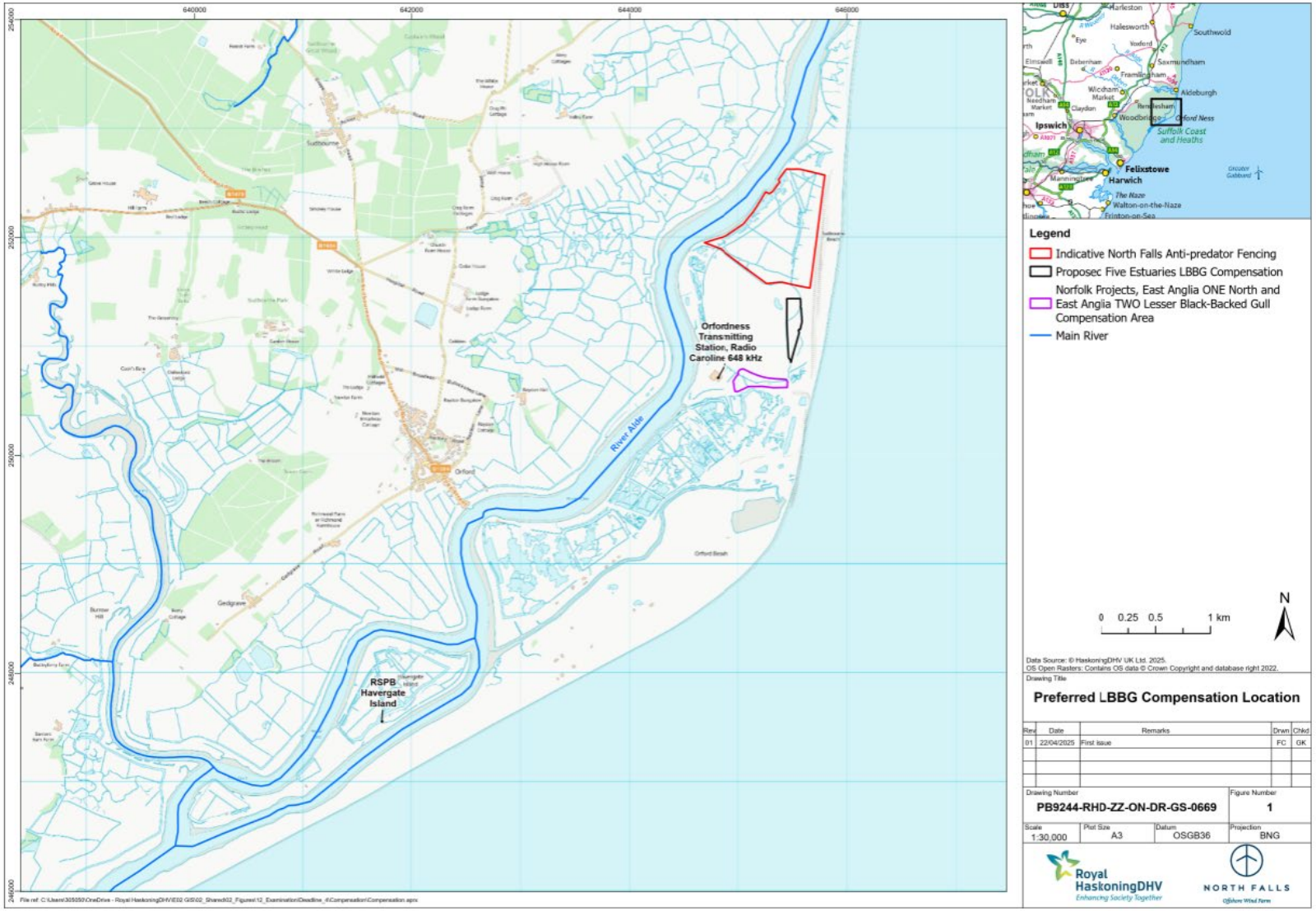

Figure 1 Preferred LBBG compensation location

1.3.2 Compensatory Measure

14. The compensatory measure at Lantern Marshes will include:

- Predator-proof fencing; and
- Habitat management – primarily grassland cutting to create optimal ground cover and sward height.

15. Measures to encourage birds to investigate and settle in the fenced area may be undertaken, such as placement of decoy birds and playback of colony calls.

2 Compensation Description

16. The detailed design of the fence, construction methods, maintenance and decommissioning would be developed post consent, informed by site surveys and further assessed to inform a post consent planning application.

17. Lessons learned from nearby existing compensation for the Norfolk Vanguard (NV), Norfolk Boreas (NB) and East Anglia ONE North and TWO (EA1N/2) offshore wind farms will be considered during planning of the compensatory measure.

18. The following sections provide an outline of a realistic worst case scenario.

2.1 Design

2.1.1 Area

19. As discussed in Section 5 of the Lesser Black-Backed Gull Compensation Document [**REP1-017/018**], the area required to compensate the scale of the North Falls effect on LBBG is c. 0.2ha, however an area of 4 hectares (ha) is required to provide an ecologically effective measure for LBBG. Recognising feedback from National Trust [**REP2-051**] and informed by consultation with the National Trust, consideration is given to fencing the perimeter of Lantern Marshes (65ha), although this would far exceed the required compensation scale (4ha) for North Falls. Therefore, a maximum fenced area of 65ha surrounding Lantern Marshes is considered in this assessment as the maximum design scenario (Figure 2). The fence line may be subject to refinement and micrositing, as discussed in Section 2.8, and therefore this represents a maximum design scenario for the purpose of assessment.

2.1.2 Fence

20. The antipredator fence will have the following key characteristics:

- Up to 3590m length
- High Tensile stock wire with 50mm vertical spacing
- 1.8m finished height (c. 2.9m post length with c.1.1m post penetration into the ground)
- 50-100mm deep and 750-1,000mm wide section scraped to enable burial of fence skirt.
- Post spacing c. 3-4m

- Two 12ft wide fully meshed galvanised gates on steel posts with a steel frame. Gate posts and base of the frame would be concreted in.
- The fence will cross the man-made ditches. Based on the fence line shown in Figure 2, 3 ditch crossings are anticipated.
- Culverts will be installed to facilitate access across Lantern Marshes for construction and maintenance works.

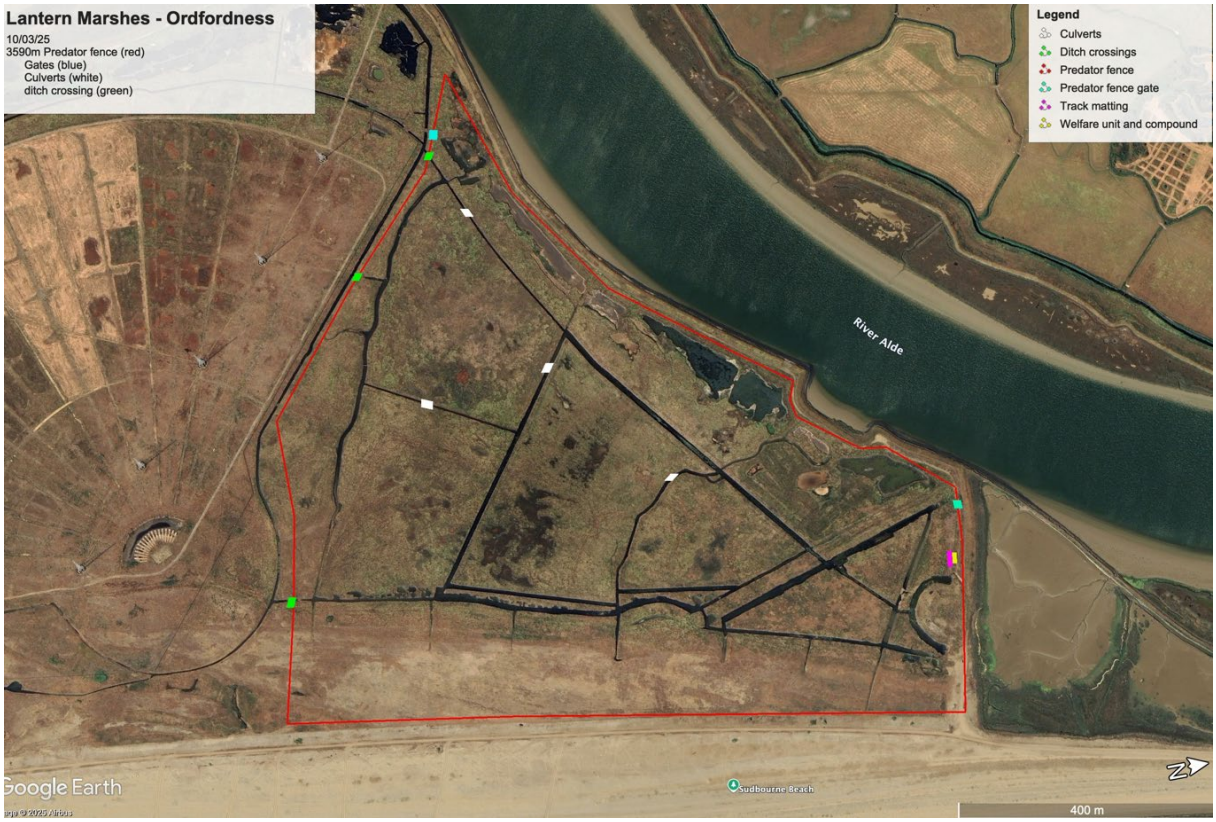

Figure 2 Indicative maximum fence line and associated works

2.1.3 Habitat management

21. It is expected that habitat management will be undertaken for an area of 4ha within the enclosure during the non-breeding season on an annual basis. This will take the form of cutting and removing areas of vegetation to create a patchwork of short and long sward heights which will increase the amount of habitat suitable for lesser black-backed gulls to nest. This is expected to be undertaken using handheld strimming equipment.

2.2 Timing

22. Where practicable, the fence would be installed and maintenance works carried out in an appropriate period between September and March (inclusive) to avoid the breeding season for LBBG, and other potential ornithological receptors, subject to their presence to be confirmed during pre-construction surveys (Section 2.8).

23. Construction would take approximately 10-12 weeks to complete, including contingency for weather downtime.

2.3 Access

24. The fencing materials and plant would be transported to Orfordness via boat and once on Orfordness, would be transported to Lantern Marshes via existing tracks.

25. Temporary matting would be placed on soft areas of the track (indicative locations shown in Figure 2).

26. Indicative plant requirements include:

- 8 tonne excavator
- Tracked post knocker
- Tracked dumper
- Tractor and loader and trailer
- Quad bike
- Pick-up truck

27. Once on Lantern Marshes, works will mainly be within c. 5m, either side of the fence line, with the exception of the installation of the culverts where access through the middle of the site with plant and materials will be required.

2.4 Pre-construction

28. Pre-construction surveys, including ecological, Invasive Non-Native Species (INNS) and unexploded ordnance (UXO) surveys will be undertaken to inform the final design of the compensatory measure.

2.5 Construction

29. A welfare unit will be temporarily placed on site during the construction works.

30. Debris on the fence line will be cleared where required and the top 50-100mm of topsoil along the alignment of the fencing would be scraped back, creating a 750-1,000mm wide corridor of exposed soil.

31. Tubular steel fence posts, 2.9m long, would be pushed into the ground at approximately 3-4m intervals, leaving a height of 1.8m above ground.

32. The mesh fencing would then be rolled out and clipped to each fence post. A 600mm skirt of the mesh fencing would be folded into the shallow strip that was scraped. The skirt would then be pegged into place, and the previously removed topsoil reinstated on top of the skirt.

2.6 Operation and Maintenance

33. Annual habitat management will be undertaken as described in Section 2.1.3.

34. The fence will be maintained for the lifetime of the Project compensation requirements (at least 33 years).

35. Planned maintenance would be undertaken outside the breeding season. During the breeding season, regular inspections of the fence would be

undertaken and if required, emergency repairs would be undertaken to ensure the integrity of the fence is maintained to avoid predator incursion.

36. As a worst case scenario, it is assumed a full replacement of the fence may be required after c. 20 years, noting the potential for corrosion. This would be discussed with the Lesser Black-Backed Gull steering group ahead of any works commencing.

2.7 Decommissioning

37. Decommissioning would be a reverse of the construction process. Alternatively, consideration would be given to leaving the fence in situ, subject to a survey of its condition and willingness of the National Trust or another appropriate party to take over maintenance.

2.8 Mitigation

38. The following mitigation will be undertaken:

- Pre-construction micrositing of the fence line:
  - The fence line avoids areas of predicted erosion up to 2105 (Defra, 2024a) and this will be checked for any updated pre-construction;
  - Fence line will be microsited to avoid any UXO and priority habitats informed by pre-construction surveys;
- The fence line will be surveyed for existing invasive non-native plant species in advance of the works. Any found will be removed and appropriately disposed of;
- All machinery, materials and equipment to be brought onto site will be cleaned and checked for the presence of INNS and mud;
- Design of the fence has taken account of the man-made ditches present on Lantern Marshes to ensure flow of these is not impeded;
- Best practice measures to prevent siltation and run-off into lagoons during construction will be utilised;

39. Construction of the fence and planned maintenance to take place outside nesting seasons (Table 3-1) of relevant bird species present on Lantern Marshes to avoid causing significant disturbance;

- Speed limits for vehicles associated with construction and management/maintenance;

40. Scheduled habitat management and fence maintenance will take place outside of nesting season to avoid causing significant disturbance; and

- Regular checks of fence line for damage and debris. Repairs and clearance to be undertaken as required.

3 Ecological Designated sites

3.1 Ecological Study Area

41. Given the small-scale nature of the works, the zone of influence of likely significant effects on ecological receptors will be limited to within Lantern Marshes and the shingle track to the east of the marshes, which are within the following designated sites for nature conservation:

    - Alde-Ore Estuary SPA;
    - Alde-Ore Estuary Ramsar site;
    - Alde-Ore Estuary SSSI;
    - Orfordness-Havergate NNR; and
    - Orfordness-Shingle Street SAC.

42. Consideration is also given to potential effects on the existing compensation for NV, NB and EA1N/2.

3.2 Existing Environment

3.2.1 Alde-Ore Estuary SPA/

43. The Alde-Ore Estuary SPA, located on the Suffolk coast between Aldeburgh and Bawdsey, includes Havergate Island, Orford Ness, and the estuaries of the Alde, Butley, and Ore rivers. The site features Atlantic salt meadows, intertidal mudflats, shingle, coastal lagoons, and estuarine fish communities. Bird usage varies seasonally, with different areas used for nesting and feeding (Natural England, n.d. (a)).

44. Key feeding habitats for SPA qualifying species (Table 3-1) include intertidal mudflats in the Upper Alde Estuary. Lagoons and saltmarshes provide additional feeding grounds. The site also offers nesting habitats, with shingle areas around Orford Ness and saltmarshes at Havergate Island, Orford Ness, and along the Butley and Alde rivers (Natural England, n.d. (a)).

3.2.1.1 Designated features

Table 3-1 Designated features of the Alde-Ore Estuary SPA. Source: (Natural England, n.d. (a))

Feature	Life Stage	Conservation Status
Avocet, *Recurvirostra avosetta*	Breeding (Mar – Aug) Non-breeding (Sept – Mar)	Not Available
Lesser black-backed gull, *Larus fuscus*	Breeding (Feb – Aug)	
Little tern, *Sterna albifrons*	Breeding (Apr – Aug)	
Marsh Harrier, *Circus aeruginosus*	Breeding (Mar – Oct)	
Redshank, *Tringa totanus*	Non-breeding (Sept – Mar)	
Ruff, *Philomachus pugnax*	Non-breeding (Oct – Mar)	
Sandwich tern, *Thalasseus sandvicensis*	Breeding (Apr – Aug)	

3.2.1.2 Conservation Objective

45. The objectives are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

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

3.2.2 Alde-Ore Estuary Ramsar site

46. The site includes the estuary complex of the rivers Alde, Butley, and Ore, along with Havergate Island and Orfordness. It features diverse habitats such as intertidal mudflats, saltmarsh, vegetated shingle, saline lagoons, and grazing marsh. The Orfordness/Shingle Street landform is unique in Britain, combining a shingle spit with a cuspate foreland. The site supports nationally scarce plants, British Red Data Book invertebrates, and notable assemblages of breeding and wintering wetland birds.

47. The site was designated as a Ramsar site for meeting the following criteria:

- **Criterion 2:** Supports nationally scarce plant species and British Red Data Book invertebrates.
- **Criterion 3:** Supports notable assemblages of breeding and wintering wetland birds.
- **Criterion 6:** Hosts species/populations at levels of international importance.

48. Additionally, notable plant and invertebrate species recognised at the site include:

- **Plants**: A range of nationally scarce plants including: marsh mallow *Althaea officinalis,* sea heath *Frankenia laevis,* beach pea *Lathyrus japonicus,* perennial pepperweed *Lepidium latifolium,* bur medick *Medicago minima,* coast barbgrass *Parapholis incurva,* Borrer's saltmarsh grass *Puccinellia fasciculata,* spiral tasselweed *Ruppia cirrhosa,* perennial glasswort *Sarcocornia perennis,* marsh sowthistle *Sonchus palustris,* suffocated *clover Trifolium suffocatum,* yellow vetch *Vicia lutea* and narrow-leaved eelgrass *Zostera angustifolia*.
- **Invertebrates**: The highly specialised invertebrate fauna of the saline lagoons includes starlet sea anemone *Nematostella vectensis*, and lagoon sand shrimp *Gammarus insensibilis*, both species protected under Schedules 5 and 8 of the Wildlife and Countryside Act 1981 (as amended). Other notable invertebrates on the site include: the ground lackey moth *Malacosoma castrensis*, fancy-legged fly *Campsicnemus magius*, chinless blacklet hoverfly *Cheilosia velutina, Empis prodomus* (species of dance fly)*, Dixella attica* (species of meniscus midge)*,* shingle yellow-face bee *Hylaeus euryscapus* swollen spire snail *Pseudamnicola confusa,* whelk-

shell jumper spider *Pseudeuophrys obsoleta* (previously described as *Euophrys browningi),* Duffey's bell-headed spider *Baryphyma duffeyi, Haplodrassus minor* (species of ground spider), *Trichoncus affinis* (species of sheet weaver spider) (JNCC, 2008).

3.2.2.1 Designated features

Table 3-2 Designated features of the Alde-Ore Estuary Ramsar site. Source: (Natural England, n.d. (b))

Feature	Life Stage	Conservation status
Avocet	Wintering	Not Available
Lesser black-backed gull	Breeding	
Redshank	Wintering	
Waterbird assemblage	Wintering	
Wetland bird assemblage	Breeding	
Wetland invertebrate assemblage	-	
Wetland plant assemblage	-	

3.2.2.2 Conservation Objectives

49. For Ramsar sites, a decision has been made by Defra and Natural England not to produce Conservation Advice packages (Natural England n.d.(c)) instead focussing on those provided for the SPA (Section 3.2.1.2).

3.2.3 Orfordness-Shingle Street SAC

50. The Orford Ness - Shingle Street SAC, is designated for its coastal lagoons, stony banks, and annual vegetation of drift lines.

51. The southern end of the spit (beyond the zone of influence of the North Falls compensatory measure) features extensive stony banks with shingle ridges supporting diverse vegetation. This area is one of the UK's largest natural expanses of shingle vegetation affected by salt spray.

52. The SAC includes lagoons, ranging from fresh to highly saline, are among the best in the UK and support diverse plant and invertebrate species, which in turn attract important bird communities. The rare starlet sea-anemone is also found in the SAC (Natural England, n.d. (d)).

3.2.3.1 Designated features

Table 3-3 Designated features of the Orford Ness - Shingle Street SAC. Source: (Natural England, n.d. (d))

Feature	Description	Condition Status
Coastal lagoons (priority habitat)	These lagoons have developed in the shingle bank at the mouth of the Ore estuary. Salinity is maintained by percolation through the shingle, with occasional seawater overtopping at high tides. The fauna includes typical lagoon species such as the cockle (*Cerastoderma glaucum*), ostracod (*Cyprideis torosa*), gastropods (*Littorina saxatilis tenebrosa* and *Hydrobia ventrosa*), and the nationally rare starlet sea anemone (*Nematostella vectensis*).	Favourable
Annual vegetation of drift lines	Orfordness is a 15 km long shingle spit and one of two sites on the east coast of England with annual vegetation of drift lines. This vegetation is found on both the sheltered western side, transitioning from shingle to saltmarsh, and the exposed eastern coast. The drift-line community is	Not Available

Feature	Description	Condition Status
	widespread and includes sea beet (*Beta vulgaris* ssp. maritima) and orache (*Atriplex spp.*), forming a strip 2-5 meters wide.	
Perennial vegetation of stony banks	The southern end has undisturbed ridges with zonation of communities, including pioneer communities with sea pea (*Lathyrus japonicus*) and false oat-grass (*Arrhenatherum elatius*). These areas are nutrient-enriched by a gull colony and support rich lichen communities. The northern part has been damaged by defence activities, but a restoration programme for the shingle vegetation is underway.	Not Available

3.2.3.1.1 Features of the SAC within Lantern Marshes

3.2.3.1.1.1 Coastal lagoons (priority habitat)

53. Surveys of the lagoons on Orford Ness in 2021 (Abrehart Ecology Ltd, 2022) found the lagoons within the area of Lantern Marshes, proposed for the North Falls compensatory measure are moderate to high salinity, filled via percolation of seawater along with rainwater. The sediment of the lagoons in this area was categorised as fine sandy medium/coarse silt and some areas of bank erosion from wind and wave action was also reported.

54. The lagoons were reported to be moderately to highly eutrophic from unknown sources, with dense algal blooms and no visible vegetation below surface.

55. Remnants of previous anthropogenic use was also reported adjacent to the lagoons e.g. old fence posts and rusting digger buckets.

3.2.3.1.1.2 Annual vegetation of drift lines

56. This habitat is not present on the area of Lantern Marshes, proposed for the North Falls compensatory measure.

3.2.3.1.1.3 Perennial vegetation of stony banks

57. The shingle adjacent to Lantern Marshes is used as a track by National Trust for access and managed to maintain its structure, therefore this is likely to be low quality shingle habitat.

3.2.3.2 Conservation Objectives

58. The SAC conservation objectives are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:

- The extent and distribution of qualifying natural habitats and habitats of the qualifying species;
- The structure and function (including typical species) of qualifying natural habitats;
- The structure and function of the habitats of the qualifying species;
- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
- The populations of each of the qualifying species; and
- The distribution of qualifying species within the site.

3.2.4 Alde-Ore Estuary SSSI

59. **Table 3-2** summarises the designated features of the Alde-Ore Estuary SSSI.

Table 3-4 Designated features of the Alde-Ore Estuary SSSI. Source:(Natural England, n.d. (e))

Feature	Species/ habitat	Condition Status
Aggregations of breeding birds	Avocet	Not Recorded
	Black-headed gull, *Larus ridibundus*	Not Recorded
	Herring gull, *Larus argentatus*	Not Recorded
	Lesser black-backed gull	Not Recorded
	Little tern	Not Recorded
	Marsh harrier	Not Recorded
	Sandwich tern	Not Recorded
	Shoveler, *Anas clypeata*	Favourable
Assemblages of breeding birds	Lowland damp grasslands	Not Recorded
	Mixed	Not Recorded
	Variety of species	Not Recorded
Aggregations of non-breeding birds	Avocet	Favourable
	Bewick's swan, *Cygnus columbianus bewickii*	Unfavourable
	Redshank,	Favourable
	Ruff,	Unfavourable
	Shelduck, *Tadorna tadorna*	Favourable
	Teal, *Anas crecca*	Favourable
	Wigeon, *Anas penelope*	Favourable
Geography and Geology	EC - Neogene	Favourable
	Estuaries	Not Recorded
	Hard maritime cliff and slope	Favourable
	IA - Coastal Geomorphology	Favourable
Invertebrate assemblage	F1 unshaded early successional mosaic	Unfavourable
	M1 rocky shore	Favourable
	M311 saltmarsh and transitional brackish marsh	Favourable
	Littoral sediment	Not Recorded
Habitat and Other	Population of Schedule 5 sea anemone – *Nematostella vectensis*, Starlet Sea Anemone	Not Recorded
	Saline coastal lagoons	Favourable
	SM4-28 - Saltmarsh	Not Recorded
	Vascular plant assemblage	Not Recorded

3.2.5 Orfordness-Havergate NNR

60. The Orfordness-Havergate National Nature Reserve (NNR) is a significant shingle spit located just south of Aldeburgh on the Suffolk coast, separated from the mainland by the River Alde. This spit was formed through the deposition of shingle by wave action and longshore drift, a continuous process that contributes to its growth. The site is of great value for coastal defence research due to its dynamic nature.

61. The shingle habitat supports a number of rare and scarce invertebrates - particularly beetles and spiders - and the site is also an important breeding place for many bird species (Natural England, 2008)The features of the reserve are captured by the SPA, Ramsar, SAC and SSSI and therefore this site is not discussed further in this document specifically but effects are as assessed for other sites.

3.2.6 NV, NB and EA1N/2 LBBG compensation

62. An antipredator fence was installed at the location shown in Figure 1 in the winter of 2022/23 as LBBG compensation for the East Anglia ONE North and TWO offshore wind farms. At the time of writing, no nesting of LBBG has yet been reported.

3.2.7 Summary of Relevant Receptors

Feature	AOE SPA	AOE Ramsar	AOE SSSI	Orfordness-Shingle Street SAC	NV, NB and EA1N/2 Compensation	Screened in	Rationale for screening out
Bird species							
Avocet	✓	✓	✓			Yes	-
Bewick's swan			✓				
Black-headed			✓				
Herring gull			✓				
Lesser black-backed gull	✓	✓	✓		✓		
Little tern	✓						
Marsh harrier	✓		✓				
Redshank	✓	✓	✓				
Ruff	✓						
Sandwich tern	✓		✓				
Shelduck			✓				
Shoveler			✓				
Teal			✓				
Waterbird assemblage		✓	✓				
Wetland bird assemblage		✓	✓				
Wetland invertebrate assemblage		✓					
Wetland plant assemblage		✓					
Wigeon			✓				
Habitats & Geology							
Annual vegetation of drift lines				✓		No	No pathway for effect on highwater drift lines as not present within Lantern Marshes

Feature	AOE SPA	AOE Ramsar	AOE SSSI	Orfordness-Shingle Street SAC	NV, NB and EA1N/2 Compensation	Screened in	Rationale for screening out
Coastal geomorphology	*	*	✓			No	Coastal geomorphology will not be influenced by antipredator fencing or habitat management
Coastal lagoons	*	*	✓	✓		Yes	-
Estuaries	*	*	✓			No	No pathway for effect
Hard maritime cliff and slope	*	*	✓			No	Not present on Lantern Marshes
Neogene	*	*	✓			No	No pathway for effect
Perennial vegetation of stony banks				✓		Yes	-
Saltmarsh	*	*	✓			No	Not present on Lantern Marshes
Vascular plant assemblage	*	*	✓			Yes	-
Other species							
Invertebrate assemblage		✓	✓			Yes	-
Population of Schedule 5 sea anemone – *Nematostella vectensis*, Starlet Sea Anemone		✓	✓			Yes	-
	* Habitat not explicitly listed in the SPA and Ramsar citation but has potential to be relevant supporting habitat – assessed for the AOE SSSI in Section 3.3.3						

3.3 Ecological Effects of Proposed Compensatory Measure

3.3.1 Pathway for Impacts

Table 3.5 Screening of relevant impacts

Potential impacts	Potential receptors	Screened in	Rationale for screening out	Relevant Designated Sites
Construction				
Temporary disturbance	Coastal lagoons Perennial vegetation of stony banks Vascular plant assemblage Birds Invertebrates	Yes	-	Alde Ore Estuary SPA and Ramsar Orfordness-Shingle Street SAC Alde-Ore Estuary SSSI
Impact on topography	Perennial vegetation of stony banks	No	Where shingle is present on the access track, this is already used for access by National Trust and the topography of the shingle track is managed.	N/A
Spread of INNS and pathogens	All species	Yes	-	Alde Ore Estuary SPA and Ramsar Orfordness-Shingle Street SAC Alde-Ore Estuary SSSI
Operation				
Temporary disturbance during maintenance	Coastal lagoons Perennial vegetation of stony banks Vascular plant assemblage Birds Invertebrates	Yes	-	N/A
Predation by LBBG	Small bird species	No	Increase in LBBG numbers is compatible with Natural England's restoration objective.	
Increased nutrients	Protected habitats	No	Increase in LBBG numbers which could result in increased guano is compatible with the objective to	

Potential impacts	Potential receptors	Screened in	Rationale for screening out	Relevant Designated Sites
			restore the site to historic numbers of LBBG.	
Maintenance				
Temporary disturbance	All birds	Yes	-	Alde Ore Estuary SPA and Ramsar Orfordness-Shingle Street SAC Alde-Ore Estuary SSSI
Spread of INNS and pathogens	All species	Yes	-	
Decommissioning				
As described for construction phase				

63. Consideration has been given to a Site Improvement Plan (Natural England, 2014) which covers the AOE SPA and Orfordness-Shingle Street SAC (Table 3.6).

Table 3.6 Site Improvement Plan Pressures

Pressure/ Threat	Screened in	Rationale for screening out
Hydrological changes	No	Hydrology of protected features will not be influenced by the LBBG compensation. Hydrology of man-made ditches will be maintained by regular checks of the fence and clearance of entrapped debris (Section 2.8). Predicted hydrological changes in relation to climate resilience have been considered during design of fence line (Section 2.8).
Public Access/Disturbance	No	Lantern Marshes is not available for public access.
Inappropriate coastal management	No	Coastal management will not be influenced. Predicted coastal changes in relation to climate resilience have been considered during design of fence line (Section 2.8).
Changes in species distributions	No	Compensation aims to increase LBBG numbers. This is compatible with restoration objective and therefore not an adverse effect.
Invasive species	Yes	Screened in as discussed in Table 3.5
Air Pollution: impact of atmospheric nitrogen deposition	No	No pathway for effect
Fisheries: Commercial marine and estuarine	No	No pathway for effect

3.3.2 Shadow Appropriate Assessment

3.3.2.1 Alde Ore Estuary SPA and Ramsar

3.3.2.1.1 Temporary disturbance during construction, operation and maintenance and decommissioning

64. Temporary disturbance on the receptors of the SPA and Ramsar during construction could arise from:

- Vehicular access along existing tracks on Orfordness, including a shingle track to the east of Lantern marshes;
- Vehicle use and laydown areas on Lantern Marshes, predominantly around the perimeter of Lantern Marshes c. 5m either side of the fence line;
- Increased activity for c. 10-12 weeks during winter;
- Scrapes to enable burial of fencing skirt;
- Installation of fence, including associated gates and water crossings
- Installation of culverts across man-made ditches
- Habitat management e.g. strimming

3.3.2.1.1.1 Breeding birds

65. As discussed in Section 2.8, fence construction and planned maintenance would avoid the breeding season of relevant SPA and Ramsar receptors present on Lantern Marshes (informed by post consent surveys), where practicable.

66. During the life of the Project, the compensatory measure has potential to provide breeding habitat which is protected from mammalian predators and disturbance and, while the target species is LBBG, this could benefit a range of breeding birds.

67. Planned maintenance would be undertaken outside the breeding season. During the breeding season, regular inspections of the fence would be undertaken and if required, emergency repairs would be undertaken to ensure the integrity of the fence is maintained to avoid predator incursion. These repair works would be a highly localised and short term.

68. Regular inspections of the fence would be undertaken and in the event the condition is found to have declined significantly (e.g. due to corrosion), a full-scale replacement may be undertaken. As a worst case scenario, consideration is given to this being required once during the life of the Project. These works would avoid the breeding season of relevant SPA and Ramsar receptors present on Lantern Marshes (informed by surveys prior to the works being undertaken), where practicable.

69. Decommissioning would be a reverse of the construction process and would also avoid the breeding season of relevant SPA and Ramsar receptors present on Lantern Marshes (informed by surveys prior to the works being undertaken), where practicable.

70. Therefore, there would be no adverse effect on the integrity of the Alde Ore Estuary SPA and Ramsar in relation to breeding birds, as a result of temporary disturbance.

3.3.2.1.1.2 Non-breeding birds/ Waterbird assemblage/ Wetland bird assemblage

71. Transport of materials and plant to Lantern Marshes would use existing access tracks. Tracks from the boat landing location to the south of Lantern Marshes are in regular use and therefore there would be no significant change to the existing levels of disturbance in proximity to these tracks.

72. Vehicle use on the shingle track to the east of Lantern Marshes and increased activity within Lantern Marshes would be temporary (up to c. 12 weeks during the construction period and thereafter typically sporadic and short-term over the life of the compensatory measure).

73. As discussed above, a full-scale replacement of the anti-predator fence could be required once during the life of the Project. This could require removal of the existing fence and replacement with a new fence. As with construction, the works would be primarily around the perimeter of Lantern Marshes.

74. Decommissioning would be a reverse of the construction process, with similar effects.

75. Given the small scale and temporary nature of the works required to deliver the compensation, there would be no Adverse Effect on Integrity (AEOI) on conservation objectives to maintain or restore populations and distribution of non-breeding birds.

3.3.2.1.1.3 Invertebrate assemblage

76. As discussed in Section 3.2.2, invertebrates supported by the AOE Ramsar include the protected species; Starlet sea anemone and lagoon sand shrimp. Surveys of lagoons on Orfordness and Shingle Street SAC in 2021 (Abrehart Ecology Ltd, 2022) did not record these species in the lagoons on Lantern Marshes, although they were recorded in lagoons to the south of Lantern Marshes.

77. Other notable invertebrates including a variety of moth, fly, snail and spider species.

78. Consideration is given to the potential for run-off from construction, potential fence replacement and decommissioning works in proximity to lagoons in the event of heavy rainfall and therefore increasing suspended sediments and deposition.

79. The Starlet sea anemone lives in typically muddy environments and has low sensitivity to increases in smothering (MarLIN, 2017 (a) and MarLIN, 2017 (b)).

80. Limited evidence is available on the sensitivity of *Gammarus* spp. (including lagoon sand shrimp) to smothering. The Marine Evidence based Sensitivity Assessment (MarESA) states the shrimp may be able to burrow to regain the surface following smothering and concludes a potential medium sensitivity to deposition of up to 5cm and high sensitivity to deposition of up to 30cm due to indirect effects associated with changes to vegetation and associated indirect effects on prey and exposure to predators. Due to the short duration of the proposed works, it is likely that vegetation would recover and therefore indirect effects would be minimal (MarLIN, 2017).

81. The ground lackey moth, shingle yellow-face bee, whelk-shell jumper spider, Duffey's bell-headed spider, *Haplodrassus minor* and *Trichoncus affinis* are all associated with coastal vegetated shingle habitats. The key areas of quality shingle habitat are located south of Lantern Marshes and will not be influenced by the compensatory measure. The shingle track adjacent to Lantern Marshes is used by National Trust for access and managed to maintain its structure, therefore this is likely to be low quality shingle habitat.

82. The fancy-legged fly and *Dixella attica* are associated with areas of saltmarsh and estuarine mud, with the swollen spire snail also being associated with estuarine mud. There is no pathway for impact on this habitat.

83. The chinless blacklet hoverfly and *Empis prodomus* are both more generalist species associated with various habitat types and are therefore not sensitive to temporary habitat disturbance.

84. For the reasons outlined above, there would be no AEOI of the invertebrate assemblage of the SPA and Ramsar.

3.3.2.1.1.4 Vascular plant assemblage

85. As discussed above, there is potential for run-off from works in proximity to saline lagoons in the event of heavy rainfall and therefore increasing suspended sediments and deposition. Spiral tasselweed is a plant species listed under the Alde-Ore Estuary Ramsar criterion 2 and is associated with saline lagoon habitats. Spiral tasselweed is sensitive to pollution, however any changes in sediment and deposition will be temporary and localised.

86. All other plant species listed under the Alde-Ore Estuary Ramsar criterion 2 are found in either saltmarsh, beach, shingle or mudflat habitats. The majority of these habitats are not present on Lantern Marshes and therefore there is no pathway for effect. With regards to shingle habitat, as discussed in Section 3.2.3.1.1.3, the shingle track adjacent to Lantern Marshes is likely to be low quality habitat. In addition, the impacts will be temporary and localised and therefore there would be no AEoI for the overall plant assemblage of the Ramsar site.

3.3.2.1.1.5 Supporting habitats of the qualifying breeding and non-breeding bird features

87. Disturbance from vehicles/plant and fencing laydown would be primarily around the perimeter of Lantern Marshes.

88. The area of supporting habitat subject to scraping during fence installation would be up to 3,590m^2 which is c.0.55% of the habitat available at Lantern Marshes and a significantly smaller proportion of the wider habitat available on Orford Ness. The area scraped during fence installation would be reinstated on completion.

89. Habitat management is expected to be undertaken by handheld strimming prior to the LBBG breeding season. It is proposed that an area of 4ha. within the fenced enclosure is subject to habitat management e.g. strimming.

90. These small scale works will have no AEOI on the supporting habitats of breeding and non-breeding birds.

3.3.2.1.2 Spread of INNS and pathogens during construction, operation and maintenance and decommissioning

91. As discussed in Section 2.8, all machinery, materials and equipment to be brought onto site will be cleaned and checked for the presence of INNS and mud to avoid the spread of INNS and pathogens.

92. The fence line will be surveyed for existing invasive non-native plant species in advance of the works. Any found will be removed and appropriately disposed of.

93. With this mitigation, there will be no AEoI as a result of INNS and pathogens as a result of the compensatory measure.

3.3.2.1.3 Conclusion

94. There will be no AEOI on the AOE SPA and Ramsar as a result of the North Falls LBBG compensatory measure.

3.3.2.2 Orfordness-Shingle Street SAC

3.3.2.2.1 Temporary disturbance during construction, operation and maintenance, and decommissioning

3.3.2.2.1.1 Coastal lagoons

95. The fence line has been designed to ensure there will be no direct impact of the proposed antipredator fencing on the structure of the coastal lagoon habitat and there is no pathway for the fence to alter the percolation required to fill the lagoons and maintain salinity.

96. As discussed in Section 3.3.2.1.1.3, there will also be no AEOI of species supported by the lagoons.

3.3.2.2.1.2 Perennial vegetation of stony banks

97. As discussed in Section 3.2.3.1.1.3, the shingle track adjacent to Lantern Marshes is likely to be low quality habitat. In addition, the impacts will be temporary and localised.

98. As discussed in Table 3-3, the perennial vegetation of stony banks are nutrient-enriched by gull colonies and support rich lichen communities. Therefore, the proposed compensation would be expected to provide an overall benefit to the habitat in the long-term.

99. For the reasons described above, there will be no AEOI of the perennial vegetation of stony banks as a result of the LBBG compensation.

3.3.2.2.2 Spread of INNS and pathogens during construction, maintenance and decommissioning

100. As discussed in Section 2.8, all machinery, materials and equipment to be brought onto site will be clean and checked for the presence of INNS and mud (which could contain INNS and pathogens).

101. The fence line will be surveyed for existing invasive non-native plant species in advance of the works. Any found will be removed and appropriately disposed of. Detailed measures will be set out in the LBBG Compensation Implementation and Monitoring Plan.

102. With this mitigation, there will be no AEoI as a result of INNS and pathogens as a result of the compensatory measure.

3.3.2.2.3 Conclusion

103. There will be no AEOI on the Orfordness-Shingle Street SAC as a result of the North Falls LBBG compensatory measure.

3.3.3 Effects on Alde-Ore Estuary SSSI

3.3.3.1.1 Temporary disturbance during construction and decommissioning

3.3.3.1.1.1 Aggregations and assemblages of breeding birds

104. Breeding bird species associated with the SSSI's designation are avocet, black-headed gull, herring gull, LBBG, little tern, marsh harrier, sandwich tern and shoveler.

105. As discussed in Section 2.8, fence construction, planned maintenance, potential fence replacement and decommissioning would avoid the breeding season of relevant SSSI receptors present on Lantern Marshes (informed by surveys) where it might cause significant disturbance.

106. . During the breeding season, regular inspections of the fence would be undertaken and if required, emergency repairs would be undertaken to ensure the integrity of the fence is maintained to avoid predator incursion. Repair works would be a highly localised and short term.

107. During the life of the Project, the compensatory measure has potential to provide breeding habitat which is protected from mammalian predators and disturbance and while the target species is LBBG, this could benefit a range of breeding birds.

108. Therefore, there would be no significant effect on breeding birds of the Alde Ore Estuary SSSI as a result of temporary disturbance.

3.3.3.1.1.2 Invertebrate assemblage

109. No areas of unshaded early successional mosaic, rocky shore, saltmarsh and transitional brackish marsh and littoral sediment which support the invertebrate assemblage (Table 3-4) will be impacted by the compensatory measure.

110. As discussed in Section 3.2.3, there will be no AEOI of the invertebrates of Lantern Marshes and therefore there will be no significant effect on the invertebrate assemblage of the AOE SSSI.

3.3.3.1.1.3 Coastal lagoons

111. As stated in Section 3.3.2.2.1.1, there will be no AEoI on the coastal lagoons on Lantern Marshes and therefore there will be no significant effect on the coastal lagoon feature of the AOE SSSI.

3.3.3.1.1.4 Vascular plant assemblage

112. The vascular plant assemblage of the Alde-Ore Estuary SSSI are from a range of habitats present within Lantern Marshes such as brackish lagoons, shingle and grassland.

113. As discussed in Section 3.3.2.2.1.1, there will be no AEoI on the coastal lagoons on Lantern Marshes and therefore there will be no significant effect on the vascular plant assemblage associated with lagoons.

114. As discussed in Sections 3.3.2.2.1.2 and 3.2.3.1.1.3, the shingle track adjacent to Lantern Marshes is low quality habitat. In addition, the impacts will be

temporary and localised and therefore there will be no significant effect on the vascular plant assemblage associated with shingle.

115. Grassland areas of the Alde Ore Estuary SSSI support a wide range of rare or local species also occur including yellow vetch and the dwarf clovers suffocated clover, *Trifolium glomeratum,* knotted clover *T. striatum*, rough clover *T. scabrum* and bur medick (Natural England, 1992). Disturbance effects associated with installation of the anti-predator fencing will be localised and temporary. During operation of the compensatory measure, grazing of Lantern Marshes (e.g. by Chinese water deer) will be reduced, however habitat management including strimming would have a similar, and potentially greater beneficial effect on the diversity of vegetation by reducing growth height of dominant plant species.

3.3.3.1.2 Spread of INNS and pathogens during construction, maintenance and decommissioning

116. All machinery, materials and equipment to be brought onto site will be clean and checked for the presence of INNS and mud (which could contain INNS and pathogens).

117. The fence line will be surveyed for existing invasive non-native plant species in advance of the works. Any found will be removed and appropriately disposed of. Detailed measures will be set out in the LBBG Compensation Implementation and Monitoring Plan.

118. With this mitigation, there will be no significant effect as a result of INNS and pathogens as a result of the compensatory measure.

3.3.3.1.3 Conclusion

119. There will be no significant effect on the Alde Ore Estuary SSSI as a result of the North Falls LBBG compensatory measure.

3.3.4 NV, NB and EA1N/2 LBBG compensation

120. The provision of improved nesting habitat at Lantern Marshes for North Falls, with the aim of increasing LBBG breeding productivity, is compatible with the aims of the NV, NB and EA1N/2 (MacArthur Green & Royal HaskoningDHV, 2022 and ScottishPower Renewables, 2024).

121. As shown in Figure 1, the proposed Lantern Marshes site for North Falls and the existing compensation site for NV, NB and EA1N/2 are both to the north east of the main breeding colony of LBBG of the AOE SPA, which is at Havergate Island. Attracting breeding LBBG to the same broad area within the SPA is likely to be beneficial to the NV, NB and EA1N/2 site, increasing the likelihood that the LBBG will locate the new breeding habitat at both locations.

3.3.5 Cumulative Ecological Effects

122. The location of proposed LBBG compensation for the Five Estuaries offshore wind farm is shown in Figure 1.

123. As the effects of the proposed LBBG compensatory measure will be highly localised for both North Falls and Five Estuaries (SLR & Gobe, 2025), there will be no likely significant cumulative effects on the Alde Ore Estuary SPA, Ramsar, SAC or SSSI.

4 Landscape and Visual Appraisal

124. The following section provides a landscape and visual appraisal of the anti-predator fencing described in Section 2.1.2. A 1km radius study area is considered to be appropriate for a development of this nature.

125. The appraisal has been caried out in accordance with the principals contained in the 'Guidelines for Landscape and Visual Assessment' (GLVIA) 2013, Version 3. The appraisal considers the 'susceptibility' (and value through consideration of landscape designations and other factors) of receiving landscape and visual receptors and the nature of effect (including the scale and geographical extent of change) associated with the proposed fencing. Effects are then judged to be of 'greater' or 'lesser' importance. Where effects are considered to be of greater importance, these will have more bearing in the decision-making process.

4.1 Landscape and Visual Context

126. The site of the proposed 1.8m high anti-predator fencing (the Proposed Development) on Lantern Marshes is to the north of Orford Ness Nature Reserve and Orford Ness Transmitting Station (named Cobra Mist), and west of the River Alde in Suffolk (see Figure 1). The site is located on a peninsula which is accessible via a ferry to Orford Ness Nature Reserve, to the south, or via a longer (unpromoted) walk along the coastal edge from Aldeburgh, approximately 3km to the north.

127. Given its coastal location the site is very flat in nature and lies at around 0.5m Above Ordnance Datum (AOD). There are man-made bunds along the west, north and east edges of the site, which are associated with the reclamation of coastal marshland. Landcover across the site is characterised by marshland and grasslands, with drainage channels which are very linear in nature. Large masts associated with the transmitting station to the south also have an influence over the site (see Plate 2 below). There is also some existing anti-predator fencing, associated with the NV, NB and EA1N/2 offshore wind farms, located to the south of Lantern Marshes (see Figure 1).

Plate 2 Marshland character of the site with transmitting masts visible to south.

128. The site is largely contained within the Coastal Levels Landscape Character Type (LCT), with the eastern edges of the site in the Coastal Dunes and Shingle Ridges LCT, as defined in the Suffolk Landscape Character Assessment. The key characteristics of these LCT are as follows:

129. Coastal Levels (6) LCT[1]

- *"Flat marshland adjacent to the coast or estuaries.*
- *Marine alluvium soils.*
- *Sinuous and complex mediaeval dyke networks.*
- *Uniform 19th century dyke networks.*
- *Cattle-grazed wet grassland.*
- *Widespread modification for arable production.*
- *Small plantations and carr woodlands.*
- *Inland side of rising ground often wooded.*
- *Important wildlife conservation areas.*
- *Unsettled landscape with domestic buildings on the fringes.*
- *Derelict wind pump."*

130. Coastal Dunes and Shingle Ridges (5) LCT[2]

- *"Flat or gently rolling landform of sand or shingle.*
- *Low fragile vegetation.*
- *Vast open uncluttered landscape.*

[1] Coastal levels - Suffolk Landscapes
[2] Coastal dunes & shingle ridges - Suffolk Landscapes

- *Historic military structures.*
- *Occasional large buildings in an empty landscape.*
- *Occasional fishing huts and boats on the beach.*
- *Only in short stretches is there the paraphernalia of intensive tourist activity, beach huts and piers."*

131. The site is within the Suffolk and Essex Coast and Heaths National Landscape (SECHNL) and the Suffolk Heritage Coast (SHC). The special qualities of the SECHNL are listed in the Natural Beauty and Special Qualities Indicators document.[3] The special qualities recognise the influence of the former military site at Orford Ness at a number of places. In addition, the special qualities recognise the:

"Close-knit interrelationship of semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and market towns) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition of elements in a relatively small area."

132. There are no defined 'special qualities' for the SHC. The special character of the SHC can be understood with reference to landscape character assessments and the qualities of the SECHNL.

133. In terms of the visual context, there are no public footpaths across the site or any promoted public access. A Public Right of Way (PRoW) runs along a bund (approximately 3m AOD) on the western bank of the River Alde, within 500m of the proposed fence line. A further PRoW runs west from this path, linking into the path network around Ferry Road to the west of the 1km study area. Direct views into the site, looking east over the river from the PRoW, are somewhat restricted by the man-made bund to the west of the site.

4.2 Potential Landscape Effects

134. There will be some direct effects associated with vegetation clearance and the installation of the anti-predator fence. These effects will be very local in extent. The fence will be contained inside the man-made bunds to the west, north and east of the site.

135. In terms of wider effects on landscape character, the fence will introduce a further feature into the landscape. However, this is a modified landscape and, when visible, it will typically be seen in the context of human influences such as the bunds and transmitting station masts. The fence structure is also permeable in nature, so any views will quickly recede within a short distance (along with associated effects on landscape character). The bunding along the western bank of the River Alde and to the east of the site will also help to contain wider views, and associated indirect effects on landscape character.

[3] LDA Design (2016) Natural Beauty and Special Qualities of the Suffolk Coast and Heaths AONB. Available at [https://coastandheaths-nl.org.uk/wp-content/uploads/2021/01/Natural-Beauty-and-Special-Qualities-of-the-Suffolk-Coast-and-Heaths-2016.pdf]

136. In summary, the proposed LBBG compensation is located in a landscape where human influence is apparent, and the landscape is more able to accommodate a feature of this nature (the landscape is of lower susceptibility to the type of development proposed). Direct effects on landscape fabric will be limited and local in extent, as will wider effects on landscape character (and effects on the SECHNL and SHC). These landscape effects are judged to be of lesser importance (not significant in the context of any Environmental Impact Assessment).

4.3 Potential Visual Effects

137. The Zone of Theoretical Visibility (ZTV) has been generated based on a Digital Terrain Model which uses LIDAR data (see Figure 3). This ZTV is based on the bare earth terrain and does not take account of any screening through vegetation or built form (and noting that vegetation and built form are limited across the study area). The ZTV indicates the contained nature of visibility, due to bunding along the western bank of the River Alde and to the immediate east of the site.

138. Given the lack of public access to the site, the opportunity for close range views, for recreational receptors, is limited.

139. Views from the PRoW, which runs along a bund to the west of the River Alde, will likely be available. In these views the top of the proposed fencing may be apparent over the bund to the west of the site. Views of this nature will be available from a short (less than 4km) stretch of the path network. The large existing transmitting masts, to the south of the site, are more likely to draw the eye than the top of a permeable fence, seen behind some bunding.

140. The bund to the east of the site also helps to screen views of the proposed LBBG compensation from the coastal edge, along Sudbourne Beach. In views from the south, from the Orford Ness Nature Reserve, the ZTV indicates a fragmented pattern of theoretical visibility. Features associated with the Cobra Mist transmitting station will be in the foreground of the view and more likely to draw the eye.

141. In summary, the proposed LBBG compensation is located in an area with limited public access. Any views for (medium to higher susceptibility) recreational receptors from the PRoW, which runs along the western bank of the River Alde, will be small in scale of change and local in extent. Visual effects are judged to be of lesser importance (not significant in the context of any Environmental Impact Assessment).

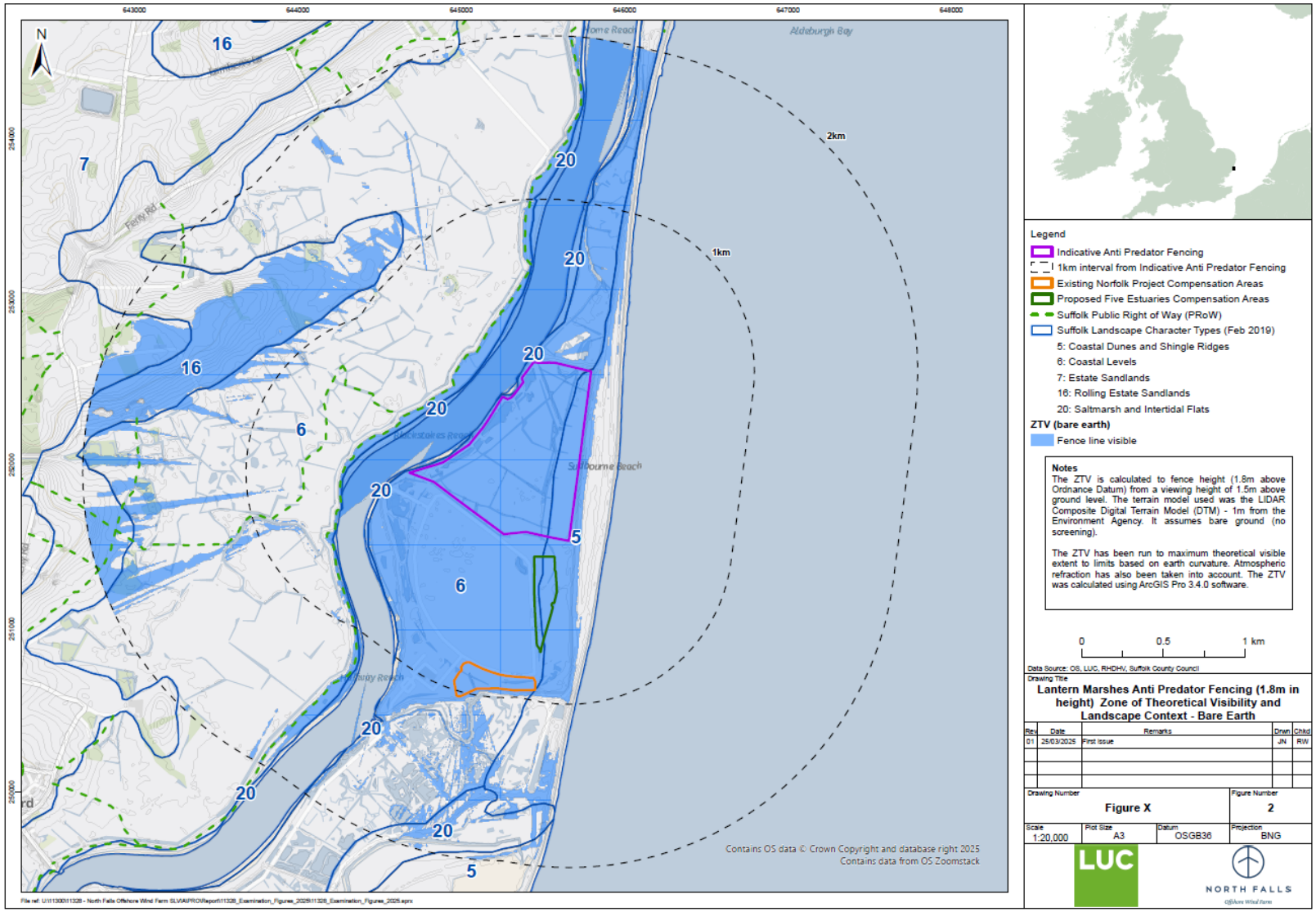

Figure 3 Lantern Marshes anti-predator fencing ZTV

4.4 Potential Cumulative Effects

142. Figure 3 shows the location of existing and proposed predator fencing in the area. This includes existing fencing associated with the Norfolk offshore wind farm projects and proposed fencing associated with the Five Estuaries Offshore Wind Farm.

143. Assuming a theoretical future baseline in which all this fencing exists, the opportunity for combined views of all three fences is limited. Views to the east and west are contained by the bunds along the edges of the site (and to the west of the River Alde). In views from the south the fencing will be seen beyond large scale infrastructure associated with the transmitting station. In views from the north, the proposed LBBG compensation is likely to obscure views of fencing further south. Locating this fencing in close proximity will also help to contain any wider cumulative effects on landscape character.

144. As such, the opportunity for combined views (and associated cumulative landscape and visual interactions) of all three anti predator fences is limited.

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