Great Yarmouth Third River Crossing

Application for Development Consent Order

Document 6.11: Information to Inform the Habitats Regulations Assessment

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) ("APFP")

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Foreword

This document accompanies an application ("the Application") submitted by Norfolk County Council ("the Applicant") to the Secretary of State for a Development Consent Order ('DCO') under the Planning Act 2008[1].

If made by the Secretary of State, the DCO would grant development consent for construction, operation and maintenance of a new bascule bridge highway crossing of the River Yare in Great Yarmouth, and which is referred to in the Application as the Great Yarmouth Third River Crossing (or 'the Scheme').

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) require that an application for a DCO be accompanied by the documents specified at Regulation 5(2)(a) to (r). This is one of those documents and is specified at Regulation 5(2)(g).

[1] References to legislation in this document are to that legislation as amended at the date of this document.

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Glossary of Defined Terms and Acronyms

Defined Terms

Term	Definition
The Applicant	Norfolk County Council (in its capacity as Highway Authority and promoter of the Scheme).
Application Site	The land bounded by the Order Limits, as shown by a red line on the Land Plans (document reference 2.5) and the Works Plans (document reference 2.6) and being land within which the authorised development may be carried out.
The APFP Regulations	The Infrastructure Planning (Applications - Prescribed Forms and Procedure) Regulations 2009 (SI 2009/2264).
Crossing	The combined double leaf bascule bridge and the Southtown Road bridge structure (i.e. from its junction with the new roundabout on William Adams Way to the new junction on South Denes Road).
Double Leaf Bascule Bridge	Opening span and mechanism needed to operate the bridge.
The EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
MIND Centre and Grounds	Land located to the south of Queen Anne's Road, comprised within Plot Nos. 1-27, 2-03, 2-05, 2-06 and 2-07 on the Land Plans (document reference 2.5), which is currently leased to Great Yarmouth and Waveney Mind for the purposes of its charitable aims and objectives.
NCC	Norfolk County Council (other than in its Highway Authority role as promoter of the Scheme).
NPS	National Policy Statement.
NPS NN	National Policy Statement for National Networks.
Order Limits	Limits of land within which the authorised development may be carried out, as shown on the Land Plans (document reference 2.5) and the Works Plans (document reference 2.6).
The Planning Act	The Planning Act 2008.
Principal Application Site	The land comprised in the Application Site but excluding the Satellite Application Sites.

Term	Definition
Satellite Application Sites	The parts of the Application Site within which Work Number 13 may be carried out, as shown on the Works Plans (document reference 2.6) and described in Schedule 1 to the draft DCO (document reference 3.1).
Scheme	The Great Yarmouth Third River Crossing project for which the Applicant seeks development consent.
Statutory Designated Sites	Sites which have been designated under UK and in some cases European or international legislation which protects areas identified as being of special nature conservation importance.
Study Area	The boundary/extents of a specific assessment.
Underpass	The underpass beneath the Crossing, located on the east side of the River Yare, to be constructed to provide a new private means of access for the benefit of owners and occupiers of adjoining land.
Vessel Waiting Facilities	Provision of vessel waiting facilities to the north and south of the Crossing, either as floating pontoons or additional fendering to the existing berths, including any dredging and quay strengthening works that may be required.

Acronyms

Abbreviation	Definition
CIEEM	Chartered Institute for Ecological and Environmental Management
CWS	County Wildlife Site
dB	Decibel
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EA	Environment Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
GYBC	Great Yarmouth Borough Council

Abbreviation	Definition
GYTRC	Great Yarmouth Third River Crossing
IAN	Interim Advice Note
LNR	Local Nature Reserve
NCC	Norfolk County Council (in all capacities other than Highway Authority acting as promoter of the Proposed Scheme)
NNR	National Nature Reserve
NPPF	National Planning Policy Framework (2019)
NSIP	Nationally Significant Infrastructure Project
NSR	Noise Sensitive Receptor
Outline CoCP	Outline Code of Construction Practice
SAC	Special Areas of Conservation
SNCI	Sites of Nature Conservation Importance
SPA	Special Protection Area

1 Introduction

1.1 The Scheme

1.1.1 Great Yarmouth is located at the mouth of the River Yare, one of the main waterways providing access to the Norfolk Broads. The river passes through the centre of Great Yarmouth, with the town centre, seafront, industrial areas and outer harbour located on the narrow, 4km long, South Downs peninsula between the river and the sea, isolated from the remaining parts of the town. To the west of the River Yare, Gorleston-on-Sea is just a few hundred metres away as the crow flies, but over 7km distance by road.

1.1.2 The Scheme is for a new third crossing of the River Yare, which will provide a new, more direct link between the western and eastern parts of Great Yarmouth, so as to overcome the problems of poor access to the peninsula of Great Yarmouth, and reduce the traffic congestion that currently occurs. Specifically, the Scheme will provide a connection between the Strategic Road Network (A47) and the South Denes Business Park, Enterprise Zone, Great Yarmouth Energy Park and the Outer Harbour, all of which are located on the South Denes Peninsula.

1.1.3 The Scheme is centred at approximate grid reference TG52510582. The Scheme comprises the Application Site which includes the Principal Application Sites in addition to Satellite Application Sites.

1.1.4 Under the requirements of European Council Directive 92/43/EEC 'The Habitats Directive' (Ref 1) and Directive 2009/147/EEC 'The Wild Birds Directive' (Ref 2) it is necessary to consider whether the possible effects of the Scheme on areas designated under this legislation for their nature conservation importance. This requirement is translated into UK law through the Conservation of Habitats and Species Regulations 2017 ('The Habitat Regulations') (Ref 3). The Habitat Regulations place a duty upon the Competent Authority to consider effects upon sites of European importance prior to granting consent for projects or plans. Should likely significant effects (LSEs) be identified by the initial screening process (Stage 1) it is necessary to further consider the effects by way of Appropriate Assessment (Stage 2). This process of assessment is known as Habitats Regulations Assessment (HRA). Further details of the HRA process are provided at 2.3 below.

1.1.5 A description of the Scheme is provided within Section 5 and the designated sites within proximity in Section 6. Consideration of potential effects of the Project upon the designated sites and whether these are likely to be significant is provided in Section 7 within Screening Matrices formatted according to Planning Inspectorate guidance: Advice Note Ten relevant to Nationally Significant Infrastructure Projects (AN10) (Ref 4). Section 9 provides the assessment of implications of identified impacts to ascertain if

the proposal will adversely affect the integrity of a European site (i.e. Stage 2 of the HRA process).

1.2 Purpose of this Report

1.2.1 This report provides an assessment of the Scheme in relation to the requirements of the Habitats Regulations. The report has been produced with reference to current Planning Inspectorate Advice Note Ten relevant to Nationally Significant Infrastructure Projects (AN10) (Ref 4).

2 The Habitats Directive and Habitats Regulations

2.1 Legislative Context

2.1.1 The Habitats Directive establishes the requirement for HRA process in Article 6(3) and 6(4); i.e., the full process of impact assessment undertaken to determine the effects of plans or projects on European sites:

2.1.2 Article 6(3):

"*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public*."

2.1.3 Article 6(4):

"*If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the member states shall take all compensatory measures necessary to ensure that overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*

Where the site concerned hosts a priority natural habitat type and/or priority species, the only considerations which may be raised are those relating to human health or public safety, of beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest."

2.1.4 The Directive is transposed into national statute through the Conservation of Habitats and Species Regulations 2017 (as amended), hereby referred to as the 'Habitats Regulations'.

2.1.5 Terrestrial areas of the UK and territorial waters out to 12 nautical miles (nm) are covered under The Habitats Regulations (Ref 3). The Habitats Regulations incorporate all Special Protection Areas (SPAs) into the definition of 'European sites' and, consequently, the protections afforded to European sites under the Habitats Directive apply to SPAs designated under the Birds Directive.

2.1.6 The Conservation of Offshore Marine Habitats and Species Regulations 2017 (the 'Offshore Habitats Regulations') (Ref 5) transpose the Habitats and Birds Directives into national law, covering waters beyond 12 nm, to the extent of the British Fishery Limits and UK Continental Shelf Designated Area.

2.1.7 Under the Habitats Regulations and the Offshore Habitats Regulations, before granting approval (i.e. planning permissions, licenses and consents) for a development likely to have a significant effect on a Special Area of Conservation (SAC) or SPA/Ramsar site, an appropriate assessment must be made by a Competent Authority of its implications for the site in view of that site's conservation objectives.

2.1.8 Regard has been had to these documents together with the National Networks National Policy Statement (NN NPS) (Ref 6). Paragraphs 4.22 to 4.25 and 5.27 of the NN NPS specifically address the approach to undertaking HRA for Nationally Significant Infrastructure Projects (NSIPs) such as the Scheme.

2.2 Policy Context

2.2.1 It is a matter of UK Government policy through paragraph 176 of the National Planning Policy Framework 2019 (Ref 7) and ODPM Circular 06/2005 (Ref 8) that internationally important wetlands designated or proposed under the Ramsar Convention 1971 (Ramsar sites) are afforded the same protection as SPAs and SACs for the purpose of considering development proposals that may affect them. The Government also affords the same level of protection to potential SPAs (pSPAs) and candidate SACs (cSACs). In this regard, this report refers to 'European Sites' as the collective term for all sites considered.

2.2.2 This document takes account of recent judgements made with respect to HRA by the Court of Justice of the European Union (CJEU). This includes interpretation of the Habitats Directive in the cases of People Over Wind (Ref 20) and Sweetman (Ref 21). In particular, the People Over Wind case relates to the treatment of mitigation measures at the screening stage of a HRA when deciding whether an appropriate assessment of a plan/project is required. The Court's Ruling goes against what is considered established practice in the UK that mitigation measures can, to a certain degree, be taken into account at the screening stage.

2.2.3 Further guidance has been taken from the even more recent case of Holohan v An Bord Pleanála (Ref 22) where the CJEU held that:

1. An Appropriate Assessment must catalogue the entirety of habitat types and species for which a site is protected.

2. The Appropriate Assessment must also identify and examine the implications of the proposed project for the species present on that site and for which that site has not been listed – as well as the implications for habitat types and species outside the boundaries of that site, insofar as those implications are liable to affect the conservation objectives of the site.

3. Where the competent authority rejects the findings in a scientific expert opinion recommending that additional information be obtained, the 'appropriate assessment' must include an explicit and detailed statement of reasons capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned.

2.3 The HRA Process

2.3.1 The purpose of HRA is to assess the LSEs of a project, in combination with the effects of other plans and projects, with respect to the conservation objectives of European nature conservation sites, also known as the Natura 2000 network, and to ascertain whether that project would be likely to affect the protection or integrity of such a site.

2.3.2 The PINS Advice Note Ten 'Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects' (version 8, November 2017), defines HRA as a step by step process which determines LSE and (where appropriate) assesses adverse impact on the integrity of a European site, examines alternative solutions, and provides justification of Imperative Reasons of Overriding Public Interest (IROPI). This constitutes a four-stage process as summarised below.

- HRA Stage 1 – Screening: Screening for LSE (alone or in-combination with other projects or plans);
- HRA Stage 2 – Appropriate Assessment: Assessment of implications of identified LSEs on the conservation objectives of a European site to ascertain if the proposal will adversely affect the integrity of a European site;
- HRA Stage 3 – Assessment of Alternative Solutions (where it cannot be ascertained that the proposal will not adversely affect the integrity of a European site); and
- HRA Stage 4 – Assessment of IROPI (where no alternative solutions are identified).

2.3.3 All four stages of the process are referred to as the HRA to clearly distinguish the whole process from the one step within it referred to as the "Appropriate Assessment".

2.3.4 The integrity of a site is defined as the coherence of the site's ecological structure and function, across the whole of its area, which enables it to sustain the habitat, complex of habitats and/or populations of species for which the site has been designated (Ref 9). An adverse effect on integrity is likely to be one which prevents the site from making the same contribution to favourable conservation status as it did at the time of designation.

2.3.5 Stage 1 of the process is intended to identify whether the project is 'likely to have a significant effect' on a European site, and is referred to as 'screening'. If the screening process identifies likely significant effects on European sites, Stage 2 of the HRA needs to be completed. Stage 2 considers likely significant impacts in greater detail, including consideration of mitigation measures where these may be applied to avert an effect on the integrity of the European sites concerned. If information is not sufficient to confirm that an adverse impact upon the site's integrity cannot be ruled out, then Stage 3 is undertaken to investigate alternative solutions. If there are no alternative solutions that have a lesser effect upon the European site(s) in question, the project can only be implemented if there are IROPI, as detailed in Article 6(4). In essence, the work at each stage determines whether subsequent stages of the HRA process are required in determining whether a project may proceed. Where a project must be carried out for IROPI, compensatory measures must be secured.

2.3.6 In accordance with the Habitats Regulations, appropriate assessment is required when, in view of a European site's objectives, a project:

- Is likely to have a significant effect on a European site in Great Britain (either alone or in combination with other projects and/or plans); and
- Is not directly connected with or necessary to the management of the site.

2.3.7 The competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be) (Regulation 63(5) of the Habitats Regulations) (Ref 3). It is important that this precautionary principle is applied to any screening assessment. A case ruling (Waddenzee case C-127/02) states that:

'any plan or project not directly connected with or necessary to the management of the site, is to be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives if it cannot be excluded, on the basis of objective information that it will have significant effects on that site, either individually or in combination with other plans or projects'.

2.3.8 Therefore, if sufficient information is not available or where there is an element of doubt and further research is needed, in accordance with the precautionary principle and EC Guidance (Ref 9), the HRA should proceed to Stage 2 of the assessment.

3 Consultation

3.1.1 Table 3.1 provides a summary of the consultation activities undertaken in support of the preparation of this chapter.

Table 3.1: Consultation Undertaken Relevant to the HRA

Date	Organisation	Issue Raised	Response to Issue
May 2018	PINS, Scoping Opinion	The Inspectorate welcomes the assessment of Outer Thames Estuary SPA. Reference is also made in the Scoping Report to the Outer Thames Estuary extension pSPA. The extension will include tern species and their foraging habitat, including the River Yare, over and in which the Proposed Development lies. The Applicant should note that the proposed changes to the Outer Thames Estuary SPA were formally accepted and notified to the EU in October/November 2017. The assessments in the ES should therefore consider the most up-to-date status of this designated site.	A full assessment of the Outer Thames Estuary SPA (including its extension which has now taken effect) is provided in this HRA Report with additional assessment made in ES Chapter 8: Nature Conservation (document reference 6.1).
May 2018	PINS, Scoping Opinion	The Scoping Report does not contain detailed information with regard to any proposed surveys or data collection in respect of birds (with the exception of black redstarts) and designated sites, particularly bird species that may be using the River Yare that could be affected by the Proposed Development, including information on the tern species of the Outer Thames SPA. The Applicant should seek to agree the need (or otherwise) for any additional bird surveys and/or desk-based data required to inform an assessment of likely significant effects	Appendix 8D of the ES provides full details of breeding bird surveys undertaken in 2018. This includes findings of vantage point surveys undertaken to record the common tern feature of

Date	Organisation	Issue Raised	Response to Issue
		on bird species and designated sites with relevant consultation bodies, including Natural England and Norfolk Council Council's (NCC's) Ecologist. The Inspectorate acknowledges the intention to provide information in relation to HRA separate to the ES but include appropriate cross-referencing. The information in the ES should include an assessment of bird species and designated sites in respect of the EIA Regulations in addition to HRA matters.	Breydon Water and Outer Thames Estuary SPAs. A Statement of Common Ground with Natural England is in preparation.
May 2018	Environment Agency, Response to Scoping Report	All statutory designated sites of European and National Importance and protected species that are likely to be impacted by proposal have been identified.	Noted. Sites of European Importance are fully assessed in this HRA Report.
May 2018	Environment Agency, Response to Scoping Report	Water Environment – The report identifies the requirement for an aquatic ecological assessment, which has not yet been undertaken. The assessment should include the potential for impact on migratory fish species which use the Yare through Breydon water as the primary attractant flow into the inland river systems. Protected migratory species include European Eel, Smelt and River Lamprey. The potential impacts on surface water bodies detailed in this section should be used in the aquatic ecology assessment to establish the likely effects on fish, benthic invertebrates and aquatic ecosystems	Surveys for benthic and fish ecology have been completed are fully detailed in Appendix 8I of the ES (document reference 6.2). Relevant findings from Appendix 8I (document reference 6.2) are referred to in Sections 7 and 9 of this report where appropriate.
May 2018	Environment Agency, Response to	It may be necessary (depending on the final timing of the work) to consider 'In combination' effects on migratory species with the Planned	The potential for effects to occur from the Scheme in

Date	Organisation	Issue Raised	Response to Issue
	Scoping Report	Crossing at Lake Lothing in Lowestoft.	combination with other plans or projects is discussed in Section 7.12
May 2018	Marine Management Organisation (MMO) Response to Scoping Report	The MMO welcomes the inclusion of future surveys for 'aquatic ecology' as identified in Table 19 (of the Scoping Report). Impacts on the benthic ecology from potential impacts from noise and vibration should be included in the ES.	Noted. The MMO was consulted regarding the scope of the benthic and fish ecology surveys. Issues raised by the MMO are detailed in Table 8.4 of Chapter 8: Nature Conservation of the ES. Appendix 8I of the ES (document reference 6.2) presents the methodology of the benthic and fish surveys which were informed by the consultation with the MMO. Relevant findings from Appendix 8I (document reference 6.2) are referred to in Sections 7 and 9 of this

Date	Organisation	Issue Raised	Response to Issue
			report where appropriate.
May 2018	Natural England Response to Scoping Report	The ES should thoroughly assess the potential for the proposal to affect designated sites. European sites (e.g. designated Special Areas of Conservation and Special Protection Areas) fall within the scope of the Conservation of Habitats and Species Regulations 2017. In addition, paragraph 118 of the NPPF requires that potential Special Protection Areas, possible Special Areas of Conservation, listed or proposed Ramsar sites, and any site identified as being necessary to compensate for adverse impacts on classified, potential or possible SPAs, SACs and Ramsar sites be treated in the same way as classified sites. Under Regulation 63 of the Conservation of Habitats and Species Regulations 2017 an appropriate assessment needs to be undertaken in respect of any plan or project which is (a) likely to have a significant effect on a European site (either alone or in combination with other plans or projects) and (b) not directly connected with or necessary to the management of the site. Should a Likely Significant Effect on a European or Internationally designated site be identified or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.	Noted. Section 2 of this HRA Report sets out the legislative and policy context that underpins the assessment. Section 7 identifies the potential for LSE, while section 9 provides information to inform Appropriate Assessment for features where LSE cannot be discounted.
May 2018	Natural England Response to	The development site is within close proximity to the following designated nature conservation sites: The Outer	Sections 6 and 7 of this HRA Report

Date	Organisation	Issue Raised	Response to Issue
	Scoping Report	Thames Estuary Special Protection Area, Breydon Water Special Protection Area, Breydon Water Ramsar, Great Yarmouth North Denes Special Protection Area, Breydon Water Site of Special Scientific Interest, Great Yarmouth and North Denes Site of Special Scientific Interest, and within the proposed Outer Thames Estuary Special Protection Area.	sets out the framework for the identification of European sites for consideration. These concur with the view of Natural England.
May 2018	Norfolk County Council Response to Scoping Report	NCC notes that the potential SPA for the mouths of the rivers Yare and Bure (associated with the Outer Thames Estuary SPA) is being treated as if it were an SPA when considering ecological effects.	Noted. The HRA fully details the assessment of this site, including its recent extension.
October 2018	Natural England Response to PEIR	The application site is within close proximity to designated sites and landscapes, namely: • Breydon Water Special Protection Area • Breydon Water Ramsar • Great Yarmouth and North Denes Special Protection Area • Great Yarmouth and North Denes Site of Special Scientific Interest • Breydon Water Site of Special Scientific Interest • The Broads National Park	These sites are all considered in this HRA Report (see Sections 6 and 7).
October 2018	Natural England Response to PEIR	The consultation documents provided by your authority do not include information to demonstrate that the requirements of Regulations 63 and 64 of the Habitats Regulations have been considered by your authority,	Section 2 of this HRA Report sets out the legislative and policy context

Date	Organisation	Issue Raised	Response to Issue
		i.e. the consultation does not include a Habitats Regulations Assessment. In advising your authority on the requirements relating to Habitats Regulations Assessment, it is Natural England's advice that the proposal is not necessary for the management of the European site. Your authority should therefore determine whether the proposal is likely to have a significant effect on any European site, proceeding to the Appropriate Assessment stage where significant effects cannot be ruled out. Natural England advises that there is currently not enough information to determine whether the likelihood of significant effects can be ruled out.	that underpins the assessment.
October 2018	Natural England Response to PEIR	We recommend you obtain the following information to help undertake a Habitats Regulations Assessment: **Air quality** The recommended distance criteria for air quality assessment including dust during construction and diffuse air pollution caused by increased traffic during operation is 200m. On this basis we advise that the Outer Thames Estuary SPA is scoped into the air quality assessment and any significant impacts considered. Dust generated from construction should be measured against baseline levels to ascertain if there will be a significant increase. **Hydrology** The River Yare is hydraulically linked to Breydon Water and the proposed works have the potential to change	These impacts, where there is considered to be exposure to relevant ecological features considered in this HRA through the determination of LSE in Section 7 and the information to inform Appropriate Assessment in Section 9.

Date	Organisation	Issue Raised	Response to Issue
		and/or influence water levels. We recommend that the predicted change to water levels at Breydon Water is assessed. We suggest modelling of the direct impact of raised water levels on saltmarsh, mudflat habitat, including the reduction in availability of these as foraging habitat for birds (i.e. inundated for how much longer?) and potential impact on the existing high tide roost (will it be flooded?). In addition, we advise consideration of potential impacts on brackish and freshwater grazing marsh habitats at adjoining protected sites (e.g. via potentially increased leakage through the walls). **Noise and visual disturbance** We suggest that the County Council consider noise, vibration and visual disturbance impacts during both construction and operation. Desk-based records and survey information should be obtained to identify if there is likely to be foraging breeding birds or overwintering birds which are features of the European sites within the vicinity of the works. Piling, machinery work or vehicle movement constitutes a discontinuous noise, Cutts *et al* (2018) states "*for auditory disturbance to qualify it must constitute a sudden noise event of over 60dB (at the bird, not at source) or a more prolonged noise of over 72dB*". We suggest that the lower level of 60dB be used as a benchmark for disturbance impacts within a designated site. The Waterbird Disturbance Toolkit is a useful tool in determining the level of disturbance to waterbirds.	

Date	Organisation	Issue Raised	Response to Issue
		Water quality We also recommend consideration of potential impacts to water quality caused by dust and/or runoff during the period of construction and operation.	
October 2018	Natural England Response to PEIR	**People Over Wind** Although an official position from Natural England has yet to be released, the following advice has been formulated through conversations with our legal and policy team. Competent authorities undertaking HRAs should be aware of a recent ruling made by the Court of Justice of the European Union (the CJEU) on the interpretation of the Habitats Directive in the case of People Over Wind and Sweetman vs Coillte Teoranta (ref: C−323/17). The case relates to the treatment of mitigation measures at the screening stage of a HRA when deciding whether an appropriate assessment of a plan/project is required. The Court's Ruling goes against established practice in the UK that mitigation measures can, to a certain degree, be taken into account at the screening stage. As a result, Natural England advises that any "embedded" mitigation relating to protected sites under the Habitat Regulations 2017 Regulation 63 (1) should no longer be considered at the screening stage, but taken forward and considered at the appropriate assessment stage to inform a decision as whether no adverse effect on site integrity can be	An overview of People Over Wind is discussed in Section 2 and where relevant referenced in each screening matrix to ensure transparency when discussing the approach to dealing with mitigation measures. It is considered that this HRA follows Natural England's approach regarding embedded mitigation with integrity matrices providing transparency on such an approach.

Date	Organisation	Issue Raised	Response to Issue
		ascertained. In light of the recent case law, any reliance on measures intended to avoid or reduce harmful effects at the likely significant stage is vulnerable to legal challenge. You may also want to seek your own legal advice on any implications of this recent ruling for your decisions.	

4 Stage 1: Screening

4.1 Process

4.1.1 Although the legal context of HRA is set by the Habitat Regulations (Ref 3), as consolidated and updated in 2017, there is no standardised method for conducting the screening process. For the purposes of this report, the European Commission guidance (Ref 9) and Advice Note Ten (Ref 4) have been referred to. In summary, this approach comprises the following steps:

- Determining whether the Scheme is directly connected with the management of the site;
- Providing a description of the Scheme and key impact pathways;
- Describing the relevant European sites including their qualifying features, threats, and key ecosystem factors (conservation objectives), and an identification of the likely effects of the Scheme upon European sites; and
- Where likely effects have been identified, determining the likely significance of those effects.

4.1.2 To identify relevant Natura 2000 sites, a 2 km search distance from the Application site has been applied. This Study Area is extended to up to 30 km Application site where there are potential hydrological connections present.

4.2 Conservation Objectives

4.2.1 The Directive states that the purpose of conservation is the maintenance of biodiversity. This statement does not allow for any form of biodiversity loss, and has a presumption in favour of increasing the value and stock of biodiversity through implementation of applicable Regulations. The EC Guidance (Ref 9) states that the Natura 2000 data form requires that:

'…all Annex I habitat types present on a site and all Annex II species occurring at the site should be mentioned in the appropriate place in the data form. This information forms the basis for a Member State establishing the site's conservation objectives'.

4.2.2 The conservation objectives are therefore normally associated with these Annex I and II species and habitats which form the reasons for the site's designation; the qualifying features and primary reasons for selection.

4.3 Assessment of Likelihood and Significance of Effects

4.3.1 The assessment of significance should be made in relation to the specific features and environmental conditions of the site concerned taking particular account of its conservation objectives (Ref 9). There is no one measure of significance, but the EC Guidance suggests the likelihood of changes to relevant indicators should be used to establish changes in these conservation objectives.

4.3.2 For the assessment of significance of likely impacts upon the conservation objectives of each site identified, the following impacts have therefore been considered:

- Loss of habitat area – including percentage of loss;
- Fragmentation – considering duration or permanence, level in relation to original extent;
- Disturbance – considering duration or permanence, distance from site;
- Air quality (pollution) – including change in nitrogen deposition rates;
- Water quality (pollution) – involving changes in flora and fauna from pollution; and
- Water quality (sediment deposition) – involving changes in flora and fauna from increases in sediment deposition.

4.3.3 Where appropriate a process of establishing connectivity between potential impacts of the proposed developments and features of European sites. This considers the implications for habitat types and species both in and outside the boundaries of a site (i.e. involving determination on 'functionally linkage').

4.3.4 In combination effects are addressed at 7.12.

4.4 Outcomes

4.4.1 The outcomes of this report are an assessment of the effects of the Scheme in isolation and in-combination, on European sites, their integrity and their qualifying features and conservation objectives. Where sufficient detail exists for such an assessment to be made, either of two outcomes has been made:

- It can be objectively concluded that there are not likely to be significant effects on the European site; or

- The information provided either suggests that significant effects are likely or that sufficient uncertainty remains to indicate that further Appropriate Assessment and hence further stages of the HRA process should be undertaken.

5 Description of the Scheme

5.1 The Scheme

5.1.1 Chapter 2 of Volume I of the Environmental Statement (ES) (document reference 6.1) provides a full description of the Scheme, and is accompanied by the General Arrangement Plan (document reference 2.2). Both documents should be read alongside this document, as a detailed project description is not provided in this document to prevent unnecessary duplication.

5.1.2 The Scheme involves the construction, operation and maintenance of a new crossing of the River Yare in Great Yarmouth. The Scheme consists of a new dual carriageway road, including a road bridge across the river, linking the A47 at Harfrey's Roundabout on the western side of the river to the A1243 South Denes Road on the eastern side. The Scheme would feature an opening span double leaf bascule (lifting) bridge across the river, involving the construction of two new 'knuckles' extending the quay wall into the river to support the bridge. The Scheme would include a bridge span over the existing Southtown Road on the western side of the river, and a bridge span on the eastern side of the river to provide an underpass for existing businesses, enabling the new dual carriageway road to rise westwards towards the crest of the new crossing.

5.1.3 If constructed, the Scheme would comprise the following principal elements:

- A new dual carriageway road, crossing the River Yare in an east-west orientation, comprising:
  - A new double-leaf bascule bridge providing an opening span to facilitate vessel movement within the river. This would include structures to support and accommodate the operational requirements of the bridge-opening mechanism, including counterweights below the level of the bridge deck. The bridge would be supported on driven piles;
  - New substructures, supported by driven piles, to support the double leaf bascule bridge within the existing quays either side of the river and within the river itself, requiring new permanent "knuckle" walls, creating cofferdams in the waterway to accommodate their construction;
  - A new five-arm roundabout connecting the new dual carriageway road with Suffolk Road, William Adams Way and the western end of Queen Anne's Road. Sections of the new five arm roundabout would be supported on driven piles where deep soft ground is encountered;

  - A single-span bridge over Southtown Road, with reinforced earth embankments joining that bridge to the new roundabout at William Adams Way. Southtown Road bridge and the reinforced earth embankments would be supported on driven piles;

  - A single-span bridge to provide an underpass on the eastern side of the river, with reinforced earth embankments joining that single span bridge to South Denes Road. The underpass and reinforced earth embankments would be supported on driven piles; and

  - A new signalised junction connecting the new road with A1243 South Denes Road.

- The closure of Queen Anne's Road, at its junction with Suffolk Road, and the opening of a new junction onto Southtown Road providing vehicular and pedestrian access to residential properties and the MIND Centre and Grounds at the eastern end of Queen Anne's Road;

- Revised access arrangements for existing businesses onto the local highway network;

- Dedicated provision for cyclists and pedestrians which ties into existing networks;

- Implementation of part of a flood defence scheme along Bollard Quay that is proposed to be promoted by the Environment Agency, and works to integrate with the remainder of the flood defence scheme;

- A control tower structure located immediately south of the crossing on the western side of the river. The control tower would facilitate the 24/7 operation of the opening span of the new double-leaf bascule bridge;

- A plant room located on the eastern side of the river for the operation of the opening span of the new double-leaf bascule bridge;

- The demolition of an existing footbridge on William Adams Way;

- Associated changes, modifications and/or improvements to the existing local highway network;

- Additional signage, including Variable Message Signs (VMS) at discrete locations, to assist the movement of traffic in response to network conditions and the openings / closings of the double-leaf bascule bridge;

- The relocation of existing allotments to compensate for an area to be lost as a result of the Scheme and other works, including those at the MIND Centre and Grounds; and

- New public realm, landscape, ecology and sustainable drainage measures.

5.1.4 The Scheme also includes works to facilitate the construction, operation and maintenance of the above elements including:

- Creation of temporary construction sites and accesses from the public highway;
- Provision of new utilities and services and the diversion of existing utilities;
- Provision of drainage infrastructure, lighting and landscaping;
- Demolition of a number of existing residential and commercial / business properties; and
- Provision of vessel waiting facilities to the north and south of the new crossing, either as floating pontoons or additional fendering to the existing berths, including any dredging and quay strengthening works that may be required.

5.2 Drainage

5.2.1 The proposed drainage strategy for the Scheme is detailed within the Drainage Strategy (Appendix 12C of the ES (document reference 6.2)).

5.2.2 The proposed drainage for the Scheme would be secured by a requirement in the DCO for drainage to be implemented in accordance with details which accord with the drainage strategy and have been approved by the county planning authority prior to commencement of the authorised development.

5.3 Lighting

Highway Lighting

5.3.1 The proposed lighting strategy for the Scheme is outlined with Appendix D to the Design Report (document reference 7.4).

5.3.2 The proposed highway lighting for the Scheme would be secured by a requirement in the DCO. This would require a highway lighting scheme to be implemented. The highway lighting scheme would be required to be in accordance with the lighting strategy and approved by the county planning authority prior to the commencement of the authorised development.

Other Lighting

5.3.3 The Scheme includes provision for public realm lighting, security lighting and interior lighting to the control tower, plant room and bridge.

5.3.4 The Scheme includes provision for marine navigation lighting in accordance with the requirements of navigational safety.

5.4 Construction

5.4.1 Construction of the scheme will involve the following key activities:

5.4.2 Key aspects of the construction phase that have the potential to impact natural features are:

- A new double-leaf bascule bridge providing an opening span to facilitate vessel movement within the river. This would include structures to support and accommodate the operational requirements of the bridge-opening mechanism, including counterweights below the level of the bridge deck. The bridge would be supported on driven piles;
- New substructures, supported by driven piles, to support the double leaf bascule bridge within the existing quays either side of the river and within the river itself, requiring new permanent “knuckle” walls, creating cofferdams in the waterway to accommodate their construction;
- Creation of temporary construction sites and accesses from the public highway;
- Demolition of a number of existing residential and commercial / business properties;
- Provision of vessel waiting facilities to the north and south of the new crossing, either as floating pontoons or additional fendering to the existing berths, including any dredging and quay strengthening works that may be require Disturbances, specifically through excavation, that could result in adverse impacts to water resources, and ecological receptors that rely upon them.

5.5 Operation and Maintenance

5.5.1 It is anticipated that the proposed double leaf bascule bridge will be operated on demand for commercial vessels and by agreement for recreational vessels at set times when requested in advance. The double leaf bascule bridge is expected to be operational 24 hours per day and 365 days per year.

5.5.2 Whilst the opening arrangements for the double leaf bascule bridge have yet to be agreed, it is envisaged that the bridge will open on average an estimated 15 times a day. Modelling has assumed that each opening will take approximately 5.5 minutes including vessel passage time, meaning that the crossing will be closed to traffic for approximately 82 minutes on a typical day.

5.5.3 Maintenance of the Scheme will be the responsibility of the Applicant and would involve routine, planned maintenance and system checks, as well as reactive maintenance and repairs.

5.5.4 It is considered that maintenance operations would all fall within the environmental envelope related to the initial construction phase, as they would involve similar or lesser activities than those required for construction.

5.5.5 Maintenance activities would be planned to enable them to be delivered safely and in a manner which minimises congestion and disruption for all river and road users and would not require the need for excessively noise plant or equipment.

5.6 Decommissioning

5.6.1 The Scheme bascule bridge will be designed to have a life of at least 120 years in accordance with the requirements of BS EN 1990:2002 Eurocode – Basis of Structural Design.

5.6.2 Any decommissioning would be likely to be completed in less time than the construction of the Scheme. Whilst the Applicant has no plans to decommission and remove the Scheme, were it to be removed, it would be likely to require a similar degree of plant, equipment and disturbance within the navigation channel to that predicted during construction. Given that the Applicant has no plans to decommission the Scheme, and as the environmental constraints in the mid-22nd Century cannot be reasonably predicted, further consideration of decommissioning is not considered appropriate.

6 Description of European Designated Sites

6.1 Sites Considered

6.1.1 This assessment has considered the following European sites as defined using a 30 km search area from the Application Site (Figure 1, shown at the back of this document):

- Southern North Sea cSAC / Site of Community Importance (SCI) (No EU code assigned at present);
- Outer Thames Estuary SPA: UK9020309 and Extension;
- Breydon Water SPA: UK9009181;
- Breydon Water Ramsar: UK11008;
- Great Yarmouth and North Denes SPA: UK9009271;
- The Broads SAC: UK0013577;
- Broadland SPA: UK9009253;
- Broadland Ramsar: UK11010.

6.1.2 The 30 km search area applied in Figure 1, shown at the back of this document, for initial identification of sites is considered suitably precautionary to capture any functional linkage with the Scheme even for more mobile species (i.e. birds and bats). Direct connectivity between European site features in the Scheme is in fact likely to involve substantially more refined considerations due to the nature and extent of the Scheme (see Section 7). Figure 2, shown at the back of this document, presents European sites within immediate vicinity of the Scheme.

6.2 Southern North Sea cSAC: UK0030395

6.2.1 This is a 3,695,054ha marine site located approximately 500m to the east of the Principal Application Site at its closest point, running along the coast and out into the Southern North Sea. The Principal Application Site is hydrologically linked the cSAC / SCI by way of the River Yare, which runs approximately 2.5km from the Scheme to the cSAC / SCI.

Key Features

6.2.2 In January 2017, the Southern North Sea cSAC / SCI was designated for the protection of harbour porpoise. The site is the largest of the five possible and

candidate SACs that were proposed for the conservation of harbour porpoise within UK coastal waters.

6.2.3 The qualifying feature of the site is the Directive's Annex II species:

- Harbour porpoise *Phocoena phocoena*.

Vulnerability

6.2.4 Activities occurring within/near to the Southern North Sea site to which the harbour porpoise is considered sensitive include:

- Commercial fisheries (with harbour porpoise bycatch);
- Contamination caused by discharge/run-off from land-fill, terrestrial/ offshore industries;
- Anthropogenic underwater sound caused by shipping, oil and gas drilling, dredging and disposal, aggregate extraction, pile driving, acoustic surveys and recreational boating activity;
- Death or injury by collision caused by shipping or recreational boating activity; and
- Removal of target (prey) species by commercial fisheries.

Conservation Objectives

6.2.5 To avoid deterioration of the habitats of the harbour porpoise or significant disturbance to the harbour porpoise, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for the UK harbour porpoise.

6.2.6 To ensure for harbour porpoise that, subject to natural change, the following attributes are maintained or restored in the long term:

- The species is a viable component of the site;
- There is no significant disturbance of the species; and
- The supporting habitats and processes relevant to harbour porpoises and their prey are maintained.

6.3 Outer Thames Estuary SPA: UK9020309

6.3.1 Having been extended in area in 2017, the Outer Thames Estuary SPA now includes the River Yare up to Breydon Water SPA. This extension was made to provide continuous coverage for little tern foraging from the SPA and common terns foraging from Breydon Water SPA. As a result, the SPA falls within the red line boundary of the Scheme such that the Scheme occupies 3.7ha of the SPA area. This represents a tiny fraction of the whole of the SPA (area 3,924km^2).

Key Features

6.3.2 The primary reason for the selection of the existing site (Article 4.1 Qualification of the Birds Directive (2009/147/EC)) is that over winter the area regularly supports 38% of the GB population of red-throated diver *Gavia stellata*. The site also supports breeding and foraging little tern *Sternula albifrons* and common tern *Sterna hirundo*:

- Red-throated diver *Gavia stellata* – non-breeding; 6,466 individuals (1989-2006/7): 38% of GB population.
- Little tern *Sternula albifrons* – breeding; 746 individuals (2011-2015): 19.6% of GB population.
- Common tern *Sterna hirundo* – breeding; 532 individuals (2011-2015): 2.7% of GB population.

Vulnerability

6.3.3 Activities with the most significant adverse effects on the SPA as listed on the Natura 2000 Standard Data Form for the Outer Thames Estuary SPA are as follows:

- D03 Shipping lanes, ports, marine constructions (inside and outside SPA);
- C03 Renewable abiotic energy use (inside and outside SPA);
- H03 Marine water pollution (inside and outside SPA); and
- F02 Fishing and harvesting aquatic resources (inside SPA).

Conservation Objectives

6.3.4 With regard to the SPA and the individual species and/or assemblage of species for which the site has been designated, and subject to natural change; it should be ensured that the integrity of the site is maintained or

restored as appropriate, and ensured that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

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

6.4 Breydon Water SPA: UK9009181

6.4.1 This is an inland tidal estuary, approximately 1.8km north-west of the Scheme, at the mouth of the River Yare and its confluence with the Rivers Bure and Waveney, with extensive mudflats that are exposed at low tide. The site also includes extensive areas of floodplain grassland adjacent to the intertidal areas. Breydon Water is internationally important for wintering waterbirds, some of which feed in the Broadland SPA that adjoins this site at Halvergate Marshes.

Key Features

6.4.2 The SPA supports internationally important numbers of birds:

<u>During the Breeding Season</u>

- Common tern *Sterna hirundo* – 155 pairs (1992-94 and 1996): 1.3% of GB population.

<u>Over Winter</u>

- Avocet *Recurvirostra avosetta* – 33 individuals (5-year peak mean 1991/92 to 1995/96): 2.6% of GB population.
- Bewick's swan *Cygnus columbianus bewickii* – 391 individuals (5-year peak mean 1991/92 to 1995/96): 5.6% of GB population.
- Golden plover *Pluvialis apricaria* – 5,040 individuals (5-year peak mean 1991/92 to 1995/96): 2.0% of GB population.
- Lapwing *Vanellus vanellus* – 24,940 wintering individuals (5-year peak mean 1991/92 to 1995/96): 1.2% of European breeding population.

Passage

- Ruff *Philomachus pugnax* – 54 individuals (5-year peak mean 1991/92 to 1995/96): 7.7% of GB population.

Wetland Bird Assemblage

- Regularly supporting 43,225 individual waterfowl (5-year peak mean 1991/92 to 1995/96) including black-tailed godwit *Limosa islandica*, dunlin *Calidris alpina*, lapwing *Vanellus*, shoveler *Anas clypeata*, wigeon *Anas penelope*, white-fronted goose *Anser albifrons*, cormorant *Phalacrocorax carbo*, golden plover *Pluvialis apricaria*, avocet *Recurvirostra avosetta*, Bewick's swan *Cygnus columbianus bewickii*.

Vulnerability

6.4.3 Activities with the most significant adverse effects on the SPA as listed on the Natura 2000 Standard Data Form for Breydon Water SPA are as follows:

- G01 Recreational activities (inside SPA);
- F02 Fishing and harvesting aquatic resources (inside SPA);
- J02 Human induced changes in hydraulic conditions (inside and outside SPA);
- G05 Other human intrusions and disturbances (inside SPA); and
- A02 Modification of cultivation practices (inside SPA).

Conservation Objectives

6.4.4 To maintain or restore the integrity of the site by maintaining or restoring:

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

6.5 Breydon Water Ramsar: UK11008

6.5.1 An inland tidal estuary at the mouth of the River Yare and its confluence with the River Bure and River Waveney and an adjacent area of drained floodplain covering a 1,205ha area, 1.8km north-west of the Scheme at its closest point. The site includes extensive areas of mudflats that are exposed at low tide, and a large area of lowland wet grassland. The site is internationally important for wintering wildfowl.

Key Features

6.5.2 Ramsar criterion 5: assemblage of international importance:

- 68,175 waterfowl (5-year peak mean 1998/99 to 2002/03).

6.5.3 Ramsar criterion 6: species occurring at levels of international importance:

- Bewick's swan *Cygnus columbianus bewickii* – 171 individuals (5-year peak mean 1998/99 to 2002/03): 2.1% of GB population.
- Lapwing *Vanellus* – 20,142 individuals (5-year peak mean 1998/99 to 2002/03): 1.3% of GB population.

6.5.4 Species identified subsequent to designation for possible future consideration under criterion 6:

- Pink-footed goose *Anser brachyrhynchus* – 5,816 individuals (5-year peak mean 1998/99 to 2002/03): 1.3% of Greenland & Iceland/UK population.
- Wigeon *Anas penelope* – 15,624 individuals (5-year peak mean 1998/99 to 2002/03): 1.0% of NW Europe population.
- Shoveler *Anas clypeata* – 478 individuals (5-year peak mean 1998/99 to 2002/03): 1.1% of NW & C Europe population.
- Golden plover *Pluvialis apricaria* – 10,656 individuals (5-year peak mean 1998/99 to 2002/03): 1.1% of Iceland & Faroes/East Atlantic population.
- Black-tailed godwit *Limosa islandica* – 1,100 individuals (5-year peak mean 1998/99 to 2002/03): 3.1% of Iceland/Western Europe population.

Vulnerability

6.5.5 No factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects reported on the Breydon Water Ramsar Wetlands Information Sheet.

Conservation Objectives

6.5.6 Information is not readily available so it is therefore considered that the conservation objectives for Breydon Water SPA which covers the same land area and location as Breydon Water Ramsar are relevant.

6.6 Great Yarmouth and North Denes SPA: UK9009271

6.6.1 A 149ha area comprising a low dune system behind a wide shingle beach, is located approximately 2.7km north of the Scheme. The site supports important numbers of breeding little tern *Sternula albifrons* that feed outside the SPA in nearby waters.

Key Features

6.6.2 During the breeding season the area regularly supports:

- Little tern *Sternula albifrons* – 220 pairs (5-year mean, 1992-1996): 9.2% of GB breeding population.

Vulnerability

6.6.3 Activities likely to have the greatest effects on the site, to which little tern is considered sensitive include:

- Fishing and harvesting of aquatic resources;
- Human induced changes in hydraulic conditions;
- Outdoor sports and leisure activities, and recreational activities; and
- Changes in abiotic conditions.

Conservation Objectives

6.6.4 To maintain in favourable condition the habitats for little tern, including:

- Sand/shingle areas; and
- Shallow coastal waters.

6.7 The Broads SAC: UK0013577

6.7.1 This 5,889ha site is located approximately 6.7km west of the Scheme. Its qualifying features are Annex I habitats that are the primary reason for site selection:

- 3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. The Broads is the richest area for charophytes (stoneworts) in Britain with twenty species having been recorded, which represents over 65% of the British flora.

- 3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation. The Broads in East Anglia contain several examples of southern natural eutrophic lakes. Although artificial, having arisen from peat digging in medieval times, these lakes and the ditches in areas of fen and drained marshlands support relict vegetation of the original Fenland flora, and collectively this site contains one of the richest assemblages of rare and local aquatic species in the UK.

- 7140 Transition mires and quaking bogs. The Broads contain examples of transition mire in a flood plain in the south-eastern part of the UK, where the habitat is rare.

- 7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion* davallianae* Priority feature. This flood plain mire site in East Anglia has the largest example of calcareous fens in the UK and possibly the largest occurrence in the EU outside Sweden.

- 7230 Alkaline fens. The Broads is one of two sites selected for alkaline fens in East Anglia, in eastern England, where a main concentration of lowland fen occurs.

- 91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) * Priority feature. The complex of sites in the Broads of East Anglia contains the largest blocks of alder wood in England.

Qualifying Features – present as a qualifying feature, but not a primary reason for selection of this site

- 6410 Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). Purple moor-grass meadows.

6.7.2 Annex II species that are a primary reason for selection of this site:

- 1016 Desmoulin`s whorl snail *Vertigo moulinsiana*. The Broads is the main stronghold of Desmoulin's whorl snail in East Anglia and is one of several sites selected in this part of its range. Several large populations are known, associated with standing and flowing water and ditch systems. This is a very important area for its wetland invertebrate fauna, and many Red Data Book and Nationally Scarce species occur here.

- 1903 Fen orchid *Liparis loeselii*. The Broads in eastern England provide representation of the Fenland form of fen orchid in the eastern part of its UK range. Three small populations of var. *loeselii* are known to occur on this site, and 242 plants were found in 1996.

- 4056 Ramshorn snail *Anisus vorticulus*. This species occurs across a range of sites in southern and eastern England. The Broads is one of the three main population centres for this species in the UK.

Qualifying Features - Annex II species present as a qualifying feature, but not a primary reason for site selection

- 1355 Otter *Lutra lutra*.

Vulnerability

6.7.3 The most important negative impacts and activities with high effect on the site as listed on the Natura 2000 Standard Data Form for the Broads SAC are as follows:

- M01 Changes in abiotic conditions;

- H02 Pollution to groundwater (point sources and diffuse sources); and

- I01 Invasive non-native species.

6.7.4 All of the above impacts and activities are liable to occur both inside and outside the SAC.

Conservation Objectives

6.7.5 With regard to the SAC and the natural habitats and/or species for which the site has been designated and subject to natural change; it should be ensured that the integrity of the site is maintained or restored as appropriate, and ensured 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 qualifying species;

- The structure and function (including typical species) of qualifying natural habitats;

- The structure and function of the habitats of qualifying species;

- The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;

- The populations of qualifying species; and
- The distribution of qualifying species within the site.

6.8 Broadland SPA: UK9009253

6.8.1 The SPA is located approximately 6.7km west of the Scheme.

Qualifying Features

6.8.2 The site is used regularly by 1% or more of the GB population of the following species in any season:

- Bittern *Botaurus stellaris*: 10-15% (5-year peak mean 1987/88 to 1991/92);
- Bewick's swan *Cygnus columbianus bewickii*: 8.6% (1996/97);
- Whooper swan *Cygnus cygnus*: 1.8% (1996/97);
- Marsh harrier *Circus aeruginosus*: 16% (5-year peak mean 1987/88 to 1991/92);
- Hen harrier *Circus cyaneus*: 3% (5-year peak mean 1987/88 to 1991/92); and
- Ruff *Philomachus pugnax*: 6.4% (5-year peak mean 1987/88 to 1991/92).

6.8.3 The site is used regularly by around 1% of the biogeographic population of the following regularly occurring migratory species in any season:

- Wigeon *Anas Penelope*: 1.3% of north-west European population (5-year peak mean 1990/91 to 1995/96);
- Gadwall *Anas strepera*: 1.0% of north-west European population (5-year peak mean 1990/91 to 1995/96); and
- Shoveler *Anas clypeata*: <1% of north-west European population (5-year peak mean 1990/91 to 1995/96).

Vulnerability

6.8.4 The most important negative impacts and activities with high effect on the site as listed on the Natura 2000 Standard Data Form for the Broadland SPA are as follows:

- M02 Changes in abiotic conditions;

- H02 Pollution to groundwater (point sources and diffuse sources); and
- I01 Invasive non-native species.

6.8.5 All of the above impacts and activities are liable to occur both inside and outside the SPA.

Conservation Objectives

6.8.6 With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified and subject to natural change; it should be ensured that the integrity of the site is maintained or restored as appropriate, and ensured that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring:

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

6.9 Broadland Ramsar: UK11010

6.9.1 Broadland is a low-lying wetland complex straddling the boundaries between east Norfolk and northern Suffolk. The area includes the river valley systems of the Bure, Yare and Waveney and their major tributaries. The open distinctive landscape comprises a complex and interlinked mosaic of wetland habitats including open water, reedbeds, carr woodland, grazing marsh and fen meadow. The region is important for recreation, tourism, agriculture and wildlife. The site is located approximately 6.7km west of the Scheme.

Qualifying Features - Annex I habitats that are the primary reason for site selection

6.9.2 Ramsar Criteria Applied to the Designation of the Site: Ramsar Criterion 2:

- The site supports a number of rare species and habitats within the biogeographical zone context, including Habitats Directive Annex I and Annex II features as listed above in The Broads SAC description of key features.

6.9.3 Ramsar Criterion 6: Species/populations occurring at levels of international importance:

Species with Peak Counts in Winter:

- 196 individuals of Bewick's swan *Cygnus columbianus bewickii* (North-western Europe) representing an average of 2.4% of the GB population (5-year peak mean 1998/9-2002/3);
- 6,769 individuals of wigeon *Anas penelope* (North-western Europe) representing an average of 1.6% of the GB population (5-year peak mean 1998/9-2002/3);
- 545 individuals of gadwall *Anas strepera* (North-western Europe) representing an average of 3.1% of the GB population (5-year peak mean 1998/9-2002/3); and
- 247 individuals of shoveler *Anas clypeata* (North-western and Central Europe) representing an average of 1.6% of the GB population (5-year peak mean 1998/9-2002/3).

6.9.4 The species/populations identified subsequent to designation for possible future consideration under Criterion 6:

- 4,263 individuals of pink-footed goose *Anser* brachyrhynchus (Greenland, Iceland/UK) representing an average of 1.7% of the population (5-year peak mean 1998/9-2002/3); and
- 1,007 individuals of greylag goose Anser (Iceland/UK, Ireland) representing an average of 1.1% of the population (source period not collated).

Vulnerability

6.9.5 No factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects reported on the Broadland Ramsar Wetlands Information Sheet.

Conservation Objectives

6.9.6 Information is not readily available so the following is based on conservation objectives for Broadland SPA which mostly covers the same land area and location as Broadland Ramsar and is also primarily designated for its bird interest.

6.9.7 With regard to the Ramsar and the individual species and/or assemblage of species for which the site has been classified and subject to natural change;

it should be ensured that the integrity of the site is maintained or restored as appropriate by maintaining or restoring:

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

7 Screening Assessment

7.1 Introduction

7.1.1 The Scheme is not being undertaken as part of the management of any of the European sites concerned.

7.2 Potential Effects

7.2.1 The assessment of potential effects is presented in the form of assessment matrices in accordance with AN10.

7.2.2 Potential effects upon the European sites which are considered within the assessment matrices are listed in Table 7.1, overleaf. All potential identified impact mechanisms on ecological features are included in this coarse screening exercise.

Table 7.1: Effects Considered within the Screening Matrices for Each European Site

Designation	Effects Described in Submission Information	Presented in Screening Matrices as
Southern North Sea cSAC / SCI: UK0030395	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition.	• Pollution
Outer Thames Estuary SPA: UK9020309	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; • Disturbance from lighting; and	• Displacement

Designation	Effects Described in Submission Information	Presented in Screening Matrices as
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition.	• Pollution
Breydon Water SPA: UK9009181	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition; and	• Pollution

Designation	Effects Described in Submission Information	Presented in Screening Matrices as
Breydon Water Ramsar: UK11008	• habitat loss and fragmentation.	• habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition.	• Pollution
Great Yarmouth and North Denes SPA: UK9009271	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement

Designation	Effects Described in Submission Information	Presented in Screening Matrices as
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality.	• Pollution
The Broads SAC: UK0013577	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition.	• Pollution

Designation	Effects Described in Submission Information	Presented in Screening Matrices as
Broadland SPA: UK9009253	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition.	• Pollution
Broadland Ramsar: UK11010	• Habitat loss and fragmentation.	• Habitat loss
	• Disturbance from noise; • Disturbance from vibration; and • Disturbance from lighting.	• Displacement

Designation	Effects Described in Submission Information	Presented in Screening Matrices as
	• Water quality resulting from sediment deposition.	• Sediment deposition
	• Watercourse contamination through pollution and/or run-off; and • Watercourse and habitat contamination through reduction in air quality and/or nitrogen deposition.	• Pollution

7.3 Screening Matrices

7.3.1 The European sites included within the screening assessment are:

- Southern North Sea cSAC / SCI: UK0030395;
- Outer Thames Estuary SPA: UK9020309;
- Breydon Water SPA: UK9009181;
- Breydon Water Ramsar: UK11008;
- Great Yarmouth and North Denes SPA: UK9009271;
- The Broads SAC: UK0013577;
- Broadland SPA: UK9009253;
- Broadland Ramsar: UK11010.

7.3.2 The screening process has been undertaken applying matrices following PINS format. Full evidence supporting conclusions in each matrix are provided in a series of footnotes.

7.3.3 Matrix Key:

✓ = Likely significant effect **cannot** be excluded

✗ = Likely significant effect **can** be excluded

C = construction

O = operation

D = decommissioning

7.3.4 The screening matrices have attempted to address the recent Holohan case in that it was concluded that the Appropriate Assessment must catalogue the entirety of habitats and species for which a site is protected.

7.4 HRA Screening Matrix: Southern North Sea cSAC

Table 7.2: HRA Screening Matrix: Southern North Sea cSAC / SCI

Name of European Site and Designation: Southern North Sea cSAC															
EU Code: UK0030395															
Distance to NSIP: **460m**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**			**Displacement**			**Sediment Deposition**			**Pollution**			**In combination effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
Harbour porpoise *Phocoena phocoena*	✗[a]	✗[b]	✗[c]	✗[d]	✗[e]	✗[e]	✓[f]	✓[f]	✗[g]	✓[h]	✓[h]	✗[g]	✗[i]	✗[i]	✗[i]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site. No habitats within the European site would be lost as a result of construction activities (Chapter 2: Description of the Scheme).

[b] Operation of the Scheme does not require land take from the European site. No habitat loss or fragmentation from within the European site would occur as a result of operational activities (Chapter 2: Description of the Scheme).

[c] Given that the Applicant has no plans to decommission the Scheme, and as the environmental constraints in the mid-22nd Century cannot be reasonably predicted, further consideration of decommissioning is not considered appropriate. Decommissioning would not in any case give rise to any loss of habitats from the European site.

[d] Vibration and underwater noise generated by construction activities has the potential to disturb harbour porpoise. Such works would be of temporary duration during construction only. Current studies have shown that the number of sightings of porpoises decline by 90% when piling noise occurs at above 170dB but at only 25% when between 145dB and 150dB. It is, however, considered that there is a remote likelihood that the Scheme would interact with any marine mammal species due to its urban location, inland of true marine habitat. Chapter 7 presents noise levels for seven phases of construction with peak levels reaching 104 dB for the East Abutment Combi-Wall while the works at the East Bascule Pit Combi-Wall are predicted to reach 103 db. These areas are immediately adjacent to the River Yare and therefore within 240 m of the SAC. The pathway for noise to travel through water is however much greater at 2.5 km and no likely significant effects are predicted on the European site.

[e] Operation would not require piling and consequently there is no risk of vibration and underwater noise affecting harbour porpoise within the European site. Chapter 7: Noise and Vibration of the ES details that operational noise and vibration is not considered significant on European Sites in much closer proximity than the Southern North Sea cSAC / SCI. Although the Southern North Sea cSAC / SCI is designated for different features from these sites, it is expected that noise and vibration from the operational Scheme would dissipate before reaching the site.

[f] Chapter 11: Water Environment details an assessment of sediment modelling undertaken for the Scheme. Sediment entering the River Yare could migrate downstream to impact on the North Sea. However, the magnitude of change to the cSAC / SCI is considered to be very small once the sediment is washed out to sea and dispersed through tidal flows. Appendix 6G of the ES (document reference 6.2) presents at an assessment of NO_x concentrations for transect points modelled across the Breydon Water SPA/Ramsar. It was concluded there is no change in N-deposition. As such, it was considered further assessment of the impacts of the Scheme upon ecology at Breydon Water SPA/Ramsar due to changes in air quality was not required. Considering that equivalent distances are involved from the Scheme to European site, the same conclusion is reached for the Southern North Sea cSAC / SCI.

[g] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate

[h] Air, water and lighting pollution would affect only the immediate vicinity of construction works and would not have effects extending to the European site, which is 460m distant. However, there is a pathway length approximately 2.5km by which water pollution arising from construction, in the absence of control measures, might reach the European site. In accordance with the People Over Wind decision, as the potential for adverse effects on the integrity of the European site cannot be ruled out without consideration of the pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[i] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

7.5 HRA Screening Matrix: Outer Thames Estuary SPA

Table 7.3: HRA Screening Matrix: Outer Thames Estuary SPA

Name of European Site and Designation: Outer Thames Estuary SPA															
EU Code: UK9020309															
Distance to NSIP: **0.0 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**			**Displacement**			**Sediment Deposition**			**Pollution**			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
Wintering birds:															
Red-throated diver *Gavia stellata*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✓ e	✓ e	✗[f]	✓ g	✓ h	✗[f]	✗ i	✗ i	✗[i]
Little tern *Sternula albifrons*	✗[n]	✗[n]	✗[n]	✗[j]	✗[j]	✗[j]	✓ e	✓ e	✗[f]	✓ g	✓ h	✗[f]	✗ i	✗ i	✗[i]
Common tern *Sterna hirundo*	✗[n]	✗[n]	✗[n]	✗[j]	✗[j]	✗[j]	✓ **e**	✓ **e**	✗[f]	✓ **g**	✓ **h**	✗[f]	✗ **i**	✗ **i**	✗[i]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would require temporary land take within an area of less than 3.7ha of the European site. This land take would occur within the River Yare at the point of the bridge crossing. With regard to the individual features of the SPA, red-throated diver is a species that feeds at distance offshore. It is not ordinarily present in the vicinity of the Application site (or indeed the River Yare) and would not be subject to adverse effects (Ref 11). Little tern do not breed in the immediate area of the Scheme and have a limited (and coastal) foraging range (Ref 12). Common tern breed in the adjacent Breydon Water SPA and is the primary reason for the Outer Thames Estuary SPA to be extended to include the River Yare overlapping with the Scheme. As detailed in Chapter 8: Nature Conservation of the ES (document reference 6.1) and Appendix 8D (document reference 6.2), specific surveys were undertaken to determine the usage of the River Yare adjacent to the Principal Application site. No common tern were recorded. No likely significant effects are therefore anticipated.

[b] Following construction, operation of the Scheme would require land take of approximately 3.7 ha from the European site in the location of the bridge piers. This land take would occur within the River Yare at the point of the bridge crossing. Red-throated diver is a species that feeds at distance offshore. It is not present in the vicinity of the Scheme and would not be subject to adverse effects.

[c] Given that the Applicant has no plans to decommission the Scheme, and as the environmental constraints in the mid-22nd Century cannot be reasonably predicted, further consideration of decommissioning is not considered appropriate

[d] Noise and visual disturbance arising from construction works or operation have the potential to disturb red-throated diver should they be present in proximity to Scheme works. However, as this species use the SPA for offshore foraging only, red-throated diver within the European site would not be subject to disturbance from construction works, or operation works and would not be displaced from the site as a result of any of these activities. The River Yare extension to the SPA was designated for common tern only not Red-throated diver. By way of comparison, displacement of red-throated divers is considered relevant to 4km distance from permanent operational structures such as offshore wind turbines (Ref 14) and noise and visual disturbance from the Scheme is not expected extend to offshore areas of the SPA.

[e] Sediment deposition has the potential to affect the immediate environs to the Application Site of the of the River Yare extension to the Outer Thames Estuary SPA (Chapter 11: Water Environment of the ES) and would therefore have the potential to affect the foraging of features of the SPA. Red-throated diver uses offshore areas only for foraging and are unlikely to be present in the River Yare (Ref 11). Little tern do not breed in the immediate area of the Scheme and have a limited (and coastal) foraging range (Ref 12). Common tern breed in the adjacent Breydon Water SPA and is the primary reason for the Outer Thames Estuary SPA to be extended to include the River Yare overlapping with the Scheme. As detailed in Chapter 8: Nature Conservation (document reference 6.1) and Appendix 8D (document reference 6.2), specific surveys were undertaken to determine the usage of the River Yare adjacent to the Principal Application site. No common tern were recorded. Although it is considered unlikely that foraging of the common tern feature of the SPA would be affected by sediment loads, in accordance with the People Over Wind decision the potential for adverse effects on the integrity of the European site cannot be ruled out. This conclusion is reached without detailed consideration of the likely effects in addition to the measures taken and secured in the Outline CoCP to reduce exposure to this effect. This matter is further considered within Stage 2: Appropriate Assessment (for common tern only). Appendix 6G of the ES (document reference 6.2) presents at an assessment of NO_x concentrations for transect points modelled across the Breydon Water SPA/Ramsar. It was concluded there is no change in N-deposition. As such, it was considered further assessment of the impacts of the Scheme upon ecology at Breydon Water SPA/Ramsar due to changes in air quality was not required. Considering that similar distances are involved from the Scheme to European site, the same conclusion is reached for the Outer Thames Estuary SPA.

[f] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate.

[g] Air, noise and lighting pollution could affect the immediate vicinity of construction works. There is therefore a pathway by which pollution arising from construction would reach the European site. In accordance with the People Over Wind decision, as the potential for adverse effects on the integrity of the European site cannot be ruled out without consideration of the pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[h] Noise and lighting pollution would affect the immediate vicinity of the Scheme during operation. In addition, there is a pathway by which water pollution arising from the Scheme might reach the European site. In accordance with the People Over Wind decision,

as the potential for adverse effects on the integrity of the European site cannot be ruled out without consideration of the pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[i] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

[j] Common tern and little tern breed on sand, shingle or gravel banks and beaches, which to be suitable for nesting must be exposed above water during the breeding season. There are no habitats that fit this requirement within the boundary of the proposed scheme. No features suitable for use by breeding common tern or little tern would be affected by the Scheme, and therefore no adverse effects on these species when breeding would take place during construction, operation or decommissioning. Ornithological surveys undertaken to inform the Scheme (Appendix 8D of the ES (document reference 6.2)) have confirmed the above and that common tern and little tern do not use the River Yare in the vicinity of the Scheme and are therefore not at risk from the proposals.

7.6 HRA Screening Matrix: Breydon Water SPA

Table 7.4: HRA Screening Matrix: Breydon Water SPA

Name of European Site and Designation: Breydon Water SPA **EU Code: UK9009181**															
Distance to NSIP: **1.8 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**			**Displacement**			**Sediment Deposition**			**Pollution**			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
Breeding birds:															
Common tern *Sterna hirundo*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Wintering birds:															
Avocet *Recurvirostra avosetta*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Bewick's swan *Cygnus columbianus bewickii*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Golden plover *Pluvialis apricaria*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Lapwing *Vanellus vanellus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]

Name of European Site and Designation: Breydon Water SPA EU Code: UK9009181														
Distance to NSIP: **1.8 km**														
European Site Features / **Effect**	**Likely Effects of NSIP**													
	Habitat Loss			**Displacement**			**Sediment Deposition**			**Pollution**			**In Combination Effects**		
Passage birds:														
Ruff *Philomachus pugnax*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Wetland bird assemblage:														
Regularly supporting 43,225 waterfowl	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[f]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site. No habitats within the European site would be lost as a result of construction activities (Chapter 2: Description of the Scheme).

[b] Operation of the Scheme does not require land take from the European site. No habitat loss from within the European site would occur as a result of operational activities (Chapter 2: Description of the Scheme).

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] Because of the intervening distance (1.8 km), noise and visual disturbance arising from construction, operation or

decommissioning would have no effect on resources within the SPA. Although Chapter 7: Noise and Vibration of the ES predicts maximum levels of noise at 104 db which is within the range at which disturbance of birds would be expected, the distance between the scheme and the SPA is outside of that which behavioural responses would occur (Ref 18). Ornithological surveys undertaken to inform the Scheme have confirmed that the qualifying species of the SPA do not use habitats within the River Yare in the vicinity of the Scheme and would therefore not be at risk of being affected by the proposals. Common tern breed on sand, shingle or gravel banks and beaches, which to be suitable for nesting must be exposed above water during the breeding season. There are no habitats that fit this requirement within the boundary of the proposed Scheme. No features suitable for use by breeding common tern would be affected by the Scheme, and therefore no adverse effects on this species when breeding would take place during construction, operation or decommissioning. Ornithological surveys undertaken to inform the Scheme (Appendix 8D of the ES) have confirmed the above and that common tern did not use the River Yare in the vicinity of the Scheme and are therefore not at risk from the proposals.

[e] The movement of sediments is considered in Chapter 11: Water Environment and the Sediment Transport Assessment (Appendix 11C). Appendix 11C summarises that the modelling assessment has shown that the presence of the Scheme will increase the scour and deposition close to the Scheme. The modelling has shown there will be small impacts in the engineered channel up to Haven Bridge (north of the Application Site, immediately south of Breydon Water), however the additional scoured material remains in the channel. Appendix 11C further details that there would be no additional material transported into the engineered channel due to the presence of the Scheme's Bridge and no likely significant effects are predicted to occur. Appendix 6G presents at an assessment of NO_x concentrations for transect points modelled across the Breydon Water SPA/Ramsar. It was concluded there is no change in N-deposition. As such, it was considered further assessment of the impacts of the Scheme upon ecology at Breydon Water SPA/Ramsar due to changes in air quality was not required.

[f] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate.

[g] Air, noise and lighting pollution would affect only the immediate vicinity of construction works and would not have effects extending to the European site, which is 1.8km distant. However, there is a pathway by which water pollution arising from construction, in the absence of control measures, might reach the European site. In accordance with the People Over Wind decision, as the potential

for adverse effects on the integrity of the European site cannot be ruled out without consideration of the water pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[h] Air, noise and lighting pollution would affect only the immediate vicinity of the Scheme during operation and would not have effects extending to the European site, which is 1.8km distant. However, there is a potential pathway by which water pollution arising from the Scheme, in the absence of control measures, might reach the European site. In accordance with the People Over Wind decision, as the potential for adverse effects on the integrity of the European site cannot be ruled out without consideration of the water pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[i] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

7.7 HRA Screening Matrix: Breydon Water Ramsar

Table 7.5: HRA Screening Matrix: Breydon Water Ramsar

Name of European Site and Designation: Breydon Water Ramsar **EU Code: UK11008**															
Distance to NSIP: **1.8 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**	**Displacement**				**Sediment Deposition**		**Pollution**				**In Combination Effects**			
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
Ramsar criterion 5: assemblage of international importance:															
68,175 waterfowl	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[f]	✓[g]	✓[h]	✗[i]	✗[i]	✗[i]
Ramsar criterion 6: internationally important numbers of species:															
Bewick's swan *Cygnus columbianus bewickii*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[f]	✓[g]	✓[h]	✗[i]	✗[i]	✗[i]
Lapwing *Vanellus vanellus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[f]	✓[g]	✓[h]	✗[i]	✗[i]	✗[i]
Species for possible future consideration under criterion 6:															
Pink-footed goose *Anser brachyrhynchus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Wigeon *Anas penelope*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]

Name of European Site and Designation: Breydon Water Ramsar EU Code: UK11008															
Distance to NSIP: **1.8 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**	**Displacement**				**Sediment Deposition**		**Pollution**				**In Combination Effects**			
Shoveler *Anas clypeata*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Golden plover *Pluvialis apricaria*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]
Black-tailed godwit *Limosa limosa islandica*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✓[g]	✓[h]	✗[f]	✗[i]	✗[i]	✗[i]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site. No habitats within the European site would be lost as a result of construction activities (Chapter 2: Description of the Scheme).

[b] Operation of the Scheme does not require land take from the European site. No habitat loss from within the European site would occur as a result of operational activities (Chapter 2: Description of the Scheme).

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme would not, in any case, give rise to any loss of habitats from the European site.

[d] Because of the intervening distance (1.8 km), noise and visual disturbance arising from construction, operation or

decommissioning would have no effect on resources within the Ramsar site. Although Chapter 7: Noise and Vibration of the ES predicts maximum levels of noise at 104 db which is within the range at which disturbance of birds would be expected, the distance between the scheme and the Ramsar site is outside of that which behavioural responses would occur (Ref 18).

[e] The movement of sediments is considered in Chapter 11: Water Environment and the Sediment Transport Assessment (Appendix 11C). Appendix 11C summarises that the modelling assessment analysis has shown that the presence of the Scheme will increase the scour and deposition close to the Scheme. The modelling has shown there will be small impacts in the engineered channel up to Haven Bridge (north of the Application Site, immediately south of Breydon Water), however the additional scoured material remains in the channel. Appendix 11C further details that there would be no additional material transported into the engineered channel due to the presence of the Scheme's Bridge and no likely significant effects are predicted to occur. Appendix 6G presents at an assessment of NO_x concentrations for transect points modelled across the Breydon Water SPA/Ramsar. It was concluded there is no change in N-deposition. As such, it was considered further assessment of the impacts of the Scheme upon ecology at Breydon Water SPA/Ramsar due to changes in air quality was not required.

[f] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate.

[g] Air, noise and lighting pollution would affect only the immediate vicinity of construction works and would not have effects extending to the European site, which is 1.8km distant. However, there is a pathway by which water pollution arising from construction, in the absence of control measures, might reach the European site. In accordance with the People Over Wind decision, as the potential for adverse effects on the integrity of the European site cannot be ruled out without consideration of the water pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[h] Noise and lighting pollution would affect only the immediate vicinity of the Scheme during operation and would not have effects extending to the European site, which is 1.8km distant (Ref 18). However, there is a pathway by which water pollution arising from the Scheme, in the absence of control measures, might reach the European site. In accordance with the People Over Wind decision, as the potential for adverse effects on the integrity of the European site cannot be ruled out without consideration of the

water pollution protection measures that are included as part of the drainage proposals for the Scheme, this matter is further considered within Stage 2: Appropriate Assessment.

[i] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

7.8 HRA Screening Matrix: Great Yarmouth and North Denes SPA

Table 7.6: HRA Screening Matrix: Great Yarmouth and North Denes SPA

Name of European Site and Designation: Great Yarmouth and North Denes SPA															
EU Code: UK9009271															
Distance to NSIP: **2.7 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**	**Displacement**				**Sediment Deposition**			**Pollution**			**In Combination Effects**			
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
Breeding birds:															
Little tern *Sternula albifrons*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site (Chapter 2: Description of the Scheme). No habitats within the European site would be lost as a result of construction activities.

[b] Operation of the Scheme does not require land take from the European site. No habitat loss from within the European site would occur as a result of operational activities (Chapter 2: Description of the Scheme).

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] Because of the intervening distance (2.7 km), noise and visual disturbance arising from construction, operation or decommissioning would have no effect on resources within the SPA. Ornithological surveys undertaken to inform the Scheme have confirmed that little tern do not use the River Yare in the vicinity of the Scheme for feeding and would therefore not be at risk of being affected by the proposals (Appendix 8D of the ES).

[e] It is not expected that there would be any additional sediment material from the Scheme that would flow to this European site (Appendix 11C: Sediment Transport Assessment of the ES). The SPA lies 3km north of the outflow of the River Yare and is therefore outside of what is modelled in Appendix 11C of the ES (document reference 6.2). The SPA is designated for nesting little tern only, where there is no evident pathway of effect through any changes in sediment transport.

[f] Air, noise and lighting pollution would affect only the immediate vicinity of the Scheme and would not have effects extending to the European site, which is 2.7km distant with urban areas of Great Yarmouth in between. No pathway of effect is therefore evident between the Scheme and the SPA.

[g] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

7.9 HRA Screening Matrix: The Broads SAC

Table 7.7: HRA Screening Matrix: The Broads SAC

Name of European Site and Designation: The Broads SAC **EU Code: UK0013577**															
Distance to NSIP: **6.7 km**															
European Site Features **Effect**	**Likely Effects of NSIP**														
	Habitat Loss	**Displacement**				**Sediment Deposition**			**Pollution**			**In Combination Effects**			
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
3140 Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
3150 Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
7140 Transition mires and quaking bogs	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
7210 Calcareous fens with *Cladium mariscus*	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]

Name of European Site and Designation: The Broads SAC EU Code: UK0013577															
Distance to NSIP: **6.7 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**	**Displacement**				**Sediment Deposition**			**Pollution**			**In Combination Effects**			
and species of the Caricion davallianae															
7230 Alkaline fens	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, *Alnion incanae*, *Salicion albae*)	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)	✗[a]	✗[b]	✗[c]				✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
1016 Desmoulin's whorl snail *Vertigo moulinsiana*	✗[a]	✗[b]	✗[c]	✗[g]	✗[g]	✗[g]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
1903 Fen orchid *Liparis loeselii*	✗[a]	✗[b]	✗[c]	✗[g]	✗[g]	✗[g]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]

Name of European Site and Designation: The Broads SAC EU Code: UK0013577															
Distance to NSIP: **6.7 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**	**Displacement**				**Sediment Deposition**			**Pollution**			**In Combination Effects**			
4056 Ramshorn snail *Anisus vorticulus*	✗[a]	✗[b]	✗[c]	✗[g]	✗[g]	✗[g]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]
1355 Otter *Lutra lutra*	✗[a]	✗[b]	✗[c]	✗[h]	✗[h]	✗[h]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site (See Chapter 2 of the ES (document reference 6.1): Description of the Proposed Scheme). No habitats within the European site would be lost as a result of construction activities.

[b] Operation of the Scheme does not require land take from the European site. No habitat loss from within the European site would occur as a result of operational activities.

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] There is no pathway by which sediment within the River Yare will enter the European site (which lies upstream) and on this basis there will be no adverse effects on the site or its qualifying features.

[e] There is no pathway from the Scheme to the European site, which is 6.7km distant, by which noise, lighting, air, or water pollution arising from the Scheme may travel; all these potential effects would be significantly diluted or dispersed before reaching the European site. The European site would therefore not be affected by pollution from construction, operation or decommissioning as confirmed in the relevant ES chapters, 6: Air Quality and 7: Noise and Vibration.

[f] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

[g] No habitats in the immediate vicinity of construction works are suitable to support this species. Suitable habitats within the European site would not be lost as a result of construction, operation or decommissioning.

[h] It is possible that otters from the European site may move along the corridor of the River Yare. Construction or operation of the Scheme would not prevent the movement of otters within the area of the Scheme. Otters are not at risk of becoming trapped within open excavations or fenced areas. The Scheme would not impede otters that may use the river for foraging or passage and therefore no disturbance likely to give rise to displacement of otters from within the European site would occur during construction, operation or decommissioning.

7.10 HRA Screening Matrix: Broadland SPA

Table 7.8: HRA Screening Matrix: Broadland SPA

Name of European Site and Designation: Broadland SPA **EU Code: UK9009253**																
Distance to NSIP: **6.7 km**																
European Site Features **Effect**	**Likely Effects of NSIP**															
	Habitat Loss	**Displacement**				**Sediment Deposition**			**Pollution**			**In Combination Effects**				
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
The site is used regularly by 1% or more of the GB population of the following species in any season:																
Bittern *Botaurus stellaris* (10-15%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Bewick's swan *Cygnus columbianus bewickii* (8.6%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Whooper swan *Cygnus cygnus cygnus* (1.8%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Marsh Harrier *Circus aeruginosus* (16%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Hen harrier *Circus cyaneus* (3%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]

Name of European Site and Designation: Broadland SPA EU Code: UK9009253															
Distance to NSIP: **6.7 km**															
European Site Features	**Likely Effects of NSIP**														
Effect	**Habitat Loss**	**Displacement**				**Sediment Deposition**			**Pollution**			**In Combination Effects**			
Ruff *Philomachus pugnax* (6.4%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
The site is used regularly by around 1% of the biogeographic population of the following regularly occurring migratory species in any season (% of north-west European population):															
Wigeon *Anas penelope* (1.3%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Gadwall *Anas strepera* (1.0%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Shoveler *Anas clypeata* (<1%)	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site. No habitats within the European site would be lost as a result of construction activities (Chapter 2: Description of the Scheme).

[b] Operation of the Scheme does not require land take from the European site. No habitat loss from within the European site would occur as a result of operational activities (Chapter 2: Description of the Scheme).

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] Because of the intervening distance (6.7 km), noise and visual disturbance arising from construction, operation or decommissioning would have no effect on resources within the SPA as confirmed in the ES (document reference 6.1) Chapter 7: Noise and Vibration.

[e] There is no pathway by which sediment within the River Yare will enter the European site (which lies upstream) and on this basis, there will be no adverse effects on the site or its qualifying features.

[f] There is no pathway from the Scheme to the European site, which is 6.7km distant, by which lighting, air, or water pollution arising from the Scheme may travel. The European site would therefore not be affected by pollution from construction, operation or decommissioning as confirmed in the relevant ES (document reference 6.1) chapters, 6: Air Quality and 11: Water Environment.

[g] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

7.11 HRA Screening Matrix: Broadland Ramsar

Table 7.9: HRA Screening Matrix: Broadland Ramsar

Name of European Site and Designation: Broadland Ramsar **EU Code: UK11010**															
Distance to NSIP: **6.7 km**															
European Site Features **Effect**	**Likely Effects of NSIP**														
	Habitat Loss			**Displacement**			**Sediment Deposition**			**Pollution**			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	***D***
Ramsar Criterion 2:															
H7210 Calcareous fens with *Cladium marsiscus* and *Caricion davallinae*	×[a]	×[b]	×[c]	×[d]	×[d]	×[d]	×[e]	×[e]	×[e]	×[f]	×[f]	×[f]	×[g]	×[g]	×[g]
H7230 Alkaline fens	×[a]	×[b]	×[c]	×[d]	×[d]	×[d]	×[e]	×[e]	×[e]	×[f]	×[f]	×[f]	×[g]	×[g]	×[g]
H91E0 Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*	×[a]	×[b]	×[c]	×[d]	×[d]	×[d]	×[e]	×[e]	×[e]	×[f]	×[f]	×[f]	×[g]	×[g]	×[g]
S1016 Desmoulin's whorl snail *Vertigo moulinsiana*	×[a]	×[b]	×[c]	×[d]	×[d]	×[d]	×[e]	×[e]	×[e]	×[f]	×[f]	×[f]	×[g]	×[g]	×[g]
S1355 Otter *Lutra lutra*	×[a]	×[b]	×[c]	×[d]	×[d]	×[d]	×[e]	×[e]	×[e]	×[f]	×[f]	×[f]	×[g]	×[g]	×[g]
S1903 Fen orchid *Liparis loeselii*	×[a]	×[b]	×[c]	×[d]	×[d]	×[d]	×[e]	×[e]	×[e]	×[f]	×[f]	×[f]	×[g]	×[g]	×[g]

Name of European Site and Designation: Broadland Ramsar EU Code: UK11010															
Distance to NSIP: **6.7 km**															
European Site Features / **Effect**	**Likely Effects of NSIP**														
	Habitat Loss			**Displacement**			**Sediment Deposition**			**Pollution**			**In Combination Effects**		
Ramsar Criterion 6: Wintering birds:															
Bewick's swan *Cygnus columbianus bewickii*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Wigeon *Anas penelope*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Gadwall *Anas strepera*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Shoveler *Anas clypeata*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
For possible future consideration under Ramsar Criterion 6:															
Pink-footed goose *Anser brachyrhynchus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]
Greylag goose *Anser anser anser*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]	✗[e]	✗[e]	✗[e]	✗[f]	✗[f]	✗[f]	✗[g]	✗[g]	✗[g]

Evidence

[a] Construction activities, including routes for movement of construction vehicles, would not occur within the European site. No habitats within or functionally linked with the European site would be lost as a result of construction activities (Chapter 2: Description of the Scheme).

[b] Operation of the Scheme does not require land take from the European site. No habitat loss from within or functionally linked with the European site would occur as a result of operational activities (Chapter 2: Description of the Scheme).

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] Because of the intervening distance (6.7 km), noise and visual disturbance arising from construction, operation or decommissioning would have no effect on resources within the European site as confirmed in the ES (document reference 6.1) Chapter 7: Noise and Vibration.

[e] There is no pathway by which sediment within the River Yare will enter the European site and on this basis, there will be no adverse effects on the site or its qualifying features.

[f] There is no pathway from the Scheme to the European site, which is 6.7km distant, by which lighting, air, or water pollution arising from the Scheme may travel. The European site would therefore not be affected by pollution from construction, operation or decommissioning as confirmed in the relevant ES (document reference 6.1) chapters, 6: Air Quality and 11: Water Environment.

[g] Consideration of in-combination effects of the Scheme on this site is set out at section 7.12 of this document.

7.12 In-Combination Effects

7.12.1 The assessment of in-combination effects has been informed by Advice Note Ten (Ref 4). Natural England were consulted at a scoping stage with regard to the proposed schemes that have the potential to produce cumulative effects with the Scheme.

7.12.2 The following other planned and proposed schemes exist within the immediate region of the Scheme (as identified in the Scoping Report for the Scheme (Ref 15) and updated in Chapter 19: Cumulative Effects): Of these developments, the enterprise zones are currently developed and not considered to have potential for a contribution to any in combination effect on European sites. Epoch 2 of the Great Yarmouth Flood Defence Improvements is in a pre-application stage. The A47 junction improvements underwent public consultation in 2017 but however has no construction programme. Beacon Park was approved in December 2017. No ecological concerns on European sites have been raised to date by consultees on any of these schemes.

7.12.3 Further distant from the Scheme are planned and proposed developments that could have potential to act in combination on a European Site (notably Outer Thames Estuary SPA).

- East Anglia Array Windfarms (East Anglia ONE and East Anglia THREE);
- Norfolk Vanguard Offshore Wind Farm;
- Norfolk Boreas Offshore Wind Farm
- Lake Lothing Third Crossing, Lowestoft; and
- Sizewell C Nuclear Power Station.

7.12.4 Of these developments, the first two phases of the East Anglia Array (East Anglia ONE and THREE) have development consent. The HRA Reports for both wind farms concluded that there would be no significant impact upon the integrity of any European site. Norfolk Vanguard Offshore Wind Farm is currently in examination and its HRA Report concludes no adverse effects on site integrity for any European Site. Norfolk Boreas Offshore Wind Farm is in a pre-application stage where a Preliminary Environmental Information Report (PEIR) has been completed (Ref 19). This concludes no adverse effects on species that features of regional European sites.

7.12.5 Sizewell C is still in the pre-application stage while Lake Lothing Crossing is currently undergoing examination. The HRA for Lake Lothing (Ref 16) which has been subject to agreement with Natural England, states that '*the Great*

Yarmouth Third River Crossing and the remaining phases of the East Anglia Array would not have a significant in-combination effect due to their distance from the Scheme'. The assessment here for the Scheme concurs with this view.

7.12.6 In combination with other developments, the Scheme proposals are not likely to give rise to significant effects on European Sites, their qualifying resources or conservation objectives. The assessment that has been undertaken has considered the construction and operation phases. There are therefore no effects that would be such that, in combination with those from other developments, would cause such effects to arise during any phase of the Scheme.

8 Conclusions of Stage 1: Screening

8.1.1 In the absence of consideration of water pollution control measures, the Scheme has the potential to affect the following European sites during construction or operation:

- Southern North Sea cSAC;
- Outer Thames Estuary SPA;
- Breydon Water SPA; and
- Breydon Water Ramsar.

8.1.2 The Scheme does not have the potential to give rise to other adverse effects on any European site, alone or in combination with other schemes.

8.1.3 On the basis that the possibility of occurrence of significant effects cannot be ruled out at the Screening stage, because measures that mitigate the effects of the Scheme cannot be considered at this stage of the HRA process, the assessment has continued to Stage 2: Appropriate Assessment where a judgement is made on effects on site integrity.

9 Stage 2: Appropriate Assessment

9.1 Potential Effects

9.1.1 Further to the People Over Wind decision, consideration of measures included within a scheme which have the effect of reducing or mitigating the effects of that scheme on a European site cannot be considered within Stage 1: Screening but must instead be assessed with respect to the integrity of the site concerned at Stage 2: Appropriate Assessment.

9.1.2 In the absence of consideration of water pollution control measures, the Scheme has the potential to affect the following European sites during construction, operation or decommissioning.

9.1.3 Likely significant effects are considered further for the following sites:

- Southern North Sea cSAC;
- Outer Thames Estuary SPA;
- Breydon Water SPA; and
- Breydon Water Ramsar.

9.1.4 These sites have been subject to further assessment in order to establish if the Scheme could have an adverse effect on their integrity. Evidence for the conclusions reached on integrity is detailed within the footnotes to the matrices below.

Pollution

9.1.5 Measures incorporated into the Scheme design for construction and operational phases are detailed below with respect to pollution. These measures refer to standard pollution control that would be incorporated in to the Scheme regardless of the connectivity with any European site, with the principal function of ensuring that there is no contamination of local environments. By virtue of these protocols, they would also minimise the risk of adverse effects on any relevant European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme.

Construction

9.1.6 Measures during construction will be incorporated in the construction programme and Scheme design. These measures have been informed by various topic specific assessments undertaken within the ES (document

reference 6.1) and are included in the Outline Code of Construction Practice (document reference 6.16) which supplies the framework by which a full CoCP will be prepared by a Contractor).

9.1.7 With regards to air quality, the Outline CoCP includes the following measures (as informed by ES (document reference 6.1) Chapter 6: Air Quality):

- Dust-generating activities (e.g. cutting, grinding and sawing) to be minimised and weather conditions considered prior to conducting potentially dust-emitting activities;
- Fine material to not be stockpiled to an excessive height in order to prevent exposure to wind or dust nuisance;
- Roads and accesses to be kept clean;
- Where possible, plant to be located away from site boundaries that are close to residential areas;
- Water to be used as a dust suppressant, where applicable;
- Drop heights from excavators to crushing plant to be kept to a minimum;
- Distances from crushing plant to stockpiles to be kept to the minimum practicable to control dust generation associated with the fall of materials;
- Skips to be securely covered;
- Soiling, seeding, planting or sealing of completed earthworks to be completed as soon as reasonably practicable, following completion of earthworks;
- Dust suppression and the maintenance of the surface of access routes to be appropriate to avoid dust as far as practicable, taking into account the intended level of trafficking;
- Wheel wash facilities to minimise trackout of dust;
- Material to not be burnt on site; and
- Engines to be switched off when not in operation.

9.1.8 The full CoCP should stipulate that the Contractor should ensure that the Highways Agency's Design Manual for Roads and Bridges (DMRB) (Ref 17) is followed and that all sub-contractors are aware of control measures.

9.1.9 A surface water drainage strategy will be prepared as part of any full CoCP for the construction phase in order to ensure that site drainage is controlled and that no contaminated run-off is allowed to enter watercourses.

9.1.10 The Contractor must include within the full CoCP and implement standard good practice pollution prevention measures in construction. This must include, unless not relevant to the Contractor's construction methodology (as informed by ES (document reference 6.1) Chapter 11: Water Environment):

- A temporary surface water drainage strategy to be prepared for the construction stage to ensure that surface run-off would not directly enter existing watercourses;
- The use of soft start piling techniques to minimise the disturbance and subsequently mobilisation of contaminated sediment within the River Yare during construction of the bridge substructures;
- Temporary cut-off drains would be used uphill and downhill of the working areas to prevent clean runoff entering and dirty water leaving the working area without appropriate treatment;
- All drains within the Scheme Extent would be identified and labelled and measures implemented to prevent polluting substances from entering them;
- Areas with a greater risk of spillage (e.g. vehicle maintenance and storage areas for hazardous materials) would be carefully sited (e.g. away from drains or areas where surface waters may pond);
- Emergency response plans would be developed and spill kits made available on site;
- Measures to be put in place to prevent pollution from construction plant, vehicles and machinery including refuelling in designated areas, on an impermeable surface, with appropriate cut-off drainage located away from watercourses; plant to be maintained in a good condition with wheel washing in place, all refuelling would be supervised and carried out in a designated area. In the event of plant breakdown drip trays would be used during any emergency maintenance and spill kits would be available on site;
- All fuel, oil and chemicals would be stored in a designated secure area, with secondary containment provided;
- Fuels and potentially hazardous construction materials would be stored in bunds that have areas with external cut-off drainage; fuel would be stored in double skinned tanks with 110% capacity;

- Construction plant would be checked regularly for oil and fuel leaks, particularly when construction works are undertaken in or near the existing site waterbodies;
- Waste fuels and other fluid contaminants would be collected in leak-proof containers prior to removal from construction site to an approved recycling processing facility;
- Oil absorbent booms would be made available on site and deployed in the event of a significant spillage;
- Procedures to control dust and contain debris associated with demolition works;
- Control and treatment measures will be regularly inspected to ensure they are working effectively;
- Concrete wash out would only take place at designated concrete washout areas;
- Surface water run-off and excavation dewatering would be captured and settled out prior to disposal to sewer as appropriate. Any contaminants to be removed prior to disposal; and
- Sewage generated from site welfare facilities would be disposed of appropriately. This may be by discharge to the foul sewer or by collection in septic tank for disposal off site.

Operation

9.1.11 Pollution control measures within the Scheme design would be active throughout its operation as part of the Drainage Strategy (Appendix 12C document reference 6.2). The measures follow those within the DMRB (Ref 17). The measures would protect all sensitive receptors, including watercourses, from the effects of pollution from road run off.

9.1.12 These measures would also provide appropriate protection against the unlikely event of pollution arising from spillage of materials onto the road carriageway.

Sediment Deposition

9.1.13 Further measures specifically regarding sediments are included in the Outline CoCP (document reference 6.16). These are detailed below:

Construction

- The use of cofferdams to exclude work areas from the main River Yare waterbody, thus reducing the risk of increased sediment loads or hazardous substances entering the main water flow; and
- The use of silt fences, silt traps, filter bunds, settlement ponds and/or proprietary units such as a 'siltbuster' to treat sediment laden water generated on site before discharge.

Operation

9.1.14 ES (Document 6.1) Chapter 11: Water Environment details that engineering scour protection should be incorporated into the design and operation of the Scheme in order to reduce local flow turbulence and associated scour.

9.2 European Sites

Southern North Sea cSAC / SCI

9.2.1 Possible adverse effects on site integrity of this European site, which could not be fully evaluated in Stage 1: Screening, are as follows:

- Pollution (arising from the Scheme) of habitats and watercourses that could give rise to adverse effects; and
- Increase in sediment deposition that has the potential to affect flora and fauna and consequently give rise to adverse effects.

Outer Thames Estuary SPA

9.2.2 Possible adverse effects on site integrity of this European site, which could not be fully evaluated in Stage 1: Screening are as follows:

- Pollution (arising from the Scheme) of habitats and watercourses that could give rise to adverse effects; and
- Increase in sediment deposition that has the potential to effect flora and fauna and consequently give rise to adverse effects.

Breydon Water SPA

9.2.3 Possible adverse effects on site integrity of this European site, which could not be fully evaluated in Stage 1: Screening are as follows:

- Pollution (arising from the Scheme) of habitats and watercourses that could give rise to adverse effects.

Breydon Water Ramsar

9.2.4 Possible adverse effects on site integrity of this European site, which could not be fully evaluated in Stage 1: Screening are as follows:

- Pollution (arising from the Scheme) of habitats and watercourses that could give rise to adverse effects.

9.3 HRA Integrity Matrix: Southern North Sea cSAC

Table 9.1: HRA Integrity Matrix: Southern North Sea cSAC

Name of European Site and Designation: Southern North Sea cSAC									
EU Code: UK0030395									
Distance to NSIP: 460 m									
European Site Features	**Likely Effects of NSIP**								
Effect	**Pollution**			**Sediment Deposition**			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Harbour porpoise *Phocoena phocoena*	✕[a]	✕[b]	✕[c]	✕[d]	✕[e]	✕[c]	✕[f]	✕[f]	✕[f]

Evidence

[a] Although the site is 460m distant from the Application Site, the pathway by which water pollution from the Scheme would enter the River Yare and travel to the European site is approximately 2.5km in length. Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. These measures have been informed by the assessment within the ES (document reference 6.1) and are included in the OCoCP (document reference 6.16) which forms the framework for the full CoCP that will be prepared by the Contractor. A surface water drainage strategy will be prepared as part of the full CoCP for the construction phase to ensure that site drainage is controlled and that no contaminated runoff is allowed to enter the

water. A full breakdown of measures is included in Section 9.1 above.

[b] Although the site is 460m distant from the Application Site, the pathway by which water pollution from the Scheme would enter the River Yare and travel to the European site is approximately 2.5km in length. Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. Pollution control measures within the Scheme design would be active throughout the Scheme's operational life as part of the Drainage Strategy. These measures follow those within the DMRB (Ref 17). The measures would protect all potential receptors, in particular the River Yare itself, from the effects of pollution from road runoff, which would be reduced to acceptable levels. These measures would also provide appropriate protection against the unlikely event of pollution arising from spillage of materials onto the road carriageway, as for example might happen as a result of road traffic incidents. The level of protection provided is that recommended by the DMRB. These measures would minimise pollution risk during operation to a level that would not be notably greater than the current baseline environment. Water pollution from the Scheme would not give rise to effects of sufficient magnitude to affect the integrity of the European site.

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] Although the site is 460m distant from the Application Site, the pathway by which sediment deposition from the Scheme would enter the River Yare and travel to the European site is approximately 2.5km in length. Specific control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. These measures have been informed by the assessment within the ES (document reference 6.1) and are included in the Outline CoCP (document reference 6.16) which forms the framework for the full CoCP that will be prepared by the Contractor. With respect to sediments, measures will include the use of cofferdams to exclude work areas from the main River Yare waterbody, thus reducing the risk of increased sediment loads or hazardous substances entering the main water flow. Additionally, the use of silt

fences, silt traps, filter bunds, settlement ponds and/or proprietary units such as a 'siltbuster' to treat sediment laden water generated on site before discharge will be included in the full CoCP. It is therefore considered that would there would not be any adverse effects on the European site.

[e] Although the site is 460m distant from the Application Site, the pathway by which water pollution from the Scheme would enter the River Yare and travel to the European site is approximately 2.5km in length. ES (document reference 6.1) Chapter 11: Water Environment details that engineering scour protection should be incorporated into the design and operation of the Scheme in order to reduce local flow turbulence and associated scour. It is therefore considered that would there would not be any adverse effects on the European site.

[f] In-combination with other developments, the Scheme proposals are not likely to give rise to significant effects on European Sites, their qualifying resources or conservation objectives. There are therefore no effects that would be such that, in combination with those from other developments, would cause such effects to arise.

9.4 HRA Integrity Matrix: Outer Thames Estuary SPA

Table 9.2: HRA Integrity Matrix: Outer Thames Estuary SPA

Name of European Site and Designation: Outer Thames Estuary SPA									
EU Code: UK9020309									
Distance to NSIP: 0.0 km									
European Site Features	**Likely Effects of NSIP**								
Effect	**Pollution**			**Sediment Deposition**			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*	*C*	*O*	*D*
Red-throated diver *Gavia stellata*	✗[a]	✗[b]	✗[c]	✗[d]	✗[e]	✗[c]	✗[f]	✗[f]	✗[f]
Little tern *Sternula albifrons*	✗[a]	✗[b]	✗[c]	✗[d]	✗[e]	✗[c]	✗[f]	✗[f]	✗[f]
Common tern *Sterna hirundo*	✗[a]	✗[b]	✗[c]	✗[d]	✗[e]	✗[c]	✗[f]	✗[f]	✗[f]

Evidence

[a] Specific standard pollution control measures would be incorporated within the

Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. These measures have been informed by the assessment within the ES (document reference 6.1) and are included in the and are included in the OCoCP (document reference 6.16) which forms the framework for the full CoCP that will be prepared by the Contractor. A surface water drainage strategy will be prepared as part of the full CoCP for the construction phase to ensure that site drainage is controlled and that no contaminated runoff is allowed to enter the water. A full breakdown of measures is included in Section 9.1 above. It is therefore considered that would there would not be any adverse effects on the European site.

[b] Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. Pollution control measures within the Scheme design would be active throughout the Scheme's operational life as part of the Drainage Strategy currently planned to be secured through DCO (document reference x.x) Requirement x. These measures follow those within the DMRB (Ref 17). The measures would protect all potential receptors, in particular the River Yare itself, from the effects of pollution from road runoff, which would be reduced to acceptable levels. These measures would also provide appropriate protection against the unlikely event of pollution arising from spillage of materials onto the road carriageway, as for example might happen as a result of road traffic incidents. The level of protection provided is that recommended by the DMRB. These measures would reduce pollution risk during operation to an acceptable level. Water pollution from the Scheme would not give rise to effects of sufficient magnitude to affect the integrity of the European site.

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] Specific control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon

any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. These measures have been informed by the assessment within the ES (document reference 6.1) and are included in the Outline CoCP (document reference 6.16) which forms the framework for the full CoCP that will be prepared by the Contractor. With respect to sediments, measures will include the use of cofferdams to exclude work areas from the main River Yare waterbody, thus reducing the risk of increased sediment loads or hazardous substances entering the main water flow. Additionally, the use of silt fences, silt traps, filter bunds, settlement ponds and/or proprietary units such as a 'siltbuster' to treat sediment laden water generated on site before discharge will be included in the full CoCP. It is therefore considered that would there would not be any adverse effects on the European site.

[e] ES (document reference 6.1) Chapter 11: Water Environment details that engineering scour protection should be incorporated into the design and operation of the Scheme in order to reduce local flow turbulence and associated scour. It is therefore considered that would there would not be any adverse effects on the European site.

[f] In-combination with other developments, the Scheme proposals are not likely to give rise to significant effects on European Sites, their qualifying resources or conservation objectives. There are therefore no effects that would be such that, in combination with those from other developments, would cause such effects to arise.

9.5 HRA Integrity Matrix: Breydon Water SPA

Table 9.3: HRA Integrity Matrix: Breydon Water SPA

Name of European Site and Designation: Breydon Water SPA **EU Code: UK9009181**						
Distance to NSIP: 1.8 km						
European Site Features	**Likely Effects of NSIP**					
Effect	Pollution			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*
Breeding birds:						
Common tern *Sterna hirundo*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Wintering birds:						
Avocet *Recurvirostra avosetta*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Bewick's swan *Cygnus columbianus bewickii*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]

Name of European Site and Designation: Breydon Water SPA EU Code: UK9009181						
Distance to NSIP: 1.8 km						
European Site Features	**Likely Effects of NSIP**					
Effect	Pollution			**In Combination Effects**		
Golden plover *Pluvialis apricaria*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Lapwing *Vanellus vanellus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Passage birds:						
Ruff *Philomachus pugnax*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Wetland bird assemblage:						
Regularly supporting 43,225 waterfowl	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]

Evidence

[a] Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. These measures have been informed by the assessment within the ES (document reference 6.1) and are included in the Outline CoCP (document reference 6.16) which forms the framework for the full CoCP that will be prepared by the Contractor. A surface water drainage strategy will be prepared as part of the full CoCP for the construction phase to ensure that site drainage is controlled and that no contaminated runoff is allowed to enter the water. A full breakdown of measures is included in Section 9.1 above. It is therefore considered that would there would not be any adverse effects on the European site.

[b] Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water

pollution are proposed. Pollution control measures within the Scheme design would be active throughout the Scheme's operational life as part of the Drainage Strategy. These measures follow those within the DMRB (Ref 17). The measures would protect all potential receptors, in particular, the River Yare itself, from the effects of pollution from road runoff, which would be reduced to acceptable levels. These measures would also provide appropriate protection against the unlikely event of pollution arising from spillage of materials onto the road carriageway, as for example might happen as a result of road traffic incidents. The level of protection provided is that recommended by the DMRB. These measures would reduce pollution risk during operation to an acceptable level. Water pollution from the Scheme would not give rise to effects of sufficient magnitude to affect the integrity of the European site.

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] In-combination with other developments, the Scheme proposals are not likely to give rise to significant effects on European Sites, their qualifying resources or conservation objectives. There are therefore no effects that would be such that, in combination with those from other developments would cause such effects to arise.

9.6 HRA Integrity Matrix: Breydon Water Ramsar

Table 9.4: HRA Integrity Matrix: Breydon Water Ramsar

Name of European Site and Designation: Breydon Water Ramsar **EU Code: UK9009181**						
Distance to NSIP: 1.8 km						
European Site Features Effect	**Likely Effects of NSIP**					
	Pollution			**In Combination Effects**		
Stage of Development	*C*	*O*	*D*	*C*	*O*	*D*
Ramsar criterion 5: assemblage of international importance:						
68175 waterfowl	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Ramsar criterion 6: internationally important numbers of species:						
Bewick's swan *Cygnus columbianus bewickii*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Lapwing *Vanellus vanellus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Species for possible future consideration under criterion 6:						

Name of European Site and Designation: Breydon Water Ramsar EU Code: UK9009181						
Distance to NSIP: 1.8 km						
European Site Features	**Likely Effects of NSIP**					
Effect	Pollution			**In Combination Effects**		
Ruff *Philomachus pugnax*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Pink-footed goose *Anser brachyrhynchus*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Wigeon *Anas penelope*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Shoveler *Anas clypeata*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Golden plover *Pluvialis apricaria apricaria*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]
Black-tailed godwit *Limosa limosa islandica*	✗[a]	✗[b]	✗[c]	✗[d]	✗[d]	✗[d]

Evidence

[a] Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. These measures have been informed by the assessment within the ES (document reference 6.1) and are included in the Outline CoCP (document reference 6.16) which forms the framework for the full CoCP that will be prepared by the Contractor A surface water drainage strategy will be prepared as part of the full CoCP for the construction phase to ensure that site drainage is controlled and that no contaminated runoff is allowed to enter the water. A full breakdown of measures is included in Section 9.1 above. It is therefore considered that would there would not be any adverse effects on the European site.

[b] Specific standard pollution control measures would be incorporated within the Scheme in accordance with good practice regardless of the presence of any European site, with the principal function of seeking to avoid the contamination of the River Yare. By virtue of this effect, they would also minimise the risk of adverse effects of pollution upon any European sites to which pathways for movement of polluting materials might exist, or effects on qualifying resources of such sites that

may be present in the vicinity of the Scheme. No exceptional measures intended specifically to provide protection of any European site from the effects of water pollution are proposed. Pollution control measures within the Scheme design would be active throughout the Scheme's operational life as part of the Drainage Strategy. These measures follow those within the DMRB (Ref 17). The measures would protect all potential receptors, in particular, the River Yare itself, from the effects of pollution from road runoff, which would be reduced to acceptable levels. These measures would also provide appropriate protection against the unlikely event of pollution arising from spillage of materials onto the road carriageway, as for example might happen as a result of road traffic incidents. The level of protection provided is that recommended by the DMRB. These measures would reduce pollution risk during operation to an acceptable level. Water pollution from the Scheme would not give rise to effects of sufficient magnitude to affect the integrity of the European site.

[c] Given that the Applicant has no plans to decommission the Scheme, further consideration of decommissioning is not considered appropriate. Decommissioning of the Scheme in any case would not give rise to any loss of habitats from the European site.

[d] In-combination with other developments, the Scheme proposals are not likely to give rise to significant effects on European Sites, their qualifying resources or conservation objectives. There are therefore no effects that would be such that, in combination with those from other developments would cause such effects to arise.

10 Conclusion at HRA Stage 2

10.1.1 The HRA Report has been prepared in accordance with Advice Note Ten: Habitats Regulations Assessment relevant to Nationally Significant Infrastructure Projects (Ref 4).

10.1.2 Stage 1 of this HRA Report determined that the Scheme has the potential to affect the following European sites during construction or operation:

- Southern North Sea cSAC;
- Outer Thames Estuary SPA;
- Breydon Water SPA; and
- Breydon Water Ramsar.

10.1.3 The Scheme was not considered to have the potential to give rise to other adverse effects on any European site, alone or in combination with other schemes.

10.1.4 The final assessment within Stage 2 of the HRA within this Report has been undertaken using available evidence and expert judgement.

10.1.5 It is concluded that the Scheme would not affect the integrity of any European site.

10.1.6 In combination with other developments, the Scheme proposals are not considered likely to give rise to significant effects on European Sites, their qualifying resources or conservation objectives. The assessment that has been undertaken has considered the construction and operation phases. There are no effects that would be such that, in combination with those from other developments, would cause such effects to arise during any phase of the Scheme.

11 References

Ref 1: Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.

Ref 2: Directive 2009/147/EC on the conservation of wild birds (codified version).

Ref 3: Conservation of Habitats and Species Regulations (2017).

Ref 4: The Planning Inspectorate (2017). Advice Note Ten: Habitats Regulations Assessment relevant to Nationally Significant Infrastructure Projects (Version 8).

Ref 5: Conservation of Offshore Marine Habitats and Species Regulations (2017).

Ref 6: Department for Transport (2014). National Policy Statement for National Networks.

Ref 7: Ministry of Housing, Communities & Local Government (2019). National Planning Policy Framework.

Ref 8: Office of the Deputy Prime Minister (2005). ODPM Circular 06/2005: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning system.

Ref 9: European Commission (2001). Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.

Ref 10: JNCC (2010). Statutory Nature conservation Agency Protocol for Minimising the risk of Injury to Marine Mammals from Piling Noise. Joint Nature Conservation Committee.

Ref 11: Goodship, N., Caldow, R., Clough, S., Korda, R., McGovern, S., Rowlands, N. & Rehfisch, M. (2015). Surveys of Red-throated Divers in the Outer Thames Estuary SPA. British Birds 108: 506-13.

Ref 12: Parsons, M., Lawson, J., Lewis, M., Lawrence, R. & Kuepfer, A. (2015). Quantifying foraging areas of little tern around its breeding colony SPA during chick-rearing. JNCC Report No. 548. Joint Nature Conservation Committee, Peterborough.

Ref 13: APEM (2011). Red-throated divers & offshore wind farms in the Outer Thames: historic data review. APEM Scientific Report 411134. London Array Ltd., June 2011 v2 Final, 154 pp.

Ref 14: SNCBs (2017). Joint SNCB Interim Displacement Advice Note.

Ref 15: Norfolk County Council (2018). Great Yarmouth Third River Crossing: Environmental Impact Assessment Scoping Report. WSP report for NCC.

Ref 16: Suffolk County Council (2019). Lake Lothing Third Crossing: Updated Habitat Regulations Assessment Report.

Ref 17: DMRB (2009). Volume 11: Environmental Assessment. Design Manual for roads and Bridges. The Highways Agency / Scottish government / Welsh Assembly government / The Department for Regional Development Northern Ireland.

Ref 18: Cutts, N., Phelps A. and Burden D. (2009). Construction and Waterfowl: Defining Sensitivity, Response, Impacts and Guidance. Report to Humber INCA by the Institute of Estuarine and Coastal Studies, University of Hull.

Ref 19: Vattenfall (2018). Norfolk Boreas Offshore wind Farm: Preliminary Environmental Information Report.

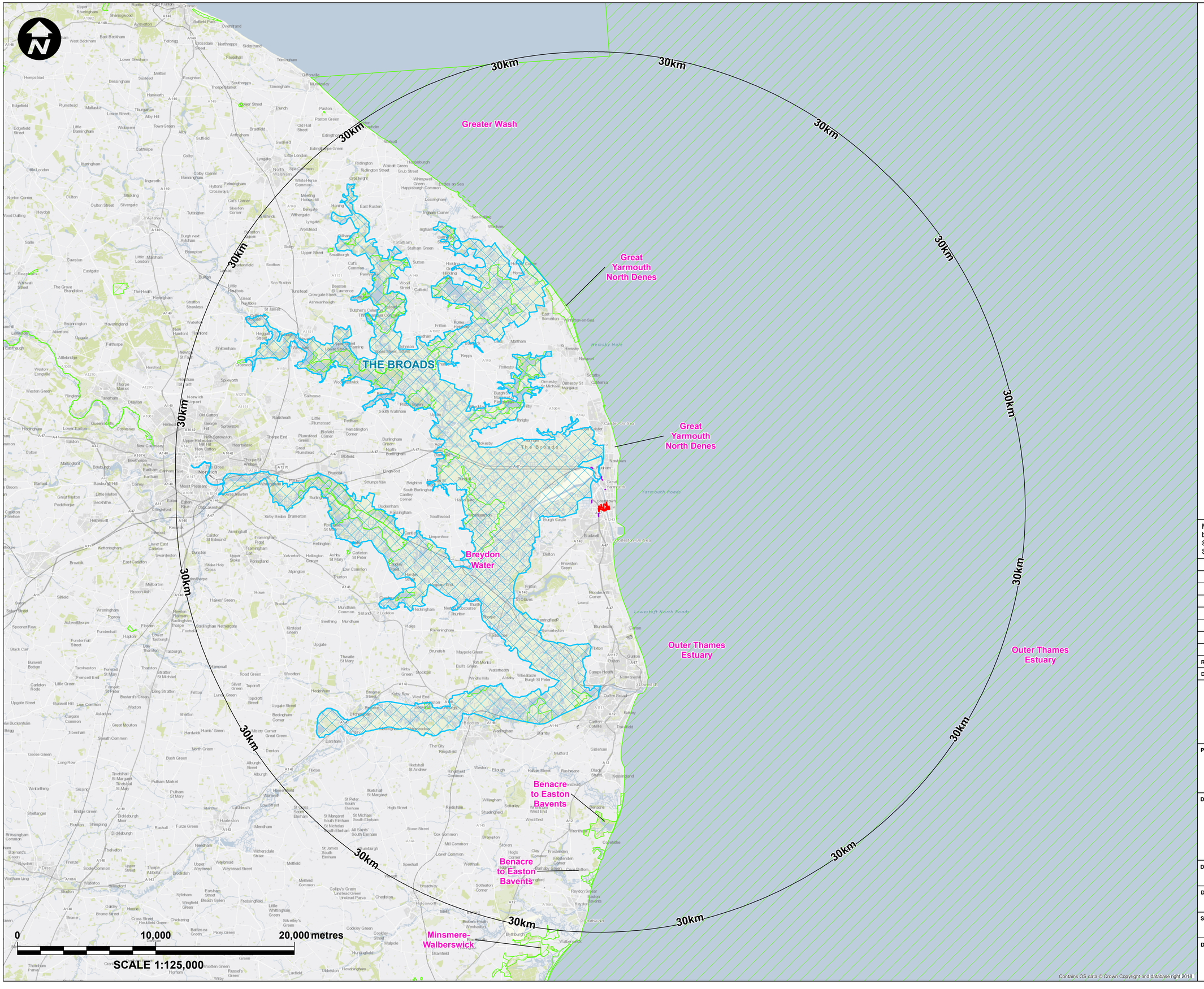
Ref 20: InfoCuria - Case-law of the Court of Justice (2018). Judgment of the Court (Seventh Chamber) - Case C-323/17.

Ref 21: InfoCuria - Case-law of the Court of Justice (2018). Judgment of the Court (Second Chamber) - Case C-164/17.

Ref 22: InfoCuria - Case-law of the Court of Justice (2018). Judgment of the Court (Second Chamber) - Case C-461/17.

Supporting Figures

Figures 1 and 2 are presented overleaf.



Key:

- Study Area - 30km
- Site of Special Scientific Interest (SSSI)
- National Park
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- Broadland Special Protection Area (SPA)
- Ramsar Site

REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

Norfolk County Council
Tom McCabe
Executive Director of
Community and Environmental Services
Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

6.11 - FIGURE 1 - EUROPEAN SITES WITHIN 30KM OF THE APPLICATION SITE (REGULATION 5(2)(g))

DRAWING STATUS

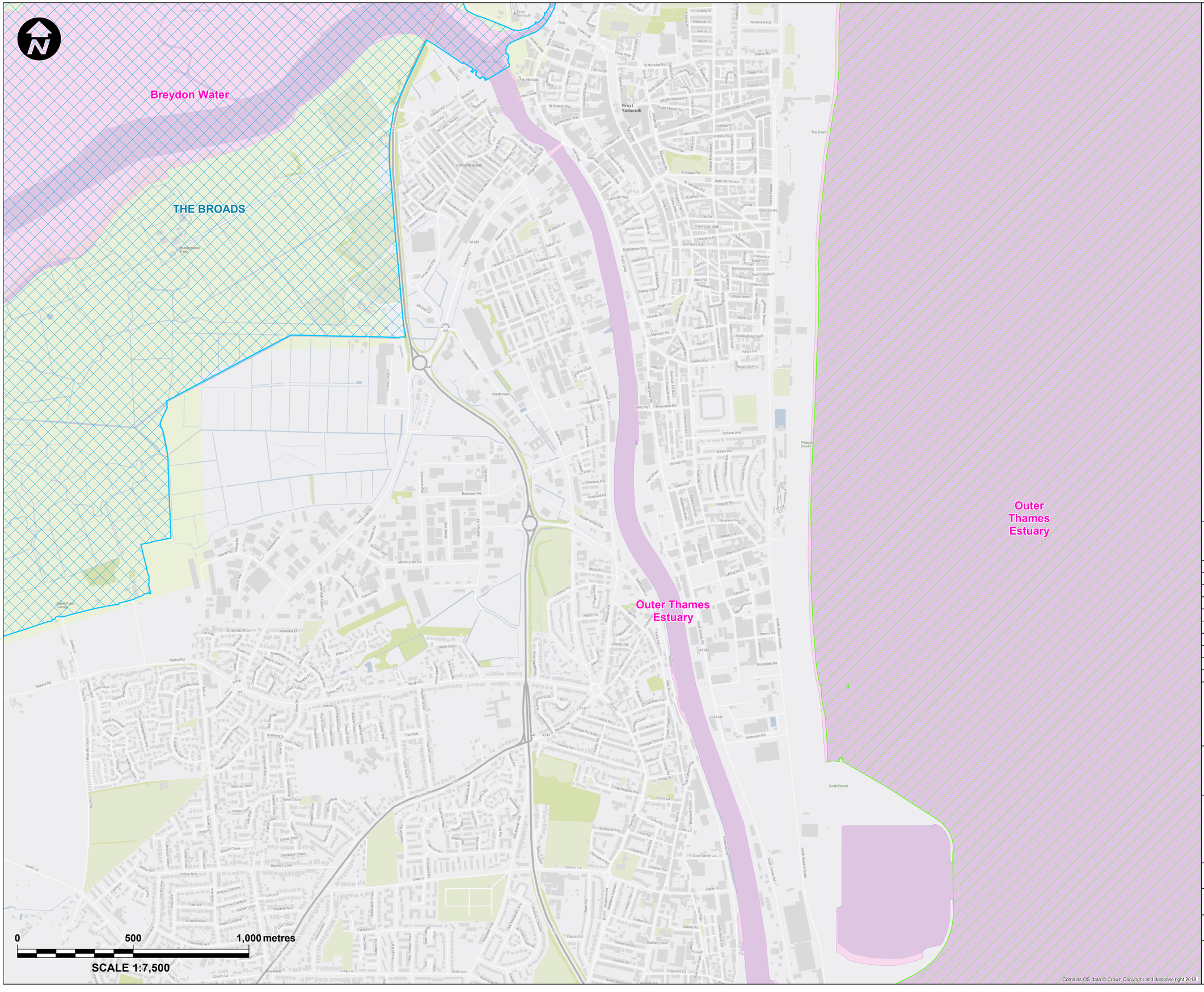
FOR DCO APPLICATION

DRAWN	CHECKED	APPROVED	AUTHORISED
PM	IE	HH	MK

SCALE @ A1 SIZE	DATE	REVISION
1:125,000	29/03/2019	P00

DRAWING NUMBER

GYTRC-WSP-EGN-XX-DR-EN-2145



Key:

- National Park
- Special Protection Area (SPA)

REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

Norfolk County Council
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Community and Environmental Services
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Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

6.11 - FIGURE 2 - EUROPEAN SITES OVERLAPPING OR ADJACENT TO THE PRINCIPAL APPLICATION SITE (REGULATION 5(2)(g))

DRAWING STATUS

FOR DCO APPLICATION

DRAWN	CHECKED	APPROVED	AUTHORISED
PM	IE	HH	MK

SCALE @ A1 SIZE	DATE	REVISION
1:7,500	29/03/2019	P00

DRAWING NUMBER

GYTRC-WSP-EGN-XX-DR-EN-2146