Great Yarmouth Third River Crossing

Application for Development Consent Order

Document 6.8: Assessment of Nature Conservation

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)(l).

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

CONTENTS PAGE No.

Tables

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.
NCC	Norfolk County Council (other than in its Highway Authority role as promoter of the Scheme).
Opening Span	Length of bridge structure that opens.
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.
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

Term	Definition
	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.

Acronyms

Abbreviation	Definition
CIEEM	Chartered Institute for Ecological and Environmental Management
CWS	County Wildlife Site
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
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
NSIP	Nationally Significant Infrastructure Project
Outline CoCP	Outline Code of Construction Practice
SAC	Special Areas of Conservation
SNCI	Sites of Nature Conservation Importance
SPA	Special Protection Area

Abbreviation	Definition
SPI	Species of Principal Importance
SSSI	Site of Special Scientific Interest

1 Introduction

1.1 Overview

1.1.1 This document has been prepared by WSP on behalf of Norfolk County Council (NCC) as the Applicant. It has been prepared in support of an application for a Development Consent Order (DCO) in accordance with the Planning Act 2008 and the Localism Act 2011.

1.1.2 The Scheme would provide a third crossing over the River Yare, creating a new, more direct link between the western and eastern parts of Great Yarmouth. Specifically, it would provide a connection between the Strategic Road Network (SRN) (A47) and the South Denes Business Park and Enterprise Zone, Great Yarmouth Energy Park and the Outer Harbour, all of which are located on the South Denes peninsula.

1.1.3 Regulation 5(2)(l) of the Infrastructure Planning Regulations 2009 (the "APFP Regulations") states that an application must be accompanied by:

"…where applicable, a plan with accompanying information identifying:

i) Any statutory or non-statutory sites or features of nature conservation such as sites of geological or landscape importance;

ii) Habitats of protected species, important habitats or other diversity features; and

iii) Water bodies in a river basin management plan.

Together with an assessment of any effects on such sites, features, habitats or bodies likely to be caused by the proposed development."

1.1.4 The likely effects of the construction and operation of the Scheme on the natural environment have been assessed as part of the Environmental Impact Assessment (EIA) and are set out in the Environmental Statement (ES) that accompanies the Application (document reference 6.1). This document refers to the following ES chapters, which assess impacts on natural features that are likely to be significant:

- Ecology (Chapter 8: Nature Conservation (document reference 6.1));
- Landscape (Chapter 10: Townscape and Visual (document reference 6.1));
- Water Environment (Chapter 11: Water Environment (document reference 6.1) and Appendix 11F Water Framework Directive (WFD) Assessment (document reference 6.2)); and

- Geology (Chapter 16: Geology and Soils (document reference 6.1)).

1.2 Terminology

1.2.1 The EIA process focuses upon 'significant impacts' on receptors, whereas the requirement of Regulation 5(2)(l) is to have regard to deal with 'any effects'.

1.2.2 The Highway Agency's Design Manual for Roads and Bridges (DMRB), Volume 11 (Ref 1.2) provides environmental assessment guidance for trunk roads. Within the EIA the guidance has been used for assigning value or importance to environmental features and determining the magnitude and significance of impacts.

1.2.3 The term 'natural features' is not typically used in the context of EIA and within this document it is used to refer to ecological, geological, landscape and hydrological features occurring naturally within the environment.

1.3 Scope of Assessment

Ecology

1.3.1 An EIA has been undertaken in respect of the Scheme, which included an Ecological Impact Assessment (EcIA) as presented in Chapter 8: Nature Conservation (document reference 6.1). The EcIA was undertaken in accordance with the EIA Regulations, DMRB guidance for Ecology and Nature Conservation, Interim Advice Note (IAN) 130/10 (Ref 1.2) and the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines titled 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine' (Ref 1.3).

1.3.2 The scope of the EcIA (and hence scope for the assessment of effects on natural features) was determined based on the natural features present within the Zone of Influence (ZoI) of the Scheme and the potential for effects resulting from the Proposed Scheme. Therefore, where it was established that no effects on ecological features were considered likely to occur (for example, based on distance from the Scheme, or lack of pathways for effects to occur), no further assessment was required.

1.3.3 Where potential effects on ecological features were identified, a detailed ecological impact assessment was carried out (as reported within Chapter 8: Nature Conservation of the ES (document reference 6.1)).

1.3.4 Within this document potential effects to all ecological features within the ZoI are considered in relation to those defined in Chapters 8, 10, 11 and 16 of the ES (document reference 6.1).

1.4 Zone of Influence

1.4.1 The ZoI is defined by the potential impacts arising from the Proposed Scheme or plan and the available pathways for those impacts to reach and affect natural features. The assessment relies upon a zone of influence, which is defined by having regard to the various development scenarios that have been considered.

1.4.2 Due to the variance in impacts and pathways to different Natural Features, the ZoI for each of the discipline specific assessments varies within the ES.

1.4.3 For the purpose of this document, the ZoI is assessed as not any less than the 'main study area' for all disciplines assessed in this chapter. For some assessments within this document the distance is less due to the limited pathways of effects. Each discipline-specific assessment area is presented in the relevant chapter of the ES.

2 Assessment of Effects on Natural Features

2.1 Overview

Statutory and Non-Statutory Sites or Features

2.1.1 This includes European protected sites, Sites of Special Scientific Interest (SSSI), statutory Local Nature Reserves (LNRs), and non-statutory County Wildlife Sites (CWS) that have potential connectivity with the Scheme.

2.1.2 Chapter 8: Nature Conservation defines two study areas relevant to statutory and non-statutory sites:

- Broad – 2 km from the Principal Application Site boundary (presented in Figure 8.1 of the ES (document reference 6.3)). This study area is used for a desk study of international and national statutory nature conservation designations, non-statutory nature conservation designations, and records of protected and notable habitats and species; and
- Extended – up to 30 km from the Principal Application Site boundary (presented in Figure 8.2 of the ES (document reference 6.3)). This study area has been used to extend the Broad Study Area where there are potential hydrological connections present to statutory designated sites. This definition is considered to encompass all relevant Special Protection Areas (SPAs) which are designated for bird interests. Birds are mobile in nature and certain SPA features may be found with regularity in areas outside of the site boundary but functionally linked to it. This also takes into account international nature conservation designations where bats are listed as a qualifying species which are again notably mobile.

2.1.3 The Habitat Regulations Assessment for the Scheme (document reference 6.11) considers effects on European sites within both the broad and extended Study Areas. Chapter 8: Nature Conservation (document reference 6.1) also includes statutory sites as sensitive receptors, specifically the Outer Thames Estuary Special Protection Area (SPA) and the Breydon Water SPA/Ramsar/SSSI which lie within the broad study area.

No relevant non-statutory sites within the broad study area have been identified for the purposes of the assessment.

Landscape Sites

2.1.4 A range of international and national designations exist in the UK including those for landscape in addition to nature conservation. The Scheme does not lie in any statutory site for landscape features. The Broads National Park lies approximately 7 km from the Scheme and is therefore within the

extended study area. This site is deemed not to have any connectivity with the Scheme, either hydrologically, or functionally through mobile features such as birds and bats.

2.1.5 Full details of Townscape and Visual assessment are presented in Chapter 10 of the ES (document reference 6.1).

Geological Sites

2.1.6 Areas containing features of designated regional importance, for example Regionally Important Geological and Geomorphological Sites (RIGS), are considered worthy of protection for their educational, research, historical or aesthetic importance.

2.1.7 Full details of the assessment on Geology and Soils receptors, including RIGS is presented in Chapter 16 of the ES (document reference 6.1). Chapter 16 identifies that within the defined study area of the assessment (1.5 km from the Principal Application Site boundary), no geological designated sites exist.

Water Bodies and Hydrological Features

2.1.8 The Water Framework Directive (WFD) (Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000) is a European Union directive which aims to bring about the effective co-ordination of water environment policy and regulation across Europe. The main aims of the legislation are to ensure that all surface water and groundwater reaches 'good' status (in terms of ecological and chemical quality and water quantity as appropriate). Under the Directive 'waterbodies' are defined as all ground and surface waters, including rivers, lakes, transitional waters and coastal waters (up to one nautical mile from shore).

2.1.9 A WFD Assessment (presented in Appendix 11F of the ES (document reference 6.2)) has been undertaken to assess the Scheme against the key objectives of the WFD. The approach to the assessment is based on EA guidance (Ref 2.1) and considers the potential impacts of the Scheme against the quality elements of the WFD waterbodies to determine whether the Scheme would affect the waterbody status and/or achieving the objectives stated in The River Basin Management Plan (RBMP). The assessment is informed by the assessment of effects of the Scheme on benthic and fish ecology and designated sites, as detailed in Chapter 8: Nature Conservation of the ES (document reference 6.1), as well as the aspects covered in Chapter 11: Water Environment of the ES (document reference 6.1).

2.1.10 Appendix 11F of the ES (document reference 6.2) summarises that the WFD waterbodies potentially affected by the Scheme were identified as the Bure &

Waveney & Yare & Lothing (transitional), Norfolk East (coastal) and Broadland Rivers Chalk & Crag (groundwater). Although the defined Study Area of the Scheme is located within the designated boundary of the Waveney Operational Catchment and the Bure Operational Catchment, it is not considered to form part of the actual catchment for these fresh waterbodies or associated tributaries. The Scheme is therefore not considered to have any impact on these catchments.

2.1.11 The assessment in Appendix 11F of the ES (document reference 6.2) has concluded that whilst the Scheme may have some localised effects on watercourses directly affected by the Scheme, and the local groundwater aquifer, these are insufficient to lead to any deterioration in status or ability to meet the objectives of the respective waterbodies. The Principal Application Site represents a very small proportion of the waterbody catchments and the works are relatively small in the context of the infrastructure and development already present. The potential impacts of the Scheme do not affect or alter the existing pressures on the waterbodies, which are largely due to flood and coastal protection; navigation, ports and harbours; continuous sewage discharge; poor nutrient management and groundwater abstractions.

2.1.12 Chapter 11: Road Drainage and Water Environment assesses impacts from the Scheme on waterbodies in EIA terms. The chapter concludes either neutral or slight impacts on the Rivers Bure, Yare, Breydon Water and other ditches and watercourses. The exception being changes to the hydrological / morhoplogical regime of the River Yare during operation which is assessed as being of moderate significance. This impact is further discussed in section 2.3 below.

Habitats and Species Features

2.1.13 This is interpreted to mean the habitats of species protected by the provisions of the Wildlife and Countryside Act (1981) as amended (i.e. species present in Schedule 1, Schedule 5 and Schedule 8 including those species that receive only partial protection), the Conservation of Habitats and Species Regulations (2010) (as amended) (i.e. species present in Schedule 2 and Schedule 5) and the Protection of Badgers Act (1992)). It also includes the habitats or species present in the list of species that are of principal importance for the purpose of conserving biodiversity as referred to in Section 41 of the Natural Environment and Rural Communities Act (2006).

2.1.14 The location of relevant species (and, by implication, their habitats) has been informed largely by undertaking standard biological data searches and site based specific surveys. Such searches and surveys are undertaken within an area of search that reflects the likelihood of particular biodiversity features

to: (a) be present; and (b) be affected by a given process or development. A number of protected species are potentially present whose habitat lies within the Principal Application Site. Full details are provided in the Chapter 8: Nature Conservation of the ES (document reference 6.1).

2.1.15 The identified sensitive receptors which have been assessed in Chapter 8: Nature Conservation are as follows:

- Statutory Sites: Outer Thames Estuary SPA and Breydon Water SPA/Ramsar/SSSI;
- Benthic ecology and fish;
- Water voles;
- Bats; and
- Breeding birds.

2.2 Assessment

Nature Conservation Features

2.2.1 Without mitigation, the construction and operation of the Scheme have the potential to result in adverse effects on natural features through the loss, damage or degradation of natural features.

2.2.2 The potential impacts that could result in effects to nature conservation features are summarised below.

Construction

- Killing, injuring and disturbance of protected species during construction;
- Temporary reduction in water quality through sedimentation caused by construction works within the River Yare, with consequent effects upon habitats, aquatic species and conservation designations;
- Contamination of watercourses through accidental spillage of fuels or chemicals, or as a result of mobilisation of existing ground contamination with consequent effects upon aquatic habitats, aquatic species and conservation designations;
- Potential contamination of nearby habitats, watercourses and designated sites as a result of a reduction in air quality (including construction related dust);
- Disturbance effects of noise and vibration as a result of construction activities;

- The works could disturb foraging and commuting bats using affected habitats. This is likely to be a minor effect on bats as the works are of temporary duration and bat activity is low throughout the area of works; and
- Lighting used during nights works (if required) could disturb bats or prevent them from using, or cause severance of, regular commuting routes or foraging areas.

Operation

- Fragmentation of retained habitats and/or severance of wildlife corridors, foraging routes or territories;
- Contamination of watercourses and/or waterbodies associated with road related run-off. Consequent effects upon aquatic habitats aquatic species and conservation designations;
- Disturbance of nocturnal animals, such as bats, where road lighting introduces a new light source; and
- Disturbance of wildlife as a result of increased noise and vibration.

2.2.3 Table 2.1: Summary of Effects on Ecological Features below summarises the nature conservation features identified together with an identification of the likely effect(s), both without and with the implementation of mitigation.

Water Environment Features

2.2.4 As discussed in section 2.1 above, a single impact of moderate significance is concluded in Chapter 11: Road Drainage and water Environment. This concerns alternations to the tidal / hydromorphological regime of the river Yare during the Schemes operation as a result of processes associated with channel modifications and in-channel structures.

2.2.5 Table 2.2 summarises this water environment feature together with an identification of the likely effect(s), both without and with the implementation of mitigation. For the purposes of this summary, the remaining assessments of water environment features are not presented and can be found in Chapter 11: Road Drainage and Water Environment.

2.3 Mitigation

2.3.1 Within the context of the assessment, mitigation is one of a hierarchy of measures that are undertaken to prevent or reduce adverse impacts as follows:

a) Avoidance and prevention: measures taken to avoid or prevent adverse effects, for example, scheme layout and the timing of site works;

b) Reduction and mitigation: measures taken to reduce adverse effects, for example, retaining walls and pollution interceptors; and

c) Compensation and offsetting: measures taken to offset residual adverse effects, i.e. those that cannot be entirely avoided or mitigated to the point that they become insignificant: for example, habitat creation or enhancement.

2.3.2 A range of mitigation measures has been identified in order to address the effects on natural features identified in each topic – all of which are presented in the relevant chapters of the ES (document reference 6.1).

2.3.3 Specific mitigation measures have been prescribed for all significant effects on natural features as explained in 2.1. For construction impacts, these measures are secured through the Outline CoCP (Document Reference 6.16).

Table 2.1: Summary of Effects on Ecological Features

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
Construction Phase					
Temporary reduction in water quality through sedimentation caused by construction works within the River Yare.	Statutory sites	• Temporary drainage arrangements to be constructed ahead of the construction works commencing to ensure that surface runoff will not directly enter existing water courses.	Negligible	n/a	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
	Benthic ecology and fish	• Temporary drainage arrangements to be constructed ahead of the construction works commencing to ensure that surface runoff will not directly enter existing water courses.	Negligible	n/a	Negligible
	Water voles	• Temporary drainage arrangements to be constructed ahead of the construction works commencing to ensure that surface runoff will not directly enter existing water courses.	Minor	n/a	Minor
Contamination of watercourses through accidental spillage of fuels or	Statutory sites	n/a	Negligible	n/a	Negligible
	Benthic ecology	n/a	Negligible	n/a	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
chemicals, or as a result of mobilisation of existing ground contamination.	and fish				
	Water voles	n/a	Minor	n/a	Minor
Potential contamination of nearby habitats, watercourses and designated sites as a result of a reduction in air quality (including construction related dust).	Statutory sites	n/a	Negligible	n/a	Negligible
	Benthic ecology and fish	n/a	Negligible	n/a	Negligible
	Water voles	n/a	Negligible	n/a	Negligible
Disturbance effects of noise and vibration as a result	Statutory sites	n/a	Negligible	n/a	Negligible
	Benthic	n/a	Negligible	n/a	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
of construction activities	ecology and fish				
	Water voles	n/a	Minor	n/a	Minor
	Bats	n/a	Negligible	n/a	Negligible
	Breeding birds	n/a	Negligible	n/a	Negligible
Killing, injuring and disturbance of protected species during construction.	Benthic ecology and fish	• Should any part of the River Yare need to be impounded during construction then fish translocation is to be carried out to remove fish from the impoundment and return them back to the river. The translocation of fish would be carried out by suitably trained fisheries scientists/aquatic ecologists. Any such operation will need careful co-ordination with the	Neutral	n/a	Neutral

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
		operation to set-up and drain the impoundment. Once the water within the impoundment has been lowered to a suitable level (approx. 0.5 m), fish would be translocated by netting. During the netting process the water level would be gradually and continuously reduced.			
	Water voles	• Pre-construction surveys for water voles to confirm continued presence (two surveys between April and October). • Protection of maintained water vole habitat alongside watercourses through construction buffering of 3-	Moderate	Licenced conservation protection works, enhancements, habitat permeability design, appropriate displacement where required.	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
		5m.			
	Breeding birds	• Provision for site clearance to take place outside the bird breeding season (March-September inclusive) or, if this is not possible, include measures, including ornithological survey as necessary, to ensure breeding birds remain unaffected by the de-vegetation and demolition activities. • De-vegetation and demolition activities to avoid disturbing black redstart during the breeding season to ensure legal compliance is maintained. If construction	Minor	Landscaping designed to promote foraging opportunities for black redstart.	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
		overlaps with the breeding season, then the actual nest sites will be identified before work commences and a suitable sized exclusion zone established around the nesting area.			
	Bats	• Provision for pre-construction emergence / re-entry survey for bats of 22 properties due for demolition where the potential for a roost has not unequivocally been ruled out (Appendix 8G of the ES (document reference 6.2)).	Minor	n/a	Minor
Lighting used during nights works (cause disturbance or	Bats	• Use of artificial lighting during construction to be kept to a minimum to minimise the risk	Negligible	n/a	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
severance of regular commuting routes or foraging areas).		of effects on foraging and commuting bats. Where temporary artificial lighting is used, only the immediate area of works shall be illuminated by using as sharp an angle of lighting as possible and avoiding light being directed at, or close to adjacent vegetation. Shields or hoods shall be used to control or restrict the area to be lit.			
Operational Phase					
Fragmentation of retained habitats and/or severance of wildlife corridors, foraging routes or	Statutory sites	n/a	Negligible	n/a	Negligible
	Benthic ecology and fish	n/a	Negligible	n/a	Negligible

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
territories.	Water voles	n/a	Negligible	n/a	Negligible
	Bats	n/a	Negligible	n/a	Negligible
	Breeding birds	n/a	Negligible	n/a	Negligible
Contamination of watercourses and/or waterbodies associated with road related run-off.	Statutory sites	n/a	Negligible	n/a	Negligible
	Benthic ecology and fish	n/a	Negligible	n/a	Negligible
	Water voles	n/a	Minor	n/a	Minor
Disturbance through noise and vibration	Statutory sites	n/a	Negligible	n/a	Negligible
	Benthic ecology and fish	n/a	Negligible	n/a	Negligible
	Water voles	n/a	Minor	n/a	Minor

Description of Effects	Receptor	Embedded Mitigation / CoCP Measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
	Breeding birds	n/a	Negligible	n/a	Negligible
Disturbance of nocturnal animals where road lighting introduces a new light source.	Bats	n/a	Negligible	n/a	Negligible

Table 2.2: Summary of Effects on Water Environment Features

Description of Effects	Receptor	Embedded mitigation / CoCP measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
Operation Phase					
Alterations to the tidal/hydromorpholo	River Yare	• The use of cofferdams to exclude work areas from the	Moderate	Engineering scour protection	Moderate

Description of Effects	Receptor	Embedded mitigation / CoCP measures	Significance and Nature of Effects Prior to Mitigation / Enhancement	Summary of Mitigation / Enhancement	Significance and Nature of Effects Following Mitigation / Enhancement (Residual
gical regime of the River Yare, such as changes to the tidal prism and erosion, deposition and channel migration processes associated with channel modifications and in-channel structures		main River Yare waterbody, thus reducing the risk of increased sediment loads or hazardous substances entering the main water flow • 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;		incorporated into the detailed design of the Scheme in order to reduce the impact of the local flow turbulence and associated scour.	

3 Conclusions

3.1.1 In conclusion, the assessment presented within this document has determined that there would be no residual effects on natural features as a result of the Scheme resulting from either construction or operation. The exception is a moderate adverse effect on the River Yare from alterations to the tidal/hydromorphological regime during the operation phase.

4 References

Ref 1.1: Department for Communities and Local Government (2013). Planning Act 2008: Application Form Guidance.

Ref 1.2: Highways Agency (2010). Interim Advice Note 130/10 Ecology and Nature Conservation: Criteria for Impact Assessment.

Ref 1.3: CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.

Ref 2.1: EA (2016 updated 2017). Water Framework Directive assessment: estuarine and coastal waters and EA (2016). Water Framework Directive risk assessment: how to assess the risk of your activity.